

Green Households

A thesis on the impact of sustainable
technology on everyday life

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Abstract

This thesis is a qualitative and explorative research on the influence of sustainable technology on everyday life within the home. Connecting Schatzki's theory of practice to Lefebvre's approach to space I conducted my fieldwork. Schatzki's practice theory argues practices consist of activities, material entities and meanings. Each of these have a spatial component that help to produce space as it was described by Lefebvre. His perceived space is constructed from material entities. His conceived space is derived from meaning and his lived space is produced in activities.

Using interviews, participant observation, participant diaries and house tours, I found two things. First that even though my participants live in a sustainable home, conserving energy had not the highest priority. In both cases comfort and the surroundings were valued higher. Second that the sustainable technologies installed into these home had little effect on everyday practices.

Contents

Introduction

Relevancy

Theory

Material Geography

Practice theory

Space

Sustainability

Methodology

Quality of methodology

Case study research

Data collection

Data Processing and Analysis

Results

Case 1

Case 2

Conclusion

References

Appendix

Introduction

Around 85 watts or 775 kilowatt-hours per year was the standby-energy consumption in the middle of the night of the home of Volkskrant editor Bard van der Weijer (2011). Van der Weijer was shocked. He made his discovery, shortly after installing a smart electricity meter. A small device, providing him with a diagram, his everyday energy consumption.

Van der Weijer started a quest in his home, to reduce this consumption. First, he found out, which peak in the electricity-consumption diagram belonged to which device. With this information, he scrutinized the devices that mainly contributed to night-time consumption of energy. Some were unplugged, while others remain plugged in but into a so called 'smart-plug', allowing the device to be switched off or on online. This effort combined with banning out stews and replacing old appliances for newer, more energy-efficient ones, eventually results in conservation of around 10% electricity. Reducing the night-time consumption of energy, from 85 to 30 watts.

Conserving energy efficiently is done in three steps (Agentschap NL, 2012). First, limiting the demand for energy. This can, be done by improving the insulation. Van der Weijers limits the his demand for energy by reducing the standby-energy consumers. Second is deriving serge from renewable energy-sources as much as possible. Finally, when relying on energy derived from fossil fuels, using them as efficient as possible. In the Netherlands, we conserve on average 1,1% energy each year. For individual households, this is 1,6% each year (CBS, PBL & WUR, 2010a). The energy conservation in households is mainly due to the increased continuing decreasing demand for natural gas since the 1980's (CBS, PBL & WUR, 2010??) and the stabilization of the demand for electricity. The consumption of natural gas is decreasing due to the improvement of insulation and the installation of the high efficiency boiler. Until 2008, the demand for electricity was rising, due to increase use of Personal Computers and the installation of electric household appliances such as the dishwasher, dryer and the freezer.

As the electricity demand shows, household energy conservation is often limited. Elizabeth Shove explains this using the terms service. Services is “a composite accomplishments generating and sustaining certain conditions and experiences” (2003a: 165), which “have to do with the orchestration of devices, systems, expectations and conventions”(2003: 165). Devices are not only a part of the physical space but also of a system of practices (Shove, 2003). Shove (2003) explains this with the example of laundering. A washing machine is part of the system of laundering. This encompasses the

tools required for laundering, but also ideas about: the 'proper' way to launder, the items that require laundering, the reason to launder and the moment to launder. When a new device is introduced, this means it has to be incorporated within this system.

With the introduction of energy- and water saving technology, I am expecting it requires to be incorporated into a system of practices. As a geography student (with a bachelor in Landscape Architecture and spatial planning), a question arise as a result of this idea: If a technology has to be incorporated into a system of practices, will this effect the use of spatial practice? If indeed spatial practice is affected by this, can the design of a space accommodate these changes? Based on this question I have developed the following research objective:

To contribute to the transition towards a more sustainable society, by studying the influence sustainable technology has on spatial practices.

This results in my main research question:

How are spatial practices within the household affected by sustainable technology?

I will try to answer this main question by answering the following sub questions:

How do sustainable technologies relate to spatial practices within the household?

What are the changes caused by sustainable technology within the household?

Relevancy

The population of the Netherlands is stabilizing. Even though the number of households are is still increasing (mainly because of the rising amount of single-person households), it is unlikely that the housing stock will increase as significantly as it has done the last 50 years. As a result the average home is getting older and becoming less sustainable. This will require more technology to reduce the demand for electricity, water and natural gas. Sustainable technology can play an important role here. How will this effect our daily life and can our homes be improved to accommodate the technology or even increase their effectiveness?

An important incentive to conduct this kind of research, is because is relatively rare. Although much research has been done, and aspects of this are already being studied in cultural geography, anthropology, consumer studies, sociology and social and cultural aspects of technology. Within geography attention focuses on networks of food, and

materiality of the home. Consumer studies and sociology focus on lifestyles and consumption in relation to devices, but rarely looks at the spatial relations.

Materiality of home has only recently gained more interest, in geography with the book “Home, key ideas in geography” by Dowling and Blunt (2011), or anthropology with the works of Daniel Miller (2009). However most studies focus on aspects of everyday life or individual devices, for example water bottles (Hawkins & Race, 2011). Studies that do focus on sustainability in an everyday context have a similar problem focusing on a single practice, object, but these often show little to no attention to the spatial aspects of their object of interest. This is where geography in my perspective comes in.

To summarize, so far studies that have studied aspects in this direction have mainly focused on individual elements but rarely focus on the influence of the whole. Only by focusing all the aspects of eco-modernization/greening lifestyle together can we come to understand the effects it may have.

For geography this is a relevant matter because it would provide a different perspective on the material world that has been used recently. Outside of geography, sustainability within the home is being studied, however often focuses on a single practice or object, with very little attention towards the spatial aspects and the home as a whole. This is where geography can be helpful.

Theory

In order to answer my research question a theoretical model is required. In the following chapter I will construct this model. I will start by introducing the way materiality is approached in contemporary geography. Followed by an explanation of the theory I will apply here, practice theory. Next, I will introduce an Lefebvre's approach to space, and how this relates to the practice theory. I will conclude the chapter by answering my research question.

Material Geography

My main research question focuses on technology in everyday life. However I am not so much interested as technology as such, or how it is constructed (which is also an interesting avenue). I am interested how technical objects effect other aspects of our everyday life.

The attention for material objects in contemporary geography has re-emerged since early 2000's. In 2000 Peter Jackson wrote an article which called for a return towards a material approach in the social and cultural geography (Tay, 2009). This renewed interest for the material entailed a shift away from discourse and towards 'rematerialize' geography (Anderson & Whyllie, 2009), and practice as object of analysis (Whatmore, 2006).

It is however, difficult to distinguish different 'schools' in this literature. Anderson and Whyllie (2009) tried, and distinguished three clusters, a cluster on material-cultures that focuses on meaningful practice in relation to objects or the environment; a group of writing on the intertwining between nature, science and technology; a cluster on spatial aspects of embodied experience.

The first group clusters around material culture. This cluster according to Anderson & Whyllie (2009) focuses on "meaningful practices of use and encounters with objects and environments" (2009: 319). It has been influenced by the writings of Daniel Miller and Arjun Appadurai (Tay, 2009). Often focusing on a singular object, its research uses materiality to explain or determine what is going on in society and its social-relations (Tolia-Kelly, 2009). The first cluster is related to Marx's idea of dialectic materiality and Bourdieu's practice theory.

The second cluster on the intertwined materiality of science, nature and technology has been driven by network or Actor-Network Theory developed by Latour, assemblages as developed (Hubbard et al (2002): 90-92) by Guattari and Deleuze, and Haraway's

Cyborgs. It is best known for its analytical framework which incorporate both humans and non-humans as elements with agency, names actants (Hubbard, 2006), giving both of them agency (both have the ability to act).

The third cluster on embodiment has been influenced by the phenomenology and feminist literature and the more recently by Nigel Thrift's non-representational theory. Similar to humanism, it refers to philosophers such as Heidegger with his notion of being-in the world (Hubbard, Kitchin, Bartkey & Fuller, 2002: 38). This third cluster focuses on bodily experiences and the experiences of the material body.

Practice theory

Here I will approach materiality in a similar way as it is done in practice theory. Practice theory fits into the first cluster described above but also has relations to the third. I will be applying practice theory as described by Reckwitz and Schatzki. Practice theory is an approach that is used in consumer studies (Warde, 2005), sociology (Shove, 2003), environmental policy (Spaargaren, 2011) and sustainable tourism (Verbeek & Mommaas, 2008:). Recently some careful application can be found in geography (Jones & Murphy, 2010; Horne, Maller & Lane, 2011). Its main contributors are Andreas Reckwitz and Ted Schatzki.

Practice theory is a cultural theory. This means it explains social order and action in society as the result of a shared way of interpreting the world. This establishes “which desires are regarded as desirable and which norms are considered to be legitimate; moreover, these cognitive-symbolic structures (of which language is a prominent example) reproduce a social order even in cases in which a normative consensus does not exist” (Reckwitz, 2002:246).

Activities however do not solely exist of a group of organized actions, but always have a material component. If we look at a conversation between two people, this consists of the act of talking, and shared understanding of a language also a physical body with a mouth who is able to speak. In many practices there are other material components involved in addition to the body. These material objects, are an essential part of a practice and vice versa. Often without one the other would not exist (Schatzki, 2011). As Reckwitz put it “Carrying out a practice very often means using particular things in a certain way.” (2002: 252).

So a practice consist of organized series of actions, material components and organized by understandings of the practice and related matter, rules, instructions and incentives, and what is acceptable or enjoined. These organizational aspects of a

practice are rather complex. So instead of deal with every concept individual, here they will be refer to as knowledge, as part of competence. The concept of competence was derived from Røpke (2009) , who argued competences consist of the knowledge and skills required to carry out a practice. Besides competences Røpke also introduces another component. The component of meaning. This component of a practice according to Røpke (2009:2492) “is about making sense of the activities”. The component of meaning include “(...) the ideas of what the activities are good for (or why they are considered problematic), the emotions related to the activities, the beliefs and understandings.”(Røpke 2009:2492).

So practices consist or activities which are organized not only organized by the material component part of the practice but also by competences. Competences encompass knowledge and skills. Finally it involves meaning. This results in the following structure.

Space

An approach to space that closely resembles Schatzki, is Lefebvre's concept of space. Lefebvre is notoriously difficult to understand, and his approach results in much confusion. So my approach here, although based on Lefebvre, has been derived from more accessible work on Lefebvre by. Stuart Elden (2004, 2009), Andrew Merrifield (1993) (and Edward Soja) and Schmid (2008)

Lefebvre developed a so-called relational approach towards space (Kitchin, 2009). A relational approach towards space is based on the idea space is a product of interrelations (Elden, 2009). This means for example material objects in space exist in relation to other objects in space, instead of it being located as a coordinate on the map, or a so called objective space. These relations among objects can be more then the distance between them, but also for example their interdependence. Massey described these relations in her in well known essay 'A global sense of place'. She describes Kilburn High Road as a place where many histories, people, and countries come together on the street.

“It is (out ought to be) impossible even to begin thinking about Kilburn High Road without bringing into play half the world and a considerable amount of British imperialist history (and this certainly goes for mining villages too). Imagining it this way provokes in you (or at least in me) a really global sense of place.” (Massey, 1991: 6-7)

Space exist out of many objects but also people, and their activities and histories. All these elements have relations to each other. So space is constituted out of many

interrelations making it heterogeneous. These relations as you might imagine can change over time. As a result of this relational space, space is constantly changing. So space is a process (Elden 2009).

Lefebvre according to Elden (2004) argues space is produced by social forces. Space as a result is a social product, and each society makes its own space. Lefebvre again according to Elden (2004), argues space is a material and a mental construct. The distinction Lefebvre makes is difficult to understand and causes a lot of confusion. So to limit the confusion for the the different elements of space I will rely on Soja's (1996) and Schmid's (2008) understanding of Lefebvre.

The first is the perceived space or as Lefebvre calls it spatial practice. Soja calls this the Firstspace. (1996). Perceived space is the space as we perceive it. It is the material world around us we can see, hear, smell, feel and taste. According to Soja (1996:74) this is "a material and materialized "physical" spatiality that is directly comprehended in empirically measurable configurations". This space not only include physical objects in space, it also encompasses as Schmid (2008:36) so clearly described "the material dimension of social activity and their interaction". This space consist of the material entities described earlier. So it encompasses the physical organization of a space, and the physical activity part of it. However is also includes the way practices and activities are organized in space. So it also encompasses rhythm.

The second type of space is the conceived space, or representational space. Soja (1996) calls this Secondspace. The conceived space is a mentally constructed space. Schmidt (2008: 37) argues "Representations of space emerge at the level of discourse, of speech as such, and therefore comprise verbalized forms such as descriptions, definitions, and especially (scientific) theories of space". Soja also includes that "This conceived space is also tied to the relations of production and, especially, to the order or design that they impose. Such order is constituted via control over knowledge, signs and code: over the means of deciphering spatial practice and hence over the production of spatial knowledge" (Soja, 1996:67). Although the emphasis for the conceived space is often placed on professional approaches to space, here it will be focused on the impact on everyday space. So I will focus on everyday conceptions of space. If we look at practices, this space is closely related to competence, specifically. However it also encompasses the way a space is characterized or described, but also former and future plans for a space.

The third type of space is the lived space or spaces of representation. Soja calls this Thirdspace. Schmidt (2008: 40) described it as “This dimension denotes the world as it is experienced by human beings in the practice of their everyday life.” (Schmid, 2008: 40). So this is the space as we come to understand it in our activities. In our action, we make sense of the material and mental space and act upon this. Actions are an expression of this. The lived space is a space that can only be understood through the activity, and can only be experienced in the moment. However this makes it difficult to observe or study so instead, I will widen this understanding of the lived space, and will include activities as a part of this.

