

Norwegian University
of Life Sciences

Master's Thesis 2019 60 ECTS

Faculty of Biosciences, Norwegian University of Life Sciences

Food Gardening for Change

A Study of Transformative Learning in Urban Agriculture

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ABSTRACT

In an increasingly urbanised world, we see an increase in the focus on cities and the role they play in sustainable food systems. In this study, urban food gardening projects are explored with the theoretical framework of transformative learning and food democracy to see how participation in these projects can contribute to fulfilling the transformative potential of the city. The case study included the three projects of Losæter, Herligheten and Sagene Takhage (Sagene Rooftop garden), all located in Oslo, Norway. 14 participants in total were interviewed about their learning experiences of involvement in the garden.

The results indicate that participants gain new knowledge from involvement that make them think about wider issues in the food system and desiring to contribute to change. It was not possible to detect full transformation as described by Mezirow (2009), but many of the elements could be found and seemed to indicate that participants were in a process of transformation. A common action found among participants was individual contributions such as dollar voting (related to sustainably produced food) and reducing own food waste. The transformative potential of these actions on food systems is discussed and seen in connection with opposing views. Based on this, in order to reach a fuller transformative potential of the city through improved food democracy, it can be argued that more political engagement should be sought after as outcomes of involvement in urban food gardening.

ACKNOWLEDGEMENTS

First, I would like to thank everyone who has participated in this study. I am very grateful to have been allowed to dig into your experiences with being involved in urban agriculture projects and your learning outcomes, thank you!

I would also like to thank Geir, Tor Arvid, Anna Marie and Chuck at the agroecology group for running this programme and providing us students with the tools and mindset to go out in the real world and make improvements. I'm also grateful for all encouraging conversations and useful feedback from Åsmund.

I would like to thank Beata and the rest of the project group in the Cultivating Public Spaces research project for letting me into the team and get useful experience as a research assistant.

A big thank you to family and friends who has supported me along the way, especially my dear Kristin for both moral and scholar support.

Last, but not least I would like to thank my supervisor Anna Marie for guiding me through this process.

Thank you!

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1. Introduction

In recent years there has been an increased focus on the role cities play in sustainable food systems. Patel (2018) argues that cities are becoming drivers of change when they increase in number and the citizens become aware of the unjust distribution of wealth. The International Panel of Experts on Sustainable Food Systems (IPES) also stresses this in a recent report: “Cities [...] have a key role in addressing food system challenges for their own populations, for the rural producers that serve them and for the global community” (IPES Food, 2017 p. 7-8). The Ellen MacArthur Foundation (2019) promote the shift to a circular food system and emphasise the importance of the city in this transition: “Cities have a unique opportunity to spark a transformation towards a circular economy for food, given that 80% of all food is expected to be consumed in cities by 2050” (Ellen MacArthur Foundation, 2019 p. 9). This opportunity mainly lies in the potential power of the demand for sustainably produced food and the role the city can play in the circularity of the food system.

Under the lens of urban agroecology, Tornaghi (2017) has explored the connection between urban agriculture, political activism, urbanism and agroecology (see also Dehaene et al., 2017; Tornaghi & Dehaene, 2017). Urban agroecology is an under-theorised concept, but can be understood as “a political praxis that foresees, debates, and takes forward ideas and alliances for building productive ecosystems in the urban realm” (Tornaghi, 2017). In this lies a transformative potential that can contribute to a more environmentally sound food system, emancipate citizens and contribute to a deeper democracy (Pimbert, 2017).

Based on this scenario I wanted to investigate how cities best can take advantage of their role as drivers of change in the food system. One contribution to this shift is believed to be the practice of urban agriculture. In the past decades we have seen an increased interest in this practice, both from the general public, and from stakeholders and government officials. This is a global trend with promising effects such as improved public health (Burke, 2017; Hale et al., 2011) and contributions to food security and food sovereignty (Tornaghi, 2017) to mention a few. The practice and impacts of urban agriculture have been shown to vary in different regions of the world (Lohrberg, 2016).

In this thesis I rely on a definition and typology of urban agriculture (see below) developed for a European context, which focuses on the metalevel benefits of urban agriculture (Vejre et al., 2016). This means going beyond the production of food for consumption in the city and looking at what other benefits it can contribute to. In a Norwegian context the research on urban agriculture has focused on motivations and social relations in allotment gardens (Veen & Eiter, 2018), public health (Bogstad, 2018), feasibility studies (Eikenæs, 2016; Espeli, 2017; Rosted, 2017; Ruiz, 2016) and the plant science of growing food in the city (Aurdal, 2016; Gardli, 2018). However, there is a lack of empirical knowledge of how urban agriculture initiatives can contribute to strengthening the transformative potential of the city.

As a contribution to fill this knowledge gap, I have investigated a selection of urban agriculture projects in Oslo with the theoretical framework of transformative learning. Transformative learning is often associated with empowerment and democratic participation (Mezirow, 1997) which are believed to be central aspects of the transformative ability of the city (Levkoe, 2006). There are examples of research conducted on food related topics with a transformative learning-framework. It has been studied in participation in wild food networks (Mitchell et al., 2017) and with a focus on ethical vegans (McDonald et al., 1999). Theoretical work has been done looking at community gardens as pedagogical sites (Walter, 2013), but empirical studies of learning in urban agriculture are lacking. Before presenting my research questions I introduce three central topics to this study: urban agriculture, the transformative learning theory and food democracy.

Urban agriculture

Urban agriculture is here understood according to the definition developed in the COST Action Urban Agriculture Europe (Lohrberg et al., 2016):

Urban Agriculture spans all actors, communities, activities, places, and economies that focus on biological production in a spatial context, which – according to local standards – is categorized as “urban”. Urban Agriculture takes place in intra- and periurban areas, and one of its key characteristics is that it is more deeply

integrated in the urban system compared to other agriculture. Urban Agriculture is structurally embedded in the urban fabric; it is integrated into the social and cultural life, the economics, and the metabolism of the city (Vejre et al., 2016 p. 21)

The COST Action also developed a general typology “aimed at understanding the different forms of Urban Agriculture in Europe and easing the process of identifying the types of Urban Agriculture that may play a decisive role in public policies and city-regional strategies” (Vejre et al., 2016 p. 22). This typology includes a distinction between the gardening and the farming level. What characterises the urban food gardening is its emphasis on the social benefits and low focus on the food production itself. This can again be divided into individual and collective types of production. Urban farming, on the other hand, is more economically oriented, with farms located in or close to the city, selling agricultural products or services to the urban population (ibid.) (see figure 1 for categories). In this study I focus on urban food gardening and have explored cases in both individual and collective types of production.



Figure 1 "Typology of Urban Agriculture Europe" (Vejre et al., 2016 p. 23)

For ‘individual production’ I looked at an allotment garden: “an area subdivided into small plots, which are rented under a tenancy agreement” (Vejre et al., 2016 p. 24). It is a concept started in the 18th century following industrialisation to deal with urban

poverty, but today it has more the form of a leisure activity in Western European countries (ibid.).

As examples of 'collective production' I have cases that can be defined as 'community gardens' with aspects of education in them. 'Community gardens' are collectively tended gardens where vegetables are grown, but where the focus on social aspects are just as important as the crops that are produced. It is about establishing a place in the city where people can meet, cultivate social networks, learn and experience cultural activities (Vejre et al., 2016 p. 25).

There are several types of urban agriculture, as shown in figure 1, but I do not discuss all here. The objective of this study was to investigate transformative learning in food gardening projects in public space that are accessible to all. A secondary objective was to apply the transformative learning theory on informal learning in a Norwegian context and see this in connection with the potential of democratic improvement.

Transformative learning

The central theory I use is the transformative learning theory. According to Mezirow who developed the theory,

Transformative learning refers to the process by which we transform our taken-for-granted frames of reference (meaning perspectives, habits of mind, mind sets) to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action (Mezirow, 2000 pp. 7-8).

Mezirow was inspired, among others, by Freire's concept of "conscientization"¹, Gould's theory of transformation, Habermas' theory on knowledge and the experience of Mezirow's wife as she returned to university as an adult (Mezirow, 2009 p. 19). The aim of the theory has from the beginning been to recognize "a critical dimension of learning in adulthood that enables us to recognize, reassess, and modify the structures of assumptions and expectations that frame our tacit points of view and influence our

¹ A social concept, grounded in Marxist critical theory, that focuses on achieving an in-depth

thinking, beliefs, attitudes, and actions” (Mezirow, 2009 p. 18). A key insight is how we understand epistemic² assumptions; being aware of how we know what we know (Mezirow, 2009 p. 20).

Essential to the theory is Habermas’ distinction between instrumental and communicative learning (Mezirow, 1981; Mezirow, 1997; Mezirow, 2003; Mezirow, 2009). Instrumental learning refers to learning where the learner assesses what is right or wrong through empirical testing (Mezirow, 1997). Communicative learning, on the other hand, “involves understanding what others mean when they communicate with us.” (Mezirow, 2009 p. 20). Contested beliefs are validated through discourse, here understood as “dialogue devoted to assessing reasons presented in support of competing interpretations, by critically examining evidence, arguments, and alternative points of view” (Mezirow, 1997 p. 6). This means that communicative learning is about understanding where people you communicate with comes from, what their assumptions are, why they communicate the way they do, and what their qualifications are for doing so.

According to Mezirow (1997), when we approach problems through instrumental or communicative learning, we can start questioning our own and others’ deeply held beliefs and assumptions, meaning to be critically reflective. This is what can contribute to transforming the frames of reference (as mentioned in the definition of transformative learning above) and make them more open and inclusive (ibid.).

In Mezirow’s original theory there are many descriptions of what transformative learning is and how it happens, but it does not indicate how to assess it. His theory includes an insight into a process of ten phases of transformation (Mezirow, 2009 p. 19), a detection of the four different ways we learn (ibid, p. 22), three forms of reflection (Taylor, 2009 p. 7), a differentiation between epochal and incremental transformation (Mezirow, 2009 p. 23) and a model of levels of reflectivity (Mezirow, 1981 p. 12). In the empirical research where the theory has been used, the investigators have employed a

² epistemological, meaning an “individual’s underlying assumptions about knowledge and how it is gained” (King & Kitchener, 2004 p. 6)

variation of strategies and elements of the theory to identify transformative learning outcomes (Snyder, 2008).

Many studies have been focused on assessing the level of reflection of their participants. One example is Liimatainen et. al (2001) who, inspired by Mezirow's model of levels of reflectivity, interviewed nursing students during their three years of education to assess their development of reflective learning. They created a coding scheme that relates the levels of reflectivity to their field of study and combined this with exploring whether the reflection was on the content, process and premise (Liimatainen et al., 2001 p. 652). They found that half of the students reached the highest level of reflection after the three years.

According to Lundgren and Poell (2016), who did a literature review of studies operationalising Mezirow's concept of critical reflection, the findings of Liimatainen et al. (2001) are not common. It was the only study that had high reflection outcomes (>50%) and most of the studies included were categorised as having low reflection outcomes (<10%). Based on the findings of their review Lundgren and Poell (2016) suggest that future studies of reflection outcomes should integrate different theories of critical reflection, use multiple data collection pathways, relate reflection to themes, and attend to feelings in the reflection process.

Food democracy

In this study I see democracy as "by definition, not a spectator sport. It demands active and engaged citizens in order to continue functioning as a political system" (Stray & Sætra, 2017 p. 2). This is in line with the understanding of food democracy as presented by Hassanein (2003):

At the core of food democracy is the idea that people can and should be actively participating in shaping the food system, rather than remaining passive spectators on the sidelines [sic]. In other words, food democracy is about citizens having the power to determine agro-food policies and practices locally, regionally, nationally, and globally (p. 79)

According to Levkoe (2006), what this must include is a reconnection to the processes that lie behind our food. He also talks about how food justice movements (in which urban agriculture can be included) can provide citizens with the tools and mindsets they need to be more politically effective (Levkoe, 2006). Horst et al. (2017) looks at these possibilities in a planning perspective and how planning can contribute to food democracy.

