

DESIGNING FOR SUSTAINABLE FOOD PRACTICES IN THE HOME

Juan de Borja¹, Lenneke Kuijer, Walter A. Aprile
Delft University of Technology, Delft, The Netherlands
¹mdeborja@gmail.com

Abstract

Activities around food have implications for the environment, personal nutrition, identity, and social relationships. As a way of understanding how daily routines evolve, practice theory (a theory of social action from sociology) provides a framework through which the complexities around consumer food habits can be understood and reveal avenues for design interventions. The theory considers practices themselves as the basic unit of enquiry, where “practices” are routine activities made up of materials, conventions and skills and the relationships between them.

This paper explores households’ food-related practices using a practice theory approach, as well as methods by which the theory can be applied in the design process. On the one hand its explicit inclusion of the material world in shaping practice has clear relevance for design. However, the complex ways in which materiality interacts with abstract notions such as convention and skill raise challenges regarding its application.

Design directions are proposed that encourage more sustainable-meat eating practices in terms of alternative systems of materials, conventions, and skills. Insights gained and directions chosen included, for example, the role of special occasions in introducing more varied and less frequent patterns of meat consumption. The study also suggests ways in which designers can employ practice theory, and the role and limitations of design in influencing consumer activities.

Keywords

Practice theory, food, design methods, sustainability, consumption

1. Introduction

Food mediates our relationships, gives nourishment, pleasure, and a sense of who we are. On a larger scale, the way food is produced, distributed, and consumed is increasingly recognized as among the most powerful ways by which man alters the environment. All these make the food area a relevant as well as a complex one to study, which lies in contrast to the little consideration typically given to it in daily life.

While food clearly matters there is a challenge posed by how to gain insight into such a complex sphere with its many variables and levels of meaning. This can be especially difficult for design, having the additional aim of proposing interventions that have some likelihood of being adopted. Even with successful adoption, anticipating the future effects that these may have on the system adds an additional layer of concern.

As a way of looking at how daily activities take shape, practice theory may offer an approach to design that addresses some of these issues. It deals with habitual behavior, recognizes complexity, and explicitly considers the material, normative, and skill-based elements that form a part of, and shape, many of our food activities. This is in contrast to models that interpret action as being driven primarily by values and beliefs. Such qualities have recently raised the profile of practice theory in the design field (Hielscher, Fisher, & Cooper, 2008; Kuijer & de Jong, 2009; Matsuhashi, Kuijer, & de Jong, 2009; Scott, Quist, & Bakker, 2009). However its use by design is still in its infancy and the theory's roots in the social sciences have predisposed it towards description rather than application. Finding insights that are useful for designers and translating these into interventions raises some questions, particularly for a theory that at its core is opposed to reduction and simplification. This project is an attempt to contribute to an understanding of how practice theory can be applied in design, using the case of sustainable food practices in the home. Recommendations regarding the design for future food practices as well as the use of practice theory in the design process are discussed.

1.1 Practice theory

Practice theory is a way of understanding human action, particularly the routine activities of daily life. The theory considers neither humans nor products as the basic unit of enquiry when examining activities, but rather the interplay between conventions, skills, and artifacts (or 'stuff') (Kuijer & de Jong, 2009). Bike-riding in the Netherlands, for example, may be prevalent due to the way elements such as bicycle lanes, the flat terrain, traffic conventions, and knowhow in such things as riding and repairs come together (Figure 1). Specifically applied to food in the home kitchen, practice theory would frame this as a place where "streams of material, ideology, and culture converge" (Ingram, Shove, & Watson, 2007, p.12).

This questions models that describe behavior as being directly driven by values, and instead offers a complex view of how everyday activities become established in terms of general patterns (Munnecke, 2006). It sees the role of the individual as neither a completely autonomous and rational decision-maker nor a (non-) conformer of social norms. Rather, the individual does have an understanding of the world and of themselves, but also interacts with others in drawing from and generating shared meaning and understanding (Reckwitz, 2002). Practices in this sense do not reside in individuals, but are constructed socially (Warde, 2005).