So space will be approached here as a relational approach, constructed out of interrelations and constantly changing. This space is produced in three ways. First there is the perceived space, which is constructed of material elements. Next is the conceived space, constructed mentally. Finally there is the lived space, that is constructed through our practices.

These different spaces do not exist in isolation but influence each other. For example, the perceived space encompasses material objects, like a house. A house is often designed. So before the house was constructed it was an idea only materialized in computer programs or on floor plans. It only became a material entity after the construction. Similar relations exist between the perceived and the lived space and the lived and conceived space.

Sustainability

So where does sustainability come in to the mix? This is where I would to re-introduce Elizabeth Shove. To repeat, Shove argues we use devices to provide a specific service, which encompasses “a composite accomplishments generating and sustaining certain conditions and experiences” (2003: 165), which “have to do with the orchestration of devices, systems, expectations and conventions”(2003: 165). What this means is, we do not consume energy, just to consume energy. We consume energy because we require a specific service, for example, having a clean house, or clean clothes, or food.

How do sustainable technologies relate to spatial practices within the household?

Sustainable technology is a material object. Material objects are treated differently in contemporary geography. The approach that will be applied here is practice theory. In this approach material objects are part of a practice. In a practice material entities (as Schatzki calls them) relate to activities, because these are interdependent elements. These material entities are used in specific ways, because of the meaning that is given to them, and the competence the performer has.

When relating this to space, material entities are part of what Lefebvre has called the 'perceived space'. This is the space as we perceive it. This perceived space also influences the other spaces Lefebvre distinguished, the conceived space and the lived space. The conceived space is the space constructed mentally. This space is influenced by the perceived space. Changes in the perceived space effect the way the space is understood. Material entities also affect the lived space. The lived space is the space as we understand it through our practices. The lived space is influenced by the material entities in the perceived space because it enables or limits the possibilities for specific actions.

Methodology

As stated in the introduction the main goal of my research is to see how changes in the physical environment effect spatial practice. For this report this meant looking at the relation sustainable technology has with spatial practice. This will be done by looking at the different types of space and the elements that make up a practice. To do this, detailed information is required about both space and daily practices.

In the following chapter will discuss how this data was collected. I will start by discussing criteria I used to conduct this research. Next I wil discuss case study research and case selection. Followed by a discussion of the data collection process. I will conclude this chapter with a overview of my data analysis methods.

Quality of Methodology

Before discussing the methods used to collect and analyze data, I will first discuss the criteria on which I based choice of methodology. Below I will discuss reliability, validity, transparency and ethics.

Reliability

Reliability *“refers to the stability and consistency of the research instrument over repeated applications”* (Ahlqvist, 2009: 320).

The easiest way to test reliability is to conduct the same research, using the same methodology and finding similar results. In qualitative research this is not always possible in contrast to quantitative research. First of all, because tools applied are often non-standardized (Mason, 2002). Second of all, social research often takes place outside of the lab, in which not all influences can be controlled. Some of which can even be unknown to the researcher (Mason, 2002).

In my research I have tried to take reliability into account by trying to make my methods as standardized as possible. However, the methods still needed to remain flexible to make good use of the information. So instead of performing identical methods, I choose to be as transparent about the data collection, data processing and data analysis as I could. Below I have described the steps I have taken, and the decisions I have made. Making it easier for the reader to understand.

Validity

“Judgements of validity are, in effect, judgements about whether you are ‘measuring’, or explaining, what you claim to be measuring or explaining. They therefore concern your conceptual and ontological clarity and the success with which

you have translated these into a meaningful and relevant epistemology.” (Mason, 2002:188).

First of all, this quote discusses validity of methodologies in a direct way. Are you ‘measuring’ what you claim to be ‘measuring’. I tried to make the results of my research as valid as possible, by using tools that have been used in research before in a similar setting and often with similar goals in mind. This will be discussed further, in the sections below which focus on each individual method. Most of my data has been collected using recording devices (photo camera, video-recorder and audio-recorder). Making it possible for other researchers to direct access the ‘raw’ data. In the case of the observations, I tried to capture how I made my notes and what I took with me.

The second aspect of validity, Mason touches upon is are you explaining what you claim to be explaining. For example, validity of results relates to “how close measurements are to the ‘true’ value” (Ahlqvist, 2009: 321). I tried to come close to the experienced ‘truth’ by discussing with participants my findings thus far, during the interview. Allowing them to help me distinguish between a truly ‘everyday’ event and a deviation.

Finally, the overall conclusion drawn from my data will not represent every sustainable household or domestic situation. In this case, my conclusions will best reflect the domestic reality in homes owned by young families, with middle to high income with a higher education, that value comfort over energy-saving. More about this can be found in the introduction on case study research.

Transparency

Besides being transparent in my thesis to my scientific peers, I also tried to be transparent towards by participants. All participants were informed in advance about the main purpose of my research and the steps that I would take. I also informed them what I would do with the material. In the interviews I made participants a part of my process, by discussing what I had found so far, and allowing them to provide remarks or adjustments to my findings.

I decided to inform my participants in advance because I feel very strongly people should know what they are getting themselves into. In this case they opened up about their domestic lives, a very private part of everyday life. I tried to treat this openness with respect, by being as open about my research as I could be. As a result I felt more relaxed in the field, making data collection easier. Finally, by being open about my

research and myself, I found I was easier trusted, making it easier for me to conduct my fieldwork.

Ethics

Although codes of ethics are not often discussed in our master program as they are often taken for granted, here I want to describe the way I dealt with ethics in my research.

My code of ethics was mainly based on informed consent (Flick, 2009: 37) since my research deeply intrudes into the daily life, in one of the most private sectors of the participants life, their own private household. A crucial step was to informing participant about my research before their decision to partake. In both cases I visited families in advance before starting my research. During these visits I informed each family about my research and gave them the opportunity to ask questions. It also allowed them to get acquainted with me, making a second visit easier.

The basic information (Appendix 1) participants were provided with included my main research goals, the methodology and the ownership of the research data. Parents were informed in advance I would also be studying their children. I also tried (to the best of my ability) to explain to children the purpose of my visits and the research I was conducting.

I decided to encrypt the families who participated in my research, by changing their names and cities. I also I decided not to publish any pictures in which children were recognizable. Although their parents gave consent, because this is a vulnerable population (the are not able to deny consent) I decided not to publish their pictures. For the photos and stills published here which included people, I also asked permission. Finally, participants were given an opportunity to respond to my provisional findings.

For this research I have limited myself to the main living areas of the home, because this is the most public area of the house. Which I though in advance would make it easier to conduct my fieldwork and secondly would also result in less distortion with more socially acceptable activities or ideas, because less private (intimate) aspects of family life take place here.

Case Study

Although longitudinal studies would probably provide most insight, and would provide most insights related to my research question, the limited time for this research makes it impossible. The alternative multiple case-studies research will provide me with detailed data within a limited time frame. Case study research is research that involves

an intensive analysis of a specific issue, or particular place or group (Hardwick, 2009: 441). This type of research often results in a detailed description, within a limited time-frame (Verschuren & Doorewaard, 2007). The depth and openness of such qualitative case study research allowed me to further refine my conceptual model.

The very detailed description of each individual case also has its downsides because of problems with generalization (Flick, 2009). In order to provide more generalizable insights case selection became very important. Selecting good cases allowed me to draw more general conclusions (Flick, 2009). Finally, due to its very nature, the results of case study research is often a product of the time. Making it difficult to reproduce. Della Porta and Keating (2008:226) summarize the challenges of a good case study.

“In sum, confronted with the case, the challenge is to acknowledge and uncover its specific meaning, while extracting generalizable knowledge actually or potentially related to other cases”.

For this research, I have conducted several case studies from which I finally selected two case studies, to discuss in this research report. Both case studies are embedded in the sense that they comprised multiple units of analysis, which result in a collection of different data (Yin, 2003). For my research I made use of four different data collection methods, interviews, observation, participant photo diary and video tour. Each method helped me to study a specific factor that effects space (activities, ideas and objects). I will study each differently, which I will describe in more detail below.

Case selection

In order to try to overcome the specificity of the case, sampling or case selection is rather important. In contrast to conducting just one case study, I here report on two case studies. In doing so, I could gather more compelling data (similar to multiple experiment, having the same result multiple times, strengthens the ideas that there is a relation between the two factors). Doing a small series of case studies, allowed me, if only slightly to surpass the specifics of individual cases, resulting in a more robust study. In my original research four cases were investigated. Only two are discussed here, due to the rather time consuming practice of data processing and analysis So my thesis here will mainly be focusing on the situation in the two ‘sustainable’ households.

Cases were selected a priori. Ideally I would have participants in similar homes. However finding participants proved more difficult then I initially thought, probably due to its intrusive nature. I found it nearly impossible to find complete strangers willing to participate in my research. As a result, I decided to look for participants in my and my

families circle of acquaintances. The two families discussed here, were acquaintances of mine, and far relatives of mine .

Another way to increase the generalization, is by instead of making statements about a large group of people, select cases which are as similar as possible. This allows more general remarks about a smaller group of people. Ideally I would have two exactly the same families in the same housing, but of course exact replica do not exist in reality. The discussed cases were conducted in two different cities, in different parts of town. In one case people moved into an already sustainable house. In the other case, the inhabitants transformed their house to become more sustainable.

Nonetheless, the families that welcomed me into their home were also very similar. My research contains case studies of families with two young children, (between the age of 4 till 9 years old), highly educated parents, who were the owners of their home. I will go into more detail about their similarities in the research results and conclusion.

Data Collection

For my data collection I have used qualitative ethnographic methods. Ethnographical methods allowed me to approximate everyday life closest.

Video-Tour

Video-tours comprised of a go-along walking interview method, in which participants show the researcher around (a modification on the original concept video-tours as coined by Duff, 2010). This data collection method is used in geography and anthropology, to gain a better understanding of the experience and/or meaning of place, often in relation to identity of either self or of a group (Duff, 2010). In technology studies, tours like these are often used, to gain a greater understanding of the way technology is domesticated in everyday life, in order to improve or develop technology (see for examples Baillie, Benyon, Macaulay & Petersen, (2003) or Bladdh & Krantz, (2008)).

I made use of the video-tour for similar reasons as technology studies, to capture the location and spatial organization of objects in the home, or to refer to my conceptual plan, the main purpose was to capture objects. In addition to this, my secondary goal was to capture individual activities. The tour gave me this opportunity to talk to each participant individually, allowing me to ask about their specific activities. House tours also proved to give a fantastic insight into ideas how spaces or objects should be used. Finally the use of video has a practical advantage here. Not only did the video allow me

to capture images of the main living space, it also allowed me to record the explanation of my tour-guide.

As mentioned, the video-tour comprises of a go-along walking interview. Here, individual participants were asked to show me around their main living space, containing at least the living room, kitchen and hallway. I asked them to tell me where we were and what activities they undertook in the space, and where and how these activities were undertaken. In total eight video-tours were conducted, taking each approximately 5-16 minutes. The tours were recorded on video using the video-function of a small digital camera.

Using a video-camera however also has its limitations. According to Flick (2009) it is important to take care that the camera does not dominate the situation. I tried to take this into consideration by using a small digital camera with video-function, and by holding it next instead of in front of my face. I also tried to put participants at ease by explaining in advance there were no wrong answers. However, some of the younger participants, became shy in front of my camera and one tour was ended prematurely. It also proved difficult to focus on one subject for an extended period of time. In some cases a parent accompanied or assisted them. In others I asked them to show me how they used the space, making them slightly more relaxed.

Besides the effects on the social situation, camera's require attention, and need to be monitored. In most cases this was no problem. In other however, unidentified reasons resulted in a shorter video-recording than the actual tour.

Finally it is important to mention here, that the video was not aimed at capturing the an objective image of the space. Asking participants to show me around, allowed them to negotiate with me what to show me and what not to show me.

Observation

Observation as a methodology is often applied in anthropology, in which the researcher (or ethnographer) participates in the field varying degrees. I made use of overt non-participatory observation. The main aim of the observations and the photo-diaries (which I will discuss below) was to capture the activities in the main living area.

My initial plan was to conduct participant observation. However, with a limited memory and detailed data I planned to collect I decided to conduct overt non-participant observation. Although overt observation causes more disturbance, or at least makes people more aware you are watching them, it did allow me to make the notes I required. How much data was distorted is difficult to say. In one case, which will not be

discussed in this thesis, it was rather obvious. The participating children ran around the house, in order to make it difficult for me to note what they were doing. Besides this overt distortion, I am sure other distortions occurred, however will be more difficult to find.

Although in the literature, participant observation and non-participant observation are clearly distinguished, in real life, the boundaries are not that clear-cut. While observing, I helped out a little in the house by helping to lay the table, reaching for things, having conversations, sharing a meal. Besides this practical reasons, it was clear for participating households at all times what I was doing. Making it easier for participants to trust me.

Observations each took two hours. I conducted two observations per household. Each activity, its “performer”, the time of day, and the location were noted, in a note book or on loose pages. Each participant was mentioned in the notes using a single-letter. Which I found easier to remember than pseudonyms. For the observation I prepared a small floor plan of the main living area, on which I divided the area in compartments, each with their own letter (picture 3.1). This made it easier to note where people were. For the observation I was either wearing a watch or had a mobile phone with a clock near, allowing me to note the time.