Mclvor and Hale (2015) have examined the connection between urban agriculture and 'deep democracy'. They try to go back to the roots of democracy, seeing it as the people's capacity to act together to bring about changes, and find that urban agriculture practices have many similar traits (Mclvor & Hale, 2015). The term 'citizen' is central in this understanding, meaning "those who are affected by an issue they share in common with others" (Mclvor & Hale, 2015 p. 728). I wanted to explore this further by studying urban agriculture through the lens of transformative learning.

The idea of deeper democracy, more participation and emancipation of the urban citizens is seen here in connection with the capabilities approach developed by Sen and Nussbaum (Nussbaum, 2011). This approach is the theoretical framework for Cultivating Public Spaces (CPS), the research project my thesis is a part of (Sirowy, 2017). The Capabilities Approach can be defined as "an approach to comparative quality-of-life assessment and to theorizing about basic social justice" (Nussbaum, 2011 p. 18). Of her list of the ten central capabilities, two of them will be dealt with here:

- Other species. "Being able to live with concern for and in relation to animals, plants, and the world of nature" (Nussbaum, 2011 p. 34) and
- Control over one's environment, (a) politically and (b) related to property. Here the focus will be on the political: "Being able to participate effectively in political choices that govern one's life" (ibid.).

This is included as an attempt to expand the understanding of the transformative potential of urban agriculture.

In this study I have been building on the work of Kerton and Sinclair (2010) who studied transformative learning in various forms of participation in the organic food movement

in Canada. My aim was to see whether their findings from people's interaction with organic farms could be detected also in an urban agriculture context. I have done this by utilising the coding scheme they developed looking for instrumental and communicative learning. As I found this coding scheme not sufficiently addressing the various elements of transformative learning, I also included a search for these. Finally, Kerton and Sinclair (2010) had a focus on individual actions and consumer choices as consequences of the learning. I wanted to also address the wider democratic implications of these learning outcomes. Based on gaps found in previous literature, my research questions are:

How does learning experienced in urban food gardening projects compare to the categories of instrumental and communicative learning?

- a. What elements of transformative learning can be found among participants in urban food gardening projects?*
- b. Does the learning encompass elements of food democracy?*

Below follows a presentation of how I have proceeded to gather the data required to shed light on these research questions. First, I present the cases before I move on to describe my choice and use of methods. Then follows a presentation of my results in two parts: the instrumental and communicative learning outcomes and the elements of transformative learning. Elements of democracy are addressed in both sections. I then move on to discuss these findings before I give my conclusion.

2. Methods and case descriptions

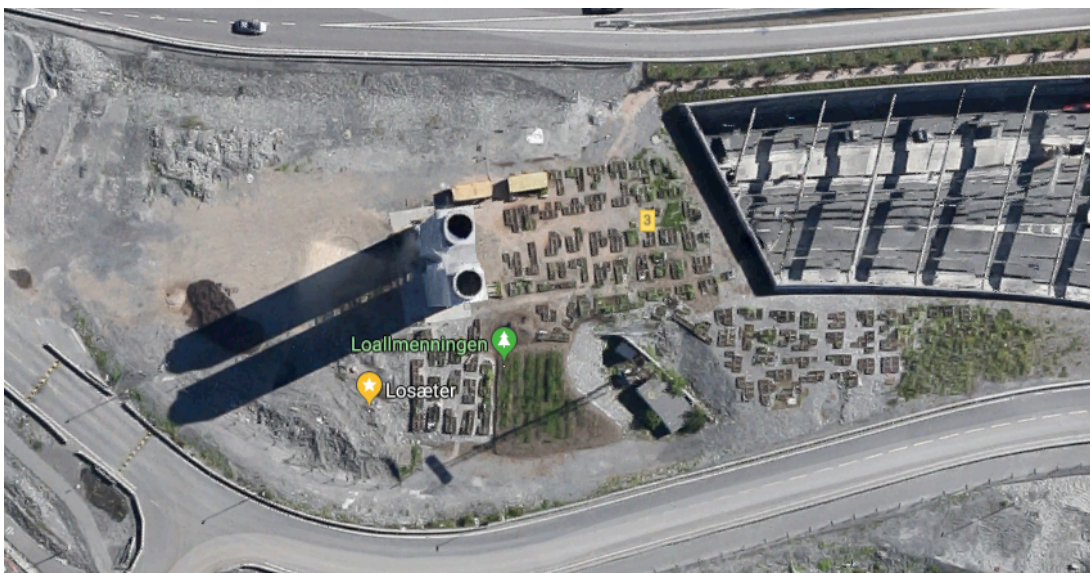
I chose a qualitative case study research design to find answers to my research questions. The strategy was to explore three food gardening projects that are organised in different ways and see what kind of learning the participants experience. In order to ensure validity and reliability of the results, I have consulted recommendations of Yin (2018) for doing case study research. According to Yin “a case study is an empirical method that investigates a contemporary phenomenon (the “case”) in depth and within its real-world context” (Yin, 2018 p. 15). Validity is constructed through applying analytical framework developed and tested in other studies, and having participants read through the analysis of their contributions.

As cases to explore I chose three urban food gardening projects in Oslo located in public space where everyone has access. They were chosen based on my previous knowledge of urban agriculture in Oslo and because these projects have actively involved people through the season. I also chose these projects as they are among the eight cases that the CPS research project is following, and thus, my thesis work can provide useful insights for the project. Through working as a research assistant on this project I have been familiar with these three cases for about six months before starting the field research for this study. One of the cases, Losæter, I’ve known a bit longer, one year, through involvement in an NGO which has been involved in the community garden project. In the period from September 2018 to April 2019 I did the field research for this thesis. I was conducting participant observation by attending events and engaging in informal conversations with participants and semi-structured interviews. I focused on the participants and their experiences, but also tried to understand the context. Below follows a thorough description of the three cases. The descriptions are based on information gathered from interviews with project coordinators and other people involved, participant observation (with informal conversations) and online resources

Cases

Herligheten allotment garden

By the waterfront on the east side of the centre of Oslo lies the area called Bjørvika. It is an old harbour and industrial area that the city council decided to de-industrialise and develop in 1988, and in 2003 the zoning plan was ready and approved (Oslo Kommune, 2008). In this zoning plan there were seven public areas, one of them being Loallmenningen (Oslo Kommune, 2008 pp. 8-9). Loallmenningen is planned as a public park, and the company responsible for the development of the common areas, Bjørvika Utvikling decided to use this space as an exploratory art project during the process of building-construction around it. Project initiator Anne Beate Hovind has been the driver of the project and had an intention of inviting artists to work with the area. The art collective Futurefarmers was commissioned to do so, and in 2012 Herligheten allotment garden was established and 100 allotments given for free to residents of Oslo.³



Picture 1 The area of Loallmenningen from the time of the first allotments. Source: Screenshot Google Maps: <https://www.google.com/maps/@59.9024824,10.7566458,118a,42y,77.91h,56.19t/data=!3m1!1e3>

Today the allotment garden is still well functioning and popular, allowing all residents of Oslo to get the experience of growing their own food. It is all self-organised, formally by a board consisting exclusively of allotment holders. This structure seems to make the organisation quite flexible and organic (a word used by project initiator Hovind), but that also means that it is harder to get a good overview of and understanding of the development. I found through my investigation that the turnover of allotment holders is

³ <https://www.bjorvikautvikling.no/herligheten/>

quite high. There is one member of the board who is given a small fee for managing the waiting list, and they aim to have as many of the boxes distributed to active growers as possible. In this thesis, Herligheten is treated as one individual case, but it can't be seen separate from Losæter community garden.

Losæter community garden

In 2012, the same year as Herligheten was established, the Flatbread Society was also formed, "as an initiative to work with local actors to establish an aligned vision for the use of this land" (Tampere & Chapela, 2015 p. 8). They were aiming to generate more activity in the area and construct "an environment for co-creation and self-government, where the understanding of citizenship and sustainability is central" (ibid.). The result was Losæter, launched in 2015 with a "Soil Procession" where farmers from 50 different organic farms around Norway brought some of their soil as a contribution to the grain field that was established at Losæter (Tampere & Chapela, 2015 p. 7). Since then a 'city farmer' has been hired to manage the land, a sculptural bakehouse has been built (in the shape of a rescue ship), and the place has been filled with activities and events.

The organisation of the place is somewhat unstructured and unclear, and according to project manager Hovind, that's how it should be. Their strategy is that with an open structure, people are allowed to enter and contribute to the development of the place and test out ideas. Officially there is a foundation with a board who oversees the development. Practically, almost all of the day-to-day organising is done by the 'city farmer', who for the past three years has been hired full-time by the Norwegian farmer's union to manage the land and the people at Losæter. He has invited and involved several organisations and NGOs that work with topics related to the work done at Losæter. This involvement is in the form of volunteer work, courses and lectures on organic vegetable farming and hosting of events and dinners. Every Wednesday during the season the organisations take turns hosting a community dinner where everyone is invited to participate in harvesting from the field, preparing a meal and eating together. In 2018 it was decided that the municipality of Oslo would take on the responsibility of hiring the 'city farmer' at Losæter. Early 2019 a second 'city farmer' was hired in a full-time position in addition to the first one who will continue in a 50% position. As Oslo is

the European Green Capital in 2019 there is even money for a third seasonal worker to be a part of the Losæter team.



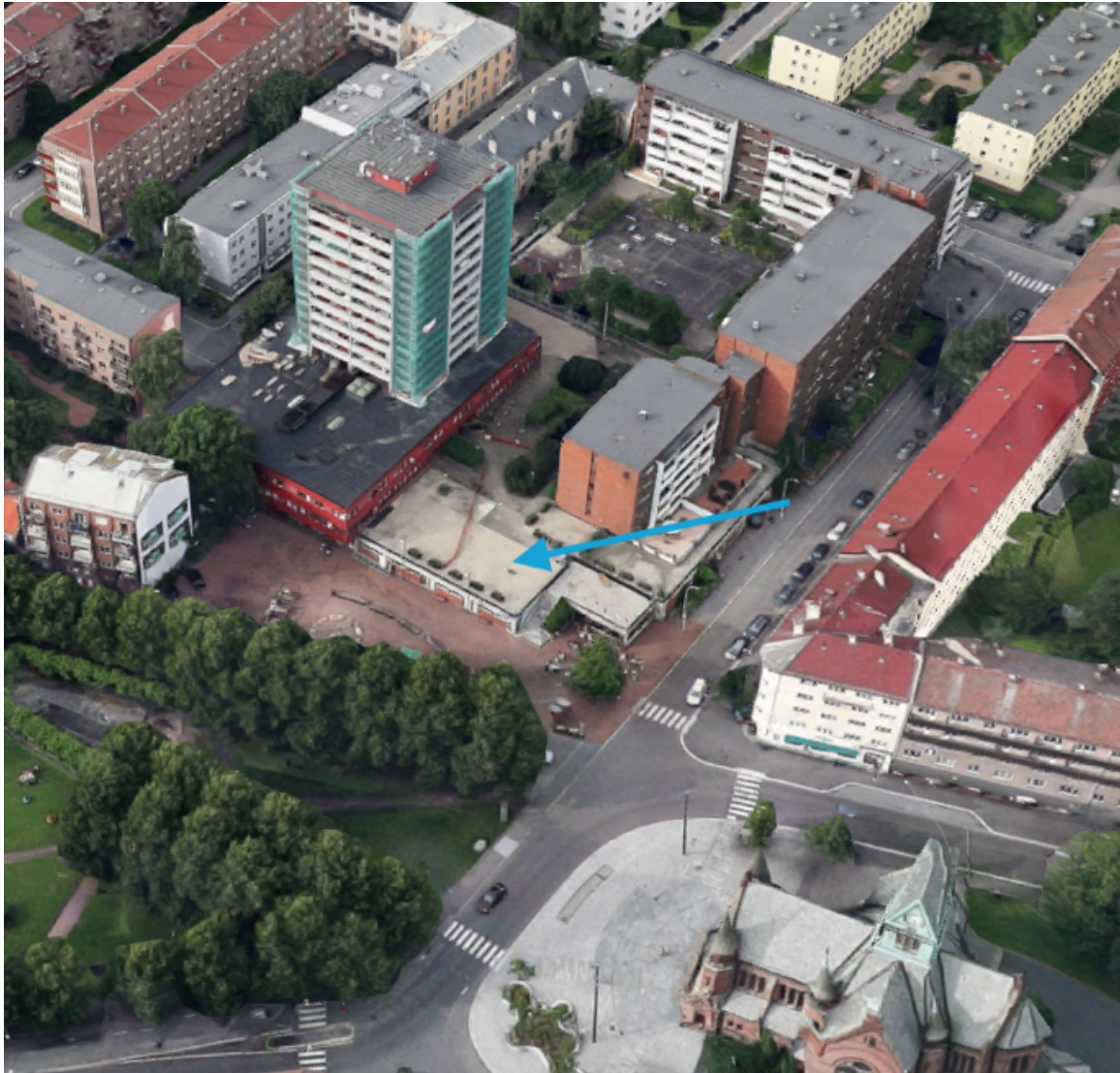
Picture 2 Aerial photo of Loallmenningen in 2018 with areas marked. Source: 1881.no historiske kart <https://kart.1881.no/?lat=59.90259466746537&lon=10.758630037307741&z=17&v=&r=&o=&layer=>

