

# CULTURES OF SUSTAINABILITY

## ‘Ways of doing’ cooking

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### **Abstract**

In our research, we have been expanding our conceptual and methodological frames of reference as designers, in order to explore the complexity of factors involved in environmental sustainability and the consequent challenges posed for design research. In this paper, we discuss some of these issues in user-centered and sustainable design, drawing out and developing relations to concepts from other fields of study, such as the sociology of consumption and material culture. In order to better understand the role that (sustainable) design products might play within people’s everyday lives and lifestyles, we interpret and discuss notions of ‘socio-cultural practices’ of consumption and frame an approach to studying people’s ‘ways of doing’ with artifacts. We point to two examples from our previous research on designing for energy awareness and for sustainable bathing practices.

A current study is presented in depth, in which families and singles, resident in The Netherlands but originating from different countries, have been observed and interviewed during preparation of a meal, eating and clearing up afterwards. Through studying and reflecting on the different ‘ways of doing’ cooking, we gained insights into how cooking and a range of associated practices and artifacts are deeply embedded in traditions, meanings and aspirations. Issues of environmental consumption, such as water, energy and waste, are at stake in such design research but, as we argue, so is attention and sensitivity to how these are interwoven in meaningful socio-cultural practices. The setup and findings are presented,

as a point of departure for raising conceptual and methodological questions to be developed in future work.

## **Keywords**

*Environmental sustainability, socio-cultural practice theory, user-centered design, research through design, sustainable living*

## **1. Introduction**

In industrial and interaction design, we typically understand our task as resolving client and consumer needs in the form of artifacts, applying theories from multiple areas, such as aesthetics, semiotics, ergonomics, etc., to the form and function of artifacts. However, from research fields that study the perception, experience and use of artifacts, we know that design is about much more than satisfying existing physical or emotional needs or resolving the ‘fit’ between users and particular tools or tasks. Design history tells us that artifacts “manufacture desire” for particular lifestyles and ideals (Forty, 1986) and the sociology of technology point to the “scripts” embedded in artifacts that prescribe user behavior and social relations (Akrich, 1992). As discussed in these and other studies, design has been remarkably effective in changing consumer culture – in some cases, resulting in remarkable side-effects including shifts in gender and class roles, conforming users to a particular social order or producing communities of ‘non-users’. Such large-scale and long-term socio-cultural effects illustrate a growing need for design to develop concepts and methods that can operate beyond product- or even user-centered notions focused on discrete artifacts, individual users or near-term understandings of user requirements and needs.

Indeed, the power of design to affect human behavior is increasingly in focus within sustainable development. Persuasive design, for example, is increasingly heralded in a range of approaches to effect more sustainable behaviors among users of artifacts that consume or control resources such as energy or water (for a discussion of issues in this area see Mazé, 2007, Redström, 2006 ; some recent examples are presented in Keyson & Jin, 2009, Gustafsson, 2010, DiSalvo et al., 2010). However, the introduction of artifacts aimed at achieving increased sustainability also produce unanticipated behaviors and rebound effects (related issues and examples are discussed in Verbeek & Slob, 2006). To

some extent, these might be mitigated by resolving the form or function of an artifact improve how an artifact is perceived, interpreted, learned, operated, and other usability factors.

Above and beyond, however, this indicates the complexity of socio-cultural factors involved in the design and consumption artifacts intended to influence or produce larger/longer effects, such as (sustainable) human behavior. Of course, this is hardly surprising if we understand environmental sustainability to be subject to social construction (an essentially contested concept, subject to competing and potentially conflicting socio-political concerns, rather than a matter of scientific fact ; c.f. Latour, 2004, Simmons, 1993) or future social and human phenomena as unamenable to prediction or determination (outside the most experimentally contained or limited contexts ; c.f. Schön, 1983, Rittel & Webber, 1973). As we have argued elsewhere (Mazé and Redström, 2008), this implies that it is not only the subject of design (its intellectual and ideological concerns) that must be considered in a larger and more complex worldview – but also the object(s) of design.

Sustainability poses considerable challenges to design thinking and practice, including prevalent assumptions of ‘what’ we design, raising a range of new research questions. As the subject of (sustainable) design expand beyond discrete objects with respect to individual users, what issues do we need to pay attention to as design researchers? As the (socio-cultural) frames of research move farther afield than those previously existing or well-established in design, how can designers engage with relevant concepts and methods?

In our research, we have been expanding our conceptual and methodological frames of reference as designers, in order to explore the complexity of factors involved in people’s everyday lives with respect to issues relevant to environmental sustainability. In this paper, we discuss some of these issues in user-centered and sustainable design, drawing relations to concepts from fields such as the sociology of consumption and material culture. Indeed, to the extent that we understand the problematics of sustainability to be at stake not only in design practice but in practices of consumption, these fields suggest the need to expand and deepen how we think of ‘users’, or the diversity of people who’s lifestyles are made up of and influenced by designed the things we design.

We are not social scientists – however, as designers and researchers, we have been motivated by concepts from within this field that we find increasingly prevalent and relevant. Our ambition in this paper is not to present an exhaustive survey or critical analysis of theories in the social sciences, but to draw out and develop our own interpretations of concepts that may help to reframe issues in (sustainable) design theory and practice. This paper should be understood as a work-in-progress, part of an ongoing dialog between ourselves, the authors, which traces a series of connections between these (interpreted) concepts and related concerns within our own design and research.