Participant Photo Diary

My limited time-frame only allowed me a limited amount of observation. In order to get a more overall view of everyday life, I asked participants to keep a photo-diary. A participant photo diary, is a method in which participants are asked to capture certain aspects of their lives by taking photos of it. This methodology is used in geography to focus on identity of immigrants (Data & Brickell, 2009), understanding changing social and cultural urban environment (Latham, 2003), and the use of water in and around the home (Allon & Sofoulis, 2006).

As mentioned, I made use of participant observation for a similar reason as observation, I wanted to capture activities in the main living area. So the main goal of participant photo diaries is to supplement my observations, creating more reliable data. Allowing me to see everyday life when I was not around. To first of all get a better overall view on activities taking place within the home. However, video and photographs do not provide an objective view of everyday life. Again participants negotiated what they wanted to make public, and what not. With the photographs this is even more so,

because participants determined, quite literal, the perspective of the photos. Choosing what to capture and what not.

Every household was provided with a disposable camera, with 27 photo's. Participants were asked to make one photo each day, during a month of different activities they undertake within the living area. In contrast to the authors mentioned earlier I limited myself to photo-dairies with a small sheet for notes mainly to limit the amount of work required from the participants. My initial plan was to develop the photo's and discuss them during the interview with participants. However, participants either made their own notes or they asked for more instructions. I provided 1 of the two households also with the instructions, and a work sheet (Appendix 2), to make notes with the photo's, including what was on the photo, the time of day and the date.

Interview

Interviewing is a method often applied. In my research I also made use of group interview. Group interviews and discussions are used, because according to researchers we should stay close to the context in which attitudes and opinions are expressed (Flick, 2009). The main aim of the interviews was to capture ideas and or norm about space, activities and objects. It also allowed participants to correct certain observations the researcher made, and gave the opportunity to discuss the pictures made by the participants. A group interview, would provide plenty of data, without the necessity to speak to every participant individually again. Another incentive to use group interviews was that it is a groups children are used to. Making them less likely to become shy, and more prone to giving their opinion.

The interviews were conducted with the whole family present, within the participants home and recorded using a recording application of my digital camera, which I had used before. Using the same device over an over, reduced the attention paid to it.

The setting was very helpful. Children were often relaxed (although also easily distracted). What was an unexpected but very helpful side effect of the group interviews, was the nuance children provided to the story adults told. Giving less 'socially expected answers'. At least in the case of their parents stories.

The interviews each consisted out of different phases. In the first phase we discussed the photo's taken by the family. In the second phase, I presented my findings thus far to the participants and allowed participants to respond. The final phase was the most structured in which I asked participants the main characteristics of their family.

For the interview I made use of an rough interview guide (Appendix 3) which consisted out of a list of topics I wanted to discuss. This list consisted of things that stood out to me. It also contained things I missed in my findings. I used this list as a starter for conversation, asking questions along the way. I eventually did not make use of a very structured interview guide, because I felt it was important to remain open to the direction of the conversation.

Data Processing and Analysis

The data collected was processed and analyzed. Starting off with the transcriptions, and the photo diary. Followed by an explanation of grounded theory and the steps involved, initial coding, focused coding and axial coding.

Preparing the data: transcription

My initial plan was to transcribe both the interviews and videos. However, due to the quality of the recordings, transcribing the interviews was time consuming. So instead only the interviews were transcribed and the videos were coded directly. This allowed me to maintain the visual aspects and code this along, which would have gone lost if I would have transcribed it and coded it.

The interviews were transcribed completely. I made use of free-ware program InqScribe, which allowed me to slow down the speed of the interview-recordings. I also made use of short-cut keys to jump back a few seconds, or forward the recordings.

Preparing the data: photo diary transcription

My initial plan was to transcribe both the interviews and videos. However, due to the quality of the recordings, transcribing the interviews was time consuming. So instead only the interviews were transcribed and the videos were coded directly. This allowed me to maintain the visual aspects and code this along, which would have gone lost if I would have transcribed it and coded it.

Data Analysis: Grounded theory

Grounded theory is a method for data analysis that aims at the interpretation of data (Flick, 2009). Initially I planned to use thematic coding as a analysis methodology. I chose this approach initially because it would allow me to compare cases (sustainable versus non-sustainable). After deciding only to report on two cases, this was no longer the main objective of the analysis. So I re-evaluated my decision and chose to use grounded theory instead. Using grounded theory has has some downsides. Grounded theory starts by coding the data initially very open, called selective coding (Flick, 2009).

This means assigning codes to small sections of data without taking in to account presumptions or categories. Selective coding is followed by steps selecting and refine these categories. As a result it enables endless categorization and coding, a rabbit hole I do not want to fall into.

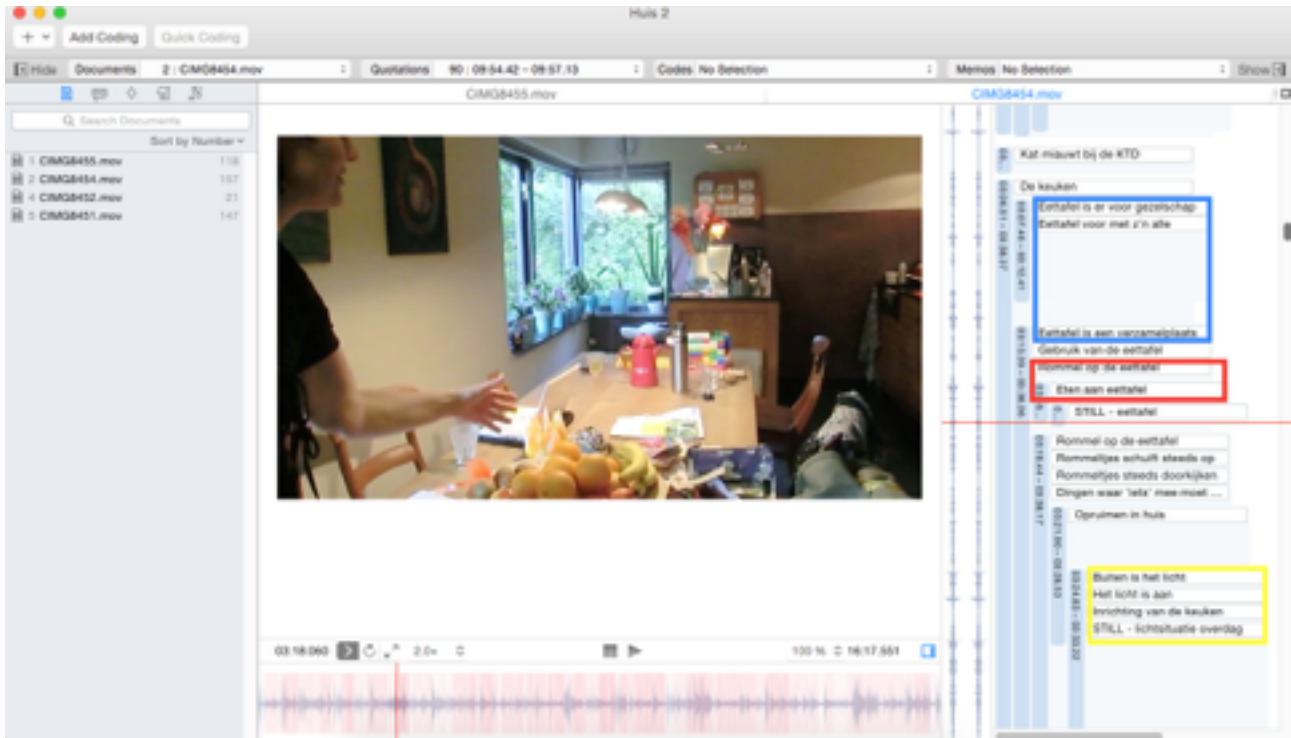
The advantages of grounded theory over thematic coding is, first of all it allows to develop a grounded theory for each case and still can compare cases and groups (Flick, 2009). Another advantage is that it will allow me to uncover for each individual case the particularities of their spatial practice. The approach helps to gain a deeper understanding and meaning of the data, which in this case also will be helpful. It will also allow me to assess different types of data, both verbal and visual because of the categorization of the data.

Below I will describe the grounded theory approach I applied, based on Kathy Charmaz (2006). She distinguishes three phases: initial coding, focused coding, writing memo's. Each step will discussed below.

Initial coding

According to Kathy Charmaz (2006), the first step of coding in grounded theory is initial coding. Initial coding is the process in which codes are assigned to segments of data. In initial coding one tries to strike a balance between remaining open to 'theoretical possibilities' that can be found in the text and what we define as significant in the data (Charmaz, 2006).

During the initial coding phase, each media was coded slightly different due to the type of data I was coding. For each case I coded a transcript (of the interview), two observations, about 28 photo's (of the photo diary) per case and four videos per case (the house tours) and. Each media brought different difficulty and possibility along. The interview transcript only contains text, and is limited to what is being said. Codes focus on the contents of the text. The observations were limited to activities taken place, and sometimes short description of what was being said. So codes focused on individual act, the objects involved and the locations. The photo diary in one case consisted out of photos and notes with the time, date and a short description. In the other case, the diary was limited to just photos. As a result the codes of the photos limited to what was depicted on the photo, sometimes with time and dates. The videos were the only source where verbal and visual data came together. The coding of the videos mainly focused on the verbal data, partly because these usually (not always) related to the images. Standing in the kitchen people would is most cases talk about the kitchen.



To give a little more insight into the initial coding. An example

This screen shot shows the coding of video in the program ATLAS.ti. It shows the coding of the video tour of Mother of the case 1, at 00:03:18. Each codes covers a short selection of the video to which the code is assigned.

The video still shows Mother showing me around the kitchen. This part of the video tour gave insights about the activities taking place at the dining table, ideas about the dining table and showed the physical organization. The codes that focus on activities are for example “eten aan de eettafel” or “having dinner at the dining table”. These codes are circled red. The codes that shows ideas or meaning to this place are “Eettafel is een verzamelplaats” or “Dining table as collection place”. Codes relating to ideas or meaning are circled blue. Finally the table shows how the space is organized, like “Inrichting van de keuken” “Organization of the kitchen”. Codes related to the physical organization are circled red. Some codes have not been circled yellow.

Focused coding

After initial coding, the second step is focused coding. Focused coding is aimed to refine the initial codes and compare codes across the data sources (Charmaz, 2006). This is necessary in order to see if codes from one data source also provide insights into other codes. This process also allows for a further refinement of the codes.

After the initial coding, I looked at my codes from the initial coding and following steps I had to take, and realized I had to change my approach. In my initial coding phase I code sections of videos with different coding 'layers'. Often an overall theme, for example 'kitchen' followed by a second layer 'cooking' or 'listening to music'. However I realized that giving coding different sections of both the photo's and videos with the conversation topic, did not give me any insights into what was being said. The coded focus on the topic of the conversation, for example 'kitchen' instead of the content of the conversation, for example 'the kitchen is a place to hang around the dining table'. So I recoded the videos and photos, focusing not so much on main themes, but trying to capture the core of what was being said.

A similar process also occurred with the coding of the photos. Initially, I kept the codes relatively short. Coding a photo with 'daughter', 'laying on the ground', 'watching television'. Later combining the two into 'daughter laying on the ground'. Which would make it easier for me to work with the codes in the second step.

The next step was to select the most frequent codes and the most significant codes and use these to sift through large sections of data (Charmaz, 2006). As a result of my coding strategy, the most frequent codes either related to specific locations or specific people and sometimes to specific actions. So I decided to cluster the codes around specific spaces and around in the house and assign as many as possible to specific locations and people.

To select the most significant codes, code-lists of both cases were printed and read through. These were codes that described the family closely or explained certain practices. This resulted in twelve themes for the first case and .. cases for the second case.

Axial Coding

Axial coding is the final step. This step requires specifying the properties and dimensions of a category. In my case I had organized most codes in a very specific location (on the grey sofa, in the kitchen chair, at the dinner table). Although this gave insights into very specific uses of for example a particular piece of furniture, it had little to do with the space it was located in. So instead of further refining the category I did the opposite and made a "super cluster", for example clustering all codes about the kitchen. Simply said I initially sorted codes under very specific categories during the focused coding. In the axial coding phase I realized further refinement would not be

useful, so instead I broadened the cluster by linking it to a specific space. This resulted in five super groups (Kitchen, Living Room, Hall, Studio).

Besides these super groups there were also twelve themes. For these twelve themes I decided to further refine the group by selecting themes that provided most insights or were typical for the case.

Results

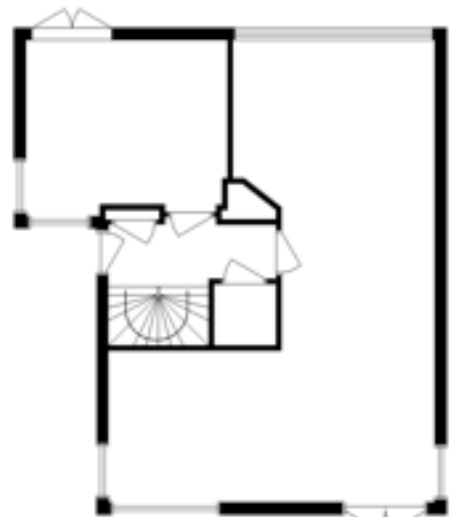
I will start by discussing the result of each family, concluding each section of text with a summary of the main findings. At the end of the chapter I will look at the overall results in order to come to a more general conclusion.

Below I will discuss my results. I will start with a tour of each house. After this descriptive tour of the house, I will focus on several practices that stood out. I will discuss each topic extensively, making a distinction between the different elements that constitute an activity and space as discussed earlier in the theoretical chapter. I will conclude this chapter by answering my research question.