Herligheten and Losæter are in many ways connected; the location is the same, and the history and origin is the same, but in practice and in this paper, they are treated separately. The reason for this is to see the difference between the more individual-focused allotment-growing at Herligheten and the community- and learning-focused activities at Losæter. They are located on top of a highway tunnel running under the city. The two tall concrete towers (see picture 2) are venting pipes for the tunnel meant to bring the polluted air out of the tunnel, up and away.⁴ The combination of these towers and the fact that Losæter is located next to another highway has made people

⁴ https://www.aftenposten.no/osloby/i/0Ex73g/Slar-alarm-om-luftkvalitet-i-Bjorvika_-luftetarnene-gjor-ikke-jobben

wonder whether eating vegetables grown here is safe.⁵ In collaboration with Norwegian Institute of Bioeconomy Research (NIBIO) people at Losæter have been testing the soil and vegetables to make sure that they are safe to consume.

Sagene Takhage



Picture 3 The location of Sagene Takhage, before the garden was established. Source: Screenshot Google Maps <https://www.google.com/maps/@59.9383021,10.7522448,202m/data=!3m1!1e3>

⁵ <https://www.aftenposten.no/osloby/i/bO83/Na-skal-det-bli-seter-og-kornaker-midt-i-Bjorvika>

My third case is Sagene Takhage (Sagene Rooftop garden). It is a rooftop garden on top of Sagene Samfunnshus (Sagene community centre) and is a community-organised garden that officially opened in the summer of 2018. The idea was born at a permaculture course, where four individuals started discussing the possibility of a rooftop garden. The process moved forward and was connected to the organisation then called Oikos (now Økologisk Norge), who is working to promote organic agriculture in Norway. Early in 2017, the first idea workshop was held, and the plan was to have the garden up and running that summer. A lot of planning was done, but bureaucratic processes (agreements, contracts, licenses etc.) kept them from initiating the garden activities. The location was decided to be the rooftop of Sagene Samfunnshus. This is a one-story building hosting a community centre, and the roof is also the ground level of several tall apartment buildings. The space is owned by the OBOS housing cooperative (who manages all the apartment buildings), and a contract with the cooperative board was necessary to get the process going. In addition, the assessment of the carrying capacity of the roof had to be done by an engineer, a deal had to be made with the insurance company and they had to find a contractor and a landscape architect.



Picture 4 Sagene Takhage summer 2018. Photo: Janeth Rojas

Through the hot and dry summer of 2018, the garden was kept by well-organized volunteers, watered almost every day and grew lush and productive. The lightweight soil brought from Denmark (consisting of high content of organic matter and pumice from Iceland) with a special drainage mat beneath proved successful both in terms of nutrient

availability and water holding capacity. There was also a change in the coordination of the project where the initiators stepped down and got new people in to find a way to organise the space and include the neighbours. Through the season several events were hosted: community dinners based on the harvest from the garden, workshops and co-working in the garden. Some people showed up for these events, but the core of people involved counted around ten people through the season.

To explore these cases I have utilised the following methods:

- Semi-structured interviews; to provide individual accounts on learning experiences from participation in urban food gardening
- participant observation; to supplement information about the context and a tool for recruiting participants
- online resources and literature; to provide more context

Participant observation

For this project, participant observation has been used for several purposes; as a tool to get a good understanding and overview of the initiatives, get to know the participants in each initiative and let them get to know me. In practice this has meant going to the public events, introducing myself as a researcher, but participating in the activities just like the other participants. My strategy has been to get to know the different people involved, what kind of people they are and how they ended up there. This was an important step in finding the right people to interview later, but also gave me a good understanding of the way the different places were organised and how they functioned. In order to stay updated about these events, I obtained contact with someone with an overview of the events early on, and I used Facebook to find the dates.

Because of the diverse nature of the three initiatives, form and content of the participant observation varied from place to place. For instance, Herligheten being an allotment garden did not have many community events, but some members joined in on different events at Losæter, including community dinners and the annual Losæter festival.

Semi-structured interviews

The bulk of my data comes from semi-structured interviews with participants from each of the cases. I followed recommendations made by Weiss (1995) and the insights of Bernard (2006) in conducting interviews.

Sampling, recruitment and interviewing

A nonprobability sample strategy was utilized as this study can be described as an intensive case study, where I try to “identify and describe a cultural phenomenon” (Bernard, 2006 p. 190), here being urban food gardening. I started by asking the project coordinators/managers to help me find participants to the study. The goal was to recruit five articulate participants from each case that could provide useful data for my research questions. To achieve this, some snowball sampling was also necessary (Weiss, 1995 p. 25). The sampling judgement was for the most part based on good knowledge of the participants in each initiative through participant observation and conversations with the people involved. Because the level of participation varied with many of the people I met during participant observation, I developed some criteria for participation in this study. I wanted my participants to have experienced at least one full growing season. As many people attend different events without necessarily taking part in the growing, I added a criterion of active participation in the growing activity (digging in the soil, sowing, weeding, watering etc.)

I ended up with five participants from Herligheten and Losæter and four from Sagene Takhage (they had many volunteers that helped watering, but by the end of the season, not many of them were left). In addition, I interviewed the project managers of the cases to get an overview of history of the garden and how it is organised.

I sent requests to the participants I wanted to interview in order to arrange a time and place for the interview. This was for the most part done by e-mail, but in some cases I had to use Facebook Messenger when I did not have their e-mail address. In this request I also attached the consent form where a description of the project is included (see appendix B). While I got positive replies from all, not all were available for an interview in my period of fieldwork. Those who were available were interviewed in a place that

was most convenient for the interviewee. For most of them this was a café in the vicinity of their home or work, at their job or in their own home. Before the interview I introduced the project again and gave them the opportunity to ask further questions before signing the consent form. All the interviews were recorded with permission from the participants.

The interviews lasted between 30-60 minutes. Because of challenges with recruiting the participants and arranging the interviews, the period for conducting interviews spanned several months. The first was done in September 2018 and the last one in March 2019. My main focus during the interview was to pursue a good interviewing relationship, as described by Weiss (1995 p. 65).

Interview guide

I decided to structure the interviews in a way that allowed for a natural transition between the topics and that made the respondents feel safe and comfortable. The interviews covered three topics: the past, the present and the future. The past is related to where the respondents came from, what interests they have, how they ended up in the food gardening project, and what their motivations were for joining. The present is the activities they have participated in, what they had learned from them and to what extent they share this newly acquired information with others. The future dimension deals with how this new knowledge has affected their future thinking and actions, if it had changed their way of thinking about things. I also asked about further participation and what motivations they have for that.

Through testing the interview guide I found that starting with the entry into the project was a good place to start. This was a good way of bringing them right into the reason for the interview and also something that made them start reflecting on their participation. The questions were formulated and structured with the object of getting the interviewees to give as detailed accounts of their experiences as possible and reflect on these (for the full interview guide, please refer to Appendix A).

Qualitative data analysis

The recorded interviews were transcribed by me in a MS Word-file. The transcription included the whole interview with focus on the content and not including superfluous words and phrases. The transcribed interviews were imported to the qualitative coding software NVivo 12 and coded in two stages. In the first stage I identified emerging categories from the material. The next stage included matching these with the categories of types of learning developed by Kerton and Sinclair (2010) (see table 1 below) built on the work of Diduck and Mitchell (2003). The results of this process are presented with summaries and quotes (in chapter 4) and in a codebook (see appendix C).

instrumental learning	communicative learning
1. <i>scientific and technical knowledge</i> — e.g., did participants learn something about growing organic food?	1. <i>insight into one’s own interests</i> —e.g., had participants reflected on their own behaviour in relation to food?
2. <i>knowledge of legal, administrative, and political procedures</i> —e.g., did participants learn about the organic food system, such as certification?	2. <i>insights into the interests of others</i> — e.g., did participants recognize shared or differing values with other individuals?
3. <i>new social and economic knowledge</i> — e.g., did participants learn about the place of organics in the overall food system?	3. <i>communication strategies and methods</i> — e.g. had participants communicated their knowledge about organic foods with others?
4. <i>knowledge of potential risks and impacts</i> —e.g., did participants consider the environment and/or human health as part of their involvement in the organic food system?	4. <i>social mobilization</i> — e.g., had participants encouraged others to buy organic or become involved in related advocacy issues?

Table 1 Categories of instrumental and communicative learning. From Kerton and Sinclair (2010)

The data material was also coded for presence of a disorienting dilemma with thematic embedding (what the dilemma was in relation to). This was done using a combination of NVivo 12 and an MS Excel Sheet, where the presence of a dilemma with participants were coded in NVivo and the connection to themes was done in Excel. Here, the definition of a disorienting dilemma “as an experience or situation which rather throws the learner off balance from their usual perspective and view” from learning “something profoundly new” (King, 2009 p. 5) was used as guidance for the coding.

Finally, I conducted an analysis of the level of reflectivity of what the participants said in the interviews. I went through each interview to find statements that represent the highest level of reflectivity of the participant. This was guided by a coding scheme developed by Kember et al. (2008) and adapted to the context of informal learning in urban food gardening (see appendix D). The coding scheme is composed of four levels of reflection (non-reflection, understanding, reflection and critical reflection) as well as two reflection themes (on growing and on food system). Lundgren and Poell (2016) recommend connecting reflexion to themes to contextualise the reflection. The interviews were coded for reflection in their entirety to find the “highest level of reflection” (Kember et al., 2008 p. 372). Results of the analysis are presented with a summary of the findings with examples from the data. For coding scheme, please refer to appendix D, for table of results of analysis, please refer to appendix E.

Elements of food democracy are dealt with by highlighting examples from the two analyses that indicate active participation in shaping the food system (as defined by Hassanein, 2003) in the discussion.