## 1.2 Background and examples

To exemplify how we find such concepts relevant, these are discussed in the context of our own design research work. Our work falls within the area of ‘research through practice’ (Frayling, 1993-4), in which design practice (skills, materials, methods, etc.) are the basis of research. Many of our projects are multi-disciplinary, in which collaboration with social scientists, as well as artists, engineers, philosophers, etc., is central, but our discussion in this paper will focus on issues for design and for us, as designers doing research. We will, below, briefly point to two design research projects, which will punctuate and motivate a theoretical discussion that is threaded through and built up in this paper. A third example – a quick-and-dirty study of ‘ways of doing’ cooking – is elaborated in section 4, as a basis for raising what we consider to be emerging issues for (sustainable) design research.

- Domesticating conceptual designs for energy awareness

Two conceptual prototypes from the Static! research program (Backlund et al., 2006, Mazé, 2010) (Fig. 1), designed to experiment with and express the aesthetics of energy in the material culture of the home, were deployed in a long-term study in different households (Routarinne & Redström, 2007).

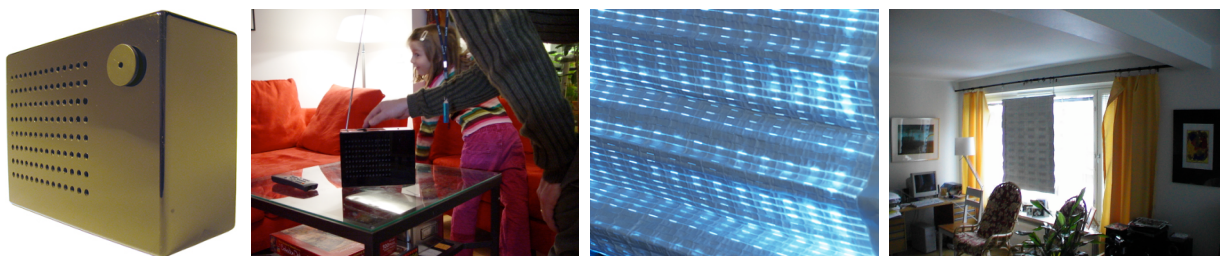


Figure 1: (Left) The Static! Erratic Radio and (right) the Static! Energy Curtain, each depicted close-up and in use within households participating in the ‘domestication’ study (Routarinne & Redström, 2007).

- Bathing practices in different cultures

In a European Living Lab project (Bakker et al. 2009), conceptual designs and simple prototypes for more sustainable ways of daily bathing (Kuijjer and De Jong, 2009, see also Matsuashi et al., 2009) (Fig. 2), were developed and deployed in real-life experiments within homes.



Figure 2: Example of a conceptual prototype for sustainable bathing as part of the European Living Lab project (Kuijjer and De Jong, 2009)

These examples are not provided for purposes of comparison – they were created in different national and institutional settings, as responses to different research programs, funders and partners, involving collaboration among different disciplines and researchers. Instead, we introduce them here in order to reflect on some issues and ideas that emerged for us, which motivate how we understand concepts and methods from other fields that have become relevant for addressing questions in our future work. In fact, we believe that a mixed range, or ever-expanding catalog, of methods becomes increasingly important for designers to relate to as conceptual and practical resources for contemporary and especially, we argue, environmentally-oriented practices of design and research.

## 2. Design and (sustainable) practices

In our previous research, we have explored some of the effects that design artifacts have in everyday life. For example, the Energy Curtain and Erratic Radio produced within the Static! design research program (see references and Fig. 1 in the section above) were later introduced into several households with different types of families, over extended periods of time, and across seasons. Study methods inspired by theories of ‘domestication’ attended

not only to immediate verbal and physical reactions to the artifact, but to how it changed hands and power relations, how its functionality was repurposed and even 'cheated', how it prompted self-reflection and rearrangement of pre-existing domestic artifacts. Diverse, unexpected and emergent relations to energy use surfaced, interwoven with a complex range of other factors and processes.

This example illustrates how the concepts and methods applied to study design frame how we pay attention to the effects that it has on people. More traditional usability methods might have focused attention on the intelligibility of design or accuracy of use, typically with a 'unit of analysis' delimited by a particular moment in space and time and by a direct relation between an artifact and a user. Instead, we learned about how artifacts prompt wider and longer processes of negotiation and appropriation within family life, the material culture of the home, and social practices.

## **2.1 Framing social practices**

As sustainability concerns in design overlap with that of research in other fields, it becomes an important question for design and for designers to rethink the 'units' of design and analysis that might be subjects for design research. Indeed, as research in the behavioral and social sciences can be anchored in a number of disciplines including psychology, sociology, economics and anthropology, it is evident that the 'unit of analysis' for approaching sustainable human behaviors may vary widely. Spaargaren et al. (2006), for example, positions a 'social practices approach' between socio-psychological perspectives (typically focused on the motives, values and beliefs of individuals) and technological-system perspectives (focused on large-scale regulations and resources). Bracketing interactions between actors and structures, 'social practices' might be understood as the building-blocks, or set of socio-culturally situated processes in everyday life, that constitute lifestyles.

Reckwitz (2002) and Schatzki (1996) outline an approach in which practices are the fundamental unit of social existence: "both social order and individuality...result from practices" (Schatzki, 1996). Within cultural theory (see Fig. 3), Reckwitz distinguishes four main tendencies (in which practice theory is one) that differ principally in the location of the social and the unit of analysis. Theories of practice place the social in practices and take practices as the smallest unit of social analysis. The other three types of cultural theory have

their main focus on either the human mind (mentalism), discourse (textualism) or communication (intersubjectivism).