Case 1

The De Vries' are a young family with two children, aged four and six at the time of my empirical research. They live in a small city in the middle of the country. They live at the edge of the city, in a semi-detached house in a forest. After buying the property they remodeled it. The house is surrounded by a large garden with fruit trees and a vegetable patch. Fire wood is also stored in the garden.

The family describe themselves as music lovers. The parents like to go to concerts and festivals. The mother has a creative profession and paints in her spare time. The family also loves gardening and being outdoors. The family is outside as soon as the weather is good. Most of their furniture is either second hand, family heirlooms, or custom built. Like any other family they also have some things from Ikea, but the father clearly expresses not to be a fan, arguing it increases the turn-over rate of furniture. He prefers quality to quantity.



Hallway

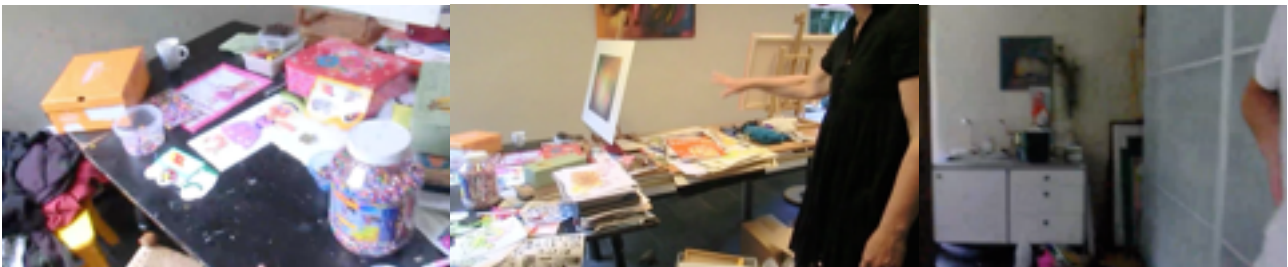
You enter the house through the front door, which was open regularly during the summer and autumn I visited the family. You enter the house and step into the hallway. On the right beneath the stairs a shoe and coat rack is located, and the regulator of the floor-heating.

Next to the staircase is the door to the toilet. Straight ahead is the door leading into the living room and kitchen. A small oven is located along the left wall. Next to the oven, and closer to the front door, is the door to the studio, which I will discuss further

below. Next to this, and behind the front door, is a closet which contains the junction box and the boiler thermostat.

The father told me during the tour that they set up the floor heater once, and left it alone ever since.<QUOTE> The floor-heating temperature is based on the outside temperature and the inside temperature (based on the thermostat in the living room). The floor-heating is always on, including during vacations and weekends away. The hallway is, as you would expect, mainly a space which connect different rooms to each other. It also provides storage for coats and shoes. Due to the oven, it also has a cooking function. Once in while on a Friday evening, they bake pizza in this oven. The mother also told me that she uses the stove oven to thaw food, and as a result has disposed of her microwave. Finally, the hall is where the utility meters are located.

Studio



The studio is located on the side of the building. The space feels large and light. On the left are corner windows which overlook the front and back of the garden. On the far left, two windows belong to doors which open into the garden. These doors are the main entrance to the back garden.

Behind the door through which we entered, a patch roughly the size of a door of yellowish wall is located. This is the loam wall which is connected to the stove in the living room. When the stove is lit, the wall warms up and heats this part of the house.

On the right side there is a coat rack. Next to that, a giant wall unit with glass doors runs along almost the entire length of the wall. Between the wall unit and garden door there is a kitchenette with warm and cold water. A bucket and various other items are located on the counter during the tours. A painting hangs above the counter. On the left hand side of the studio there are two tables forming a T. Between the door to the hallway and the other corner windows, a radio and CD-payer are positioned.

During the video-tours, sleeping bags, several cardboard boxes and plastic containers were stored on the floor. The family had just returned from three weeks' summer vacation. They used the studio as a temporary parking space before the final clean up.

The ceiling features fluorescent lights, a small light-shaft and several lamps on a sliding rails.

The studio is mainly the mother's domain. She paints in it, and uses for it to make bouquets, to sew, and for messy or larger art projects. It is also used for workshops. The latter activity is on the back burner at the moment. The wall unit offers storage space for her art supplies and a part of mothers book collection. The wall unit also stores the vacuum cleaner and cleaning supplies. The children use the studio, as mentioned, for art projects, but also for washing their hands and to play. The father makes less use of the space. He uses the space as a scullery. He washes his hands there and tidies it up. During many of these activities, music is playing in the background.

In the interview the family describes the space as light and quiet, but also chilly. According to the father, it took a while before they figured out the best setting for the underfloor heating. The mother sees it as a good working space and as a result moved the sewing-machine from the first floor into the studio.

Corridor



Back into the hallway, we walk straight ahead and enter a large space, which stretches from the front to the back of the house. The kitchen with dining table is located at the front of the house. The sitting room lies at the back of the house, looking into the back garden. In between there is a space which functions as a corridor. The corridor has a lowered ceiling with LED-lights.

To the right of the doorway, a wooden dresser is positioned against the wall. According to the daughter it contains games. On the top there is a display of greetings cards, vacation souvenirs and a bowl. Across the doorway there is a white wooden bench. The mother explains that its main function is to store toys. Above the bench drawings and paintings by the children are displayed on the wall. During the video tours there were car seats, toys and a vacuum cleaner on the floor in front of the bench. To the right of the bench, between the bench and a large armoire, there is a wooden play workbench and a play stove.

The corridor is the darkest place in the house. As a result it has many LED lights in the ceiling. These recently replaced the older lights. The house is rather dark inside, and as a result, many lights are located around the house and are on during the day. After receiving a high energy bill, the father started looking around. As he realized that the large number of lights was responsible for the unexpected high utility bill, many of the lights around the house had been replaced for LEDs during the video-tour.

The corridor functions mainly as a place to walk through from the kitchen to the living room, a storage space for toys and a play area. There were toys on the floor almost every single time I visited the house.

Kitchen



The large armoire described above is a family heirloom and is located on the edge between the corridor and the kitchen. According to the mother it contains half of her tableware. Located next to it is a green chair and matching footstool. The chair stands between the cabinet, the garden doors and a window. The doors lead into and overlook the front garden. The children are allowed to draw with special crayons on the windows of the garden doors.

Looking the other way you face the dining table. The dining table provides seating for eight people. During my visits a large fruit bowl stood on one side of the table. This part of the table was described as a catchall. During the video tours books, candles, papers, toys, letters, and all kinds of things there were located here. The wall closest to the kitchen table is a heated wall. This wall used to heat the kitchen. However, since the construction of the stove in the living room it is no longer in use.

Across the table you look into the kitchen. On the left there are two windows near a corner. Moving to the right there is a small space with a stool which allows you to sit and look out into the garden. A kitchen island is placed in the middle, against the outside wall. The kitchen island houses the dishwasher. On top of it the phone, the coffee maker, the electric kettle and an Ipod-docking station are housed. During the tour it also offered a place for vases, a watering can, and a mortar. In the right corner and against the right wall (the wall between the toilet, the stairs and the kitchen) the main kitchen

is positioned. The sink is located in the far right corner. To the right of it are the stove and two higher cabinets containing the fridge and store cupboard.

The kitchen is not only the place for the preparation and consumption of meals, it is also a gathering space, especially the dinner table. Not only for stuff collecting around the fruit bowl, also for people gathering around the dining table. The family eats all their meals at the table but also welcomes friends there. The mother explains that many stay for dinner, and often keep lolling around the table afterwards, instead of moving to the living room. The dinner table is used by the children for drawing and playing. The green chair near the garden doors is also a popular play location.

Living room



Walking from the kitchen to the back of the house through the corridor, you enter the living room. It is a big space, but a bit stuffy during the day despite of the windows. These windows and glass sliding door cover the entire width of the room. The windows overlook the back garden. In the right corner of the window, a purple sofa is facing the living room. Next to it an eco-television is mounted on the wall, and underneath it a stereo. Next to that (and next to the white bench in the corridor) is a large teak custom built bookcase, storing books, photo albums, toys and DVDs.

The masonry stove is located against the left wall in a corner. When the stove is lit, stones in the stove capture and store the heat. After a while the stones start to radiate the heat relatively constantly. The stones used in these stoves are able to store and radiate the heat for a long period of time, even after the fire has died out. Connected to it is a stone bench. When the stove is burning it heats up the bench, making it a comfortable place to sit. It is the mother's favorite place to sit in the evening

On the right side of the stove there are a purple chair and matching foot stool. Next to it is grey sofa. In between a wooden square functions as a coffee table and a lamp. The father's laptop was placed on the coffee table during the video tour.

In the middle of the room a white rug covers the floor. Another coffee table square and a bean bag stand on the rug. Toys are scattered across the floor.

The living room is used for different activities. The children play on the floor, read or look at books on the sofas, jump from the purple sofa onto the bean bag and sit watching TV. Sometimes they are allowed to use their father's Ipad to watch a movie, or to play games on.

The space is also used for doing laundry. Laundry is hung outside all year round. During winter, early spring and late autumn, it does not dry completely. To make sure it is completely dry, it is hung out over the purple sofa, where it is also folded.

“Outdoors man”



“M: Het is wel grappig want we gingen het huis verbouwen en toen hadden we hele andere gedachte. Oh, dan gaan we door die deur in de kamer steeds de tuin in.

S: Ja

*M: en ehm uiteindelijk doe je dus dit [de tuindeuren in het atelier als achterdeur gebruiken].”
(Mother in her house tour on 00:12:26-00:12:40)*

As described at the beginning of this chapter, this family loves being outdoors. To start with the material entities that support this, there is first the direct environment. This family lives in a house in the forest, surrounded by a large garden. When you love being outdoors, having a relatively large private outdoor space makes sense. To facilitate being outside, in the garden or the forest, some adaptations have been made with this in mind. As can be seen from the floor plan, each part of this house has garden doors leading outside. As quote 2.2 shows, this was a conscious decision.

Being able to go outside facilitates their passion for the outdoors. The material entities that facilitate this is having running water next to the main back door, the door which they use most to enter the garden and which the son described as the back door. Located directly next to this door is a tap. This might not be the conscious choice that the garden doors were, but it still facilitates their activities. To facilitate the kids' activities, there are special toys that may be used in the garden. Finally, there are no paved paths in the garden, so it is not accessible for everyone. You need to be physically able to walk and stand. With a disability you could still go outside but the activities you could engage in are limited.

In my field work, I focused on the indoor. So I will not be able to discuss the outside activities. However I am able to discuss the indoor activities that are a part of this. These activities are going out through the door, usually the garden doors in the studio, or the front door, taking one's shoes off when re-entering the house, either in the hallway or the studio, literally one step in the door, putting shoes on when going outside, washing hands after entering, usually in the studio, and putting a coat on.

Going out and being outside is closely related to the weather and outside activities such as school and work. This can be easily distinguished in cyclical and linear rhythms. Linear rhythm is the rhythm that is related to specific times of day. Going outside to go to school, work, or swimming class, are linear times because they are determined by time. On the other hand, going outside because the weather is nice (as father points out) is more closely related to the weather and the seasons, meaning cyclical time. Some actions are not so clear. Grocery shopping for example is on the one hand limited to the opening hours of the supermarket. On the other hand, eating food is closely related to hunger, and food runs out as a result. This would point to cyclical time.

There are not many competences required for being outside. However, I did observe one thing, which could be seen as a competence, knowledge to be exact. Knowing what is dirty, and needs to remain outside, for example shoes. Also knowing what is clean, or needs to be cleaned before entering the house again, for example hands, or clothes

"S: Oké. En doen jullie iets voor ontspanning of eh?

V: Nauw, op dit moment schaatsen iedere donderdagavond, maar dat is weer bijna afgelopen.

S: Ja.

V: Na ja dat is inspanning maar ook ontspanning,

S: Ja

V: hoofd even leeg maken

S: En in huis?

V: In huis, eigenlijk heel weinig. Ik ben echt een buitenmens, als het nauw een beetje mooi weer is ...Wat Moeder ook zei, maar dit keer ben ik in de tuin gebleven, meestal blijf ik in de tuin en gaat Moeder koken, en eh.

S: Ja.

V: Ik ben echt een buitenmens wat dat betreft."

(Interview 00:33:15-00-00:33:45)

To the practice being outdoor meaning is assigned. Father does this very clearly by describing himself as a outdoorsman. It is part of his identity, so being outside is part of who he is.

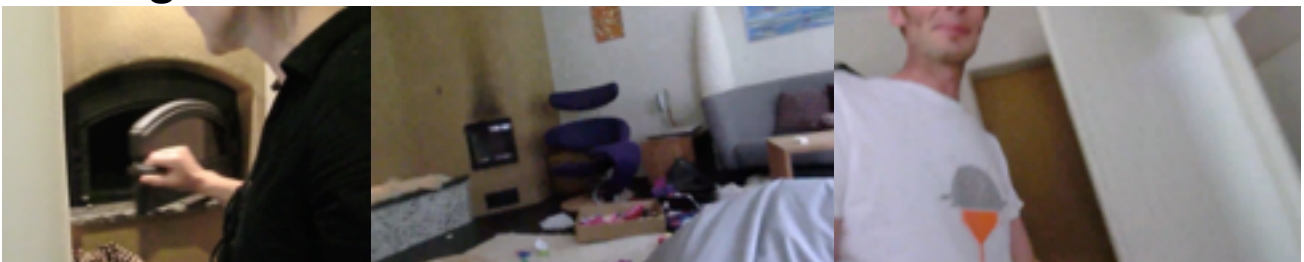
*"We hebben het huis zodanig ingericht dat we op allerlei punten naar buiten kunnen. Dus hier tuindeuren, dat je makkelijk ook hier, voor kunt zitten, want 's avonds is hier nog lekker zon".
(Mother, Video-tour, 04:18-04:27).*

Based on the different types of space as distinguished by Lefebvre, starting with the perceived space, or the physical space we perceive that relate to this practice, there are the doors leading outside, the garden doors and the front door. There is the garden around the house and the forest around it. There are the doormat and shoe rack where one leaves shoes. Then, there is the tap next to the garden doors in the studio to wash hands. Bodies that are not our own are, I think, very much a part of this lived space. So people stepping outside, mainly through the studio doors, washing their hands in the studio, and leaving their shoes on the doormat are all actions part of this practice.

