



“I Always Enjoyed Touching the Soil and Growing Things!” A Spatial Analysis of Youth Gardening in A Botanical Garden

"Eu sempre gostei de tocar o solo e plantar coisas!" Uma análise espacial da jardinagem juvenil em um jardim botânico

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Abstract

Through a spatial framing of learning and identity work in a youth gardening program in a Botanical Garden, I explore how youth come to see themselves in the program that they pass through and come to own through sustained engagement, next to how youth position themselves and others in such a place. Through stories of two youths' forms of engagement with nature and reflections about gardening and science, I show in what ways such a spatial framing enhances our understanding of the role of botanical gardens as a science-rich informal educational venue and key resource for environmental education in a global world.

Keywords: botanical Garden; adolescence; space theory; learning; identity development.

Resumo

A partir de uma abordagem espacial da aprendizagem e da identidade em um programa de jardinagem juvenil em um Jardim Botânico, exploro como os jovens passam a se verem no programa de que participam e passam a terem um engajamento sustentável, bem como os jovens posicionam eles mesmos e os outros em tal lugar. Através de duas histórias de formas de envolvimento com a natureza e reflexões sobre jardinagem e ciência, mostro de que maneira uma abordagem espacial melhora nossa compreensão do papel dos jardins botânicos como um espaço educativo informal rico em ciência e um recurso fundamental para a educação ambiental em um mundo global.

Palavras-chave: jardim botânico; adolescência; teoria do espaço; aprendizagem; desenvolvimento da identidade.

Introduction

Joe's quote in the title underlines well his embodied vision of a garden as “a place to live” and take care of. He was able to develop a positive disposition to nature and appreciate “the invisible connection, and interdependence, between humans and the earth” (GAYLIE, 2009, p.38). By listening to youth in this paper, I offer a more complex vision of what engagement with nature that youth value might look like today and discuss its implications for environmental education. Given the paper's focus on learning in a botanical garden, I add to an emergent discourse on gardens as key venues supportive of environmental education for sustainable development, social justice, democracy and citizenship education (BARABÉ; CUERRIER; QUILICHINI, 2012; MORGAN; HAMILTON, 2006). Theoretically, the analysis is grounded in studies of landscape ecologies and cultural geography, which imply an examination of spatial patterns over time and reflexivity among youth participants in a summer gardening program inside a botanical garden (BRANDT, 2013). Grounding the study conceptually in the literature on youth voice and spatiality, I examine how youth see themselves in specific spaces that they pass through and come to own through sustained engagement, next to how youth position themselves and others in such spaces. I am concerned with the ways such a spatial framing of learning and identity work in a botanical garden enhances our understanding of their role as science-rich informal environmental educational venues.

The Role of Botanical Gardens as Informal Science Venues

There are over 2,000 botanic gardens in the world making up for a collection of a vast diversity of plant species outside nature (KNEEBONE, 2007; WILLISON, 1994). Botanical gardens are also “vibrant sites for learning” having a long history of involvement in biological and medical training, with educational outreach playing a key role today. They contribute in important ways to urban children's and youths' development of positive dispositions to nature while also introducing them to plant biodiversity, horticulture, landscape design and management, next to plant preservation and plant research (WILLISON, 1994). Botanical gardens are designed educational settings supportive of informal science learning of a vast and diverse audience in terms of age, socioeconomic status, culture and race (BELL et al., 2009). They are key to teaching plant knowledge (SANDERS, 2007; TUNNICLIFFE, 2001) and through experiential activities support the development of observational skills and an appreciation of noticing and talking about plants that resembles botanists' discourses and practices (EBERBACH; CROWLEY, 2005).

As venues for science and environmental education, however, botanical gardens also struggle with multiple and often conflicting goals. On the one hand, botanical gardens have a mandate to preserve plant collections for educational and scientific purposes and as such need to measure up to a triple mandate of plant preservation, plant research and the maintenance of living plant collections (BARABÉ; CUERRIER; QUILICHINI, 2012). As a historical account of the changing roles of botanical gardens over time suggests (ALLAIN,

