Community gardens as learning spaces for sustainable food practices

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Abstract

Urban agriculture is an emerging topic and it is widely argued that it has considerable potential for sustainable consumption and production. Community gardening is a promising type of urban agriculture and questions have been raised like whether it has additional benefits for sustainable lifestyles and behavior, and we can understand community gardens from a social practices perspective. This paper aims to provide first insights to these questions by looking at community gardens in the city of Rotterdam in the Netherlands, when aiming at more sustainable urban food provisioning practices. Two cases are analyzed using Shove's image-, skills-stuff model, while also looking at learning processes, expectations and enrolment of involved actors. Data have been collected, through participatory observation and semi-structured interviews.

There are both similarities as well as major differences between these two gardens that influence the food provisioning practice of participants as a whole. This study also shows that there are not only innovative developments pointing towards sustainability as well shared elements with less sustainable mainstream food provisioning practices. The former can be seen as opportunities that are not yet taken, whereas the latter are barriers that withhold the practice from changing. These insights improve our understanding how urban agriculture can play a role in a transition to more sustainable food provisioning practices. In addition, the role of the participants has found to be essential in the evolution, reproduction, changing and sustaining of urban food provisioning practices.

KEYWORDS: Urban agriculture; community gardening; practice theory; grassroots innovations; sustainable consumption; sustainable urban food provisioning

Introduction

Urban Agriculture

In recent years urban agriculture, the practice of growing food within cities, has gained a lot of attention and is becoming an increasing urban activity in Western countries (Corrigan 2011; Veen 2013). Also in the Netherlands urban agriculture is gaining interest and the number of initiatives is growing. The practice of growing food within cities comes in various forms, such as allotment gardens, guerrilla gardening, balcony gardening, school gardens, rooftop gardens, community gardens, etc. Even supermarkets are picking up this trend – of growing your own food - by selling compost, soil and edible plants. The increasing interest in knowing where food comes from and participating in growing food is also reflected by the growing number of local farmer markets and organic markets and a growing number of workshops, blogs and platforms helping out new urban growers (Brinks 2012).

Urban agriculture is not something new though. It has been practiced since the first cities emerged. Ancient societies practiced agriculture to feed people from the earliest settlements, this made it possible for the first cities to arise (Steel 2011). In developing countries urban agriculture is still widely practiced contributing to food security and access to healthy and fresh food to the poor. Here, urban agriculture is often practiced out of necessity; a well-known case is Havana in Cuba.

In developed countries this necessity is not so prevailing, as food is readily affordable and available for (most) citizens. Research on Urban Agriculture in developed countries (e.g. Smit, Nasr, and Ratta 2001; Cohen, Reynolds, and Sanghvi 2012; Deelstra and Girardet 2000) link this trend to the growing concern among citizens on safety and sustainability of the food chain and a need for greening and social cohesion in their neighborhood. As such urban agriculture is perceived as part of the transition to a more sustainable food system in Western countries.

Research in Western countries has shown that urban agriculture adds beauty to the city and provides space for urban dwellers to relax and recreate (Gardenworks 2006). Moreover, it may contribute to the well-being of urban dwellers; it contributes to health and well being by involving urban dwellers in healthy, active work and recreation (Bellows et al 2004). This practical experience with fresh food is assumed to increase people's awareness and appreciation for living things (Gardenworks 2006) as well as their understanding of growing and seasonality (Bellows et al 2004). Some authors (e.g. Deelstra and Girardet 2000; Cohen et al 2012) claim that urban agriculture may also change the perception of urban dwellers regarding food. They claim urban dwellers to have more interest in food-growing processes and the biophysical processes involved if crops are cultivated locally. Through agriculture and environmental training and education their knowledge on food growing processes then expands. This may enhance the influence urban dwellers have on the way food is produced; when they better understand what sort of inputs are used in the farming process, they can better and more quickly respond to harmful environmental practices (Deelstra and Girardet 2000). In the end this may positively influence dietary habits (Bellows et al 2004).

In the Netherlands it is expected that urban agriculture might positively influence health and dietary habits and contributes to raising environmental awareness and knowledge about more sustainable food choices (e.g. Hassink 2005). Jansma et al. (2008) argue that if urban agriculture produces green city areas that facilitate direct effects of producing fresh food locally, care, education and recreation, it could contribute to making cities more sustainable. Yet, if we place urban agriculture within the food system, these effects are

considered as limited in pursuit of making the entire food system sustainable (e.g. Kleis 2010). However, several authors, (Jansma cited in Kleis 2010; Duchin 2008; Weber and Matthews 2008; Tukker et al. 2010; PBL 2012), showed that eating local, seasonal and stop wasting food could deliver much more environmental gains than only trying to make a city self reliant on food. As urban agriculture is about much more than just growing food, those same direct effects of education, care, trainings, cooking classes and the like might help reaching those changes in eating habits.