I have less to say about the conceived space related to being outside. The conceived space refers to the mentally constructed image one has of an activity and the spaces related to it. Ideas about how a practice will evolve or how it will work out is also an example of this. This is the case of the garden doors. The family renovated their house. When redesigning their house they choose to put garden doors in every space. As the mother says in quote 2.2, so they could exit the house at different points. In relation to this, she told me when they redesigned the house they expected to mainly use the garden doors in the living room (see quote 2.3). However the main entrance to the garden is the door in the studio. This is explained in different ways. The mother argues it might be the result of taking the neighbors into consideration. Their bedroom window is right next to the garden doors in the living room.

Using the garden doors in the studio as the main back door is probably where the lived space applies. The lived space is the space we come to know through activity. Using the studio door as the main back door is a good example of this because there is no real explanation for it. The initial action making little sense, but through repetition it is slowly becoming a part of the practice.

Heating the house



As with lighting the house, one could argue here again this is not a practice, this is solely an activity creating the conditions to live in this house. I would beg to differ. The house is partly heated in a way which does not require human intervention anymore. It

is also being heated in a way that requires quite a few activities. I will discuss both because one affects the other.

The material entities that used in heating the house are the masonry stove located in the living room with loam walls which heats the living room, hallway and studio (Picture 2 and 3). The masonry stove is fitted with an oven, which can be opened from the hallway (Picture 1). Finally a small bench is connected to the stove, which heats the bench to a comfortable temperature. To fire the stove, wood is required, which is stored in the garden. The family receives the wood cost-free. Indoors the firewood is kept in a large basket between the masonry stove and the purple chair. To get the basket filled with firewood indoors, some physical characteristics are also required, such as sufficient strength. In this case, the father brings the basket indoors.

The floor heating is fitted throughout the ground floor, and wall heating is used in the kitchen. The floor and wall heating are connected to a low temperature boiler, which heats the water to a temperature of 60 degrees instead of 100, which uses much less energy.

“V: Dit word gewoon gebruikt voor de opslag. En d’r zit ook de regelunit voor de vloerverwarming.

S: Hmhm.

V: Maar die is eenmalig afgesteld en wel heel precies zijn we daar mee bezig geweest zodat die kamer ook warm genoeg werd.

S: Ja

V: Want die is vrij koud. En daarna kijken we er eigenlijk helemaal nooit meer naar.”

(Father in his video-tour on 00:05:06–00:05:16)

The temperature of the floor heating has been set once. The temperature adjusts to the outdoor temperature and the temperature inside. The temperature inside is determined by a thermostat, which is located in the living room. The temperature of the wall heating is adjustable separately from the thermostat with a radiator valve located on the wall. Since the construction of the masonry stove, the wall unit has been turned off or has been closed off. It is no longer in use.

“M: En, maar laatst hadden we,

[Praten door elkaar]

M: hebben we nu een paar keer op vrijdag ook de oven gebruikt ok pizza's te bakken. Dat is dan een heel experiment dan is het dan van nauw

M: wat is nu het beste deeg, en die oven opstoken, en hoe heet moeten we hem dan hebben en M en Maar dan ben je echt 'samen bezig en dat is echt een avondvullend programma.

S: Dus dan neem ik aan, dat jij het hout doet, en jij de pizza.

M: Hij rent met die schep heen en weer om ze erin te werpen en er weer uit te vissen, inderdaad.

V: Ja, automatisch gaat het wel zo. ja. Traditioneel.

M: Ik heb die avond iets meer voorbereid, enne groentes die we erop willen hebben gesneden, en de tomatensaus voorbereid.”

Interview at 00:07:50 - 00:08:30

The activities required to fire the masonry stove are as follows: Wood has to be brought inside. The kids usually fill up the basket with fire wood. Due to the weight, the father carries the basket inside. Next the small window has to be cleaned. The parents do this, but sometimes the kids help. The father usually lights the masonry stove. When the stove is also used to bake pizzas the father fires the oven, and the mother prepares the pizzas. Besides baking pizza the small oven is also used to thaw food. The mother even discarded her microwave.

“ S: Mogen jullie wel eens helpen of ...?”

M: Ja.

D& Z: Ja

Z: Wij doen de houtjes aangeven.

S: De houtjes dan uit de tuin, of hoe doe je dan de houtjes aangeven?

Z: De houtjes van de tuin en de houtjes van de kachel,

S: Oké, dus die brengen jullie naar binnen?

D: Ja, en en er staat een hele grote mand dan, en dan geven we papa die houtjes...

M: Uit de grote mand, de grote voorraadmand he.

D: Ja.

S: Ja

D: De voorraadmand.

S: En dan neem ik aan dat papa de grote mand tilt

V: Ja , die is een beetje zwaar.

S: Ja.

M: En jullie doen ook altijd nog het raampje poetsen Emiel?

Z: Ja.

M: Met een oude krant.”

Interview 00:02:15 - 00:03:00)

As mentioned, the father usually fires up the masonry stove. A reason for this might be that he has the required competences. Heating a masonry stove requires skill and knowledge, such as knowledge about when to open and close certain valves. Closely related to this is actually piling up wood in the masonry stove. If this is done incorrectly, the fire will die quickly.

There are much fewer activities related to the floor and wall heating. The system needs to be set up. The construction of the masonry stove required an adjustment, in this case, turning off the wall heating. For the rest, the main activity is to not do anything at all about it, but to leave it alone.

*“ Met name 's winters dan, dan stoken we iedere dag.”
(Father in his video-tour on 00:02:31 - 00:02:35)*

The activities relating to the floor and wall heating were performed once, and never since, since it is always switched on. The activities related to the masonry stove however do have a rhythm to them. On the one hand it has a cyclical rhythm related to the seasons, and especially the temperatures. The masonry stove is mainly used during the winter. If it is used in the winter, it is mainly lit during the week. However it also has a liberal rhythm, it is usually lit in the evening after the children have gone to bed.

*“ S: Ja. En jullie stoken dus specifiek voor de gezelligheid of voor warmte?
V: Nauw wel uit economische ehm, 's avonds ook wel voor de gezelligheid dat is wel een reden om hem s avonds aan te steken. Als ie niet aan is vind ik kaal.
S: Ja
V: Maar ook wel, omdat het een leemkachel systeem is, hij blijft dus 24 uur lang warm. Hij is nu dus ook nog warm, op het bankje. Dat is ook puur energiebesparing. energiebesparing? Ander type energie...
S: Ja.
V: Geld besparing, want het hout hebben we gratis. Dus eh
S: Ja.
V: Dat is een directe besparing van kosten.”
(Interview, 00:03:45 - 00:04:30)*

To make sense of their activities, it is given meaning. The usage of the masonry stove is explained in several ways. First it is explained as a way to save energy or at least to rely on different types of energy. Besides saving energy, it also saves money. The family receives the wood they use for free. Finally firing the stove is explained by the cozy feeling it provides; without it, it would be 'kaal' or empty. The moment the stove is lit is chosen with some care. As can be seen they usually light it in the evening for the sake of atmosphere. Another aspect that also plays a role, as the father explains, is that for safety reasons he prefers lighting the stove when they are at home.

The floor heating is explained differently. The floor heating is always on. This activity (or one could argue, the lack of activity) is explained by arguing that turning it off would be useless, and the effect would hardly be noticeable. It is also argued that the conservation of energy would be so small that it is not worth the effort. Finally it is explained by arguing that it is comfortable to not have cold feet.

“V: En eigenlijk laten we hem gewoon standaard aan staan.

S: Oké.

V: We zouden er denk ik wel iets mee kunnen winnen, ook als we een lang weekend weg gaan.

Ja, het is zo weinig dat ik eigenlijk geen zin heb om het te doen.

S: Ja

V: Zo netjes ben ik ook weer niet.”

(Father Video-tour, on 00:07:20 - 00:07:32)

The perceived space of the practice of heating the house combines the different ways of heating. It exist of the masonry stove with the bench, oven and loam-wall connected to it, the wood storage indoors and outdoors, and the physical labor required to move the wood, and fire up the stove. Also a part of it, are floor and wall heating, the low temperature boiler, the thermostat in the living room, the radiator valve for the wall heating, and its thermostat measuring outdoor temperature. The practices relate to setting up the system and turning off the wall heating.

“V: Ik hou niet van warmte. Ik loop altijd in een t-shirt.

S: Ja.

V: En we hebben het altijd wel vrij warm in huis. Want ehm, m'n zusje is echt ehm zo energiezuinig en zo. Die hebben altijd de kachel heel laag staan. Die trekken liever een jas aan. Ik wil gewoon lekker comfortabel zitten. Dus hier zit je lekker bij de kachel.”

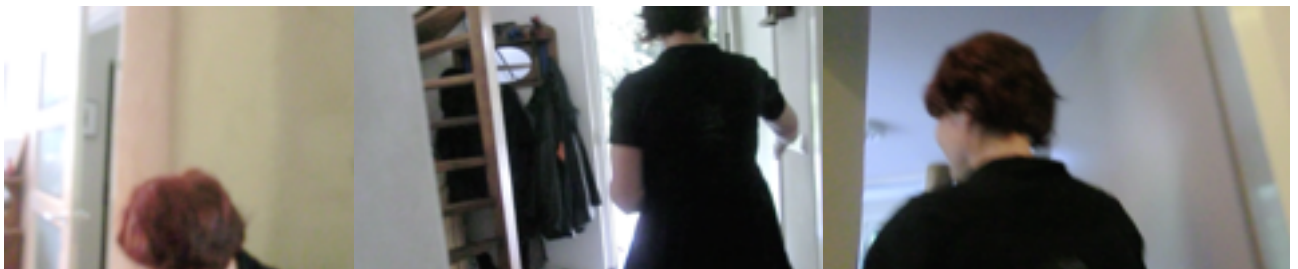
(Father during the video-tour 00:02:14-00:02:30)

The space, as conceived with all these elements, is comfortable. The temperature is comfortable, for the father even relatively warm (see quote). The masonry stove adds atmosphere. As an earlier quote showed, the father finds it empty without the masonry stove on in the winter. It makes it cozy in the house. The owners built the house themselves, so they were able to tell me about the construction of the heating system. The masonry stove is located in the middle of the house, because as the father explains above, this way it heats the living room, hallway and studio.

The lived space also combines the actions of both heating systems. First there are the activities related to heating the house, initially with floor heating, which just required

one group of activities for setting it up. Next, there is a large seasonally organized group of activities that occur every year. This group of activities consists of collecting fire wood outdoors and bringing it indoors and cleaning the window of the masonry stove. A couple of these activities are mainly performed by the father. This is either because he has the strength to lift the basket with firewood, or because he has the knowledge and skill to actually build a fire. Another reason could be that an activity that has occurred a couple of times slowly became a part of usual practice. This process is strengthened by the skill he developed from building the fire over a period of time.

A dark house



Turning on a light in the house is not a particular. Instead, it is an activity that is required to perform certain practices in the evening. Lighting a house is discussed here because this house is rather dark. This particular activity then becomes a part of and enables many daytime practices.

*“V: Dit stuk doe ik eigenlijk heel weinig mee. Doorgang meer. Het donkerste deel van het huis.”
(Father in his video-tour, 00:00:44-00:00:49)*

The material entities and conditions that cause this situation are, first of all, the physical location or material environment in which the house is situated. The house is located in a forest. There are trees around the house, result in less light. As you can see from the floor plan, the windows in the living room are located at the far end of the house. The father calls the corridor “the darkest place of the house”. In response to the lack of light in the house, many lights can be found throughout the ground floor. The corridor has a lowered ceiling, which contain LEDs. The studio even has a special light to ensure sufficient light, although this is the lightest space on the ground floor. Finally to light up a room is also a physical act, the act of turning the switch.

“S: Ja, ik vroeg de kinderen natuurlijk net, hoe het zat met het licht. Hebben jullie daar eh, heb je daar een manier voor. Dat je bepaalde lampen aan en uit doet op bepaalde momenten. Of eh.”

V: Ehm, ja we hebben hen wel duidelijk gemaakt als we naar beneden gaan, dat ze boven de lampen uit moeten doen.

S: Oke.

V: Voor de rest hebben we het niet heel duidelijk, omdat het hier vrij donker is altijd.

S: Ja.

V: Staan toch wel vaak de lampen aan.”

(Interview 00:34:00-00:34:30)

As mentioned, turning on the light is an activity that is part of different practices because certain practices require sufficient light such as cooking or reading. One of those practices also proved to be giving a video house tour. During the video tour, the mother switched on the lights in each space we entered. It could also be found in the photo diary. On the photos you can often see light switched on in the background.

Little competence is required to switch a light. There are no real skills involved. However some knowledge is required. You need to know where the switches are located in order to turn them on, and you need to know if you are allowed to turn a light on, and when you need to turn it off. So you need to be aware of the rules surrounding this activity. For this particular activity, the parents explained they did not have a lot of rules about light because their house was rather dark during the day. The only rule they described was to turn off a light when leaving a room.

