Fruits of our labour

A health anthropology of a multipurpose technological system

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Abstract

This paper reports from a one-year cross-cultural project about food security and nutrition in three countries. Drawing on theories in sociology and archaeology, it presents a community garden as a multipurpose technological system where health related activities occur.

Keywords: community gardens, urban agriculture, community health, technological system

Technological system

This paper is based on a one-year cross-cultural project about food security and nutrition. In the project we concentrated on this in three contexts: community and home gardening (including "allotments"); the issue of water; and food and exercise during pregnancy. In conducting fieldwork in limited regions of Kenya, Venezuela, and Sweden, we wanted to highlight social and behavioural aspects, such as human rights.

In this narrative health anthropology I present a community garden as a multipurpose technological system.

> *Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.* (WHO, 1946)

Related work on community gardens

Community gardens can have positive impacts: they foster healthy behaviours, enable people to secure food in urban settings, and provide a space where members can develop overall practical and social skills (Van den Berg, van Winsum-Westra, De Vries, & Van Dillen, 2010; Carney, o.a., 2012). While it has been suggested that community gardeners consume more fruits, vegetables, and are more active than home gardeners and non-gardeners (Litt, Soobader, Turbin, Buchenau, & Marshall, 2011; McCormick, Laska, Larson, & Story, 2010; Weltin & Lavin, 2012; Zick, Smith, Kowaleski-Jones, Uno, & Merrill, 2013), that suggestion has likewise been challenged (Mecham & Joiner, 2012). If the former is true, however, that implies that merely using or having access to a garden is not sufficient; it is the social involvement that is central to healthier behaviours. Although community gardeners had lower BMIs than their non-gardening counterparts, as reflected in Zick and Associates' (2013) study, the authors cannot exclude the possibility that the participants' BMIs were lower before becoming gardeners.

Generally speaking, even though the literature is encouraging with regard to the health benefits that result from community gardening, health concerns, such as those deriving from contaminated soil (Kim, o.a., 2014; Mikulec, Diduck, Froese, Unger, & MacKenzie, 2013; Kessler, 2013), have been noted.

Methods

We used unfocused, focused, and direct observations (Jorgensen, 1989; Angrosino, 2007) in twelve community gardens, home gardens, and allotments. Since we were working with local teams, a cross-cultural observing or interviewing technique was not considered (Ryen, 2001), yet the storytelling and open-ended discussions were, with topics and issues that were to be covered specified in advance (Cohen, Manion, & Morrison, 2007). The bulk of the encounters were recorded since we intended to video our experiences for use in documentaries, to which all participants consented.

Community gardens as multipurpose technological systems

For purposes, a community garden is a physical construct for urban agriculture, citizen participation, co-intentional learning and education, and social involvement (Figure 1).

Figure 1: The community garden "Mi Conuco 86", Caracas, Venezuela. "Conuco" is a small plot of land devoted to the cultivation. Mi Conuco 86 started as a collective and has attracted members of the surrounding communities representing all walks of life and ages.

Space

I will describe a community garden drawing from a macro sociological perspective (Bailey, 1990)[1]. A community garden is a physical construct located in an urban environ with a number of reciprocal, functional components, where social and material life coexist. A community garden is in itself a *multipurpose technological system*. Material things (artefacts and natural things) are life since human and material things have a concrete interaction and they both have lifecycles. In parallel with the view of Ghose and Pettygrove (2014), in our project we understood these gardens as places that serve for counteracting material inequities and provide green space access for the inner-city residents; both of which have implications for wellbeing.

[1] Although the term "macro", this framework can be suitable to study events at various levels, as long as they have implications at a macro level, too.

Members

Within this technological system, members and sometimes visitors participate. Our fieldwork revealed that often, these people come from an agricultural tradition and/or consider gardening a secondary, or extracurricular, activity, and not about securing food. They engage in gardening for sociocultural or ecological reasons, and also simply for relaxation.

In order to ensure the system is as stable as possible, there is a need for a leader (Lombard, o.a., 2014; Litt, Soobader, Turbin, Buchenau, & Marshall, 2011; Twiss, o.a., 2003). Although it is a system with clear boundaries, the members acknowledge other neighbouring systems as well and believe their actions and sharing their knowledge benefit the society as a whole.

One of the members narrates how she was searching for a plot in the city to keep her ancestors' agricultural tradition alive, and – in a way – find herself. A friend of hers recommended the community garden. The way in which this woman narrates her whole story draws attention to Schiffer's (2002), a furnished framework for studying instances of technological differentiation. It shows what happens when technologies are transferred from community to community within and between societies (Schiffer, 2002). The framework can be used to understand the functional components of the built environment and the interaction of sharing information and knowledge between social and material life in and outside of that framework.