Community gardening as a sustainable food provisioning practice

This paper focuses on community gardening as a promising type of urban agriculture with possible additional advantages (direct and indirect) for sustainable lifestyles and behavior. Therefore, this paper focusses on how we can understand it as a more sustainable food provisioning practice. So, the focus is not on urban agriculture as an instrument to provide fresh food or as part of a local food system, instead the focus is on the opportunities community gardening may have to bring about changes in food consumption behavior and food provisioning practices for instance through education, and raising awareness and interest about food production processes.

To understand the influence of community gardening on changing food consumption behavior, we consider behavior as a complex phenomenon of both dynamic agency and the social conditions of such agency (Halkier 2009). This means that behavior is not only driven by individual values and beliefs, and moves beyond awareness, perception, interests and knowledge. Instead, we use the theory of social practices, as used by Shove and colleagues (2005; 2012; 2007; 2005) and Spaargaren (2011; 2012). It not only provides a theoretical model that aims to incorporate the complexity of behavior, but it is also a dynamic approach in which individual behavior is considered to be part of the infrastructure and values that influences behavior and are thus also instrumental to creating them, rather than only being subject to it (Shove 2010). By now, practice theory is not only used as an analytical approach, but also more and more used as a design approach that addresses sustainability issues (Hielscher et al 2009; Kuijer and De Jong 2011; Scott et al 2012; Wever 2012 De Borja et al, 2010), as well as for developing future images of sustainable practices (Davis 2013, Doyle and Davis 2013). Also, in policy this approach may be valuable in formulating changing behavior towards sustainable consumption behavior (Spaargaren 2011; Shove 2010; Shove and Walker 2010; Spaargaren 2003; Hargreaves 2008). In this paper practice theory is to understand the potential of urban agriculture to bring about change in food provisioning practices, rather than to design or create policies.

By using social practice theory, food consumption behavior can be seen as a food provisioning practice, consisting of acquisition, preparation, consumption and disposal of food (McIntyre and Rondeau 2011). According to Warde (2005), the practice theory implies that the sources of changed behavior can be found in the development of practices themselves. So innovative food practices like urban gardening can therefore be considered as a niche development in the current food system. Viewing upon community gardening projects as a social practice niche or a grassroots innovation niche emphasizes its potential for sustainable development through widespread participation and calls for social learning (Seyfang and Smith 2007, see also Quist and Tukker 2013). So, community gardening does not only include the consumption of food and related stuff, but also the production of food and related stuff. In this way community gardening can eventually have a broader influence on broader food production and consumption practices.

The main purpose of this paper is now to analyze two community garden cases in the city of Rotterdam from a practice theory perspective and to investigate whether these

practices stimulate more sustainable behavior with regard to food consumption. The core question is whether community garden can be seen as a good learning environment for sustainable food practices. The remainder of this paper is organized as follows. The next section deals with theory and the applied case study methodology, which is followed by a case results section and a conclusions & discussion section, respectively. More details can be found in Vercauteren (2013).

Theory & Methodology

Overview of practice theory

Theory of social practices emerged within the field of sociology as a conceptual attempt to put social practices – instead of individual actors or social structures- as the central unit of analysis. Authors as Pierre Bourdieu (concepts of habitus and field) (1984; 1992), Anthony Giddens (theory of structuration) (1984), Bruno Latour (1992), Michel Foucault (1977) have provided major contributions to its development. More recently, Schatzki (2001, 2002) and Reckwitz (2002) made serious efforts to synthesize and connect these inputs into a more comprehensive analytical approach to social life. Reckwitz's (2002) article provides a clear overview of the theoretical aspects so far and makes a clarifying distinction between social practice theory and other cultural theories.

A key step was to put social practices central, and thereby bridging the dualism between agency and structure, was made by the recognition of the dialectical interplay between people's individual action (agency) and collective norms and regulations (structure); *'structures can only be established through actions of individuals, and simultaneously, these actions are formed by the prevailing structures'* (Røpke 2009, p 2491)*.* Giddens' theory of structuration (Giddens 1984; in Røpke 2009) built on these ideas by formulating the interactions in which social practices become the mediating concept between action and structures. Examples of practices can be cooking, working, bathing, heating and cooling, taking care of others, writing, shopping, etc. Practices are often defined as a "*routinized type of behavior which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge. A practice (…) forms so to speak a 'block' whose existence necessarily depends on the existence and specific interconnectedness of these elements, and which cannot be reduced to any one of these single elements.*" Reckwitz (2002, p 249)

A practice can only exist when an individual or group of individuals puts it into action. By using the theory of practices individuals become not only users or consumers, but also 'practitioners' or 'carriers' or 'agents' of a practice. They are producing and reproducing the practices. Since individuals are the agents performing a social practice, these social practices exist beyond the individuals who 'carry' them (Shove 2012). Just as individuals may take part in social practice and carry them, they may also change them, but also disengage, abandon, or resist a practice (Warde 2005; Scott 2008).