Turning on the light has a rhythm which is closely related to the available daylight. For most houses this means the activity of turning on a light is cyclical, and closely related to the time the sun rises and sets. Other factors that plays a role is the weather. On a grey or dark day, more people will turn on the light. In this house these factors play an even greater role because a small decrease in daylight will be noticed earlier. In the winter however trees do not have leaves, so more light reaches the house. In addition to these natural factors, other factors also play a role. If everyone leaves the house, all lights will be turned off. So the rhythm of light is on the one hand cyclical, influenced by the sun, the weather and the leaves on the trees. On the other hand it is linear, related to the times school and work start.

Making sense of turning lights on during the day is explained by arguing the house is dark as a result of its location. Father does this the most. He calls the house itself a dark house. He also labels the corridor the darkest place in the house, and his favorite place in the house (the purple chair in the living room) ‘bedompt’ or stuffy, during the day time. The studio is a contrast to that, and is typified as a light place.

The perceived space that relates to this practice consists of the material entities described. In other words, its location in the forest, the windows positioned at the far end of the main space and the many lights positioned all the way through the house. Related to this are the activities that need some extra light, like cooking or crafting.

The conceived space is the space as a mental construct. The house is described as dark and stuffy. This is reflected in the lived space, especially in the example of switching lights on during the house tour.

“ V: De hele verdieping LED-verlichting heeft en dat is iets ondanks dat het huis goed geïsoleerd is enzovoorts is toch een hoge stroomrekening en ketel moet ook hoge rendement zijn enzovoort dus daar kon het niet van komen.

S: Ja.

V: En toen ging ik me ineens realiseren dat we heel veel spotjes in huis hadden. En omdat we in het bos zitten is het altijd heel donker hier,

S: Ja.

V: hebben we best wel vaak het licht aan. Ook overdag, voor in de keuken is ook gewoon het licht aan. En die spotjes waren allemaal 50 watt per stuk. En toen ben ik eens gaan tellen. We hadden geloof ik iets van 25 van die spotjes maal 50 watt,

S: Ja.

V: dus dat was de grootste energievreter in onze woning. Dus dan heb ik ze allemaal vervangen voor LED-lampjes.

S: Oké.

*V: Dus of het veel oplevert weet ik nog niet Aan het eind van het jaar zullen we het zien.”
(Fathers in his video tour, 00:11:27–00:12:16)*

The lived space is turning on the light during many activities, or moving towards the light with certain activities, such as crafting. The lived space also has an impact on the perceived space. The father’s story about the unexpected high energy bill, resulting in installing LED-lights, is a good example of this impact. The act of turning the light on too many times resulted in a very high bill. As a response the material entities part of the activity were changed, in order to reduce the energy consumption.

Creating



Mother and the children are fanatic crafters. The materials required for creating new things, both for projects of the children and their mother, include paper, pencils and stamps but also fabric, paint and needles. Some of these supplies can be seen in the still

above. To create some tools is also required. The mother uses a sewing machine, an old iron, and easels to paint. All these things need to be stored somewhere. In the studio the large wall unit provides the required storage. <Quote mother wall unit storage>. Some, like the sewing machine, also need electricity to operate. Power plugs make it possible to use them. Although it is not a necessity to be creative, it is easier when there is space available where a mess can be made. The studio provides this specific space, with the tables and chairs providing places to sit and work. This practice also requires sufficient light, and the children like to have some music in the background. So in the studio there is a special light on the ceiling, and a CD-player next to the hallway door. Finally, for certain projects, specific skills are needed. The mother has these skills and facilitates many projects.

S: Ik zag dat jullie, dat jullie knutselen heel leuk vinden en dat doen jullie hier aan tafel maar ook in het atelier. Is daar een reden waarom sommige hier zijn en waarom sommige dingen daar zijn?

D: Omdat we daar altijd de radio aan kunnen zetten.

S: Ah daar is een muziekje

M: Ja, en die kan Zoon nu bedienen. Die kan z'n base, d'r indoen, eruit halen en de amplituur.

S: Is het vooral voor het muziekje?

Z: Ja een leuk muziekje (onverstaanbaar)

M: Meestal spontaan of, alleen, ik bedoel, dat ze hier niet, gaan dingen gaan maken met verf en dat soort materialen.

S: Dus dingen die kliederen dat moet dan ergens anders.

M: Dat is sowieso in het atelier. Maar puzzelt dat mag allemaal wel hier en soms wil Dochter, jij [tegen dochter] wil ook wel graag dan een kleurplaat hier doen als ik hier kook, dat we dichterbij elkaar zijn.

S: Oh ja.

M: Dat we elkaar kunnen zien. Niet?

D: Hmhm

M: Vind je dat...

S: Gezelliger?

M: Ja

D: Dat vind ik fijn omdat d'r meer licht is en ...

M: Nauw?

D: wil niet alleen in het atelier zitten en zo.

M: Ja, Want het licht is in het atelier want dan heb ik een speciale lamp

D: Ja."

(Interview 00:10:30-00:11:50)

Creating consists of different activities, depending on what you are doing. The mother likes to create. Besides painting, she sews, makes mosaics and she experiments. She mainly told me about painting <quote painting>. These activities were only captured in the photo diary. Based on this sewing entails holding the fabric, and moving it across the table into the sewing machine. The kids also like to create. They mainly like to draw, paint, and craft. At the time of my observations and interviews, making things with iron-

on beads was popular. These can be placed in a specific pattern. When ironing them, they melt a little against the material and become a single element. <Quote strijkkralen>. The mother helps the children when they are creating. The picture above shows mother and daughter creating invitations for the daughter's birthday together. Crafting shares some common elements. One mostly sits and sometimes stands at one of the tables. Often after crafting one washes hands and leaves the project one worked on where it is.

For some crafting projects or aspects of it certain competences are required. First there is knowledge. This encompasses knowing how certain tools work, like the sewing machine mentioned earlier. Besides knowledge, skill is also involved. In the case of the mother her painting shows she has skills. She knows how to handle paint and a paintbrush. These competences make it possible to execute certain projects, for example the mosaic on the stove-bench.

Although it remained implicit during the field work, crafting seems to be a very big part of the mother's life. Her job involves teaching groups to craft. She sometimes gives workshops, and she paints and sews. Her paintings can be found throughout the house, and if she is spending time on the internet, she likes to look at other artists and look for project ideas.

The studio is the mother's domain. The studio is described as light, quiet and a good workspace. Creating usually happens in the studio. However some things, such as coloring, take place in the living room. The mother provided a good explanation.

"M: Het is wel een fijne werkplek.

S: Ja.

M: En ik kan er dingen daar laten staan. En dat is, met het, zelfde als met idee van knutselen met kinderen. Van hier zitten ze wel even maar dit is niet, dit moet straks weer leeg zijn.

V: Niet praktisch

M: En daar hebben ze echt zo'n tafel daar mogen ze het van mij ook laten staan om iets af te maken later.

S: Dus de grotere projecten gebeuren ook hier?

M: Ja.

V: Ja."

(Interview 00:44:30-00:45:15)

She later also explained things in the studio can stay put for a longer period of time. So for the studio there are other standards of tidiness than for the dining table.

It is hard to tell whether creating is something that happens in rhythms. It is something the kids do regularly. Based on the interview and video tour, the mother

seemed to be starting up her projects again. However, making any other assumptions is not possible.

The space as it is perceived during this practice consists of the studio, with the tables and chairs. Things unrelated to crafting are temporarily stored here. The radio is often playing in the background. Crafting supplies are stored in the wall unit. The mother, as physical presence, is part of the perceived space in her role of helping out the kids with her skills and knowledge. The experience can be different at times. When mother works on her own, without the kids around, it is probably quieter.

As mentioned earlier, the studio is conceived as light and quiet. According to the mother it is an excellent workspace. It is described as the mother's domain. It also is a place where things can be left in place. This suggests that the studio is not a place which needs to be tidy and clean. This notion also makes it possible for the studio to be seen as a good storage space. Finally, the father describes the space as a utility room.

The lived space consists of activities and the way they make sense of a space. Crafting in the studio mostly consists of sitting at the table, and making something new, the kids being helped by their mother, influencing other activities along the way.

Family Peters

Family Peters is also a young family. At the time of my research they had two young daughters, eight and four years old. Both parents have a higher education and work. The father works full time and the mother works part time.

Neighborhood

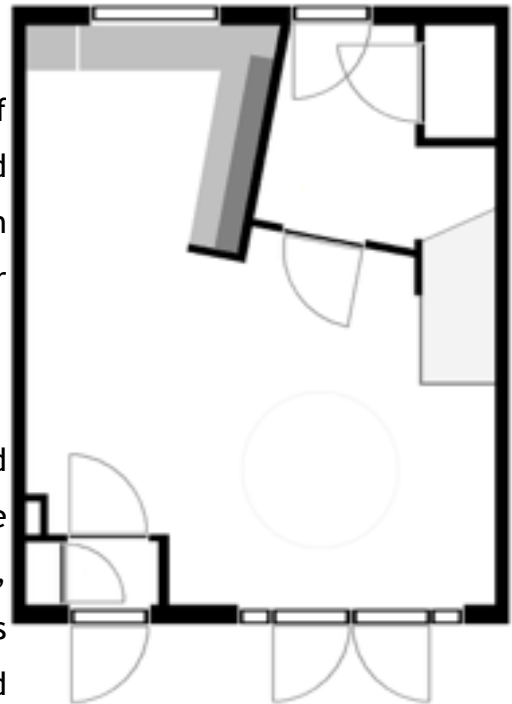
They live in an ecologically designed neighborhood in a new housing development in the middle of the country, and close to a large city. Instead of streets, the neighborhood has communal gardens. This was important. The mother explained the neighborhood also allows children to play outside safely, which allows children to gradually explore their own surroundings independently, but still within earshot.

Both parents appreciate the environmental aspect of their neighborhood, however they also very much appreciate the neighborhood's community and values. Although the environmental awareness was seen as an added value, the greatest appreciation relates to the shared responsibility to care for one another and the communal gardens.

The family's house is designed with sustainability in mind. Their house is directed at the sun. For example, the facade facing south has many windows in order to profit from the light and heat radiating from the sun. As a result the floor plan is reversed. The front of their house seems to be the back of the house. You will find glass garden windows which open up to the largest private garden. The back of the house has less light and a smaller private garden

Entrance

You enter the house through the larger garden and step into the small but light entrance. The front door has glass paneling which lets the light through. However, the door between the entrance and the living room is solid. In this small space there is another door on the left. This is the entrance cupboard behind which the distribution board can be found.



This small space is primarily used to enter the house. As a result of its small size and orientation towards the sun, it heats up quickly. The mother tells me even in winter it warms up quickly with a little sunshine.

Dinner table



After entering you step into the main living space, which covers most of the ground floor. Directly on the left is another door. The closet behind this door contains the pipes of the wall heating. The closet filled with pipes is, as the mother calls it, a warm cupboard. She explains that when the heating is on, the closet heats up as well. She does not understand why it is not better ventilated, arguing the heat should be utilized better. Positioned against its side is a narrow but tall bookcase. Most books are stored upstairs, because according to the mother, the downstairs has too little space for a large bookcase. In the interview they later added that in the future they would like to add extra space on to the back of the house, something many others have already done.

During the video tours the dining table was also positioned here, with its short end against the one of the heated walls. On the table there were some glasses and plates, and vases with flowers. Around the table, several chairs and a wooden bench are placed. Above it hangs a brightly colored lamp. A picture ledge is fixed against the wall above the table. Currently it displays the children's artwork, as well as some letters and papers.

This space is the dining space, with the table at its very heart. At the table the family drinks coffee and eats its meals. During the meals the children sit on their own chairs. When a meal is over the children are partly responsible for clearing the table. The table is also used for other purposes.

The children play (board) games or make art projects, sometimes with the help of their mother. She reads the paper or works at the table when she is working from home. She enjoys sitting at the table, calling it a nice place to sit. The father prefers the sofa. As a result he makes little use of the dining table outside of mealtimes.

Kitchen



From across the table you look into the kitchen, with the fridge in the left corner. Close to the wall, a few steps in front of the fridge, small feedings bowls for the cats are placed. The coffee maker stands next to the fridge on the counter, in front of a window. The window looks out into the back garden, which is partly private and partly communal. The countertop continues to the right, and makes a bend, continuing with the sink and the electric hobs.

Cooking is done with electricity. The mother is not completely happy with the electric cooker, arguing it takes too long to heat up. The cooker hood also leaves room for improvement, not being powerful enough, and sometimes causing the whole house to smell of food.

The cooking is done by the parents in turn. Whoever comes home first cooks the dinner. On weekends the parents take turns. They both like cooking, because they like to enjoy a good meal, and often try to prepare new things in the kitchen. The children like to help out in the kitchen, using a step-stool to reach the counter.

Besides cooking, the cats are fed in the kitchen. This is the daughter's responsibility. The father also sometimes practices double bass here. Finally coffee is prepared in the kitchen. Both parents love coffee, and have a coffee maker which matches their need.

Living room



When we continue, turning right we look back towards the front garden. During the video tours, the L-shaped sofa was positioned in the far left corner. This is largest piece of furniture in the room. It is positioned underneath the stairs leading to the first floor,

and close to two windows and garden doors. Between the stairs and the sofa, the harp of the eldest child is positioned. The windows at the other end of the sofa face south, and provide a view of the front garden. Directly across from the sofa is a small wooden cabinet on top of which mother makes a seasonal display. It's also called the 'jaartafeltje' which translates to seasonal cabinet. Above this cabinet the television is mounted on the wall. Standing next to the sofa, facing towards the hallway, are the father's guitar and double bass.