Information and knowledge

What is pervasive is the sharing of knowledge within these technological systems. Knowledge is shared in a way that is co-intentional. Drawing from Freire's (2000) co-intentional education and Hallberg's (2014) co-intentional learning (which, of course, is based upon the former), this type of learning and sharing of knowledge happen when members are guided to a source of knowledge as well as they themselves facilitating for other members. This is a kind of cooperative learning, too. Cooperative learning, contrary to learning on one's own, can also be understood as imitating others or learning from one another. These kinds of learning and teaching are healthy, as they humanise and serve as instruments for permanent mutual dialogues between the gardeners. In doing so, trust and social interactions are strengthened.

Technology

Within this technological system there are such necessary sub-systems or things for this system to function, as water access (Parry, Glover, & Shinew, 2005; Puett, o.a., 2014; Harris, Minniss, & Somerset, 2014; Twiss, o.a., 2003). But there are sub-systems that might not be necessary yet still add value and even decrease labour. One example is a "chakki-chak" (Figure 2).

A chakki-chak is a type of homemade sugarcane press or juice extraction system (i.e. a sub-system in this case). The stalks are crushed to retrieve the sugary juice. The system consists of a number of housed components that interact in a specific way. The system can be either electrical or mechanical. This one is mechanical. The way in which it was developed by the community leader and is used confirms Giampietro's (1997) technological choices in agriculture: the community leader probably had several choices of how to go about developing the system – quality, performance characteristics, material, etc., and still have a product that conforms to his vision. His choice, however, was made on the basis of his experiences and historical and geographical knowledge. Using this knowledge as a strategy he had a feeling of how the sub-system's behaviour would work with other surrounding materials. By talking with the community leader we also understand how important it is for him to have a dialogue not only with the members but also with material, or ecological things. He also made a choice based on maintenance and lifecycle, to mention a few.

Due to his broad knowledge in the fields we may also *assume* he made a choice based on usability. We can understand some of his thinking or mental images (*conceptual level*) by looking at the sugarcane press (*empirically*): it is mechanical, wooden, and built using available materials, for instance. By further scrutinising the process of developing the chakki-chak, we can describe the manufacturing process and grasp at an empirical level how healthy the development of it was to the engineer, but also to the other members that were directly or indirectly involved.

What we cannot understand, regardless of looking at the sub-system or asking the developer, is the measured health effects (*indicative*) – neither in terms of direct nor development impacts, as defined by Vanclay (2002).

The chakki-chak in this figure is used as a single purpose system. The sugarcane bagasse, however, has been used for different processes in other systems, like clay ceramics (Faria & Holanda, 2013). We can say this particular community garden would use the sugarcane bagasse ashes in ceramic. If that would occur we would have an alternative life cycle of the chakki-chak as well as of the system of which it is a sub-system.

Figure 2: A "homemade" sugarcane press, called "chakki-chak".

Thus, a wooden chakki-chak or any sugarcane press for that matter, is an artificial or material construct that depends on social things for its existence. It can serve a single purpose or a multipurpose. It is used because natural things such as sugarcanes exist and humans came to understand the power of that juice while they wanted to maintain good health by decreasing labour, that is, use the press as a support system.

Concluding remarks: level of living

Following Bailey's Three-Level Measurement Model, we may assume there exists three types or levels of "health" in this type of multipurpose technological system:

- health as a mental image/concept
- health as empirically (i.e. a person may be more or less healthy).
- health as something we can measure (indicative).

I have described a behavioural chain that depends upon various and different things as well as affecting all three types of health. Since we humans depend on technologies and each other, we can

assume that the indicator type of health also depends on things. Following Hodder (2011) , the indicator type of health depends on what types of behavioural chains all this mixing of members, artefacts, and things, using certain technologies – inside the community garden and outside of it – give rise to.

Before even measuring health, we must learn how everything is employed, connected, interlinked, and its characteristics, and whether or not it is employed as intended, has any additional uses (e.g. "augmented value" or even "redesign" as Schiffer (2002) suggests), or if the original intended use has been discarded altogether. We must also understand from what point or stage in life a person started their journey (Zick, Smith, Kowaleski-Jones, Uno, & Merrill, 2013). This way we can easier cope with technological developments where social and material life coexist, without compromising native relics; and, hence, foster healthier behaviours.

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