The organized constellation of action, through the carrying out of practitioners, can be seen as an organized entity (Schatzki 2002; in Røpke 2009). A practice is thus a (performed) activity and at the same times a pattern of activities shared by several individuals. To make a clear distinction between the practice as an entity on the on hand and the performed actions at the other hand Schatzki identifies two central notions of practice: first, the practice as a coordinated entity, consisting of both doings and sayings (cooking practices, voting practices, industrial practices, recreational practices, and correctional practices), which is the emerged outcome of the performance of practices and

refers to the on-going reproduction of practices. Second, practice-as-performance, which refers to the actual performance of this practice. It refers to carrying out of practices, performing of doings and sayings that '*actualizes and sustains practices in the sense of nexuses*' (Schatzki 1996; in Warde 2005). While the practice-as-entity refers to the abstract level of the practice, the practice-as-performance refers to the real life performance of a practice.

Shove's model of practices: Image, Skill, Stuff

Shove and colleagues have introduced a simplified model of social practices. They describe a practice as a configuration of three main elements; Image (meaning), Skill (competence and knowledge) and Stuff (the resources, materials, etc.). 'Skill' covers competences, know-how and techniques needed to carry out a practice. Through experience and training these become embodied in practitioners. Knowledge can be transferred between people, but this may need codification into rules and social norms, definitions, instructions and understandings. Although competences are embodied in the individual, it is seen as part of the practice and through its sharing of the social (Røpke 2009).

'Image' relates to the social and personal meaning of practices, it is about making sense of the carrying out of practices. These include the ideas behind the why, the emotional aspects and forms of self-representation. These can again be shared through understandings, e.g. doing something healthy, and are so connected to the social, including social identity and appearance (Røpke 2009; Scott 2008). The material aspects are covered by the component 'Stuff'. These include objects, equipment, technologies, structures, bodies of body parts needed to perform practices (Røpke 2009).

The three elements are depicted in Figure 1 and should be understood as broad categories covering a range of aspects. There are no clear boundaries in relation to one other and the connection or linkages between these components are made by the practitioner (Røpke 2009). Through doing the practice the components are partly embodied in the practitioner self.
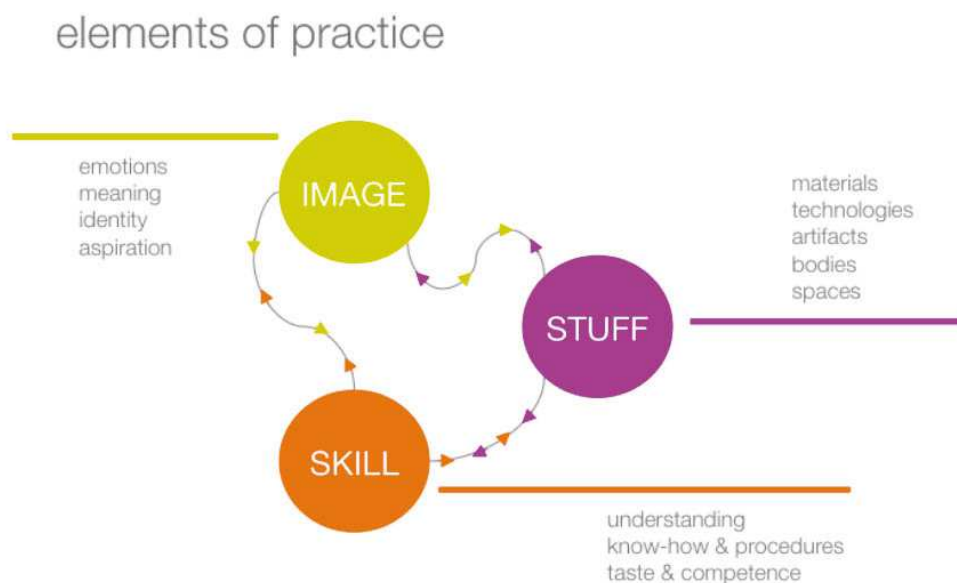

Figure 1: Elements of practices based on Shove et al (2007) and McMeekin & Southerton (2007), as depicted in Scott (2008)