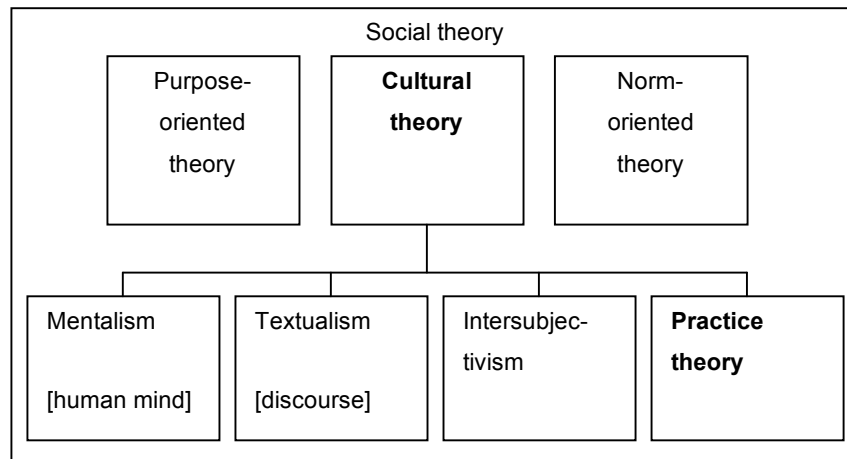


Figure 3: The position of practice theory within social theory, based on Reckwitz (2002)

Aligned with a Latourian concern for the ‘missing masses’ in much technology and consumption studies, Shove (et al. 2007; 2003) orients practice theory in proximity to the concern of material culture for how artifacts carry meanings, agency, and resources for the construction of individual and collective identities. Beyond the study of individual things as carriers of semiotic meaning, she pays attention to the relations among ‘complexes of stuff’. In contrast to approaches that treat the meaning of artifacts as fixed by design or passively accepted by users, she argues for material culture and social practices as co-evolving. These relations may ‘normalize’, to some extent, as habits and routines that embody the values and morals of everyday social or family life. But performing practices takes effort and is therefore purposeful, oriented toward particular ideas about the future, whether this might be about maintenance of the status quo or visions of how things might be different. This opens for understanding the presence and use of artifacts as part of an active construction of meaning on a daily basis.

## 2.2 Sayings and doings

Practice theory is an approach that seems to be able to account for the integration and reproduction of complex material, social, and natural factors. As it is essentially about the complex relations among these, this suggests that it is irreducible to a product-, user- or eco-centric logic. Instead, attention is on how relations among artifacts, people and resources interplay within larger and longer meaning-making processes. Even if this expands the conceptual frame typically applied to study design, we argue that the ‘unit of analysis’ can

still be placed within the actions and contexts of ‘things in use’, in which meanings are materialized. We might further inquire into the role of artifacts within, as Schatzki puts it, “a temporally unfolding and spatially dispersed nexus of doings and sayings” (1996: 89).

The expanding range of methods incorporated into design research, such as ethnographic inquiry, usability evaluation and discourse analysis, might be a basis for understanding both ‘sayings’ and ‘doings’, and the interplay between evolving material cultures and social practices in time. Indeed, practice theories emphasize tacit and unconscious forms of knowledge and experience, but locate these in terms of expressions and performances that unfold in material-social practices. One way that we have framed a design-oriented perspective as well as a practical approach to social practices is in terms of ‘ways of doing’.

### **3. Socio-cultural ‘ways of doing’**

In another example from our previous research, bathing practices, or ‘ways of doing bathing’ in the home, were in focus (see references and Fig. 2 in section 1). Bathing is deeply embedded in the routines of everyday life, typically conducted in private spaces with limited social interaction, and largely defined in the very early stages of life (for instance, by copying parental behaviors). As a practice, it is shaped in a historical and cultural context, closely bound to prevailing norms and values within a family, a community and other social groups (Shove, 2007). Additionally, however ‘doing bathing’ is also conditioned by the utilities and fixtures, proportions and arrangement of space within housing – much housing in places such as The Netherlands and Sweden has extensive building standards and regulations that, consequently, effect bathing practices. This is particularly evident in the experience of people coming from another country – they can experience perceptual and cultural ‘breakdowns’ within practices that are deeply rooted in embodied experience and socio-cultural norms.

This example illustrates how we might begin to pay attention to ways in which socio-cultural practices endure, adapt and decay. Focus was on how people perceive and value their ‘ways of doing bathing’, and how spaces and artifacts – and changes in these – might support more comfortable and/or more sustainable routines. In this case, a common unit of analysis was framed and established methods from usability were applied. However, inquiry



was pursued in multiple countries with different social, cultural and material practices, which opened possibilities for exploring the effects of spaces and artifacts in different socio-cultural practices and contexts.

### **3.1. Framing socio-cultural practices**

As sustainability implies reconsideration of prevalent human behaviors and social order (for example, in how resources are currently being consumed in the West), it becomes relevant for designers to understand the role of artifacts within cultures of consumption. Indeed, a theme in the anthropology of consumption is how artifacts “make visible and stable the categories of culture” (Douglas and Isherwood, 1996: 59). Culture, of course, is a complex and contested subject in itself, with a variety of models for describing the relations between factors such as ‘basic assumptions’, ‘values’, ‘beliefs’, ‘attitudes’, ‘conventions’, ‘rituals’ and ‘behaviors’, and how these, in turn, relate to structural and regulatory factors such as ‘systems’ and ‘institutions’ (for a survey of this see Matsuashi et al., 2009).

For our purposes here, we will locate culture as a dimension of practice theory (interpreted in section 2). Thus, our interest is not in terms of the large questions about the origins and formation of ethnic or national cultures, as treated within archeology, but the more micro-anthropological/sociological notions within material culture and practice theory. In material culture, for example, artifacts are understood in terms of the ways that they embody and express aspects within the life of an individual, family or social group, such as culture, gender, age, identity, status, etc. Though related to ways of understanding the self-conscious construction of identity through purchase and display of consumer products, our interpretation of practice theory entails a particular interest in the role of artifacts in socio-cultural practices. In this, we understand cultural values and norms as reproduced in everyday life through routines and ordinary ‘doings’ while negotiating complexes of artifacts.