Methodological and ethical considerations

The project was reported to and approved by the Norwegian Centre for Research Data (see appendix F). All the quotes (with the exception of one interview that was conducted in English) were translated from Norwegian to English by me. The participants have read and approved the translation and interpretation of all the quotes included. Each participant has been anonymised and given a code name: an abbreviation of the project they are involved in (Los, Her, Sag) and a number (1-5).

4. Results and discussion

In this presentation of the results, I first address the learning experienced by the participants following the categories developed by Kerton and Sinclair (2010). Then I present results of the analysis of elements of transformative learning, addressing disorienting dilemma and level of reflectivity. Results are presented as summaries of the findings, exemplified with quotes from the interviews. Elements of food democracy will be dealt with in the discussion.

Instrumental and communicative learning

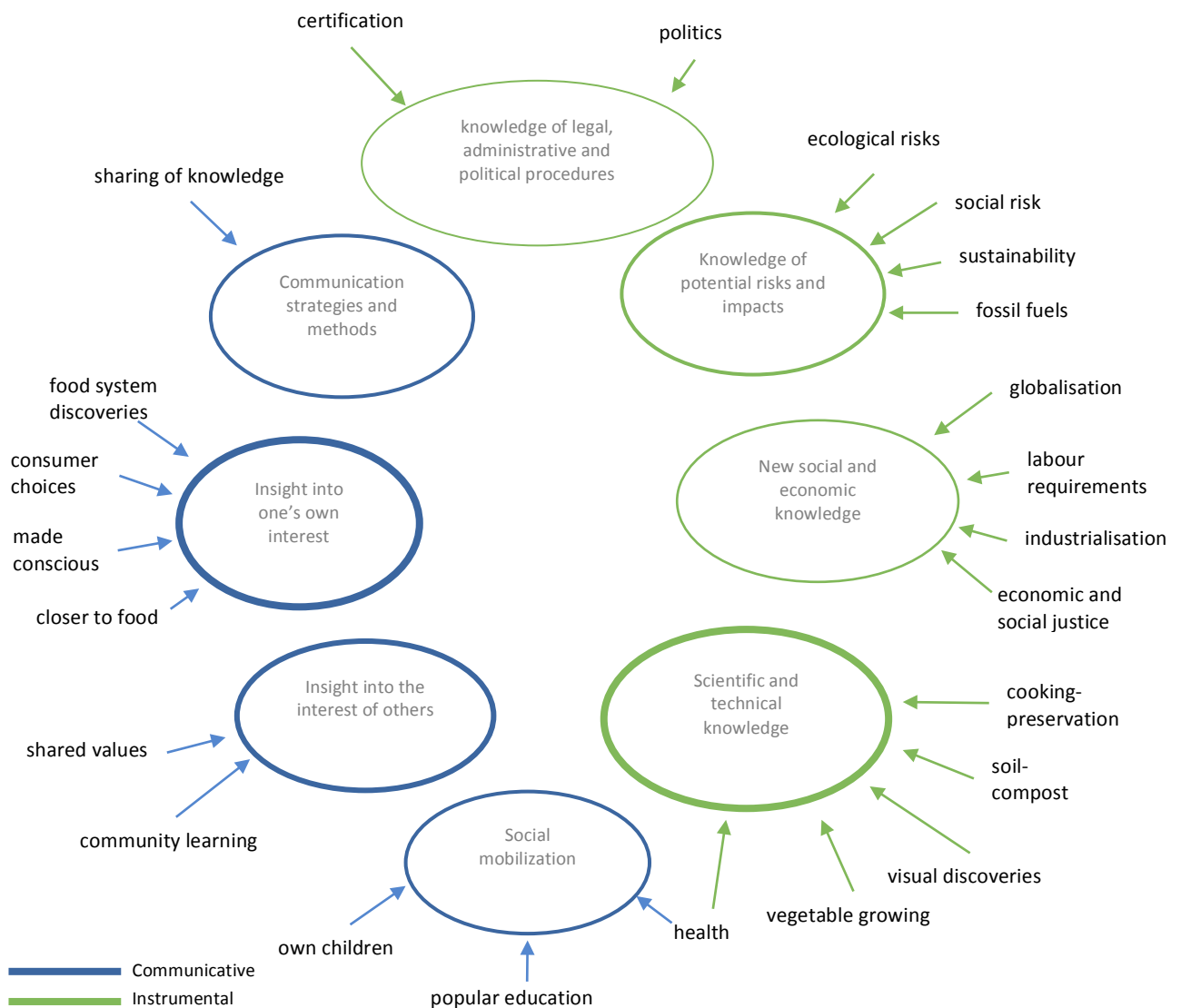


Figure 2 Map of my findings of learning experienced in urban food gardening (outside the circles) and how they relate to the categories developed by Kerton and Sinclair (2010) (inside the circles). Thickness of line represents frequency of the category in data material.

The results from the analysis of instrumental and communicative learning are presented in the map of the learning experienced above (see figure 2) and summaries and quotes below. For more details regarding this analysis please refer to the codebook in appendix C, which has the overview of the coding of the data material.

Instrumental learning

The participants I talked to had learning outcomes that can be characterised as instrumental learning. Of the four categories under instrumental learning the one most often mentioned is learning of a scientific and technical character, whereas knowledge of legal, administrative and political procedures is less frequent in my results.

Scientific and technical knowledge

The participants gave descriptions of gained scientific and technical knowledge. This includes new information about plants and how they grow, what they require of care and nutrients and how they can be prepared for consumption. For the participants in Losæter, the learning outcomes are much more focused on soil and how soil functions than in the two other cases:

I really think I have learned a lot about the soil, that is to say, when we got the overview of what we were going to do I thought "well, well, are we going to spend that much time learning about that and how much is there to learn about that, sort of" but then the more you learn the more there is, as often is with new things. So, I think it has been very exciting. (Los5)

Many of the participants emphasise the importance of practice in the learning situation. This is seen in all three cases, however, at Losæter it has been an emphasis on the combination of theory and practice, where the city farmer has given lectures on organic horticulture as a part of the activity. Most of what is taught is also practiced on the field:

It's kind of nice to see, and then you also learn which things go together and not. Experiences are exchanged and, it's just being there and seeing that. It's a research program almost in itself, and that's kind of cool, that they try it out in practice and see if it works. (Los5)

I think it is most fun to learn by doing things. So, I think, I just have to give lots of praise to the city farmer, as a place for learning it is absolutely fantastic. (Los1)

Several of the participants reported scientific and technical learning outcomes, but struggled to find concrete examples:

Well, I have learned a lot, I feel it, but it is again the concrete things. For example, not cultivating the same things in the same place, move things a little and how much things should be watered in relation to others. Learned, one learns, that's what one does, but I cannot think of anything specific. (Her4)

A participant from Herligheten allotment garden reported not really learning that much, despite having had the allotment and growing every year for four years. The participant blames this on the lack of a knowledgeable growing partner:

So [my friend] was with me, my friend that I shared with, she was in for two seasons, I think, so we were growing a little together and I learned a little about this very simple cultivation, she was not an expert either. But we did grow tomatoes and strawberries and potatoes, a little bit of everything really. And then she left, and I kept the parcel, so I thought about going on with it, and I did, but I wasn't that motivated, I just have to find someone to share with really. I tried last year, but I didn't succeed. So the motivation has not been as high as it was before. But I haven't learned so much really. I'm just trying to cultivate what is easy to grow. (Her5).

The allotment gardeners are more left to themselves in obtaining the knowledge and information they need compared to the other cases and they seem to rely more on trial and error. This makes the learning process more challenging and long-term:

It's a lot of "troubleshooting", it goes so slowly you know. It's not like you can implement something and then it's done right away. Now we should really have been there and staked up the soil and added a bit of chicken manure. It is like this, it takes a season to figure out some of the things that are very crucial. So that we

should have lots of organic material in the soil. Who would have told us that before all the plants did not give any particular yield. (Her2)

A prevalent scientific and technical learning outcome reported by the participants from Sagene Takhage are related to seeing how some plants grow and what they look like. This includes both seeing the plants of common vegetables and discovering new vegetables such as kale and swiss chard. One participant talks about discovering that there are in fact many more plants that can be grown in Norway than what is usually communicated:

I have learned a lot. There are some basic things I think I did not know about, how some of the plants you go to buy in the store grow: what they look like as a plant for example, size, when you can harvest them and what can grow here. Such things I get very surprised with, we have almost been raised with that in Norway we cannot grow much. But it turns out, there are many different plants we can grow. So seeing these plants and knowing that it is quite possible, even with a dry summer, the plants came just like that, with this [showing about 30 cm] deep soil layer, it was quite impressive. So that it is a lot which is possible, I think I've experienced that already, and I've seen broccoli, I've seen the Brussels sprouts, some plants that you don't see normally, so you forget a little about how it happens. (Sag4)

Knowledge of legal, administrative, and political procedures

Some participants described new knowledge of legal, administrative and political procedures. This is a topic that several of the participants have knowledge and opinions about, but they did not connect it directly to the experience of participating in urban food gardening. This is the situation for participants both at Herligheten and Sagene Takhage. Food politics and certification are topics participants from Losæter described learning new things about:

I didn't know much about organic food production until I became active at Losæter, and I was in doubt as to whether organic food was something to trust, or whether it was just an invention for some to make more money. But I have now

become convinced that this is not the case. And yeah, it has become important for me to buy sustainably produced food, something I did not have so much knowledge about before. (Los2)

An allotment holder at Herligheten has, through attending different events, critical thinking and information from alternative forums developed a scepticism of the organic certification system and the hype around it:

It's just as much the events I've been to where sometimes such claims about organic [agriculture] have been thrown in and if you ask counter-questions or try to dig into it, what is it, why is it relevant, why is organic fertilizer versus mineral fertilizer important [...] organic has become so much larger than it actually is, one has built a sphere of associated qualities around it, which is a bit dangerous because it is given qualities it does not have. For example, with non-toxic. That is, it is non-toxic, but there are organically certified toxins, just as damn poisonous. [...] Perhaps rather moderation is more important. The way we have run industrialized agriculture, the depletion, and pouring on mineral fertilizers is of course not, it is not viable, it isn't, what is it called, sustainable. (Her1)

New social and economic knowledge

A new understanding of what food production includes and, for instance, a better understanding of what organic food is and why it is more expensive are examples of new social and economic knowledge:

When you buy organic, for example, you know that there is a reason why it is much more expensive, because when we see how much time we spend on growing the little we grow, then it is clear that it is a reason why it is more expensive. (Her3)

Having learned more about how food is produced, some of the participants would like more information about the food they buy in the store, in order to base their choices on more facts. One example that was brought up is making the choice between a local conventional and an imported organic vegetable:

Yes, it would have been very nice to have an app that could quantify it. If I can choose then I go, I would like to say most often, for conventional food that is produced closer to Oslo than organically produced farther away. But usually, if one stands between the two choices, some packaging comes into the picture. And, I think it's quite ridiculous how much packaging there is in Norwegian food stores, everything is surrounded by plastic, so it's a bit frustrating. There are quite a few factors that come into the picture that one has to judge without actually knowing as much as one should be able to know about all those factors that play in. So one has to take a fairly "uneducated" assessment of what to buy. It gets a little frustrating. (Her5)

The learning can also be related to seeing the structures surrounding different social movements in the food system:

I have probably become even more aware of much of the religion in organic farming and some such things. I am very knowledge-driven and when I do not get any reasonable answer to knowledge-based questions I get less faith in some of the things. I appreciate the knowledge I acquire and the experiences I make myself. (Her1).