A practice only exists when practitioners perform its activities over and over, and has therefore a temporal nature. As such a fourth elements 'time' could identified (Scott 2008). Scott describes how we can see the image-skill-stuff-model as a frame in a film, which is only a momentum of the full story. **Error! Reference source not found.** 2 shows, building on Shove, demonstrates the role of routines in recreating practices as linkages are maintained through each performance, yet might change and so practices evolve over time (Scott 2008). Practices are also subject to change and innovation. Practice innovation, and even fossilization, occurs through the creation of new links and breaking up of existing as small changes stack up, or as a result of the introduction of new ideas, new products (e.g. from analogue to digital cameras), new procedures or even through the linkage of existing elements, such as bike-sharing programs in European cities (Shove et al. 2007; Scott 2008). As some practices fossilize the knowledge embodied in those practices is often lost (e.g. the use of the old telephone in contrast to using a mobile phone, or the decrease of knowledge on fresh food through ready-made ingredients).
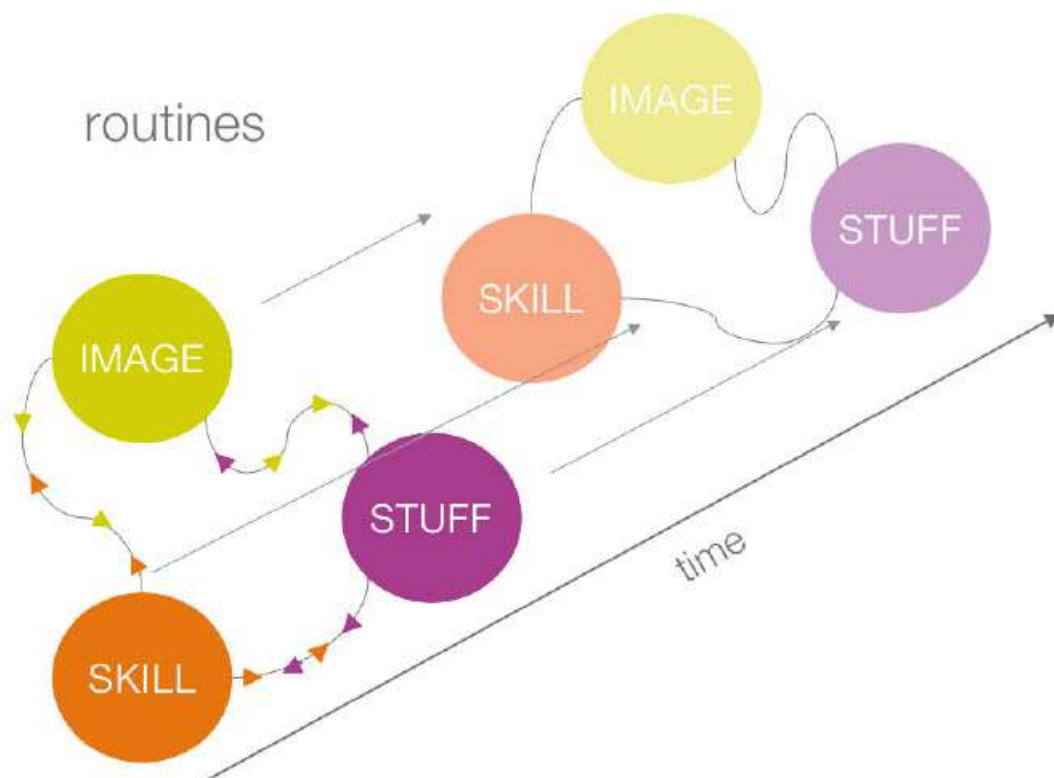

Figure 2: The reiterative performance of a practice over time, based on Shove et al. (2007) by Scott (2008)

Practice theory as used in this paper

In this paper Shove's Image-Skills-Stuff model is used to analyze community gardens as practices in performance. To do so the social practice is in this paper configured according to McIntyre and Rondeau's (2011) food provisioning concept, making it easy to identify the involved sub-practices. McIntyre and Rondeaus (2011) described food provisioning practices to consist of (i) acquisition through growing and shopping, (ii) preparation, treatment and cooking, (iii) consumption or eating, and (iv) the disposal of food. By the

use of the concept of food provisioning by McIntyre and Rondeau (2011) 'acquisition', 'production' and 'consumption' can thus be integrated in one practice-as-entity. Individuals are then neither only producers nor only consumers. Furthermore, the food provisioning practice is represented in this study as an innovative niche-practice within the current food system. Doing so emphasizes the potential for sustainable development (both in practices and innovations) of community gardens, through widespread participation and calls for social learning (Seyfang and Smith 2007).