One of the important tasks of cultural theory (refer to Fig 3), however, has been to challenge routinization, for example, the reduction of everyday life to standard, monotonous and mechanical routines. Certainly, a unit of analysis based in practice might result in an endless cataloguing or infinite inventory, without attention to the rich, animated and meaningful aspects of heterogeneity (Highmore, 2002). In his classic work on the practice of everyday life, de Certeau (1984 [1980]) explores aspects of inventive ‘doings’, bodily experience,

childhood memories and cultural histories, which entails differences in practice that are resonant with poetic and political meaning. Approaches to this have included cross-cultural studies, which may focus on continuities and discontinuities on a regional or historical basis, in order to understand the “not quite the same” across different cultures.

### **3.2 Cross-cultural doings**

From our perspective, socio-cultural practice theory, or practice theory articulating and elaborating on cultural aspects, opens possibilities for understanding the density and variety of meaningful roles that artifacts may have in everyday life. In this way, culture cannot be reduced to macro- and slow-moving formulations of ethnicities or nationalities, but understood as localized in practices that are deeply rooted but that are continually performed, reproduced and renegotiated. As Shove articulates, “present practice... is structured by future images of having and doing but in ways that are at the same time anchored in the past” (2007: 37). Practices, thus, are rooted in histories and meanings but are also future-oriented and, thus, open for negotiations in which designed artifacts will, inevitably, take part. Further, if we conceive of socio-cultural practices as inherently heterogeneous in ways that enrich everyday life, then inquiring into culture can become a source for emerging insights into use and for inspiration in design.

This perspective resonates with some of the aspects developed in the example of the bathing study. Indeed, hygiene and cooking have been theorized as areas that are particularly influenced by cultural norms and family tradition (Gram-Hanssen, 2006). In the example of the bathing study, we discovered, for instance, how people originating from countries with water shortage, such as India, still are accustomed to use a bucket of water for washing instead of running water in the shower (Matsuashi et al., 2009). Bringing a perspective on cultural practices into the study focused attention on differences – as a way to better understand the meaningful experiences of participants, but also as inspirations for designer-researchers to think ‘outside the box’, or the standard assumptions and categories that might be embedded in their subjective experience or educational/institutional framework.

#### **4. Example: Cultural ‘ways of doing’ cooking**

In the previous two sections, we have discussed ways in which a practice-theory driven perspective might frame an understanding not only social but cultural aspects of practice, and how this can be a basis for inquiry into the role of pre-existing complexes of artifacts and, potentially, into the effect of introducing artifacts into a given context. Our interpretations of socio-cultural practice theory are part of an ongoing discussion, motivated by our experiences from our respective and previous research projects. In future, we hope to build this discussion through the development of a common research program and further projects in this area.

To stimulate discussion of what the issues and potentials might be, we initiated a ‘quick-and-dirty’ study. An experimental project was set up, based at the Industrial Design department of the Delft University of Technology. The premise was to see what could be understood about ‘ways of doing’ in the material context and social practices of domestic life, with a particular focus on culturally-diverse families. We also positioned a sustainability perspective within the inquiry, to attend to the role not only of artifacts but of resource consumption during socio-cultural ‘ways of doing’ at home.

Our purposes in the study were twofold. Primarily, the goal was for the students to become familiar with methods of inquiry ‘in the field’ and to develop perspectives and insights on ‘ways of doing’. As supervisors, our secondary goal was trying to understand how designers (or, in this case, designers-in-training) experienced and learned from carrying out such a study. To this end, we held an interview with the students after the study. This section elaborates on the set-up and some findings of the study, with reflections on these twofold issues.

##### **4.1 Study set-up**

The project was set up to focus on simple methods for inquiry within households and without a requirement to lead to a design proposition. Two design students carried out the research as part of their coursework, and we were the supervisors. The goal for the students was to develop a more specific frame for the scope and subject of inquiry, to develop and apply the research methods, to identify participants and carry out the study, to organize and analyze

their findings, and to present their insights in the form of written scenarios and visual storyboards.

The study was developed and carried out over 10 weeks, during which there were regular advisory meetings. Based on their previous work, literature review and discussions with the supervisors, the students learned about and developed a set of basic methods common in user research for design, including observations, interviews and questionnaires. They made an initial set of contacts and set out for some preliminary observations of domestic life.

An early issue was what kind of frame or focus might constitute 'ways of doing', with possibilities including 'consuming water' to 'conserving food', ideas based on initial visits to households. Through discussion of these ideas, we decided not to focus so specifically on consumption/conservation issues but, instead, on a particular practice – cooking – in which, obviously, many resources, artifacts, people and contexts may intersect. Our reasoning was based on a desire to evade the potential development of a narrow fixation – it would be too easy to focus on taps, sinks, containers and appliances, on a few primary artifacts and/or resources (a product- or eco-centrism). Instead, we chose to emphasize the human and socio-cultural. Further, cooking is a common and familiar practice, and proximate to activities (for example, tea/coffee gatherings and dinners) in which outsiders are often welcomed. Thus, we also thought that this 'unit of analysis' would also have some advantages for communicating with participants and for positioning new researchers in the home.

The students selected 6 participating households, who had come from different countries but were resident in Delft. Participating households included families or singles from Iran, Vietnam, Morocco, Suriname and two from The Netherlands. These contacts were made through friends or relatives, or friends of friends, which, for purposes of this short study and the first conducted by the students, eased and speeded up the process. The households included participants that differed in age; some were living alone and some lived together as a family. They lived in different types of homes, though all of the homes had comparable features (such as the layout and facilities in the kitchen), typical in Dutch housing.

