MetaboliCity: How can metadesign support the cultivation of place in the city?

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Abstract

The sustainability agenda has inspired a growing interest and re-valuing of localized food production in cities such as London. This paper presents the findings from a one-year (October 2008 – October 2009) participatory design research project entitled 'MetaboliCity' (www.metabolicity.com). The project explored how designers can intervene sensitively within local urban food growing communities by providing a design thinking and crafting to help to sustain these initiatives and catalyse larger positive changes in the surrounding environment. The project was based at Central St. Martins in London, UK, facilitated by the design research group Loop.pH and funded by the Audi Design Foundation.

The aim of the project was to create, test and adapt tools and services for collaborative food growing in challenging city spaces. These included community workshops, urban grow-kits and an online collaborative network. A team of designers guided local participants through a set of envisioning, crafting, planting and documenting processes. This paper will introduce the project's socio-ecological approach to revaluing 'awkward spaces' (Jones, 2007) in the city to create places that are at the heart of local communities.

Metabolicity is the first applied design research project to test and adapt collaborative tools and processes that were developed as a part of the 'Benchmarking Synergy Levels within Metadesign' project. This project was funded by the Arts and Humanities Research Council (AHRC) and the Engineering and Physical Sciences Research Council (EPSRC) and based at Goldsmiths, University of London (2005-2008). Metadesign is a systemic, inter-disciplinary and emergent design process aimed at transcending existing specialist boundaries to create more joined-up solutions for the benefit of society and nature.

Keywords: Metadesign, 'knowledge ecology', localized food production, urban grow- kit, participatory design research, urban resilience

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Living in the city

This research was driven by the need to radically and creatively re-envision how we use and experience space in the built environment. It is predicted that by the year 2050, 75% of the world's population will be living in cities (Burnett and Sudjii, 2007). The MetaboliCity project takes place in London, at a time when the population of the city is approximately 7,500,000

(http://www.london.gov.uk, 2010). As our cities continue to grow, there is an increasing demand on infrastructures, resources and public and private space. We also face a new found uncertainty as to how we will be living in cities in light of emerging global issues such as climate change and economic instability. At a time when we are beginning to witness a collective change in the public's awareness of issues such as food production, energy providers and transport, how can design think ahead and think inventively about how we want our 'creative cities' (Landry, 2000) of the future to be?

The metabolic city

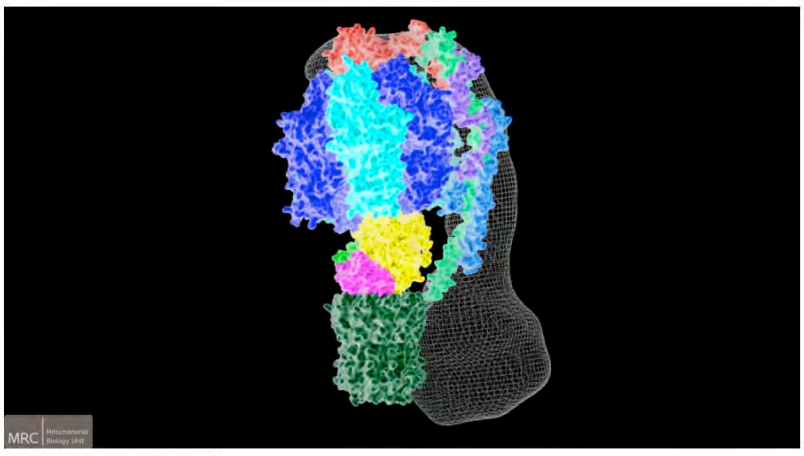
This project approached the city as a complex and emergent living system where growth patterns and life cycles are an important part. One of the key figures of the 1960's Metabolism movement in utopian architecture, Kisho Kurokawa, described the city as a living organism, an evolving system that is being produced from the bottom up, rather than from the top down. Each part of the city has its functions and sense of locality, and it integrates the whole in its own terms (Kurokawa, 1992). MetaboliCity is the name for a vision of a city that metabolizes its resources and waste to supply its inhabitants with all the nourishment they need and more. The Metabolists worked with the idea of the 'city as process', stating that

'We regard human society as a vital process – a continuous development from nebula. The reason why we use such a biological word, the metabolism, is that we believe design and technology should be denotation of human vitality.' (Lin, 2007)

These architects rejected the modernist view of the city as a mechanical object viewing it instead as an organic process. This challenged the traditional notion of the master plan as a fixed and predetermined construct. In a recent article in 'Seed Magazine' exploring the notion of 'urban resilience', the metabolic flows of the city is made more tangible

'A city's lifeblood is a continuous flow of stuff—fuel, consumer products, people, and services that enter it either actively, through human effort, or passively through natural processes like solar radiation, atmospheric currents, and precipitation.' (Montenegro, 2010. p2)

Design is often planned, predetermined and fixed, whereas biology is evolutionary, adaptive and emergent. MetaboliCity was the outcome of a two-year (2007-2009) design and science collaboration between Loop.pH and the Nobel-winning molecular biologist Sir John Walker. Sir John Walker is responsible for the discovery of the rotary mechanism of ATP (adenosine triphosphate) that powers all biological processes, and is fundamental to all life. (See Fig. 1) Energy from the sun captured by plants through photosynthesis becomes the fuel for our metabolism. The MetaboliCity design team questioned whether a more synergistic relationship between structure and energy could be applied to urban design to create a connectivity and biointegration between the built environment and the surrounding ecosystems.