The model of Shove can be applied to so-called Do-It-Yourself (DIY) practices as Shove has shown (Shove et al, 2007). Whereas Shoves work assumes that practitioners are rather homogeneous, in our study a DIY community practice is studied in which practitioners have different roles. Therefore, more attention is paid to the role of the actor by looking into aspects like (i) the different social networks actors are involved in, (ii) the different power and hierarchical relations between practitioners, (iii) the different capacities and performances of practitioners (see Warde 2005), and (iv) the involvement of actors.

Methodology and case selection

Case studies using, participatory observation and semi-structured interviews with participants have been used. These have resulted in the identification of practice-as-performances and how these build up to a practice-as-entity at the level of a community garden. The cases have been selected in the city of Rotterdam, one of the leading cities in urban agriculture in the Netherlands. Other criteria were (i) that the gardens are within the boundaries of the city; (ii) that the gardens exist for several years, and (iii) that the gardens are grassroots initiatives initiated and organized by citizens or local communities. Sometimes, there is collaboration with public or private organizations, but key to community gardens is that people work together in a shared garden, and that they do not have separate plots. Although this does not imply that participants share everything; participants may have specific roles and activities in the community garden. Work is often divided among participants so that everybody has their own role in the community garden.

Selected cases based on the criteria discussed above are the Gandhi Garden and 'Garden at the river Meuse' in Rotterdam. The Gandhi Garden is a community garden initiated by members of the Rotterdam Transition Town network. The association holds a strong vision for an alternative economy and views upon the community garden project fitting in this vision. The 'Garden at the river Meuse' represents a community garden initiated by neighbors, who wanted to transform a neglected empty building plot into a nice environment for the neighborhood. They created a community garden at the head of the pier next to the river Meuse. There are both similarities as well as big differences between these gardens that influence the food provisioning practice as a whole. Table 1 shows some characteristics of both cases.

Table 1: Characteristics of selected cases

Characteristics	Gandhi Garden	Garden at the river Meuse
Number of participants	20-25	±9
Size	2000 m²	±1400 m² (Including a small fruit orchard)
Starting year	2011	2010 (since association, but the garden was there since 2007)
Initiators	Transition Town members	Neighbors
Association	Peace Garden (Vredestuin)	Garden at the river Meuse (Tuin aan de Maas)
Farming style	Permaculture	Conventional, partly organic
Important values and vision	Everybody is welcome, inclusiveness, connecting people, sustainability, peaceful and justice	Liveable neighborhood, social cohesion, it about the process of growing together more than the product, everybody is welcome

Results

Gandhi Garden (Gandhituin) in Northern Rotterdam

In 2011, when several school and senior allotment gardens at the Gordel road became available, members from Rotterdam Transition Town and a local neighborhood community joined forces to ensure that these gardens would stay. The association 'Vredestuin' (Peace Garden) are officially the initiators of the Gandhi Garden. They joned forces with the Transition Town network and responded also to a request of the municipality to create a community garden; the municipality wanted a garden that is freely available for the neighborhood.

The Gandhi Garden is thus a neighborhood garden where everyone is welcome to participate. Currently, about 20 to 25 people work and participate on this garden during two days a week (Tuesdays and Sundays). The association also wants the Gandhi Garden to provide possibilities for people that mostly need a garden, the work and its fruits. The association clearly states this on their website, and this is also reflected in the group of participating gardeners; the mixed group includes both temporally and long-term unemployed, as well as people incapable to work. The initiators, and thus the Peace Garden association also want everybody to participate in decision-making, although the Peace Garden association has a final say if plans do not follow the vision of the Gandhi Garden. The vision includes the following statement:

> *"What is needed to cope with the global social and ecological crisis of our modern world is a growth of humanity, compassion and love. In an inclusive, sustainable and non-violent economy, which is produced for needs and for those who are most in need (poor and oppressed), the world will offer an abundance. Through the Gandhi Garden we want to show that such a world is possible if we change our everyday local life."* (Gandhituin 2011)*.*

The vision is also based on permaculture gardening, Transition Town philosophy and Gandhi's vision of a non-violent and non-exclusive society. The vision also builds on the three principles of Transition towns: Heart (living center for the neighborhood), Hands (permaculture garden) and Head (education center).

'Garden at the river Meuse' in Delfshaven, Rotterdam.

In 2002 the first apartment building named 'Eendracht (Concord)' was completed on the Mullerpier (Lloyd quarter) next to the river Meuse. The owners of these apartments were still living in a sandy and muddy place, but found each other and shared their pioneering experience. In 2004, several other apartment buildings were completed, but the head of the pier was still a sandy empty space, which raised considerable discontent among residents. Therefore, the residents of 'Eendracht' handed in a so-called Green Thumbs 'Groene Duimen' plan at the municipality to create a green space at the head of the pier, as long as no constructions were started. The plan included a grass area, a slide, a picnic table, a terrace, a vegetable garden for the local school children, a football field and a bowling alley. The municipality approved this plan and provided funding. The idea of the municipality was to give this empty area a temporary functionality for the neighborhood, though construction would start within two years (LloydKwartier Rotterdam 2006). However, three years later, the construction had not started yet, and also the school garden had not been realized. Therefore, some of the residents took up the garden themselves and started to experiment with some plants. In 2010 a small group decided it was time to take it serious and they registered an association for the 'Garden at the river Meuse.