## 4.2 Preliminary findings

Based on their observations and interviews carried out in the households, the students collected and organized the resulting materials and notes. This was the basis for sessions in which they worked together to make sense of the 'sayings and doings' bound up in cooking within the different material and social contexts. Arising from their internal discussions and discussions with supervisors, several issues emerged. These were partially captured in the students' final written report, oral presentation and storyboard, but we also include here further issues from discussions along the way, during the final critique, from an interview conducted after the course with the students, and from discussions between the supervisors.



Figure 4: (from left to right) Vietnamese single preparing dinner, stove in the Iranian home, Dutch family preparing dinner, and kitchen after cooking in the Surinamese home



Figure 5: (left to right) A member of the Surinamese family eating alone, dinner table set in the Iranian home with different pots than those used for cooking, the Moroccan single eating breakfast



Figure 6: (left to right) Storage in bags or plastic boxes in fridge or freezer, collecting waste in plastic bags, before putting it outside in bins for specific types of waste

Below are some points that emerged during analysis of individual households and from comparisons made between:

- Shopping big or daily

There appeared to be a difference between the households when it comes to where they shop and the amount of food bought. Some explained that they shop at big-name supermarkets and buy food for those expected to be present at dinner. The family from Suriname, however, goes to local shops that sell specific ingredients, purchasing more food than needed one meal or one day. This was related to further 'doings', beyond cooking, around storage and disposal of food beyond the one meal.

- Water and food preparation

Households appeared to differ greatly in the use and purpose of water during food preparation. For example, the Vietnamese single did not rinse utensils, used pots and pans for both preparing and serving food at the table, and put everything in the dishwasher afterwards without rinsing. However, water was used to wash ingredients and cool down food does. The Iranian family, on the other hand, rinsed utensils, continually cleaned the kitchen during food preparation, rinsed dishes before placing them in the dishwasher, and served the food in different pots than those used to prepare it (Fig. 4). The Dutch single rinsed all her utensils but used a bowl for doing so, thus turning off the water tap.

- Social context of eating

In many cases, eating seemed to have a strong social element, for instance, as families and students living together came together for a specific time and place for dining together. However, in some cases, such as the singles and the Surinamese family, people took their portion at different times of the day or when they felt like it (Fig. 5). A question about gendered practices were also raised in the minds of the students.

- Storage or waste

A relation between the social aspect of dinner and storage/waste seemed to be appear from the research. For those that lived alone, food was kept fresh in the fridge, with the expectation that it could be used for an entire dinner the next day. However, for the families, left-overs from one dinner was not enough for another, and left-overs were thrown away. From the observations of people eating in larger groups, such as the students and the Surinamese family gatherings in the weekend, food is kept fresh for later occasions than dinner, such as lunch. All households separated and collected waste in plastic bags or bins in the kitchen, before throwing it into larger bins outside the house, see Figure 6.

Some findings, such as these, have been captured in the storyboard (Fig 7), which was prepared as a summary and as further interpretation of emerging issues. One such issue was the interconnectivity of 'doing cooking' with a range of other associated 'doings'. Cooking proved to constitute and overlap (spatially and temporally) with a preparing and storing ingredients, preparing and cooking dishes, preparing and storing food that was left over or planned excess, secondary consumption of left-/planned-overs.

As the students tried to understand the relations and reasonings involved in cooking, these further 'doings' came to light as relevant and meaningful to the participants, from practices of shopping to disposal and recycling. These only emerged through the 'sayings' that were

either elicited during the interviews, or incidental to cooking itself, since the students carried out the study by visiting during times of meal preparation. (We chose to include all of these utterances, as well as direct observations, while acknowledging that these may have different kinds of 'status' as data considered from the perspective of social science research.)

#### **4.3 Reflections on 'ways of doing' cooking**

The points above may not seem surprising or particularly new – perhaps too 'close to home' as a commonplace and even mundane practice many of us do everyday. However, it is far from mere routine as evident in classic studies (see, for example, rich elaborations on women's know-how and 'ordinary intelligence' by Giard (de Certeau et al, 1998). Furthermore, from conducting our own study, what became evident for us is how 'ways of doing' could provide a useful frame for, on one hand, carrying out a focused and, in many ways limited, study, and for, on the other hand, opening up onto a range of wider issues related to socio-cultural and lifestyle issues.

In the first instance, the students gained direct experience of the material cultures of the different households, made tangible and practical in ways associated with noticeably different 'ways of doing'. They expressed in the follow-up interview that they had expected to see many similarities between households but, instead, four distinct groups emerged. They were surprised, for instance, that the Surinamese home had multiple freezers in the living room for storage, which seemed to them a very different way of arranging appliances, organizing space and practicing 'doings' relevant to cooking. They reflected that, after all, it is not simply that "a kitchen is a kitchen". These differences seemed to be a basis for the students to reflect upon and to articulate some preconceptions stemming from their own life experience and some assumptions about consumer products from their industrial design education.

In the second instance, the frame of the study proved to be a good starting point for approaching environmental issues in a holistic way. The students developed views on how people go about preparing, eating and storing food, involving resource-intensive processes such as washing, heating, cooling, etc. – materialized in situations resonant with personal, social and cultural significance. Direct experience revealed familiar artifacts, but placed in different relations to one another and within different homes, in terms of practices extending

(spatially and temporally) beyond typical usability studies. In this way, the study expanded the horizon for understanding beyond the product-centric and even beyond cooking in and of itself, provoking a discussion of the complexity of 'doings' through which people make sense of and live out their everyday lives, alone, in families and in groups. Thus, it seems that we began to approach lifestyles (as built up from socio-cultural practices) in ways that would not have emerged in the same way if water or energy were the points of departure.