The sofa is the place to relax but also to work. Both parents and children sit on the couch to watch TV or a movie on the laptop. It is used to read, listen to music or use the Ipad or laptop, or practice an instrument. The eldest child and the father play their music instruments here, either sitting on the sofa or, in father's case, standing in front of the windows. When the eldest practices playing the harp, the father sits next to her and helps her out.

The space in front of the sofa is used to play the double bass. For the children this is also their favorite playing area, and youngest likes to dance here.

Hallway

Finally we enter the hallway, through a door that is mostly open during the day. According to the mother this creates a bigger space. The hallway itself is a relatively dark space. It is located at the back of the house, and receives little sunshine. It is mainly used as a storage area. On the right, the lower steps of the stairs can be seen. In front of the bottom steps is a small cabinet, mostly containing board games, the so-called game cabinet. The mother has decorated it. This cabinet is positioned against the outer wall and the toilet. The toilet is positioned in the far right corner. Across from the toilet, in the far left corner of the hallway a coat rack has been fixed to the wall. Underneath it shoes and two buckets filled with toys and garden tools are stored. To its left, and left of the doorway, is a large cabinet, which I will refer to as hall closet.

Drinking coffee

S: En ik nam aan koffie zetten.

M: Ja (gelach).

V: Ja.

S: Jij zet voornamelijk de koffie?

V: Hmhm

S: Want jij bent de enige die op de foto staat en daar aanwezig is.

V: Nee, Moeder ook wel, maar die zegt vaak van eh, kun jij koffie maken?

M: Ja

(Interview 00:02:00-00:02:30)

The parents love coffee. For this particular passion they use specific tools. On the counter in the kitchen they have a coffee machine and a coffee bean grinder. For frothed milk they have a small metal jug. One needs to stand at the counter in front of the coffee maker in order to operate it. Finally, to drink coffee, coffee cups are required and a place to sit, because this family usually sits down.

“V: In de weekenden dan hebben we altijd ’s ochtends ontbijten rond een uur of half negen, negen. Daarna, meestal wat opruimen, aankleden douche.

S: Ja.

V: En dan zo rond een uur of elf koffie drinken. Dan zitten we hier (wijst naar de eettafel).”

(Fathers video tour, on 00:03:12-00:03:28)

The activities’ part of this practice contain grinding the coffee, preparing the coffee, frothing milk, and pouring it into cups. Drinking coffee is a social activity, which means that sitting together at the table is an also a part of this practice.

To prepare coffee some competences are required, such as knowledge how to operate the coffee maker, and skill to froth milk. However I am unable to discuss it, because I have no data to support my assumptions.

“S: Jij bent hier koffie aan het zetten

M: Weer aan de koffie.

V: Koffie! We waren op een gegeven moment vergeten dat we die al hadden.

S: Maar dat maakt niet uit.

V: Ochtendkoffie, avondkoffie?”

(Interview 00:16:00-00:16:30)

The activity of drinking coffee has a certain rhythm to it. During the interview the father contemplated whether it is morning or evening coffee. His description of a Saturday morning also includes drinking coffee. Based on this I would argue there is probably a week and weekend routine in place. During the week this may mean having coffee in the morning (at breakfast), and in the evening (somewhere after dinner). On the weekend there is at least a practice of drinking coffee together at the dining table at around eleven in the morning.

“ V: En we houden erg van koffie.

S [grinnikend]: Ja jullie hebben inderdaad een heel apparaat.

V: En die is hee erg onvriendelijke voor de stroomvoorziening maar we vinden hem wel heel fijn.

S: Ja.

V: We laten hem niet de hele dag aanstaan.

S: Nee, oke.”

(Fathers video tour, on 00:05:30-00:05:44)

The activities are given meaning. In this case the end product of the practice (drinking coffee) is much appreciated. Both parents told me they love coffee. They also appreciate their coffee maker. As the father argues in it is a great device even though it consumes a lot of energy.

The perceived space of this practice consists of the counter with the coffee maker and coffee grinder on it, coffee beans, coffee cups and the milk jug. The person standing at the counter making the coffee should also not be forgotten.

Less can be said about the conceived space. This is the way we experience this space and is given meaning. The coffee maker is appreciated although it consumes a lot of energy. I would argue that the quality of the coffee and coffee maker is more important than the amount of power consumed.

The lived space of drinking coffee stretches at least from the coffee maker to the dining table. The place around the coffee maker is the place where coffee is prepared. Activities include frothing the milk, cleaning the coffee maker and counter, and getting coffee cups from the cupboard. The table is the place for drinking coffee, sitting together at the table, and talking. The mother asking the father if he can please make coffee is very much a part of this.

Living in a neighborhood

The material element is the neighborhood they live in, which is environmentally friendly. This can be found in other elements such as having a park instead of a street in front of their home. The neighborhood is a mixture of rental and owner-occupied properties. The parks and gardens around the home are communal gardens. Besides the physical environment I would argue that living physically close, exchanging hellos and goodbyes on a regular basis, and the occasional communal activity, sharing physical labor such as the ‘tuinwerkdagen’ or garden workdays, are also very much a part of this.

“ M: Ja, dit vind ik wel echt heel lekker. Lekker de deuren open ehm, dat je eh dat iedereen wat meer naar buiten gaat en dat je groen voor eh, voor je deur hebt.

V: Dat je uitkijkt op na ja, wij noemen dat het bos. Mensen die echt een bos kennen lachen zich daar natuurlijk, maar

S; Ik kom van de Veluwe, dus na je

V: Ja, Moeder ook. Maar het is niet een straat met auto's waar je op uitkijkt, ik vind het hier...

M: Ja maar, leg het maar uit omdat het word opgenomen en dan moet je [praat tegen O, onverstaanbaar want V vervolgd zijn zin]

V: In vergelijking met [vorige woonplaats] is het hier best rustig.

S: Ja

V: Je hoort eigenlijk geen auto's en wat ik dan heel fijn vind aan dit huis, dat het allemaal heel is, en werkt en ehm als je het warm wilt hebben kan het warm worden."

(Interview, 00:33:00-00:34:00)

Living in this neighborhood entails more than just buying or renting a property there. Activities belonging to this 'practice' are shared care of the communal garden. This is partly done by organizing special garden days. < Quote father shared garden> < Quote mother good neighborhood>. Besides shared care of the communal garden, they let the kids play outside unsupervised, allowing them to explore the surroundings independently. Finally, as seen in the mother's quote, there is a weekly coffee date in the neighborhood, for which an elderly neighbor is picked up every week. It is unclear from the quote whether or not the family partakes in this activity.

Looking at the data I cannot find competences required for this practice. This also applies to the rhythm of these activities. There is a coffee hour on a weekly basis. I got the impression that garden work days have been organized a few times. However it is difficult to tell whether it happens once every year, every season or every month.

"S: en waarom hebben jullie specifiek hier voor gekozen?

M: ehm omdat we, we woonde eerst in [plaats in westen van Nederland], toen was Oudste er al, en toen dachten we wat willen we graag, wat vinden we belangrijk. We vinden het belangrijk dat ze op een leuke school zit maar ook dat de sociale omgeving past bij ehm ehm past bij, wat wij ook belangrijk vinden.

S: Hmhm.

M: Dus dat, ehm, dus als zij ergens gaat spelen, dat je dan gewoon kan denken dat is ehm, dat is prima zeg maar. En dat ze ruimte heeft om ehm na ja iets verder dan alleen maar het achtertuintje te lopen ook al zijn ze wat kleiner. En dat kan hier, want ze hebben hier na ja de hele [buurt waarin ze wonen] onderhand. Oudste die mocht denk ik, hoe oud was je dat je ook op de [straat waarin ze wonen] zelf mocht?

O: Zeven of zo?

M: Ja.

S: Ja.

M: Dus zeg maar Jongste mag hier zo in het bos spelen tot aan het hek. Dan heb je wel, ze is binnen gehoorafstand maar ze kunnen ook zelf dingen kunnen ontdekken zonder dat ze je er steeds als ouder er bovenop zit.

S: Ja.

V: Vooral de sociale omgeving ook, De zorg met en voor elkaar.

S: Ja, ja, dus als ik het goed, of goed begrijp, jullie hebben het vooral over soort mensen en ehm hoe je met elkaar omgaat, maar de, de, het duurzame concept wat hier word toegepast op huizen speelde een minder belangrijke rol.

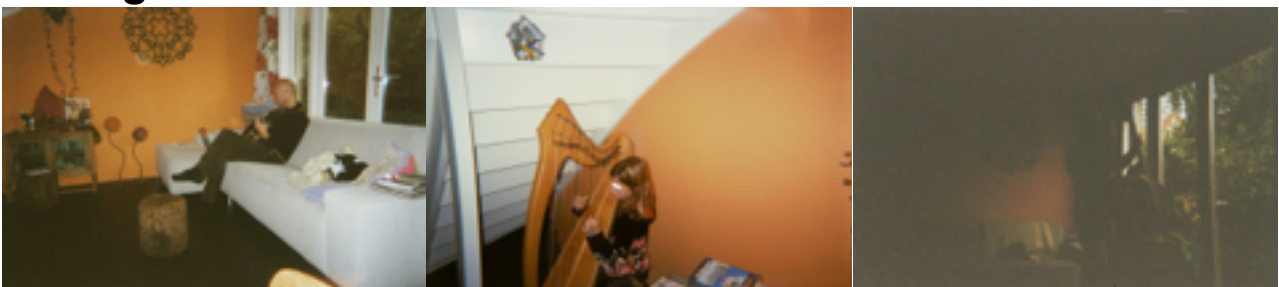
More can be said on how the neighborhood and the activities are appreciated, and given meaning. As can be seen from the quote, both parents appreciate the shared values in the neighborhood, and the care for each other and the direct surroundings that arise from this. The father explains the sustainable aspects of the neighborhood, and the energy conscious behavior of the neighbors is valuable and inspiring. Nevertheless, the shared social values outweigh this. The other quote shows the parents' answer to what they like about their house. The mother explains that she likes the fact that you look out over a green space. The father also mentions the peacefulness.

The perceived space consists out of the physical, static aspects of neighborhood such as its architecture, and the design of the neighborhood with its communal garden. Besides these static aspects, it also encompasses physical activities and physical gatherings. For the parents, this entails activities, such as 'tuinwerkdagen' or garden workdays. For the kids, this means the opposite, being allowed to explore individually, or at least without supervision.

The conceived space of the neighborhood is described to me in quote 1.2 as green and tranquil. Also a part of this is that it is safe enough to allowing kids to roam around by themselves. Although the physical characteristics of the neighborhood are appreciated, both parents show the greatest appreciation for the social environment they live in, emphasizing the shared values. The attention for energy conservation and a sustainable lifestyle is appreciated.

It is more difficult to determine the lived space of this practice. No activities related to the communal gardens were observed. The mother talks a little about it in quote 1.2. So based on this quote, the lived space consist of their own front garden and the communal garden and public pavements. I can imagine that during summer these places function in a slightly similar fashion to the communal space of a campsite. A space of chance encounters with the neighbors, playing a game or just enjoying the outdoors.

Making music



This family loves music, both playing and listening to it. I will mainly focus on the first. To play music the material entities required are of course musical instruments, in this case the eldest's harp and the father's double bass and guitar. To store these instruments, the father has a stand for his guitar. The other instruments stand by themselves but do need a safe place to stand. The guitar and double bass are kept next to the door of the hallway. In the case of the harp, it is stored underneath the stairs. To play one either needs a place to sit, or place to stand. The eldest has a stool to sit on, but also makes use of the sofa. When she practices, one of her parents help her to make sense of her music books. For her to practice, someone needs to be available, and they also need a place to sit. Her music books need to be stored somewhere when not in use, usually in the hall closet. When the father plays he either sits on the sofa with his guitar, or requires space to stand with his double bass. However, he does not use sheet music, but often plays by heart or accompanies other music, the latter with the aid of some technologies and wireless internet. He uses his laptop or his phone and the music installation to search for music online. Finally, in order to play, one must be able to hear what one is playing, so sufficient silence is required.

The activities related to this practice, besides actually playing the instrument, are also holding the instrument, sitting on the sofa or stool, or standing with the instrument. When the eldest is practicing, a parent also sits close to her, reading along, or telling her how to play. In order to see what one is doing, one either needs to sit near the light or switch on a light.

Practicing or simply playing music seems to be an activity that occurs regularly. Although I am not sure, I assume she has music lessons either every week or every two weeks. This would probably mean she would have to practice at least once a week if not more often. The father practices music in episodes. This means he has periods where he is very involved in music and plays often, and also helps the eldest a lot. He also has periods in which he plays less or not at all, and the mother helps the eldest a bit more.

Playing an instrument requires knowledge and skill. Examples of the knowledge required are being able to read music and knowing how to play a particular tone. A good example of this are the small lines on the neck of the father's double base, which sometimes help him find the right finger position. However, skill is very much a part of this, which is obtained by practice. Skills help with jumps between notes and pace, but also trains a physical memory, remembering where the fingers go next. This is accomplished by practice, which can be seen on the photos of both father and daughter.

Little has been found how both the father and the eldest give meaning to their practice. Both the father and the eldest enjoy making music. This is illustrated by the father's explanation that he has periods in which he is very occupied with music. This would suggest that he plays music when he enjoys it. I did not get the impression that he needs to practice his instrument.

"S: Ja. Ja, want ik had inderdaad. Zeg maar, jij doet al het knutsel gerelateerde, en jij doet vooral alles wat aan muziek is gerelateerd.

V: Ja.