The association and the municipality came to an agreement that the neighborhood could take care of the garden for as long as there are no plans for construction on this what was called a 'White Spot'[1]. At that time the municipality expected building to start in 2017. Since this announcement the garden has become a tidy garden consisting of a vegetable garden, a green and flower garden (with several plants donated from the neighborhood getting a second life here) with benches and since 2012 also a fruit orchard. The association has four members (five at the start), but several other residents also work regularly in the garden, making a core group of about eight people. The garden is open to everyone in the neighborhood to come and help, yet most of the participants are from the 'Eendracht'(Concord)building (only one person in the core group is from another building). The association refers to an "open garden" as anyone can contribute to the maintenance of the garden. Apart from the core group, also children and other neighbors occasionally help. Usually, the participants gather on Saturdays; such garden workdays are announced on the website and the association's Facebook page. There is no obligation to work in the garden, and this results in some uncertainty about how many people will show up. According to the initiators this varies considerably, depending on the weather.

Food provisioning practices in the two community gardens

The food provisioning practices of the two cases have revealed several interesting differences and similarities. First. we will briefly explain the steps within the food provisioning practice as performed on these community gardens and describe both stuff and activities. These differences between cases influence the food provisioning practice at study in different ways. Although the cases are quite different in set up, goals and vision, working methods and process, the 'individual' food sub-practices, such as cooking, eating and preparing are quite similar. By contrast, in the disposing of food waste and food shopping there are notable differences.

Acquisition through growing:

The first step in the food provisioning practice is the growing of food. Growing has many variations in performance depending on both the practitioner and the context. The

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[1] It is a construction site with virtually no maintenance from the municipality, as there are plans to build here.

growing process, especially in this community type of growing food, needs different roles to successfully produce vegetables. There is a need for leadership and coordination. These roles are not always fulfilled by the same practitioners, which also lead to changes in the performance per practitioner, as well as over time. Leadership and coordination can be seen in different organizational parts of the growing process: there are leaders in deciding what and when to grow, leaders in dividing the tasks, and leaders in taking up responsibilities. These roles change the context of performance for other group members and define the outcome of the growing process. Warde (2005) argues that we can differentiate between the contribution of practitioners to the reproduction and development of the practice on the basis of their role and expertise. This can clearly be seen in the decision-making about what to plant, when to plant, what needs to be done, etc., but also in how those that are less involved in the decision-making perform their role and tasks. For instance in the case of the 'Garden at the river Meuse' the building and maintenance of the benches and fences plays an important role in maintaining the garden as a nice place to be, which is vital for the continued activity of participants in the garden. And in the case of the Gandhi Garden the expert permaculture knowledge of the association members is essential for the structure and planning of the whole garden, which defines whether harvest will succeed or not.

Acquisition through shopping

The vegetables from the garden do not make participants fully self-sufficient in vegetables; most of practitioners' vegetables needs to be purchased. There is a slight difference between the cases as they buy different stuff at different places. In the Gandhi Garden case mainly organic vegetables and fruits are bought, often taking seasonality into account. Yet some performances do not fit in this picture as some practitioners face extra (financial) barriers. Those who buy organic vegetables, buy these at organic stores and to a minor extent in supermarkets. Criteria used to select vegetables and other foods include affordability and price, convenience, freshness, healthiness and organic (including both environmental and ethical & fair-trade considerations). The vegetables can be seen as the main part of 'Stuff' following Shove's elements of practice; as such we can see a difference in stuff between the two cases.

Planning or preparations

Planning or preparations may play an important role in sustainable performance of food provisioning practices. Carefully planning what to eat and using shopping lists might help in limiting food waste, as people only buy what they need. Several participants indicated to plan in front what to buy for a whole week. Incorporating the harvest from the garden, however, seemed a difficult task for the gardeners. Often this is forgotten to take into account when shopping, so it is taken as additional food. Whether this creates more food waste is unclear.