This participant has also been part of the baking activities in the bakehouse at Losæter, and connects some of the learning to this involvement:

Just as much cereals, so much of the grain we eat [...] comes from South-eastern Europe. We probably do not have the space to do much cereal production over there [at Losæter], but we have had a bit of Finnish rye for baking. And that's funny, but it is more for the sake of curiosity. But perhaps it helps to raise awareness, that is; what I want to ask for in the future. I have always been interested in the options, I think it has been strange that there were like four types of grain and that was it. And now we have started to get more varieties of grain and some of it may have historical roots that are interesting, and it has probably come through the activity over there [at Losæter]. (Her1)

A participant from Sagene Takhage express being optimistic about participation in food gardening and conscious of, not just the food system, but sustainability in general. For this participant, perceiving that nature has its own solutions brings about the understanding that the sustainable solutions should be to work with nature. The participation seems to help understanding some of these things better:

You are in a way peppered with it every day, that you have to be environmentally conscious. I think gardening and agriculture have in a way made it perhaps not just empty, or an abstract concept that you see on television or read about, but that you can be allowed to observe that nature is actually so cool, and rely a little on it.
(Sag3)

Knowledge of potential risks and impacts

Participants said that they had acquired new or improved knowledge on the potential challenges that the agricultural system is facing. An allotment holder from Herligheten was offered to adopt beehives that someone had been keeping there. Through a beekeeping course at ByBi⁶ and one season of practice, this participant talks about improved understanding of the connection between bees and food production:

It's like what you learn in kindergarten, bees pollinate plants, but I know a lot more about it now that I have taken a beekeeping course. Yeah, how important it's for food production. One third of the food is here thanks to bees, including coffee. Had it not been for bees then we could not be drinking coffee now. It's really a bit strange that people are not more aware of it, but ByBi and other such beekeeping teams are very good at sharing this knowledge and it is more and more people who are interested in becoming beekeepers. Then all this knowledge is spread, so it's good, it's good it gets hip, because then people know more.
(Her4)

Several of the participants at Losæter brought up soil health and the risks related to the deterioration of the soil. This was new information to them, and they found it frightening when they realised how serious it can be:

⁶ Urban beekeeping association in Oslo

It has been one of the things that I have learned most about, seeing how our farmland can actually die, it is very scary, terrifying. On a par with insect loss [...] After all, that's what is critical, I think, that this was maybe the worst, the soil we already have, that the farmer is responsible for this, that is so bad, that's critical. After all, it is those who should know this. And then at the same time being a member of the Farmers Union, it is kind of strange. But I do not quite see that they have such super-capacity to go into that problem, not enough knowledge either, perhaps. It's a fight someone should take soon, to inform the farmers simply, or engage farmers. (Los5)

A concern of social character that came out of participation in the food gardening practice for some participants was that of farmers and their livelihood:

I have always thought "poor farmers, they have difficult lives," but now I see they really have difficult lives. There is so much to do, and you can't relax at all, so I got much more empathy for the people who do farming in general. And my God, I work in an office, I am an IT engineer, and where I just press a button, sit and wait, you know, grab a coffee. But when you are working on the rooftop garden there is nothing like drinking coffee, it is like working, working, working and then come winter so it's writing applications and then start planning. (Sag1)

Communicative learning

Learning that can be characterised as communicative was also found with the participants. This includes learning from communicating with others, sharing the new knowledge and an increased awareness of our role in the food system as consumers.

Insight into one's own interests

Insight into how we are all a part of the food system came up often in the interviews. This includes starting to think about the relationship we have to food and nature and how we can make changes in our lives as contributions to improving the food system. These changes were for the most part related to their individual contributions such as

dollar voting⁷ and reducing own food waste. Answering questions about how this new knowledge had affected them, many talked about being more interested in supporting sustainable or organic farming practices by choosing such products:

I see a much greater reason to choose sustainable when I buy food and know more about it, which is what I learned about sustainable agriculture from the people I have met through farming practices and horticultural practices. Plus, of course, I've read, but it's something about that inspirer. And it has a lot to do with conscious lifestyle choices and such things, so having had contact with how we produce food has probably had plenty to say for me in terms of how I both cook and what I buy. And how I live really, a little. (Sag3)

This quote is also an example of a participant who connected the involvement in food gardening directly to changes in lifestyle choices. Another participant talked about a similar experience, making more conscious choices when buying food:

[...] such food choices, for example, I think comes to a great extent because I have started to grow food myself and am a little more aware of these things. Where to buy the food from, where does the food come from, it came after I started to grow the food myself at Losæter. (Her4)

What came up with other participants was that the involvement had contributed to some change but was mostly strengthening or reinforcing existing beliefs. A participant from Herligheten (Her1) said that involvement in urban agriculture was not solely responsible for a change in awareness and gained knowledge. However, growing vegetables made ideas under maturation more apparent, thus making them easier to grasp. Similar experience was described by another participant from Herligheten:

For me, it has strengthened what I meant before, which has been that it cannot be sustainable the way we consume food today. I think it has only strengthened the awareness of what goes into what I pick up in the store and take for granted. (Her2)

⁷ Deliberately making consumer choices to promote a practice or way of production

Many of the participants describe the change in or reinforcement of their beliefs as a continuing process. One participant from Losæter recounted a specific incident that was of importance for this change:

There was a moment, because we got a lot of arugula and it gets bad pretty fast and then it was once when I brought a lot of arugula home. And then I couldn't eat it all, and, in fact, I think I threw it. I froze some and threw some, but there it was, there I think, just like that 'what the hell. I have spent so much time cultivating this and I can't just throw it all.' (Los4)

Insights into the interests of others

The occurrence of participants experiencing communicative learning through a sense of community was prevalent in all three cases. There seems to be a distinct sense of community at Herligheten, where it is mostly centred around learning about growing vegetables from each other. At Losæter, and to some extent Sagene Takhage, there are more people talking about finding people with similar interests and learning from each other about a broader variety of food related topics. Participants from Losæter expressed that the sense of community contributed to increased interest for and knowledge about food related issues:

Yes, surely you can read about it, but it is always fascinating to learn about things and be in an environment where you are in communication, because then you can ask questions and get input from others. And especially on such a field as this, where it's maybe a bit of disagreement [...] So being in an environment where people have many extremely different skills that is put into play, that's what is a bit fun with that. [...] Not only do they learn from each other but there is more knowledge that comes out of it, simply because they put together things that may not have been put together before. So that's actually what is, it's economies of scale really. (Los5)

There are accounts of joy with finding people that share your interests and that you can learn together with. A participant from Sagene Takhage found likeminded people in the garden that she shares an interest in preserving food with. They are not experts, but

eager to learn and share their knowledge with each other. Some participants is also inspired by meeting knowledgeable people in the garden.

Communication strategies and methods

Participants described how they share their knowledge with family and friends. One aspect that came up frequently was that this sharing of knowledge requires the right setting and is not something to be done with anybody at any time:

Yes, I share most of the time with people who are interested in cultivating, I don't go around explaining to my friends who doesn't care about it. Most of it is between me and my cohabitant, because it's we who run it, also my mum too, because she is sometimes involved in the parcel garden as well. Or if I have some friends who also have a balcony garden, I share some tips with them. (Her4)

Some issues and topics seem to be of such importance to the participants that they shared also with people who are not necessarily interested in food and food gardening:

I think my friends are really tired of listening to me talking about bees because I've talked a lot about it, but it's kind of been my first season, so I've been completely hooked and mind blown by bees, they are quite fascinating. (Her4)

Social mobilization

Many of the participants reported taking action or desiring to involve more people in the food gardening experience and share the insight in the state of our food system. One participant from Losæter stated "using every opportunity to tell people [...] that we need to take care of the soil" (Los5) and evidently sees this as an important message to spread:

Yes, certainly, our friends think it's terribly strange that we are farmers, now that we moved to the city, so it is in itself a little fun, a good story sort of. But being allowed to contribute and say that "yes, but it's really important," it's very good. And people are interested in it. People do not know; it is not something that is talked about. Insects and such we have begun to talk a little bit about, but the

condition of the soil people are not talking about, I have not heard that people address it really. (Los5)

Some are acting as missionaries trying to get family and friends to understand why they should be concerned with the food choices they make. A participant from Losæter talks about having parents that buy soon to be expired food, but that they are not so interested in organic food:

It's something I'm constantly trying to mission for my family and friends, but they haven't quite hooked on yet. But I do see that they buy more and more organic, so that's good [...] when we are going to meet out to eat for example, then I try to choose restaurants, eating places where they focus on using organic ingredients and then I explain to them why it is important and why to buy organic food. (Los2).

Another participant from Losæter is combining an old interest of filmmaking with a new interest in and passion for soil and is now in the process of making a documentary film about regenerative agriculture⁸:

Now I have been so inspired by this with soil and this regenerative agriculture that I intend to make a documentary film that will take one to two years that I have started. So, yes, that's the kind of things I've done. (Los 4)

This new interest and passion appear to have come from the participation in the Losæter community garden:

That's a bit of what I have the most passion for. Because I got a very emotional experience when I was [at Losæter], and learned about things that are really important, for example soil, why we should care about the soil. Because it is where we get most of our food from, and I think it is very relevant for everyone to understand how this works, how long it takes to grow food. And sort of get closer to nature, because I believe that many people in general have become very [...] one is very disconnected. And I would like people to become more emotionally connected to all this; to nature, to the food we eat and such. And realize that it

⁸ Farming practice that aims to build soil while producing food.

takes time to make it, for example, and all the work that lies behind it and perhaps then not throw so much food when you realize that there is so much resources, money, time and love behind it. I want to share this because I think it's very, very relevant for people to understand. (Los4)

I have found that involvement in urban food gardening contribute to learning of both instrumental and communicative character. In the analysis below I assess the transformative learning outcomes of the participants.

Transformative learning

The further analysis of transformative learning is here done by assessing to what extent my participants has experienced disorienting dilemmas and the level of reflectivity in their accounts. These results are presented as a map of themes of disorienting dilemmas (see figure 3) and summaries and quotes (levels of reflectivity organised under the categories adapted from Kember et al. (2008)).

Disorienting dilemma

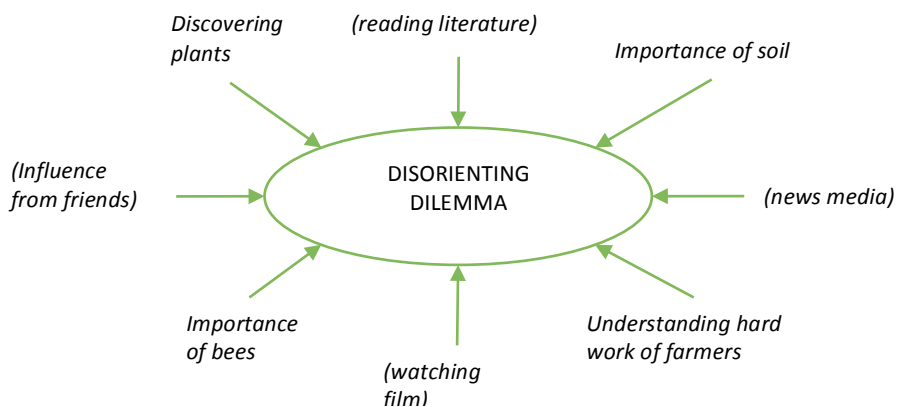


Figure 3 Map of themes of disorienting dilemmas found in urban food gardening experience (in parentheses not related to participation).