These aspects can be seen in the storyboard (Fig. 7). Minute aspects of cooking and related artifacts, resources and practices within discrete situations provide the building blocks within the designed representation, as well as sketches indicating 'doings' before and after. These are organized in relation to one another and with arrows indicating a directionality or movement between, thus moving from the particular to a more macro-view. As an interpretive tool (rather than a purely descriptive account), the diagram seems to represent a departure into speculation upon a potential design space.

We also recognize certain difficulties suggested from the study. The students experienced and we discussed the difficulty of understanding how cultural background affects the ways in which people go about 'doing' cooking, or how this might affect how they relate to and act in relation to sustainability issues. Further, it is unclear how the pre-existing built environment, with the proportions and arrangement of elements typical in Dutch housing types, might influence or enforce change in cooking practices. Admittedly, this study is limited, based on a small sample, a restricted set of methods, and on one visit to each household, without follow-up visits or interviews.

Further, focus was on, therefore dependent upon, what people say and do. Apart from the fact that some of the issues at stake are immensely complex, it can be hard for people to relate to their experiences, reasoning and values motivating or embedded in what they do (e.g. Ericsson and Simon, 1993, Dumas and Redish, 1993). Especially in the case of routinized behavior, it can be difficult for people to rationalize in words why they do or think as they do. Certainly the set-up of this rather quick-and-dirty study may not have addressed



these issues – as students enter into a private sphere, asking questions requiring answers on the spot, sometimes during the course of an intensive activity such as cooking.

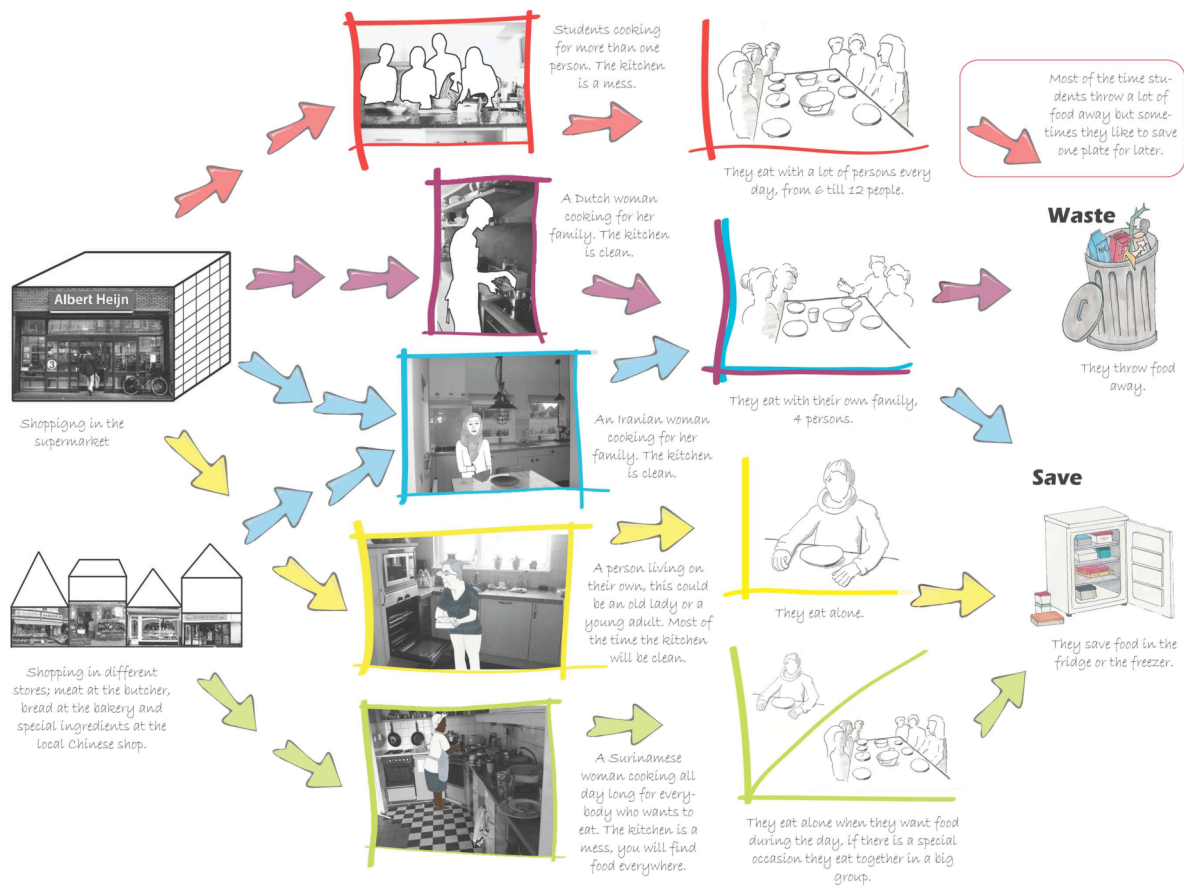


Figure 7: Storyboard of 'ways of doing cooking', based on people with various backgrounds living in Dutch homes, which are clustered in four groups in terms of social context of eating

#### 4.4 Reflections on methods

From the discussions in advisory meetings, certain methodological issues surfaced. In the interview held after the final presentation and assessment of the study for their university course, we tried to explore these issues further. As supervisors, for our own purposes of teaching as well as doing research, we are particularly interested in how students of design encountered and dealt with theories and methods brought from other disciplinary fields. Below are some of the methodological issues discussed with these students:

- Selection of participants

Difficulties were experienced with finding participants, especially when targeting a culturally-diverse set of participants. This was accomplished through the students' extended social networks, but they expressed an uncertainty about the differences between socio-cultural groups, and how to make a selection in light of this.