Cooking and eating

The skills and involvement in cooking differs among the practitioners. There is no shared way of cooking food among the practitioners in either cases. The practice-as-entity thus becomes a mix of different cooking styles in both cases and link to mainstream cooking practices. These practices differ in creativity, skills and expertise, meaning and value of food, expectations and perceptions and the foodstuff used. There is some relationship between cooking creatively with vegetables and the involvement in the garden. We can see that those taking up leadership and responsibility (on what to plant and seed) in the garden (regarding edible food) also are more eager to experiment with vegetables and

want to get the most out of a dish. They also eat less meat and fish. While those more focused on the action of gardening such as weeding and hoeing, and are mainly lead by others, also stick more to routine cooking. So the roles of practitioners in the garden are related to how they cook food. People who tend to be more engaged in their food, also value more the quality and aesthetic of their food going well together with more sustainable food choices such as organic and local food (Halkier 2009).

Eating together with the other participants highlights the role of social cohesion, norms and understandings. In the case of the Gandhi Garden the challenge is to make a delicious meal from scratch with vegetables from the garden. These meals are always vegetarian and sometimes even vegan; it is not even considered to serve meat. In summer these dinners are prepared together, when one practitioner takes the leading role and others help intuitively with both cooking and preparing dinner. During cooking and eating, people discuss what is healthy food and what the impact and consequences are of certain food choices. Eating together is about sharing and enjoying time spent together.

At the 'Garden at the river Meuse' group dinners occur in weekends when people were working in the garden or doing chores together. The dinners are not exclusive to garden participants only; other neighbors can join too. Although the neighbors eat together at a big table in the fruit orchard, these dinners are not per definition linked to the garden; these dinners are a spontaneous activity on summer days by any neighbor, food is prepared at home or on the barbeque. This means there is always meat involved. A few neighbors are not eager or willing to eat vegetables from the garden, and therefore vegetables from the garden are only used as an exception. Eating together is mostly a social event; it is about having a good time together with your neighbors and friends.

Disposal of food waste

Growing your own food provides opportunities to close loops; food residues can be composted and reused as fertilizer for growing new vegetables. In each case there was a compost, but it was not used for food waste produced at home. Compost is mainly used to dispose weeds, leaves, twigs and other things found on the garden itself. Unavoidable food losses and food waste from food consumed on the garden is thrown on the compost heap. This suggests that when food in consumed in another place or way than regularly – lets say out of the house -, people also deal differently with food. There is a reversed situation here; to throw away food losses and waste created on the garden as usual would require practitioners to collect and take it home, but obviously it is more convenient to throw them on the compost heap.

Differences in Image: Vision

Putting these two cases next to each other reveals the Gandhi Garden to be more innovative and/or radical than the 'Garden at the river Meuse' is. The Gandhi Garden initiative has a vision for an alternative economy emphasizing values likes inclusiveness, sustainability, peace and justice. Participants in the Gandhi Garden share this vision and try to apply this vision and values in the community garden and their daily life. This effects the image that practitioners have throughout the whole practice and is reflected in their performance as indicated above. The 'Garden at the River Meuse' does not share such a strong vision for change. The main goal is to share time together and do nice things together with their neighbors. The shared image is here less about growing food in a sustainable manner; rather, practitioners share a desire to do something effective together, such as growing food in the garden, but also constructing benches and other chores. In this sense the 'Garden at the river Meuse' initiative is less radical from a sustainable food perspective. Nevertheless, there are participants within the 'Garden at

the river Meuse' group that perform in more sustainable way; for instance, they experiment with different varieties and forgotten vegetables, or hold a vision for a more sustainable food system in which urban agriculture plays a major role. So, these persons influence the growing process in the garden, also challenging some other participants' vision on food. Yet their visions are not shared in such a strong way as in the Gandhi Garden. Both cases have thus different visions and share different values, and the extent to which the vision and values are shared among the participants differs in the two cases too. This is essential for communities to successfully 'do things differently' and to reproduce these alternative practices (Seyfang 2007).

Differences in Skills: growing expertise.

The difference in visions also comes with a big difference in growing skills. Within the Gandhi Garden group a few hold expert knowledge in permaculture, organic farming, and biodynamic farming. This means everything on the garden is organic and grown according to permaculture principles. At the 'Garden at the river Meuse' Participants have been growing vegetables based on learning-by-doing and occasionally asking friends and family for advice. This results in a 'we do with what we have' attitude and way of working. It also affects the production; at the Gandhi Garden they work in a larger scale, with more expertise, but also in a more complicated manner and with much more organizational issues, while at the 'Garden at the river Meuse' they work on a smaller scale, yet some are really dedicated to it and thereby getting quite some vegetables for their own.