In summary, practices do not happen because people autonomously act on their own convictions or because people simply follow (or reject) what society expects. Rather, practices take shape as these individuals negotiate their own beliefs and abilities with those of others and their material environment. And as the individuals carry out practices, these are in turn encountered by others who reproduce and modify them in a continuous process.

Figure 1: Biking and some elements of practice: lanes (stuff), traffic rules (conventions), riding ability (skill)



1.2 Historical food practices

Apart from food being essential to nutrition, practices relating to food have a significant effect on other aspects of human life. Its impact dates back to at least 13,000 years ago, when domestication of plants and animals for food caused a shift from nomadic hunter-gatherer societies to agricultural settlements which in turn led to the rise of cities and is responsible for, or at least allows, many aspects of modern life (such as the specialization of work, hierarchical societies, rapid technological change, and large increases in population) (Diamond, 2002).

More recently, development of cuisine can be traced back to peasant and professional (or court) sources. The first is connected to availability of different foods depending on the immediate environment such as geography and season, and based primarily on the oftentimes unconscious transmission of skills, cooking methods, implements, and tradition. On the other hand, professional cuisine is deliberately created and based on “invention, renewal, experimentation” (Revel, 2005).

1.3 Dissemination of food practices

The food practices of “higher” classes have generally had an influence on broader society and been imitated in some form where possible (Gronow, 2005). However, decreased economic and social stratification in Western industrialized societies have generally allowed patterns of consumption between classes to be less distinct and increased possibilities for the exchange of practices between them (Dwyer, 2009).

Food practices can also be transmitted through tradition. An example is in the use of spices as described by Rozin & Rozin (2005). This appears to be closely tied to peoples’ immediate environment and is pervasive in societies with a high proportion of plant-based diets—perhaps as a response to a historical absence of meat, which continues to be a preferred food source in most communities even if meat is now easily available (Harris, 1987). Because these flavorings are usually in consistent combinations such as soy sauce-ginger-rice wine in China and tomato-garlic-olive oil in Italy, they make dishes from such spice-using areas easily distinguishable (making Indian food more recognizable than, say, German). The urge to create familiar flavors through the use of spices is powerful and can be seen in the extent to which immigrant or displaced communities will try to acquire them in new settings. This may be in part because as a source of distinction, the food helps define cultural groups and give individuals belonging to them a sense of identity.

In these examples, the availability of ingredients and the way in which they are acquired play a key, and often primary, role in shaping practices around food.

1.4 The modern food system and sustainability

Modern production methods have provided huge increases in food production in recent decades (a three-fold increase between 1969 and 2000, compared to a doubling of the world population over the same period), allowed them to become widely available for lower prices, and in many cases reduced hunger and malnutrition. These methods include the expansion of irrigated farmland, increased mechanization, genetic advancements, and chemical fertilizer and pesticide use (Francis & van Wart, 2009). However, these come with negative consequences. The impact of food on the environment is higher than all other realms of human activity and may utilize resources at a rate that limit future food productivity. For Dutch households, de Vries & te Riele (2006) list the food consumption domain as having