2012; BARABÉ; CUERRIER; QUILICHINI, 2012), its challenge as an institution is partly tied to its ever increasing marketing demands to bring visitors in through special exhibits and events. Within that complex landscape and tension of serving the public good yet also responding well to the scientific community, one can find educational programs such as the youth garden program at issue here. That program, in existence since 1938, was modeled after the first youth gardening program initiated in 1914 at the Brooklyn Children's Garden in New York (MACLIN; HYLAND, 1999). Both share a commitment to making nature accessible to city dwellers and offer opportunities to youth to be engaged with nature over sustained periods of time, as youth gardeners and later instructors and leaders within the same programs (MYRE; ARNONE, 2006). The gardening program is also continuously evolving and has been enriched through new initiatives such as an intergenerational gardening component, the reaching out to and integration of diverse learners, integration of arts with science, and an exploration of science careers tied to gardening, to name a few. The program is well aligned with an urban environmental education perspective in that it builds upon the following dimensions: "Natural history and science education, youth and community development, environmental justice and activism, human health and urban farming, environmental stewardship and civic ecology" and contributes to "the individual, social, and ecological well-being in cities" (KUDRYAVTSEV; KRASNY, 2012, p.2).

To fully grasp these dimensions of gardening and how they may be nurtured in unique ways in a program situated in a botanical garden rather than on school grounds or in the community, I turned to emergent theories of place studies (SOMMERVILLE; POWER; DECARTERET, 2009) and spatial analysis (MASSEY, 2005). I was guided by the notion of "space as the product of interrelations" at many levels, including the global and the local (MASSEY, 2005, p.9). I also took space to stand for "a sphere of the possibility of the existence of multiplicity" implying multiple ways of acting, being, and becoming, attesting to plurality at many levels. I conceived of "space as always under construction," as dynamic and continuously in the making, rather than being bounded in terms of place or time and as a space fuzzy in terms of its borders and as constituted by meanings derived from multiple social worlds over time, and grounded historically in "stories-so-far" (MASSEY, 2005, p.9). I am interested in the *relationship* between youth and gardening, and how youths' lives fit into the botanical garden, while I am simultaneously attending to the ways their spatial ownership constituted their learning and identity work and as spatially grounded in multiple worlds and inherently diverse, and as such, always under construction.

Method

I draw upon data collected in the context of a larger multi-sited ethnography in 2005 (RAHM, 2010). The *Youth Garden* at the Montreal Botanical Garden had 60 gardening plots reserved to youth ranging in age from 12 to 16 years. While the program met for eight consecutive weeks for two afternoons a week during the summer, a planting session of seeds in the greenhouse in the winter, as well as two one-day weekend planting sessions in the spring, and a couple of harvesting sessions in the fall, ending with a vegetable rally and also award ceremony, made up the program of the youth garden.

The two stories about space making that I developed for this paper draw upon data gathered through semi-structured interviews of fourteen youth (10 females, 4 males) and

a selection of observational notes and video recordings of the same fourteen youth engaged in gardening. The two stories give voice to the patterns that emerged through the pursuit of an inductive analysis of the interviews, video observations, and fieldnotes, and can be thought of as a bricolage of these multiple data sets and interpretations (RAHM, 2010). Note that pseudonyms are used for all participants in the study.

Two Stories of Youth Gardening and Space Making

Story 1: The Making of Space or How Youth Lived Gardening

The botanical garden was understood spatially as making the growth of biological vegetables possible, in part because of youths' efforts and their level of engagement and emergent relationship with the garden, nature and the soil:

What I like the most is to take care of my garden because I harvest many veggies, it's fun to take all these vegetables home to your mother, she is happy and proud of you. That's great! (Angelo)

We know these are non-treated vegetables that are biological, one is happy to eat them since one knows that they will not be bad for our health, it's also great to have our own vegetables... I think one is proud when one thinks about all the things we did to make them grow. We put lots of effort into it and so we are very proud and happy to eat something we grew and harvested ourselves, and that is biological too. (Irina)

I like harvesting the most. Because I am more confident in myself because I worked hard and then, I can see myself how that time and energy that I put in, even if it was hard for me, then you see it led to the growth of good vegetables that we then eat at home... (Leah)

The harvest itself reinforced youths' assessment of selves as agents of change in the garden and as capable of producing goods they valued. For some, gardening also became a means to reposition themselves in terms of their food practices and to engage in the consumption of biological goods. Youth appreciated the taste of biological goods but also its health implications that were discussed in the context of a debate and exploration of genetically engineered vegetables in a structured activity in the garden among the whole group.