Conclusion and Discussion

Within this study social practice theory has proven to be a useful framework to analyze and understand the practice of urban food provisioning. This framework enabled to analyze and understand the on-going dynamics of the everyday life of these community gardeners, in which practices sustain, reproduce and potentially change. As such we can conclude that looking at community gardens from a practice perspective provides valuable and interesting insights and adds to the findings of previous research on urban agriculture. This research confirms some of the expectations for community gardens such as the educational, social and recreational value of community gardens and urban agriculture. But the use of the practice model by Shove using Stuff, Skills and Image as core elements of a practice also revealed how and what aspects enable and barrier food provisioning practices to change, sustain and reproduce. In general we can see that there is not only potential for change, but that there are also barriers that limit the extent of changing sustainable food practices. These are important insights if we want to better understand how urban agriculture can play a role in a transition to more sustainable food practices.

A second conclusion is that there are not only innovative developments in the studied practice pointing to enhancing sustainability, but also similarities or shared elements with (less sustainable) mainstream food provisioning practices. These shared elements often represent opportunities that are not yet benefited. One illustration from the cases is the use of compost within a neighborhood, which can directly facilitate the closing of loops within the garden and the neighborhood. By the use of the extended Skill-Image Stuff model, we understand that there are multiple barriers, such as routine habits and an existing waste treatment system that do not require such behavior, as well as lack of knowledge and skills, or even the motivation and norms (image) that would stimulate such behavior. We have also seen that there is potential for composting food losses, so that nutrients are reintroduced in the urban metabolism. As such we can see that parts of the

'old' practice form a barrier for this behavior and thus for change. The parts shared with the 'old' food provisioning practice do not have to be negative though. It is possible to identify several food experience and this could be linked to the taxonomy of Halkier (2009); food for pleasure, food as necessity, planned and controlled food and food for health. Halkier (2009) argued that food as necessity has the least potential for change towards sustainability and the results confirm this. However, Halkier also concludes that there is potential if sustainability is already part of it, and thus integrating growing your own –preferably in a sustainable way- is one step closer to integrating sustainability even in such food practices.

A third conclusion is that the role of the participants is important in the evolution, reproduction, changing and sustaining of urban food provisioning practices. This has two implications; first, a theoretical implication, as (some) social practice models tend to neglect the role and diversity of performers in practices, and second, this may have implications in how we can understand the opportunities of community gardens for more sustainable food provisioning practices. Different roles mean that people experience working in a community garden differently, but also contribute and engage in it differently, leading to different learning experiences resulting in different skills and knowledge development. This research shows that the role people take in the community gardens is related to how people deal with food in their daily life outside the community garden. As we have seen people have different engagements in food practice; some are very creative and love to experiment, while other stick to simple or controlled food practices. We can also see this in their role in the community garden; for instance participants who tend to experiment more with planting different vegetables, and take initiative to make suggestions for change are often also those who experiment more in the kitchen. Although this might be a personal, it also influences how other people work, ,e.g. role division, in the garden and thereby influences their learning processes, e.g. bringing new stuff and skills in the garden.

From the results and conclusions of this study several opportunities and implications for sustainability can be highlighted, also depending on the goals and vision of the initiatives. Looking at the consumption of the practitioners in the cases some have become more willing to buy organic, since they work in the garden but mainly as part of their entire experience of engaging more with food. Working in the community garden is an activity in line with this growing engagement. Also, a shared growing awareness and sharing discussions on the food system stimulate this choice, which was especially the case in the Gandhi Garden. There is also a growing awareness on seasonality, although the representation of seasonal shopping is limited to what supermarkets and stores provide. Learning is a valued process both for adults and for children. Participants acknowledged they learned more about plant and vegetables growth, and experience own grown food as having a better taste. Deelstra and Girardet (2000) argued that such learning may enhance the influence urban dwellers have on the way food is produced as they will better understand what sort of inputs are used in the farming process and can therefore more quickly respond to harmful environmental practices. The findings in this study are not conclusive on this; the causal effect of this learning on the food practice is difficult to identify and may need further study. Furthermore in this study learning and changing perception and consumption patterns are integral to social practices; there is no one causal between knowledge and performance, as it both based on learning-by-doing and doing-from-learning. The food production of both cases was too low to provide a major share of the participants' fruit and vegetable consumption This has influence on how these vegetables are perceived; it is an addition, a treat, but not a substitution. On the production side the two cases have a major difference; one case aims at producing food in such a way that it contributes to an alternative economy, while in the other case producing

food is only a part of it, the garden mainly facilitates a neighborhood preference for non-edible or edible gardening. In both cases this highlights the importance of social sustainability. We do not want to suggest causality between urban gardening in social cohesion, but the social aspects are certainly important aspects for the practitioners themselves. The two cases thus show how community gardens can contribute to sustainability in different ways, where one is more focused on social cohesion and community aspects, and the other aims to work towards an alternative economy by producing food in an alternative environmental-friendly and social way in which community aspects are of course important too. This shows that growing food is not only part of the food provisioning practice, as it is also a hobby and a social activity.

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