The mitochondrial F-ATP synthase complex

Figure 1. An image of ATP (adenosine triphosphate)

A socio-ecological approach to place-making

The MetaboliCity project advocates a joined-up approach to mapping the social activities that take place in the city and the ecological cycles that are inherent in the urban environment. This approach is guided by underlying principles from resilience theory that highlights the interrelationship between people and their environment. These principles state that 'humans and nature are strongly coupled and co-evolving, and should therefore be conceived of as one "socialecological" system.' (Holling cited in Montenegro, 2010, p1). Rather than researching the social context and the environmental context as separate entities, the project focused on the relationships between the collaborative aspect of the food growing activities and these small pockets of urban ecology as one whole. Could there be a direct relationship between urban community collaboration and the cultivation of green places? Ecologists have discovered that 'Shanghai…had just 900 hectares of green space in 1975. By 2005 it had 27,000. So despite the city's tremendous growth, its proportion of urban nature is actually increasing.' (Montenegro, 2010). For this city, this indicates a positive relationship between a growing urban population and the growth of urban ecological habitats.

The city and an emergent role for design

The co-design process was intended to encourage people to take ownership and pride in their local environment. We are beginning to experience a change in the way we regard the spaces of our everyday environment. 'MetaboliCity' explored the potential use of challenging spaces in the city for localised food production. There are various other examples of public and private space in the city being used to seed local, bottom-up, social activities. In the book 'Architecture and Participation', the architect and theorist Doina Petrescu refers to these activities as 'discrete spatial interventions' that 'open up unexpected possibilities of thinking and acting in the public realm.' (Petrescu, 2002, p85). This highlights a potential new role for design in the city.

Designers as urban interventionists

The design critic John Thackara notes how 'Too much of the world is just too designed. Too much control over networks is detrimental to the social innovation upon which our future fortunes depend.' (Thackara, 2005, p94) In each of our cases, the amateur cultures of food production are self-initiated, emerging in between that which is designed and functional. Thackara discusses the importance of protecting design-free zones in the city where these bottom-up initiatives may flourish.

'design-free situations, or free zones, in which planning and other top-down, outside-in improvements will be kept at bay to make space for the kinds of experimentation that can emerge, unplanned and unexpected, from wild, design-free ground.' (Thackara, 2005, p94)

The role of the designer is to become a guardian of sorts within an urban context and to nurture spaces that are relatively design-free. Design as a final product is replaced by design as an ongoing forming process with emergent and partially unpredictable outcomes. These design-free spaces in turn welcome 'informal teams, self-managed organizations, small institutions, alternative spaces and individuals themselves' to take part in new creative practices. (Petrescu, 2005, p.88) How can designers and developers become more supportive of these attempts at reclaiming place?

Each of the project sites acts as an urban catalyst, stirring up interest within the local area that in turn creates a positive ripple effect in environment beyond the site. For example, the allotment scheme that is taking place at St.Luke's community centre, one of our participating sites, has attracted amateur growers from housing estates in the nearby area as well as companies who send their employees for a voluntary day growing food and tidying the space. (See Fig. 2).

Figure 2. The participants at St. Luke's community centre

Cultivating place -the importance of urban agricultural

The role of design in the context of MetaboliCity was one of cultivation. Cities have a high metabolic rate and can be experienced as unbalanced sites of vast consumption as opposed to sites of production. Our current global food system is highly volatile and methods of agriculture are dependent on energy intensive processes that can no longer support the increasing population. The importance of localised food production is now widely acknowledged and urban areas can play a significant role in contributing to the production of its resources.

Urban agriculture can increase food self-reliance and security in cities, be environmentally sustainable and increase the democratic control of the urban poor in meeting their basic needs. It represents a practice that can be connected with 'resource recycling and conservation, therapy and recreation, education and safe food provision, community development, green agriculture, and open space management' (Mourgeot, 2006, p. xiv). This study focused on the transformative power of design to reinvigorate and inspire urban communities to take ownership of under utilised space for small-scale food production.

Methodological approach

Using qualitative research methods such as semi-structured interviews and informal, on-site design workshops, the social, spatial, ecological and technological potential for producing food at each site was assessed. This process was guided by four key research questions