- In person 'in the field'

Apart from the question of language, it was difficult to know how to relate to customs and norms of behavior in other people's homes and, specifically the homes of people with diverse cultural backgrounds. In other words it was hard for the students to know what to 'do' and 'say', and what *not* to 'do' and 'say'! This worked in both ways – the hospitality in the Surinamese family was experienced as “too much”, while the Iranian family were sensitive to certain questions and did not want photos taken in their home. This meant that the students experienced the most ease, in their new role as researchers, within the households more similar to their own.

- Available methods

The methods applied – observations and interviews – provided a good starting point for the study, but the students felt that they needed additional methods, such as group discussions, to see if that would be a way to gain more insight into people's background and thoughts. Methods are needed to unobtrusively study people's ways of doing at home, their experiences (pleasure, connectedness, relaxation, etcetera), and thoughts, without being present at the site.

- Influence and ethics

It was apparent to the students that participants were very aware of their presence, which undoubtedly influenced their 'ways of doing'. It seemed that they could be more self-conscious or even more demonstrative, as they moved around more than usual to show how it was done. Privacy issues also arose – for example, some questions and documentation were sensitive, especially in the Iranian household, and other techniques needed to be developed on the spot in response.

For social scientists, and for those of us in design or other fields, who have been incorporating and developing methods for inquiry 'in the field', such issues will likely be familiar. Researchers often experience that limits in time and logistical practicalities can govern the scope, in breadth and depth, of a study and can, consequently, constrain the findings. It is inevitable that observation influences the experiment and impossible for even a researcher to escape from their own subjectivity in perceiving and interpreting – by now, these are common tropes in research discourse. These have given rise to a range of discussions about the bias, limits and ethics of research, and approaches including education that develops self-reflexivity among researchers and dedicated practices such as acknowledging and explicating positionality (see f.ex. Alvesson & Sköldbäck, 2000).

As the 'subject' of design expands to include aspects more traditionally the subject of other research fields, certainly one response is to take up such discussions and approaches as increasingly relevant to design research. Indeed, reflexivity about one's own assumptions and influences as a researcher has been part of discussions during the study. While cooking may at first have appeared to be narrow and mundane as a starting point, the students experienced a kind of distancing from the subject. On one hand, this can be seen as part of the uncertainty inherent in trying out new roles and methods. But certainly it was also

because of the frame established that included socio-cultural practices and, therefore, the elicitation of multiple and diverse ways of doing. Indeed, unfamiliarity might cause discomfort on behalf of the researchers but, also, provide an opening for discovering another perspective on or 'critical distance' from the everyday. Furthermore, the students started to problematize the kinds of artifacts (freezers, for example) that were common subjects in their industrial design education. This seems to suggest a self-awareness and critical thinking, towards the self-reflexivity of research practice.

Another response is to rethink the methods available. Certainly, our interpretation of practice theory has focused on 'sayings and doings' – perhaps privileging the 'what' and 'how' of everyday life. In this, we have struggled to understand the relation to 'why' and 'who' – that is, the traditions and values that might be located in relation to specific social practices or associated with particular people or cultures. Of course, given the limited nature of this study, we can speak about specificity and particularity in terms of examples and individuals, which could be further deepened with the addition or development of more sophisticated, careful and perhaps tailor-made methods for research in private and intimate spheres such as the home. A further question would be how (or whether) these might be more broadly characterized, generalized beyond a micro-cultural perspective, and what methods would be necessary for developing such an understanding.

These two potential responses raise a further issue, which we believe needs careful consideration and discussion within the (expanding and multi-disciplinary) design research field. That is the question of the purpose of this kind of research inquiry for design. This study is related to a growing number of approaches to 'research *for* design' (Frayling, 1993-4). That is to say, the application of research methods from other fields for producing information and inspiration relevant to design and designers – in the case of this study, methods for qualitative research from the social sciences. However, as these methods enter into design, in educational and research programs as well as professional practice, we also need to question the transferability – and the relevance – of the associated concerns, logics and validity from the social sciences. A danger is that 'research for design' by designers will only ever be a kind of second-rate social science when, in fact, research in each field may be oriented toward very different concerns, goals and audiences.

This casts another light on the problematics, discussed above, of achieving depth (the ‘why’ and ‘who’ that give rise to ‘sayings’ and ‘doings’) and of breadth (for example, the generalizability of socio-cultural micro-practices) in this study. Perhaps, rather than solving this only in terms of better research training for designers or better research methods for design, we might reframe the problem as a question instead. If the subject of design research is to understand design artifacts and effects, not (or not only) to understand people, how can we understand what is relevant and appropriate in terms of depth? While their experience of research in the study was valuable for the students, advancing their critical thinking as well as insights for potential designs, how can we understand the need/desire for generalizability? In other words, how can we understand the scope of research needed/desired for design and designers – what is ‘sufficient’ or, better yet, what is *not* ‘sufficient’?

The issue of ‘research *for* design’, especially to the extent that it involves designers as researchers, also raises the issue of ‘research *through* design’. While designers are certainly learning about research approaches and methods for other fields, there is also a growing area exploring research approaches based on the skills and knowledge, tools and techniques, materials and methods, proper to design. This concern is evident in the examples of our previous research, in which designers not only took part as researchers but design materials (sketches, models, prototypes, etc.) were positioned as interventions in various situations. In these cases, we might ask questions such as what can other fields such as the social sciences learn from design? How can we understand the *design* methods relevant to this kind of inquiry?