Participants felt that the involvement in food gardening reinforced their existing beliefs surrounding food related topics and sustainability. This includes getting new information that confirms what is believed from before or acquiring new knowledge that expands the understanding. For a participant at Losæter, the newly acquired information about

the critical condition of our soil was a catalyst for acting more and contributing to change:

It reinforces a little because one discovers that it is a bit critical, then it reinforces the engagement around it, that one has to act a little more, contribute a little where possible. (Los5)

It can be argued that this quote also is an example of what Mezirow refers to as a disorienting dilemma, which is the first of ten phases of the transformative process (2009 p. 19). Other participants also talked about experiences that fit this description. For instance, the participants from Sagene Takhage who realised that they had never seen a broccoli plant before, they had only seen broccolis in the food store. This experience seems to have induced a feeling of shame and worked as a trigger for self-examination:

I learned what a broccoli plant looks like. It was completely new to me, I was ashamed when I realized it, but yes. [...] Then I thought "everyone has to see this". We can't go around not knowing what a broccoli plant looks like. It also looks so cool, so you just have to see it. (Sag3)

The most prevalent theme that I identified as a disorienting dilemma was related to the importance and potential of soil. It could be detected with participants both at Losæter and Herligheten:

It makes so much sense that when there's nothing there to hold nutrients in the soil and there's no plant life it just gets washed away. But by keeping something there and also just cutting up and making it become part of the soil that you just get so much more nutrients in the soil, and it would make sense that the crops that grow from that would be better. (Los3)

Other themes that came up was the discovery of how important bees/pollinators are for food production and understanding how much hard work that is requires to grow vegetables organically. Some of the disorienting dilemmas recorded had happened prior or unrelated to participation. Participants mention the media as a contributing factor for

discoveries, others have friends informing them about aspects of the food system they should be aware of or they have watched films or read literature that made a significant impression on them.

Level of reflectivity

By assessing the level of reflectivity of the participants in their learning experiences, using the four-category coding scheme from Kember et al. (2008) (see appendix D), I have found that most of the participants gave accounts that go in the category of reflection. Accounts with critical reflection related to the involvement in food gardening are limited.

Non-reflection

There were some examples of no reflection on growing of growing plants. In an account of a participant indicating no reflection, the joy of the social aspects of participation and the ability to be part of growing vegetables were emphasised. Learning and reflection did not seem to be of great importance, but rather meeting new people and socialising.

Understanding

Some accounts of participants indicate elements of understanding both of the food system and on growing food. There is evidence of understanding of how plants grow and that locally produced food is a good thing, but why this is good is not addressed.

Reflection

Most participants gave accounts indicating reflection related to the food system and on their own growing of vegetables. These participants manage to connect their newly acquired knowledge to personal experiences and place the new knowledge in relation to what they knew before. For instance, one participant who had bad experiences in the past with organic craft bakeries and how expensive they were said that now this makes new sense:

And then I was up and said clearly what I meant about it, in a polite manner, "but do you know what, it's all very good with organic food and all, but I can't afford to

buy it, so I think you are too greedy" I told them. "You exclude a lot of people." And see they just "yes, yes, yes", so it has been a fun journey in my own head, that now I understand a little more why. (Los1)

Relating new knowledge to practical daily actions, such as cooking, can be another example of reflection. Understanding that the way we are used to relate to food might not make sense after having had the experience of growing food and grasping how food is seasonal:

I would like to emphasize that cooking should follow the season instead of food production following the human desire. If we have lots of tomatoes, find out what we can do with them, use them before it's too late, or we have a lot of beans, then we must make bean stew. So start thinking about what you have available instead of planning what you should have and then buy it. (Her2)

The participants also narrated many reflections relating to the food system that came from other involvements or previous experiences, and not their participation in the garden.

The reflections participants had related to growing vegetables includes learning how vegetables grow, acquiring new information about this through experience, conversations or literature and applying this new knowledge:

I think it was fun learning about cultivation myself, and I thought I knew a lot, but actually I didn't know that much. So, when I talked to the gardener, I made lots of mistakes, you know, with planting and "you have to plant chilli in that way and tomatoes on that and this much fertilizer and stuff like that" and I like "okay". (Sag1)

For the participants at Losøter the new knowledge was more centred around soil, the importance of soil and techniques for keeping it healthy and full of life:

The way to fertilize, in the surface and not so much, that the soil should absorb it, not dig too much, that you should plant different things together so that the soil does not have black areas and such things, so we do it in practice. (Los5)

All participants at Losæter gave accounts containing reflection, and some of them are transitioning to critical reflection. One participant recalls learning how to make cookies from a parent as an adolescent as a critical event for developing an interest in cooking, which further led to a deeper interest in food, how it is produced and where it comes from:

I think for me it started off as being very oriented towards the final goal in making something taste really good. But I think as I've become more of an adult, I think learning about the social and ecological dimensions of food has been really interesting and I think that has kind of changed the way I eat. (Los3)

Other participants from Losæter reported a change in their perspective on the food system, but there is no evidence of premise reflection, which is an essential part of critical reflection (Mezirow, 1994 p. 224). Some went from practically no prior interest or experience in food or gardening to having it as a main interest and passion after two years of participation. Another participant had for a long time had an interest in food and gardening, but the experience at Losæter learning about soil health, practically and theoretically, contributed to a change in perspective on the food system:

I participate because I am concerned with these issues as well. It is, after all, when you learn that it is a bit critical, then you become more engaged in it, but I do not know if it affects choices beyond what I already do, but that's a bit because in a way I might have the basic values in the first place, so like you are already there. [...] the more you know if it is easier to get involved in it. (Los5)

Accounts involving reflection on growing from participants at Losæter were also centred around soil and regenerative agriculture practices.

Critical reflection

Critical reflection related to food systems was present in the descriptions both at Herligheten and Sagene Takhage. One participant from Herligheten attributed the change in perspective on the food system to reading a book about cheating in the food industry, prior to involvement in the garden. Succeeding years of gardening, attending

food and gardening related events, searching the Internet and talking to various people has contributed to this perspective change and an awareness of the food industry:

Yes, it is not so much the participation in itself that has done so, but rather that it is part of the whole process that has made me a little more aware of the industry and all the processes that lie behind getting the food to the table. (Her1)

One participant from Sagene Takhage explains that growing up on a smallholder farm and attending a self-sufficient folk college (folkehøgskole) as a teenager was important for developing a critical consciousness related to food. In more recent years, she has also been dealing with critical questions surrounding the food system through her work. Involvement in the garden gave new discoveries such as seeing new vegetables that can be grown in Norway. It also contributed to an understanding that urban food gardening can be an arena for similar experiences for urban dwellers who do not know how and what vegetables grow here:

I think it is a little thought-provoking that there are many who can walk around for many years not knowing what the food they eat looks like or how it grows, it is really a bit strange with a society where this is not something you know, or know so little about. (Sag4)

Discussion

Results from my study indicate that new insight, both of instrumental and communicative character can be gained through participation in urban food gardening projects in Oslo. This new knowledge seemed to be of importance for many of the participants' understanding of the food system, however, there was no evidence of participants going through a complete transformation, according to Mezirow's transformative learning theory, based on their participation. Some of the most interesting findings are:

- difference in sense of community between the allotment case and the community gardens
- the importance of community in the learning experience

- how connections are made between the practice of urban food gardening and the food system
- the presence of disorienting dilemmas and their role in the transformative experience
- lack of evidence of critical reflection
- lack of signs of participatory democracy

Kinds of learning

The first main finding relates to the main research question of this thesis. My reason for choosing three different initiatives as cases was to see if there is a difference in learning experience based on the way they are organized. The results suggest that one of few differences in the categories of learning outcomes is related to communicative learning and community especially. Accounts from participants in Herligheten indicate that the sense of community with their neighbours is mostly limited to practical tips related to growing. The two community gardens seem to include more sharing of broader interests, such as questions of food and sustainability. An explanation to this could be that the participants in the allotment garden enter the project with the main motivation of learning how to grow food for own consumption. Participants in the community gardens had motivations more related to social aspects and seeking community. This could also explain the lack of accounts of *social mobilisation* given by the allotment holders. With less insight into the interests of others, and not much of a feeling of community around broader food related issues, the urge to spread this further might be limited.

This does not mean that participants from Herligheten did not report knowledge on food related issues. There were reports of both new knowledge on social and economic aspects, potential risks and impacts and political issues such as certification. With some of the participants, these insights could come from attending various events, reading up on the Internet or in news media. Not all would be directly related to the participation but being involved in food gardening seems to act as a trigger or contributing to giving more attention to food related issues. A central question to ask here is: what is the link between small-scale food gardening and broader food related issues? One participant

from Herligheten did not see such a connection because the scale is so different. On farms, where most of the food is produced, they use big machinery and completely different techniques compared to in a tiny pallet box in Oslo.

This participant was however the exception among the people I talked with during my fieldwork. Many reported an understanding of how time consuming and resource demanding it is to grow vegetables. Experiences like this made them reflect on what being a farmer or a food producer is like and how we should value food. These findings are in line with what Kerton and Sinclair (2010) found with participants engaging with organic food producers and what Mitchell et al. (2017) found with participants in wild food activities attending a wild food festival. These do not necessarily involve hands on experience with growing food, but the social learning outcomes still made an impact. Previous theoretical research on community gardens also point to a great potential for transformative learning (Walter, 2013).

All the participants gave accounts that could be categorised as *insight into one's own interests*. This means that they all communicated some sort of dissatisfaction with the state of things in the food system and that they understood that they have a role in it. For the majority of the participants this can be connected to food gardening-related learning such as seeing how plants grow, understanding the seasonality of vegetables and some of the processes behind getting the food to the shop. Some had already taken action in different ways, such as trying to buy more organic or local or both, and others expressed a wish to get better at this, but it could be challenging financially or timewise.

There is an expected focus on soil related learning at Losæter, which seems to represent the most prevalent disorienting dilemma. This is a topic that is taught to the participants by the city farmer in lectures and practice throughout the season. Losæter is thus distinguished from the other two cases where there were no lecture activities, only individual and community learning in addition to some hired staff with expert knowledge. Based on this I expected the learning outcomes to differ substantially, but from my data material such differences were not clear. Aside from the difference in the content of the new knowledge, and the above-mentioned differences, there were no significant findings indicating this. One explanation could be the pre-existing knowledge

and interest of the participants, but it can also indicate that the experience of growing food is strong enough alone to facilitate these learning experiences.

Elements of transformative learning

Essential elements to the transformative process were found with many of the participants, but there was no evidence of complete transformative learning outcomes in my data material. One element is the experience of a disorienting dilemma, which most of the participants talked about experiencing related to different learning outcomes. For many, food gardening seems to be an activity that let them discover things that are not common to most people in the city. The results indicate that some of these discoveries involve feelings of guilt or shame of not having acquired this knowledge sooner. Mezirow explains this as the first steps of the transformative process (1994; 2000).

Mälkki (2012) explored the relationship between disorienting dilemma and reflection by studying the life-event crisis situation of involuntary childless women. She found that reflection is necessary to make meaning after experiencing a crisis. Whether the disorienting dilemmas found in my study can be characterised as life-event crisis can be discussed. However, in previous research, wide definitions have been utilised for disorienting dilemma, such as: “personal crisis, triggering event, or experience that challenges an individual’s belief structures” (Boyer et al., 2006 p. 358) and “an experience or situation which rather throws the learner off balance from their usual perspective and view. It may be something profoundly new they are learning in class, or the death of a loved one, persecution or divorce” (King, 2009 p. 5). For most of the participants in my study the disorienting dilemma is characterised by something profoundly new they have learned by participating in food gardening. Following Mälkki (2012) we should expect reflection to follow the disorienting dilemma as a way of making meaning. In my data material, almost all participants with disorienting dilemmas had either reflection or critical reflections on the food system or on growing.

One of the participants reflected, but had no record of disorienting dilemma, which could mean that what caused the reflection had happened elsewhere in the past. It could also result from a more continuous process. According to Mezirow,

transformation can “also result from an accumulation of transformations in meaning schemes over a period of time” (1995 p. 50) and not necessarily one disorienting dilemma. In conclusion, there seems to be a correlation between the disorienting dilemma and the presence of reflection in participants’ statements.