O: Nauw, mama helpt mij soms ook wel met muziek.

M: Ja, em ik heb niet hele... Een beetje periodes. In die periode hielp Martijn jou veel, en de laatste tijd doe ik het weer veel."

(Interview 00:24:00-00:24:30)

The perceived space of this particular activity consists of places with sufficient light that enable playing music indoors, either close to a window or a light. The instruments and the place where they are stored are also parts of this. For the father the music installation and his phone or the laptop are also a parts of this perceived space. Besides all the objects and their place, the eldest's helper is also very much a part of this. That helper needs to be available to help her and a place to sit. Finally a part of the perceived space of playing music requires sufficient light to see what one is doing, and relative quiet to be able to hear oneself.

The conceived space consists of ideas about good places to play an instrument, good places to store instruments, and not so good places to store instruments. Good places have comfortable seating, sufficient light, and in the case of eldest, a place for her helper to sit.

The lived space consists of the activities that are involved in playing an instrument. These consist of sitting on the sofa, practicing one's instrument, and putting the instrument in a safe place. However playing music also requires negotiation with other practices. For example, the father likes to play music near the window. However when the family wants to watch TV, he moves his activity to the kitchen because other activities also take place in this space.

Winter placement



Reorganizing the living dining room is an activity which this family performs seasonally. They move furniture around. The material entities I found that were being used were several pieces of furniture. The dining table, chairs and bench were moved, as well as, in the living room, the sofa, two small stools, a couple of lights and the 'jaartafeltje'. Besides moving furniture around, the 'jaartafeltje' and the game cabinet are redecorated every so often. The door to the hallway and the entrance are opened and closed. Mother redecorates the 'jaartafeltje' and game cabinet. I am not sure of who performs the physical act of moving the furniture. The practice of reorganizing activities that are part of this practice is the moving of furniture, redecorating the tops of the 'jaartafeltje' and the game cabinet, and opening doors. To accomplish this I would argue that you mainly need to enjoy redecorating and the strength to move the furniture. The only other competence I can think of is knowledge, knowledge of how the house is used, and what would work.

"V: Overigens dat is wel leuk, in de... Dit is de zomeropstelling [wijst om zich heen].

S: Ja. Oh jullie hebben ook nog een winteropstelling.

V: En de winteropstelling dan, ehm. Dan gaat die bank [wijst naar de bank],

S: Hmhm.

V: Na, net alsof we perse altijd zomer en winter. Maar dan gaan we variëren. Dan zoeken we wat meer naar dat licht te komen."

(House tour with Father, 00:02:18-00:02:36)

However, these activities do seem to have a rhythm. In quote 7.1 the father talks of a winter and summer placement of the furniture, which would suggest the large pieces of furniture are moved around every half year. The 'jaartafeltje' refers to seasons. It displays the seasons, so these are changed every season. I am not sure about the game cabinet. The door to the entrance is open mainly during summer, based on quote 7.2. Again this would suggest a practice related to the seasons. Finally the hallway door; the

mother explained that during the day it is often opened and in the evening the door is closed. Overall, the main changes in the interior seem to be related to the seasons.

“En dan staat wat Vader eigenlijk vertelde in de zomer heel veel de deur open omdat je gewoon veel meer licht in huis hebt.”

(Mother during her video tour 00:01:21-00:01:30)

This practice of rearranging the living room is making sense of in different ways. The reasons for reorganizing the living room furniture every six months are a little unclear. The father argues in quote 7.1 that moving furniture around in winter is a move towards the light. When I asked about it during the interview I got a slightly different response, see quote 7.3. So the move towards the light might be a coincidence. In quote 7.3 the new setup is also analyzed. The seasonal display on the ‘jaartafeltje’ and the display on the game cabinet are the mother’s hobby. She enjoys changing it.

“ S: Want jullie hebben inderdaad de bank gedraaid.

M: Ja.

S: Waarom hebben jullie dat gedaan?

M: Ehm, omdat we dat leuk vinden om dat om de zoveel tijd om te draaien.

S: Hm hm.

M: En dat dit dan handig, op een leuke plek was. Ehm, we hebben hem zeg maar zo gehad. Dan stond die meer, midden in de kamer. En je kan er nu wel lekker op naar buiten kijken als je een beetje schuin zit.”

(00:11:45-00:12:15)

The perceived space of this practice are material things like the furniture, such as the ‘jaartafeltje’, including the game-cabinet, the sofa, the dining table and chairs. Besides furniture it also encompasses the architecture of the house, like the locations of doors and windows and the main passage way. These influence the way the house will be rearranged. Some combinations are difficult, because they block the main passage way through the house. A good example of this is the location of the sofa. During the summer, the sofa was located next to the garden doors. During the winter, the sofa was positioned in front of the garden windows. This would probably not occur during the summer, as it would make it impossible to use the garden doors. Finally the architecture enables some future plans.

These future plans are a part of the conceived space. Their future plans are to extend the house into the front garden (where the kitchen and hallway are located) to create more space downstairs. This plan is enabled by the architecture (as mentioned above) but also some neighbors who have extended their house in this manner. Another plan is to replace the door between the entrance and the living room by a glass wall, to let in more light. Besides the future plans, another part of the conceived space is labeling the organization of the furniture. Father labeled it winter- and summer organization. The summer organization is depicted in photo. The winter organization is depicted on photo. This labeling and the ideas behind it are conceived space. The summer placement of the furniture is probably based on the ideas of the activities taking place during the summer, such as for example using the garden doors. In the winter placement of furniture, these ideas differ, and priorities change. The use of the garden doors is no longer prioritized. Instead the family prefers sitting in the light on the sofa, although this results in sitting in a draft.

Less can be stated about the lived space, having been unable to observe the practice in action. The lived space consists of the actual moving of furniture and redecorating the surfaces. When the furniture is rearranged, this requires someone to move the furniture around or redecorate the surface of the 'jaartafeltje'. The perceived space is the fruit of this labor.

What are the changes caused by sustainable technology within the household?

Sustainable technology has a direct effect on some practices and an indirect effect on others. Start with the first case. Heating a house is a practice directly related to energy consumption. This house has floor heating and a masonry stove. The floor heating is simply set up and runs continuously. The masonry stove on the other hand has great effect. Wood needs to be stored outside, and carried inside. The bench that is heated is a favorite spot. The oven is used to thaw food and bake pizzas.

Besides heating a house it also needs to be lit. In the first case the house is located in the forest and has windows located at the far ends of the main living space, so relatively dark. Light as a result becomes a requirement for many daytime practices, expressed in an unexpected high energy bill. LED's were installed all over the ground floor. These do not influence the practices that require a light, however it does reduce the energy bill.

However this family loves to be outdoors. Their house, located at the edge of a forest, with a large garden makes sense. Many times, when I conducted my fieldwork in this home, the front door or the garden doors in the studio would be open. Of course, the time of year and the outside temperature will not have resulted in a tremendous heat loss, but still there is some heat loss. Finally having a creative profession requires in this instance space. This family choose to add a studio onto their house to provide this space, including the amenities it requires, like running water and a comfortable temperature. This results in a larger space, which requires more energy to heat.

In the second case, the effect of sustainable technology is less obvious. The house is located in a sustainable designed neighborhood. This has attracted a community to whom sustainability matters. This provides an environment in which the norm is to be sustainable, making it more socially acceptable to care about sustainability.

Nevertheless, what is highly valued by my participants about the neighborhood are the neighbors and the shared care for each other and the direct environment, showing that sustainability does not have the priority. This is also illustrated by the coffee maker. As the father admits, it is a great machine which produces lovely coffee, even though it consumes a lot of energy.

The house is directed towards the sun, which provides a lot of light into the house. Less light is required for specific activities, such as playing a music instrument. Another activity affected by the light is the regular moving around of furniture. During the summer set up it enables the use of the garden doors. While the winter setup allows for more enjoyment of natural light.

Conclusion

I started this journey with a book someone recommended. It was Comfort, Cleanliness and Convenience by Elizabeth Shove. She approached everyday life in a very different manner than I had seen up to that point. It was a difficult read that sparked my imagination and made me wonder how this might work in geography. This has resulted in my main research objective and main research question.

Although Shove sparked my imagination, I needed a theory which was a little more abstract. So I made use of Schatzki's theory of practice approach. By combining his approach with Lefebvre's approach to space I was able to see how these ideas would relate to space. This resulted in my theoretical framework.

A case study research would provide me with the detailed data I required, fitting my research question. It would also be possible to conduct in my limited time frame. To gain as much insight into activities, objects and ideas, I collected data in four different ways using qualitative research. I made use of a video-tour, photo diary, observations and an interview. The data I collected were analyzed using grounded theory. These methods proved to provide me with a large amount of rather detailed information.

My Finding

These families live in sustainable homes. One of the families has moved to their home because of their community. The other family has transformed their house, making it more sustainable as they went. Even though sustainability is a part of their lives it is not the highest priority. This can be seen in little things like never turning the heating off.

This also shows, there is more than sustainable technology that effects the energy consumption. Practices and ideas also effect this. Both families choose comfort over saving energy in different ways. As a result even though these families have more sustainable homes than most homes, they may not save as much energy as they could.

This is just a small case study with only two cases. It does not represent every single sustainable household. However, I think it is safe to say this result allows for a small generalization. These results might say something about the people with a similar lifestyle.

Based on my results it do have some other avenues that would be interesting to explore in future research. It would be interesting to see if the introduction of sustainable technology effects the way we use our homes. However it might be wiser to focus on groups that are little more extreme. An example of this might be to study

people who live in homes with smart grid. Smart grid is a type of network which is often applied to cushion the fluctuating power. It entails a group of homes in which all devices are connected to the same power supply. When there is a peak in energy a device will run, but will only begin when there is sufficient amount of power.

Another example would be to look at families who try to be as sustainable as possible, without (some) the technical help. Finally, an interesting avenue would be to study people living sustainable housing, but who did not choose this on purpose. This is especially interesting in relation to the introduction of sustainable technology in social housing.

Reflection

My research and the fieldwork that is described here, are based on Schatzki's practice theory. When describing the theoretical framework and the results of my fieldwork I also used Ropke's ideas on practice approach. In the final stage of my writing process I discovered that my initial understanding of practice theory described by Ropke was incorrect. In my theoretical framework and results, I used concepts of Ropke's and Schatzki's approach to practice. Now I come to understand that both share the same line of thought, but approach practice slightly different. This is expressed in the different concepts used by Ropke. Because the approach Ropke described is derived from Schatzki I would argue that the final results are not affected by this.

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Appendix 1 Information Letter

1

Met mijn onderzoek wil ik inzicht krijgen op de invloed van duurzame technologie op het dagelijks leven in huis. Ik zal kijken naar de manier waarop uw woning is ingericht, u uw woning gebruikt en waarom dit zo gebeurt, aan de hand van meerdere bezoeken aan uw woning. Dat doe ik aan de hand van de hieronder beschreven stappen.

Stap 1 Rondleiding

Na een eerste kennismaking, zal ik me tijdens het daarop volgende bezoek, richten op de inrichting van uw huis en het gebruik hiervan door individuele bewoners. Dat wil ik doen aan de hand van een rondleiding door de huiskamer/keuken door alle individuele leden van het gezin (als ze daartoe in staat zijn). Dit zal gefilmd worden met behulp van een digitale camera.

Stap 2 Observatie

In de tweede stap richt ik mij op het gebruik van uw huis. Dat doe ik aan de hand van observatie. Dat wil zeggen dat ik twee keer 2-3 uur in uw huis kom kijken wat iedereen aan het doen is en dit noteer met pen en papier.

Stap 3 Foto-reeks

Omdat het lastig is een volledig inzicht te krijgen in alle activiteiten in huis aan de hand van observatie, zal ik u en uw familie vragen gedurende een maand met een wegwerpcamera alle activiteiten in huis vast te leggen. Het gaat hierbij op 1 foto per dag.

Stap 4 Interview

In de laatste stap wil ik met u en uw gezin in gesprek over de inrichting en activiteiten in huis. Dit gebeurt aan de hand van de eerder verzamelde data. Dit geeft u de mogelijkheid te zien wat ik gedaan hebt, en anderszijds mij de mogelijkheid te kijken welke ideeën er schuil gaan achter bepaald activiteiten of de inrichting van je huis. Dit gesprek wordt opgenomen met behulp van een band- of voice-recorder.

Tot slot is het belangrijk is om te weten is dat de gegevens die ik verzamel niet bedoeld zijn voor derde. Dat wil zeggen dat ik mijn gegevens niet aan iemand anders zal verschaffen voor verder onderzoek. Wel zal ik mogelijk een citaat, foto, notitie of still van de video-beelden gebruiken in mijn verslag om een voorbeeld te illustreren.

Bedankt
met vriendelijke groet

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06-18235312

Appendix 2 Photo diary

Foto-dagboek

Leg met behulp van de camera activiteiten (op de begane grond) in huis vast. Probeer zoveel mogelijk verschillende activiteiten vast te leggen. Er zitten 27 foto's op het toestel.

Vul hieronder de datum en het tijdstip in, en wat te zien is op de foto.

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Overige opmerkingen/toevoegingen

Appendix 3 Interview Guide

~~Begeerte~~ onker/licht
Ontspanning
Schaansmaken
Inrichten
Verdeling
Jaakjes
Ontspanning Hoorak / Koudschon
Draaien bank / eetstiel
Koffie

Foto's
11, 12, 16, 22, 3

Eigenaar / Huur - hoe lang - ~~verminkt~~
Leetijden 8, 4
Tweevoudigers? Hoorak / Koudschon - opbrekking
Woningstiel
Dinsammanheid