Growth in the garden was possible due to the appropriation of gardening practices through guided apprenticeship learning and intent observation (RAHM, 2010), as the following excerpt illustrates, where Angela (youth) asks Megan (instructor) for help in mastering her dying cucumber plant:

- Angela Megan, do you have those kinds of scissors, like
Megan ... they are called pruning scissors (passes them to her)
Angela (Angela tries to unfold the scissors which are still held together by a security lock; other youth come and observe)
Megan Do you know how to do it? (pointing to plant and offering help to identify where to cut; watches Angela as she struggles with scissors)
Angela I don't know how to open them (passes scissors on to Megan)
Megan You hold them like that (holding scissors in her hands and pushing lock to side) and then you let that go to the side (now bends down to be close to plant). We cut the white stuff (pulls some of the white stuff up that dried out to see

where to cut, but then let's Angela identify the branch she wants to cut)

As shown, youth were in charge of the garden with instructors guiding them in tool use or suggesting ways to beautify their gardens (leaving it up to Angela to identify and cut branches she decided were no longer worth keeping). Other youth also listened in on the pedagogical conversation that emerged, to learn from it for their own good. They recognized it as a key moment that may serve them well later in their own gardening practice. It offers a vivid illustration of the flow and spatial arrangement of work in the garden, mediated by respectful relationships among youth and adults. Gardening became also intertwined spatially with relations beyond that particular location:

[I like harvesting] because it will help my mother because she is going back to school and so she won't work and she won't have much money, but I will bring home some vegetables so that will help, she will have less to buy in the store and in the store it costs so much, and then there are all those genetically modified veggies too and that's not good for the health. So we share and eat the veggies I bring home and sometimes, when I have a lot, like when we had a lot of salads, my mother gave some to friends, my cousins, and we ate some too. (Kamila)

Kamila, a newcomer to the program that year reached out to her enlarged family by sharing her harvest with them. It led to the positioning of herself as an agent of family well-being since she contributes healthy food to the table and off-sets costs tied to healthy food practices her family struggles with. It speaks to the fact that "how a space is seen, experienced, and understood depends on the positionality of people relative to that space" (MOJE, 2004, p.15). Kamila who struggled to keep up with weeds initially as a newcomer to gardening, became a different person over time, and like old-timers, took much pride in her harvest that reached many lives. She came to re-position herself as a capable agent of change within the garden but also her larger family. As shown, a complex interplay of different positions and implied perceptions by youth, animators, directors yet also parents constitute space making and shaped how the space was lived and perceived over time.

Space making also entails imaginary travel across space and the weaving together of narratives otherwise unrelated (MASSEY, 2005), as the following exchange illustrates with two youth discussing their success in growing basil:

- Manuel Hey, my basil plant is pretty big when compared with the others, it's because I take those off (points to leaves and flowers on top)
- Maria It's not just because of that
- Manuel But yes
- Maria Well maybe, but it's not just because of that. No, I think by taking off the flowers the leaves will get bigger
- Manuel But it's the leaves underneath too. I remember, in my ecology class I learned that leaves that get more light, get bigger, and the others, in the dark, below, grow less.

Manuel positions himself as the successful gardener and gains further power by weaving school science into the argument as he refers to a spatial link to "ecology class." It is in this manner that the local and global constitute learning and identity work tied to space making. Who the youth became locally was tied to a larger spatial network that they navigated and that became a pertinent resource here. Local space-making was hybrid in that it entailed the mobilization of ways of knowing and being beyond the

garden. It also entailed synergy among multiple actors and creatures as the following exchange illustrates:

Angela A toad!
Jrene Wow, he is beautiful! (toad was constantly moving in hands of Angela)
Angela Yes, he is beautiful!
Jrene He is big too!
Angela Yes, very big.

Angela was at ease with toads she had come in contact with over time and showed much affection for the creatures, not something all participants could measure up to initially. Later, Phil discovered another toad in his plot who was "just grey" while Susan's was covered with dots, leading to a long discussion about species identification. The spatial landscape of the garden program was clearly constantly evolving and remade through interactions, positioning and mobilization of youths' histories and larger spatial worlds in and beyond the garden program.