A higher level of reflectivity related to the food gardening experience in a transformative learning context did not come out of my data. Some participants talked about their experiences in a way that is in line with the description of critical reflection agreeing with Mezirow, but these had limited connection to the food gardening activity. The activities could still be a part of the transformation process but based on their statements in the interviews it could be argued that they entered the activity already practising critical reflection. Many other participants had gained new knowledge through their participation that clearly made an impact, but were lacking premise reflection, an essential element of critical reflection according to Mezirow (1994 p. 224) and others (King, 2009; Kreber, 2004), including the coding scheme for reflection followed in this analysis (Kember et al., 2008).

Following a stringent understanding of the transformative learning theory, the lack of evidence of critical reflection is the main shortcoming in my study. Therefore, it is inadequate to demonstrate that a full transformation has happened. In Boyer et al. (2006) a coding rubric was developed based on the work of Mezirow. The rubric is meant to evaluate transformative learning outcomes by collecting evidence of disorienting dilemma, critical reflection, discourse and action. In my results it can be argued that the level of discourse is quite high with reference to the communicative learning outcomes, especially the records of *insight into the interests of others*. Action is also well represented with *communication strategies* and *social mobilisation*. In conclusion, there is evidence of several elements of transformative learning outcomes in the data material, but not of a full transformation.

Despite the lack of evidence of perspective transformation, all participants seemed to have gained new knowledge that made them think differently about food and elements of transformation were detected. It has been suggested that research on transformative learning outcomes should not be so focused on whether or not transformation has

occurred, but rather be an examination of the process (Snyder, 2008 pp. 179-180). Following this, we can see the learning outcomes as relevant in themselves and explore their significance for broader public health and food systems transformation.

Elements of food democracy

Results from this study indicate that participants indeed develop knowledge that give them a better idea of how things are connected in the food system, and some of its social, environmental or economic aspects. However, my results do not indicate that they intend to act on this new knowledge in other ways than changing their consumption patterns (i.e. buying more organic and local, reducing food waste).

Several researchers have made the connection between transformative learning and democracy (Mezirow, 2000; Walter, 2013; Warren, 1992). Others focus on the link between participation in urban agriculture or other alternative food networks and democratic participation where learning is a central aspect (Andrée et al., 2016; Levkoe, 2006; McIvor & Hale, 2015; Travaline & Hunold, 2010). The essential idea is that “the knowledge necessary to imagine and enact more egalitarian futures must come from somewhere. Urban agriculture is an activity where such knowledge can potentially be cultivated” (McIvor & Hale, 2015).

The idea of the power of the consumer is debated in the literature regarding its transformative potential (Warner et al., 2014). Critics of this idea argue that despite many examples of people changing behaviour and consumption patterns, environmental problems continue to grow (Clover, 2002). The focus on the individual consumer is, according to Roff (2007), a neo-liberalisation of activism and takes the focus off the structures that are held in place by governments and companies. What is proposed as more effective actions to bring about structural change is *concientización* (i.e. critical consciousness) (Clover, 2002) and engaging with the state (Roff, 2007). It can be argued that many of the participants in my study have experienced a form of *concientización* – which inspired Mezirow’s theory of transformative learning (Mezirow, 2009 p. 18) – but it seems as if the engagement with the state is lacking. One example is a participant from Sagene Takhage who did not see any other way of making changes

than reducing her own food waste: “No, I don’t see how I could do anything about it. What can I do about it?” (Sag1).

Results from my study show that many of the participants in food gardening experienced a sense of community and made each other aware of critical issues with the food system. However, there was no indication of political engagement in any of them. This could be explained by the lack of understanding of political processes and the possibility for political engagement. It could still be argued that participants are taking steps in this direction by becoming more conscious of the state of things. Coupled with more knowledge on political processes and a state more open for public participation, food gardening as studied in this investigation could have positive impact on the food system and thus improved democratic citizenship (Levkoe, 2006; McIvor & Hale, 2015; Roff, 2007). Looking at non-GMO engagement and broader alternative food activism in Canada, Roff argues that “the state is not an open arena” (2007 p. 518). This means that access to decision-making processes is limited and for the most part only available to those with sufficient financial resources (ibid.). In addition, in food policy questions, the general public is seen as mere consumers, not active citizens that should have a say in policy making (ibid.). Roff proposes that a way to address this challenge is to “forge new identities that allow people to see themselves as more than individuals but as members of a collective society” (2007 p. 518).

In my research I have been researching urban food gardening in a Norwegian context where the motivations of the people involved are mostly related to learning how to grow vegetables and socialise. The actual production of food for consumption is limited and is expressed as being of secondary importance. In the case study conducted by Levkoe (2006) the context is a poor area in the city of Toronto where food access is a prevalent issue and food justice is a common concern. The case studied is also a much more politically oriented project where the motivations are more aimed at tackling challenges with food justice. It could be that the context involving more poverty and struggles surrounding food access has greater impact on the democratic learning outcomes of the people involved.

Results from this study show that participants are for the most part not involved in the processes of struggle with the state/municipality to get funding or permissions in order to keep the project going. Each initiative has coordinators that deal with these issues and most other participants don't need to worry about it. In the Losæter example, project manager Hovind has been working tirelessly with the municipality and other relevant actors to make it what it is today. Most of the people using the space are not aware of this and can use the space freely thanks to her efforts. This could also limit the political citizenship outcomes of their participation. *Ecological citizenship* is another concept that encompasses this kind of deeper awareness and democratic participation (Light, 2001; Travaline & Hunold, 2010). It can be defined as "a ground of moral and political environmental responsibility for one's duties to the human and natural communities one inhabits and interacts with – as well as a form of political citizenship" (Light, 2001 pp. 20-21). In an American context, it has been suggested that participation in urban agriculture helps build political understanding by struggling with permissions and funding, etc. (Brown & Jameton, 2000). It seems that the context of the projects and the political climate could be a factor in the outcomes of more democratic participation.

However, political citizenship does not have to be limited to engaging with policy and the state. It can also include new knowledge and a better understanding of how things are connected:

While state institutions, the market and multi-national corporations seek to regulate, control and dominate the lifeworld, and to indoctrinate citizens as uncritical consumers, docile workers and apolitical citizens, the pedagogical practice of 'communicative interaction' (informal communication and democratic deliberation) – in voluntary associations, coffee houses, political parties, the family, community organisations and social movements at large – bolsters civil society, creates new knowledge, challenges the system, and proposes alternatives to it.
(Walter, 2013 p. 528)

McClintock (2010) takes this further by looking at the practice of urban agriculture through the lens of a metabolic rift as theorized by Marx. Participating in growing food is

seen as a mending of the individual rift by “reengaging individuals with their own metabolism of the natural environment” (McClintock, 2010 p. 202). Thus, participants go through a process of de-alienation that can be a first step towards challenging the existing structures.

Limitations

The main limitation of this research has been the challenge of assessing learning outcomes, and especially transformative learning outcomes. What was the participants’ previous knowledge before entering the initiative? And what does the participation contribute, compared to other events in a person’s life that involves gaining new insight? The food gardening experience does not happen in isolation in the participant’s life but is one of many activities that can influence knowledge and engagement. There are examples from my data of participants following news media, obtaining new insight from friends, attending different events and watching documentary films as important sources of information and inspiration. However, there are also participants who talk about finding this information and inspiration through the community of the food gardening project.

One way to address this challenge is the use of multiple data collection strategies, including a longitudinal research design (Lundgren & Poell, 2016). My research was mainly based on accounts given by participants at one point in time. It would give a richer picture of their development by following them through a season, ideally even several seasons, joining them in their gardening practice and tracking their development. This would have given more data that could support or disprove statements from the interviews. With such a research design it would be easier to distinguish learning outcomes and development with each participant. Lundgren & Poell (2016) also suggest the use of written accounts as a third source for triangulation. In researching informal learning settings such as food gardening this could be more challenging compared to formal learning settings, where it is natural to collect written work. However, it could strengthen the validity of the research, if participants could be willing to participate in the study also with written accounts. The question remains whether current and future neuroscientific instruments – such as an fMRI scan – would

be better for assessing the level of reflection (Lundgren & Poell, 2016 p. 18). If so, the content and context of the reflection would still have to come from interaction with the person, meaning that the different methods could complement each other.

Using a coding scheme that has been tested for validity for assessing reflection can strengthen the validity of the analysis. However, as Romano (2018 p. 63) argues, a differing context will affect the utility of an instrument and an adaptation is required. A limitation related to this is that most of the literature on developing instruments for measuring transformative learning outcomes and critical reflection is done in formal education settings. In order to improve the validity and reliability of research on informal learning, more research is required on strengthening the instruments for measurement. In addition to this, altering the coding scheme to better include aspects of food democracy could improve the validity of the findings related to this. One strategy for strengthening the reliability of the coding process is to have several researchers code the data material independently, following the same coding scheme, and comparing the results and agreeing where there are differences (see for instance Boyer et al., 2006; Larsen, 2017 p. 95). For this a team of researchers is required, and this should be taken into account in future research.

The theoretical framework used in this thesis is for the most part leaning on the work of Mezirow (1981) and later interpretations of his work, by himself and others. This work has been criticised for being too focused on cognition and rationality and not including emotional aspects (Dirkx et al., 2006; Lundgren & Poell, 2016). Although an attempt has been made in this thesis to also include emotional aspects, a wider incorporation of theory could further strengthen the theoretical framework.

4. Conclusion

The aim of this thesis was to provide insight into what participants in urban food gardening projects learn and what impacts this learning could have. Using the coding scheme developed by Kerton and Sinclair (2010) I have found that urban food gardening projects are arenas for food related learning. I have detected learning of both instrumental and communicative character. The participants reinforce their existing beliefs surrounding food issues or find a new interest or passion in it. Central to the communicative learning is the interaction with other people in the project. Much of the instrumental learning outcomes are of a technical character relating to how vegetables grow, what they require and how they can be prepared. Following a stringent understanding of transformative learning as explained by Mezirow (2009) some elements of this were found, but no full transformation. The main shortcoming for this was the lack of participants with critical reflection.

What is significant is how the food gardening brings forth a disorienting dilemma which seems to trigger reflection. Learning something 'profoundly new' makes them think about what this means for their daily interactions with food. Through this they gain insight into how they have a role in the food system and take actions based on their new knowledge. This in itself is an element of food democracy. This new knowledge gives the participants a better understanding of some of the processes that lies behind the food they eat, and they feel like they are part of a community.

The potential impact of individual actions to challenge the system should not be depreciated. The understanding among the participants is that there are no other ways of tackling larger food related issues than 'voting with the dollar', reducing one's own food waste and mobilise more people to do the same. However, as discussed in this thesis, there are uncertainties surrounding the transformative potential of this strategy. A proposed alternative is tackling the structures held in place by governments and companies through engagement with the state. To be involved in the policy processes that affects you is a prerequisite in Nussbaum's capabilities approach (2011). This is also true in a more participation-oriented understanding of democracy. Achieving this could

potentially strengthen the transformative potential that the city may have on food systems.

To find out more about the potential of cities as change agents in the food system, further empirical research should include other community activities in the alternative food networks. Having explored interaction with the organic farm movement (Kerton & Sinclair, 2010) and the wild food movement (Mitchell et al., 2017) one could move further to study people involved in home gardens, educational farms and others. It would also be relevant for future research to include more elements of participatory democracy in a Norwegian context. One could address this by looking at possibilities of facilitating citizen engagement with the state. As this study has shown, there might be a greater transformative potential in activities that foster political involvement in the form of participation in food policy development. Despite not showing examples of political participation, the results of this study indicate that involvement in urban food gardening makes urban dwellers more engaged and desiring to contribute to changing the food system for the better.