## **5. Discussion**

From our perspective, practice theory opens possibilities for further understanding the role that artifacts play within people’s everyday life and lifestyles. It constitutes an important shift in thinking how artifacts construct the social and the cultural, and the everyday practices constituted by these, and opens new challenges for understanding the effects of design. Further, if practices are future-oriented, insights into these become especially important for

designers, in order to inquire into how future designs might effect change with respect to environmental issues.

Sustainability cannot only be about preserving nature, conserving resource, or energy efficiency, it involves substantial questions about how people should live their lives. This can be discussed in terms of how society is shaped, and shapes us, toward particular ideals, values and priorities. If we recognize the profound role of material culture – and design – in lifestyle questions, we can understand this as an issue not only of macro-politics but of the micro-practices that make up everyday life. As Shove (2003: 198) articulates, “the vast majority of environmentally significant consumption... bound up with, and constitutive of, irredeemably social practices ‘governed by norms like respectability, appropriateness, competence and excellence’.”

In this paper, we have developed interpretations of practice theory in order to discuss the role of artifacts in the form and practice of everyday life. Evading reduction to product-, user- or eco- centric logics, we have tried to locate design within the complexity and plurality of factors relevant in socio-cultural practices. As we learned from ‘ways of doing’ cooking in the Surinamese family, for example, preparing and storing large portions is part of how the social and cultural practice of eating together as well as part of how consumer products like freezers are incorporated in ordering of domestic space. Sustainability, in this case, can not simply be a design for people to power down their freezers in order to reduce their energy uptake!

If we understand lifestyles as constituted by socio-cultural as well as material practices, then we might better understand the current role of design and the potential to effect change with environmental significance. In the examples from our previous research, we have explored both the rich and meaningful material cultures existing in people’s intimate domestic contexts, as well as how designed artifacts may be perceived, adapted and incorporated into personal practices and family life. Water and energy consumption were at stake in Static! and the Living Lab Project, but so was the discovery and inclusion of people’s own and diverse traditions, skills and aspirations. In this case, we understand design as powerful and persuasive but as something that is subject to, and therefore must be sensitive to, socio-cultural practices.

This perspective has consequences for thinking and doing (sustainable and user-centered) design. For one thing, diversity and plurality of practices comes to the fore – as Highmore puts it, “The everyday makes the particularity of lived culture inescapable” (2002: 174). The emphasis in practice theory on people as active, inventive and knowledgeable contradicts relegation to mere ‘users’, which already assumes and considers people only in terms of their use of artifacts and, typically, in terms of how they adapt the ‘right’ or ‘best’ use as determined by designers and producers and as measured in usability evaluations. Indeed, as in discussions with our design students around findings in the study, it was necessary to diversify and critique notions of a ‘mono-culture’ that designers might assume – or, that design might produce, if we assume a ‘correct’ way to use a freezer, prepare food or dispose of left-overs. Especially when it comes to environmental issues, questioning conventions of production and consumption, and dominant cultures of consumption becomes both necessary and, potentially, a force for creativity and innovation in design.

In questioning dominant notions of design and consumption, we are also, implicitly, opening up for understanding diversity within and for paying attention to those left out. Indeed, as Bradley has argued in her study of environmental development in the UK and Sweden (2009), middle-class norms have become a dominant, nearly hegemonic discourse, into which immigrant groups should assimilate, despite their own (sometimes more environmental) discourses and practices. In some ways, our research examples might be understood as design experiments into alternative ways of doing – and living. In *Static!*, strangely familiar designs provoked reflection, diverse interpretations and new actions in family life, in the European Living Lab project, culturally-specific practices were a source of inspiration for design. While quick-and-dirty, in ‘doing cooking’, designers developed a variegated and critical perspective a set of socio-cultural practices that might too easily be reduced to a matter of resource consumption.

While developing these perspectives on socio-cultural practices, we also recognize that there is still a concern that is left out – the future. We, as many designer-researchers, are learning from the social sciences to pay attention and become sensitive to existing things, to subjects that might be studied in the present using ethnographic or usability methods. However, as long discussed in user-centered and participatory design, starting in present-day lifestyles, even if a diverse range of existing values, skills and aspirations are included, we may only understand think and act in terms of incremental change. From these

perspectives, it can be difficult to imagine or validate the ‘radical change’ that many argue that environmentalism will require.

In our other research projects, and in future work, we are also developing design research methods for the mid- and far-future. For example, in PhD work of the European Living Lab project (Kuijjer and De Jong, 2010), the impact of future artifacts or routines are explored with people in real-life experiments, and in Switch! (Mazé and Redström, 2008), futures studies methods are adapted into speculative and participatory design for sustainable development. Related work of our colleagues explores ‘performative ethnography’ (Halse & Clark, 2008), performing future scenarios in collaborative design, and ‘context-mapping’ (Sleeswijk-Visser et al., 2005), documenting people’s dreams about the future – intersections between methods in the social sciences and in design research relevant to alternative ways of approaching ‘sayings’ and ‘doings’.

Acknowledging that people’s socio-cultural practices are future-oriented, these might be also be understood in terms of exploring the role of design representations in inquiry. For example, the prototypes, sketches and storyboards in the examples here and further discussed in the publications referenced, can be seen as foundational to approaches for knowledge production within the area of ‘research through design’. In this way, we might also expand the discursive space in which the social sciences may learn about and begin to incorporate the concerns, methods and audiences of design in to discover, produce and study the ‘cultural imaginaries’ (Latour, 2004) or ‘future images’ (Shove, 2007) necessary to changes in environmental and socio-cultural practices of consumption.

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