Story 2. Spatial Travel within, between and beyond Gardening and Science

Building on the latter point, MASSEY (2005) reminds us that "in spatial configurations, otherwise unconnected narratives may be brought into contact, or previously connected ones may be wrenched apart. There is always an element of chaos" (MASSEY, 2005, p.111). This became evident as we explored participant's narratives of gardening and science during informal conversations and interviews. For youth, these two narratives overlapped little or even stood in contradiction from one another, in part, since gardening was tied to environmental and social activism, while science was understood as distant and separate from their lives:

Claudie I was always interested in working with animals, the environment, things like that. But gardening made us probably somewhat more ecologically aware, a little bit
Jrene Do you also want to do something in that discipline one day, in science?
Claudie No, science does not really interest me. No, I like to work in the humanities, social sciences, with people, but I am not sure yet exactly what I will do.
Jrene So you can be very environmentally conscious without necessarily wanting to become a scientist?
Claudie Yes, that's it! You're not obligated to be interested in science to be preoccupied by the environment, by what's around you, the planet and all.
Anne I just love being in the garden, the atmosphere, to be in nature too. And I guess all the others who are here are like that too, they're calm, they like nature.
Claudie My parents are very ecologically conscious.
Anne Not mine, I learned this all pretty much on my own.
Jrene Did you learn about the environment in school?
Anne No, not at all, the school we go to is not very eco-friendly at all. There is garbage everywhere. But I guess, it started with a teacher who was very pro-environment.

Claudie who grew up in an ecologically conscious family makes an important distinction here between science and being an environmental activist. Anne refers to a teacher as having inspired her to take on the position of an activist. Both hint at the manner gardening

made them reconnect with each other and their environment in new ways. Many youth gardeners experienced a repositioning of selves and what Gaylie refers to as “a cultural shift that places the earth at the centre of life and learning, where ‘worldviews and lifestyles are restructured ecologically’ “(SHIVA, 2005: 62; cited in GAYLIE, 2009, p.25).

Environmental education and science education are often treated as distinct areas in the social sciences, a gap possibly closing given a shared concern for the sustainability of our planet and need for activism (WALS et al., 2013). At the same time, bringing the two fields together might be more challenging than anticipated if we take serious further distinctions Claudie invoked that day:

Yes, it’s just like you don’t necessarily need to know how that works, or why this is important or that, well speaking for myself, I am interested in knowing why, but you understand what I mean, you are not obligated to be interested in science to be preoccupied about what is around you and the planet and all. I mean, it [science and the environmental activism] are related, but it’s more concrete than learning about the periodic table and things like that.

The girls’ reflections around science attest to a chaos and contradiction that marked their lives. Their exchange also hints at the manner a garden is not a space defined by its locality and to teach about science, ecology or eco-centered living, but instead, a space constantly evolving with learning opportunities that emerge from what students bring with them. Learning also implies reflexivity about ones’ own position and gaze in space, and as such is about “being in the world” (BRANDT, 2013, p. 275). Maybe for this reason, Anne and Claudie developed a strong sense of stewardship and care for the environment, a position others invoked too as they described how gardening made them feel as a person:

I wish we could live in a world that is less polluted, ...where people help each other, where there are more nice people and less vicious people. (Jake)

Gardening helps me relax. When we come here, say for instance we are mad or have problems at home, when we come here it helps us calm down, we chat some with everybody, with the instructors, it’s great! (Sue)

I find gardening helps me relax. Sometimes at school, you are all stressed, at work also, here it makes for something that is pleasant and fun to do during the summer and it helps you relax. (Chris)

Clearly, learning about our interactions with the land and the impact of previous learning on the land constitutes in important ways the spatiality of gardening which then led some youth towards activism. Claudie and Anne talked of pursuing community gardening in their near future while others mentioned careers in horticulture and gardening at home.

Discussion

Does space matter? A spatial analysis as pursued here clearly moves us beyond a study of learning outcomes towards a study of learning and identity in practice yet also as situated in a larger spatial network of practices. As such, a spatial analysis not only gets us places but also helps us question long-held dichotomies in the field, like the marginalization of

environmental education and the activist movement from science, or the distinction between formal and informal science. The study also shows how botanical gardens and youth garden programs within them are a perfect venue to make an environmental activist stance more widely accessible to city dwellers through sustained engagement (KUDRYAVTSEV; KRASNY, 2012); a stance that sets them apart from garden programs in other locations in that they are already committed philosophically to sustainability education. Through gardening, youth became aware of "earth democracy" (SHIVA, 2005), and experienced first-hand in what ways their maintaining of a space in the botanical garden can become an example of a shared resource for the community, embodied by care, cooperation and compassion.

Yet, the study also hints at ways outreach efforts of botanical gardens may change scale to measure up to place studies for a global world by soliciting new and innovative collaborations with institutions of higher education for instance and by enlarging their spatial network from biophilia to videophilia (WALS et al., 2013). To do so, it would be interesting to give voice to youth and position them as social actors and contributors to the development of timely environmental activism programming in botanical gardens for the next generation.