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Appendices

Appendix A: Interview guide

Interview with participants from urban agriculture project

Background/past

- How did you end up in this project?
- What did you hope to take from it?
- What was your previous experience with growing vegetables?
- Have you been involved in any urban agriculture project prior to this?
- How would you describe your relationship to food?
- Can you give me a timeline of the development of your relationship to food? (if applicable)
- Do you have any criteria for where you buy food or what you buy?
- What is your relationship to cooking? (If not mentioned already)

Activities/present

- What kinds of activities have you been involved with in this project?
- What kinds of responsibilities have you had? Planning? Caring? Harvest?
- What do you learn from doing these activities?
- Where do you seek information/knowledge related to the project? Internet? Books? People? Trying and failing?
- To what extent do you share this knowledge with friends/family?

Influence/future

- Would you say that participation in these activities has affected you in a way?
 - Mindset/values?
- If yes, how will this be seen in your daily life?
- How do you see your participation in urban agriculture in the future?
- What motivations do you have for continued participation?

Forespørsel om deltakelse i masteroppgave om læring og urbant landbruk

MSc Agroøkologi, Norges miljø- og biovitenskapelige universitet (NMBU)

Bakgrunn og formål

Masterprosjektet er en studie av hvordan deltagelse i urbant landbruk-prosjekter kan påvirke deltagerens bevissthet rundt mat og matvaner. Gjennom utforskning av forskjellige initiativer i Oslo og intervju med deltagere ønsker jeg å finne ut hvordan dette oppleves. Fokuset vil ligge på læring og hvordan deltakere tilegner seg ny kunnskap knyttet til mat og matproduksjon gjennom urbane landbruks-prosjekter.

Hvorfor får du spørsmål om å delta?

Du blir spurt om å delta i studien på bakgrunn av din deltagelse i et urbant landbruks-prosjekt som er valgt som case for denne oppgaven. Jeg ønsker å gjennomføre intervjuer med et utvalg av deltagere fra prosjektet og derfor er det aktuelt å spørre deg.

Hva deltakelse innebærer

Deltakelse i prosjektet vil innebære å la seg intervju og eventuelt bidra med annen informasjon relevant for prosjektet.

Informasjon og kunnskap fra datainnsamling vil brukes i masteroppgave og potensielt i vitenskapelige publikasjoner. Prosjektet avsluttes 30.08.2019, og da vil alle data anonymiseres og lagres innelåst på forskningsserver.

Ditt personvern

Jeg vil bare bruke opplysningene om deg til formålene som har blitt fortalt om i dette skrevet. Jeg behandler opplysningene konfidensielt og i samsvar med personvernregelverket. Det er kun jeg og mine veiledere som har tilgang på opplysningene om deg og du vil bli anonymisert både i datamaterialet og den endelige publikasjonen.

Frivillig deltakelse

Det er frivillig å delta, og man kan når som helst trekke sitt samtykke uten å oppgi noen grunn. Da vil alle opplysninger bli slettet.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke personopplysninger som er registrert om deg,
- å få rettet personopplysninger om deg,
- få slettet personopplysninger om deg,
- få utlevert en kopi av dine personopplysninger (dataportabilitet), og

å sende klage til personvernombudet eller Datatilsynet om behandlingen av dine personopplysninger

Hvor kan jeg finne ut mer?

Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med:

- Vebjørn Stafsgeng, Masterstudent i Agroøkologi, NMBU **epost** vebjstaf@nmbu.no
tlf. 99480314
- Anna Marie Nicolaysen, Forsker, NMBU **epost** anna.marie.nicolaysen@nmbu.no
- NSD – Norsk senter for forskningsdata AS, på epost (personvernombudet@nsd.no)
eller telefon: 55 58 21 17.

.....

SAMTYKKEERKLÆRING

Jeg har mottatt skriftlig og muntlig informasjon om masterprosjektet om urbant landbruk og læring og er villig til å delta.

..... (Signert deltaker, dato)

Appendix C: Codebook

Nodes

Total = number of participants coded at node

Her = number of participants from Herligheten coded at node

Los = number of participants from Losæter coded at node

Sag = number of participants from Sagene Takhage coded at node

Node	Description	Total	Her	Los	Sag
communicative	Understanding why people do as they do, including one self, expressing new knowledge to others	14	5	5	4
communication strategies and methods	Ways of communicating new knowledge with peers	10	4	3	3
sharing of knowledge	Sharing knowledge with peers	10	4	3	3
insight into the interest of others	Finding shared or different values with others, learning with and from others	13	5	5	3
community learning	Learning with and from others	11	5	4	2
shared values	Finding shared values with others	6	0	4	2
insights into one's own interests	Realising one's role in the food system and ways of making a difference	14	5	5	4
closer to food	Knowing better where the food comes from	7	3	2	2
consumer choices	Making conscious consumer choices related to food	12	5	5	2
food system discoveries	New understanding of how things are related in the food system	4	2	2	0
made conscious	Made conscious about one's role in the food system	8	3	4	1
social mobilization	Bringing others into the awareness of food systems	10	2	4	4
health	Contributing to other people's diets	1	0	1	0
own children	Raising children with growing food	2	2	0	0
popular education	Teaching peers about the importance of food	7	0	3	4
Other					
vegetarian	participants reporting having reduced consumption of meat	6	1	2	3

Name	Description	Total	Her	Los	Sag
instrumental	getting new skills or information; things learned may be tested empirically— such as how to grow a carrot	14	5	5	4
knowledge of legal, administrative and political procedures	New knowledge on legal and political aspects of the food system	6	2	3	1
certification	New knowledge on the certification requirements of organic food	4	2	2	0
politics	New knowledge on the role of politics in the food system	3	0	2	1
knowledge of potential risks and impacts	New knowledge on risks and impacts related to practices in the food system	10	3	3	3
ecological risks	New knowledge on the ecological risks of practices in the food system	7	2	3	1
fossil fuels	New knowledge on the use of fossil fuels in the food system	1	0	0	1
social risk	New knowledge on the social risks of practices in the food system	1	0	0	1
sustainability	New knowledge of what is sustainable food production	3	2	0	1
new social and economic knowledge	New knowledge on the social and economic aspects of the food system such as industrialisation, globalization and role of farmers	9	4	3	2
economic and social justice	New knowledge on justice in the food system	2	1	1	0
globalization	New knowledge on the globalization of the food system	4	2	1	1
industrialisation	New knowledge on the industry of the food system	1	1	0	0
labour requirements	New knowledge on what is required of labour for producing food	5	2	2	1
scientific and technical knowledge	New knowledge on growing, cooking, preserving,	14	5	5	4
cooking-preservation	New knowledge of ways of preparing food for consumption	6	3	2	1
health	New knowledge on health benefits of eating	1	0	1	0
soil-compost	Specific new knowledge on soil and how it relates to growing, and compost	5	1	4	0
vegetable growing	New knowledge on how to grow vegetables, when they grow, what they need	13	5	4	4
visual discoveries	Learning what different plants looks like	2	1	2	3

Appendix D: Coding scheme reflection

Non-reflection

- The account shows no evidence of the participant attempting to reach an understanding of the concepts related to the food system/growing food.
- Ideas are expressed without the participant thinking seriously about it, trying to interpret the material, or forming a view.
- Largely reproduction, with or without adaptation, of the work of others.

Understanding

- Evidence of understanding of a concept or topic.
- Material is confined to theory.
- Reliance upon what has been told by others.
- Not related to personal experiences, real-life applications or practical situations.

Reflection

- Application of new knowledge to practice
- Situations encountered in practice will be considered and successfully discussed in relationship to new knowledge. There will be personal insights which go beyond book theory.

Critical reflection

- Evidence of a change in perspective over a fundamental belief of the understanding of a key concept or phenomenon.
- Critical reflection is unlikely to occur frequently.

Transition between categories are permitted.

Appendix E: Tables of results disorienting dilemma and level of reflectivity

disorienting dilemma

Case	total	themes							
		discovering plants	reading literature	importance of bees	importance + potential, soil	news media	understanding hard work of farmers	watching film	influence from friends
Herligheten	3	x	(x)	x	x				
Losæter	5				x	(x)	x	(x)	
Sagene	3	x					x		(x)

Disorienting dilemmas of the participants of the three cases. ()=not related to participation

Topic	Case	non-reflection	transitional	understanding	transitional	reflection	transitional	critical reflection
On growing	Herligheten			x		x		
	Losæter			x		x	x	
	Sagene	x				x		

Level of reflectivity on growing of participants from the three cases. Koding scheme from Kember et al. (2008)

Topic	Case	non-reflection	transitional	understanding	transitional	reflection	transitional	critical reflection
On food system	Herligheten				x	x		(x)
	Losæter					x	x	
	Sagene			x		x		(x)

Level of reflectivity on food system of participants from the three cases. Koding scheme from Kember et al. (2008)

NSD Personvern

20.01.2019 17:02

Det innsendte meldeskjemaet med referansekode 916628 er nå vurdert av NSD.

Følgende vurdering er gitt:

Det er vår vurdering at behandlingen av personopplysninger i prosjektet vil være i samsvar med personvernlovgivningen så fremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet med vedlegg 20.1.2019. Behandlingen kan starte.

MELD ENDRINGER

Dersom behandlingen av personopplysninger endrer seg, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. På våre nettsider informerer vi om hvilke endringer som må meldes. Vent på svar før endringer gjennomføres.

TYPE OPPLYSNINGER OG VARIGHET

Prosjektet vil behandle alminnelige kategorier av personopplysninger frem til 15.5.2019.

LOVLIG GRUNNLAG

Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 og 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse som kan dokumenteres, og som den registrerte kan trekke tilbake. Lovlig grunnlag for behandlingen vil dermed være den registrertes samtykke, jf. personvernforordningen art. 6 nr. 1 bokstav a.

PERSONVERNPRINSIPPER

NSD vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen om

- lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen
- formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke behandles til nye, uforenlige formål
- dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet
- lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet DE

REGISTRERTES RETTIGHETER

Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: åpenhet (art. 12), informasjon (art. 13), innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), underretning (art. 19), dataportabilitet (art. 20).

NSD vurderer at informasjonen om behandlingen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13.

Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

FØLG DIN INSTITUSJONS RETNINGSLINJER

NSD legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).

For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og/eller rådføre dere med behandlingsansvarlig institusjon.

OPPFØLGING AV PROSJEKTET

NSD vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til med prosjektet!

Kontaktperson hos NSD: Lasse Raa Tlf. personverntjenester: 55 58 21 17 (tast 1)

Appendix G: Personal reflection on the process

Working with this master's thesis has been an exceptional learning experience. For myself and for the reader I find it useful to include a reflection on the process. The feeling I'm left with now that I'm nearly finished is something like "how great it would be if I now could start all over!" There are so many insights I've gained along the way that would have been very useful in the design phase of the study. Preparation and planning have proven to be crucial for the success of a research project. I have learned about the importance of reflecting on all the choices made in the process and stay true to what you want to find out. It's easy to read about all the things you need to consider when designing a research project, but it's not until you do it in practice that you realise the importance of all the different stages.

Finishing this thesis also marks the end of a two-year process that has changed me and the way I see the world, that started with the introduction to the agroecology programme. Working with this thesis with the topic of transformative learning was especially intriguing as I feel that I myself have gone through a transformation these past two years. This is not limited to academic work, as this thesis is mostly focused on, but also includes developing a reflective and open mindset and being curious about ways to bring about change. I'm very happy I got this opportunity and hope to make the most of it also in the years to come.



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