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References

- ALAIN, Y.-M. **Une histoire des jardins botaniques**: Entre science et art paysager. Versailles, France: Éditions Quae, 2012.
- BARABÉ, D.; CUERRIER, A.; QUILICHININ, A. **Les jardins botaniques**: entre science et commercialization. *Natures, Sciences, Sociétés*, vol.20, p.334-342, 2012.
- BELL, P.; LEWENSTEIN, B.; SHOUSE, A.W.; FEDER, M.A. (Eds.) **Learning science in informal environments**: People, places, and pursuits. Washington, DC: The National Academies Press, 2009.
- BRANDT, C. Landscapes as contexts for learning. In: STEVENSON, R. B.; BRODY, M.; DILLON, J.; WALS, E. J. (2013). **International Handbook of research on environmental education**. New York, NY: Routledge, 2013. p.275-283.
- EBERBACH, C.; CROWLEY, K. From living to virtual: Learning from museum objects. *Curator*, vol.48, n.3, p.317-339, 2005.
- GAYLIE, V. **The learning garden**: Ecology, teaching, and transformation. New York, NY: Peter Lang, 2009.
- KNEEBONE, S. **A global snapshot of botanic garden education provision – 2006**. Report on BGCI's survey of botanic garden education provision, 2007. Available at <http://www.bgci.org/education/global_snapshot_edu_provis>. Accessed 3/2/2013.

- KUDRYAVTSEV A.; KRASNY M.E. **Urban environmental education: preliminary literature review**. Cornell University Civic Ecology Lab, Ithaca, NY, 2012. Available at: <<http://civicecology.org/publications.php#>>. Accessed 10/10/2013.
- MACLIN, T.; HYLAND B. The children's garden at Brooklyn Botanic Garden : A lasting harvest. **Public Garden**, vol.14, n.3, p.12-14, 1999.
- MASSEY, D. **For space**. Thousand Oakes, CA: Sage, 2005.
- MOJE, E. B. Powerful spaces: Tracing the out-of-school literacy spaces of Latino/a youth. In: LEANDER, K.M.; SHEEHY, M. (Eds.), **Spatializing literacy research and practice**. New York, NY: Peter Lang, 2004. p.15-38.
- MORGAN, S.C.; HAMILTON, S.L. Projet Green Reach at Brooklyn Botanic Garden: A case study of the summer program. The nature of success: Success for nature, 2006. In 6th International Congress on Education in Botanic Gardens. **Proceedings...** Available at <<http://www.bgci.org/education/1588/>>. Accessed 10/02/2008.
- MYRE, S.; ARNONE, E. Connecting with teens: Strategies for engaging youth in botanic gardens. The Nature of Success: Success for Nature. In: 6th International Congress on Education in Botanic Gardens, 2006. **Proceedings...** Available at <<http://www.bgci.org/education/1588/>>. Accessed 10/02/2008.
- RAHM, J. **Science in the making at the margin**: A multisited ethnography of learning and becoming in an afterschool program, a garden and a Math and Science Upward Bound Program. Rotterdam, Netherlands: Sense Publishers, 2010.
- SANDERS, D. Making public the private life of plants: The contribution of informal learning environments. **International Journal of Science Education**, vol.29, n.10, p.1209-28, 2007.
- SHIVA, V. **Earth democracy**: Justice, sustainability, and peace. Cambridge, MA: South End Press, 2005.
- SOMMERVILLE, M.; POWER, K.; DECARTERET, P. (Eds.). **Landscapes and learning**: Place studies for a global world. Rotterdam, Netherlands: Sense Publishers, 2009.
- TUNNICLIFFE, S. Talking about plants-comments of primary school groups looking at plant exhibits in a botanical garden. **Journal of Biological Education**, vol.36, n.1, p.27-34, 2001.
- WALS, A.E.J.; STEVENSON, R.B.; BRODY, M.; DILLON, J. Tentative directions for environmental education research in uncertain times. In: STEVENSON, R.B. BRODY, M., DILLON, J.; WALS, E.J. **International Handbook of research on environmental education**. New York, NY: Routledge, 2013. p.542-547.
- WILLISON, J. **Environmental education in botanic gardens, 1994**. Available at <http://www.bgci.org/files/Worldwide/Education/EE_guidelines/ee_guidelines_english.pdf>. Accessed 2/03/2013.

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