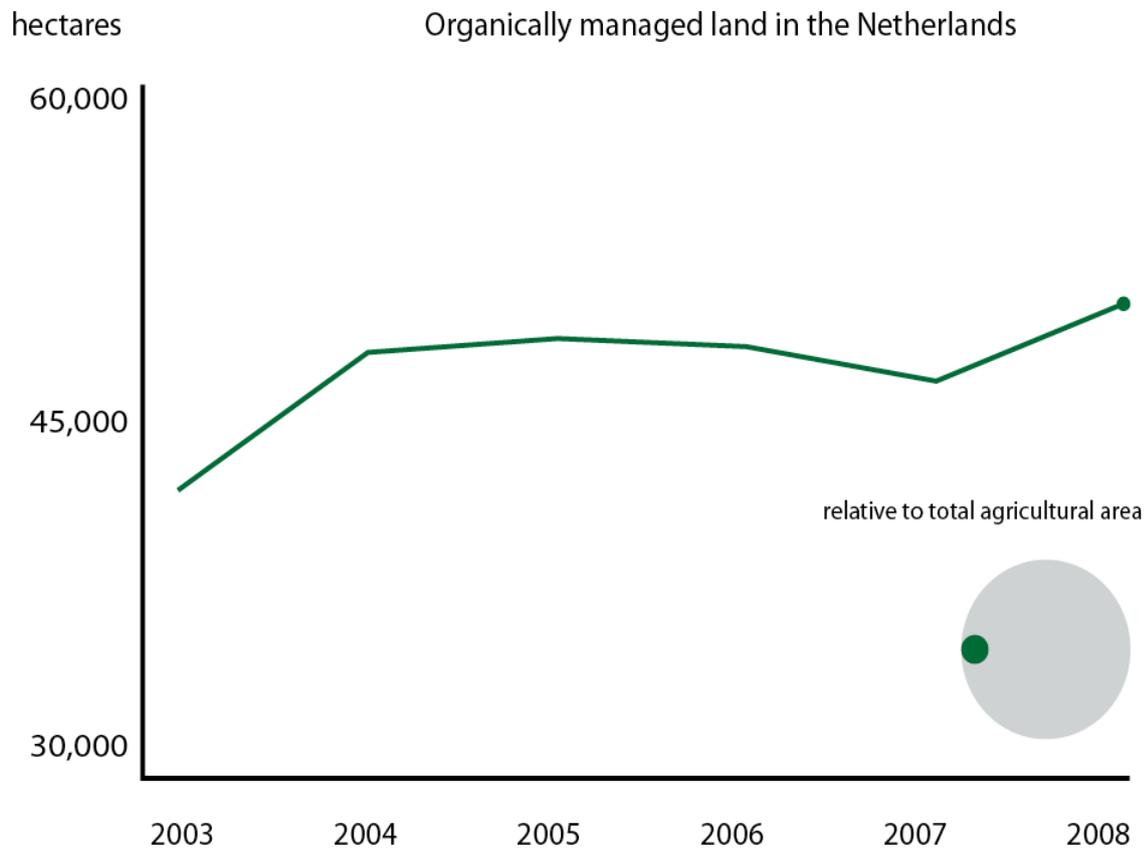
the most product groups in every single environmental pressure indicator¹ among all consumption activities.

Consumption choices have effects on production. For example, the demand for fresh fruits and vegetables year-round increases energy-intensive greenhouse operations and/or long distance transport (OECD, 2001). Some, however, argue that consumers have little influence on retailers and processors who largely control what is produced and consumed because of their size and position in the food chain (Millstone & Lang, 2008). As with many other aspects of the food system, examples for each argument can be found but in many cases it is difficult to isolate the effect of each on the other.

A partial response may be increases in organic farming activities (Figure 2). However this growth obscures the fact that land used in organic production is a fraction of total agricultural land area. In the Netherlands, organic sales in 2007 comprised 1.9% of total food and drink sales (Willer, Youssefi-Menzler, & Sorensen, 2008).

¹ The pressure indicators are: greenhouse gases, acidification, eutrophication, land use, wood extraction, fish extraction, fresh water use, summer smog, road noise and pesticide use

Figure 2: Organically farmed land area, Netherlands. Sources: FiBL-IFOAM (organic area), Food & Agriculture Organization of the U.N. (total agricultural area)



Food has become increasingly separated from knowledge of where it is from, how it is produced, processed and made available (Cook & Crang, 1996). While knowing where food comes from is not necessary for its own sake, consumer food choices are part of a highly interconnected system and has consequences throughout it, captured in the phrase “eating is an agricultural act” (Berry & Wirzba, 2002, p.321) with repercussions on farmers, supermarkets, wholesalers, and others (Belasco & Horowitz, 2009).

1.5 Summary of introduction to subject area

Food has always played an important role in defining who we are, from the scale of individual identity to our evolution as a species. Modern production methods and the increasing human population are intensifying its impact on the environment. The social sciences provide an idea of how food affected us and how practices around food developed in terms of broad strokes. However, why we perform certain practices over others is not always clear. For design, it is also useful to form a more specific understanding of how these fit into the normal lives of people in the present and how interventions can help shape their future development. Ways in which these were developed for the project are described in the following section.

2. Methods

2.1 Methods overview

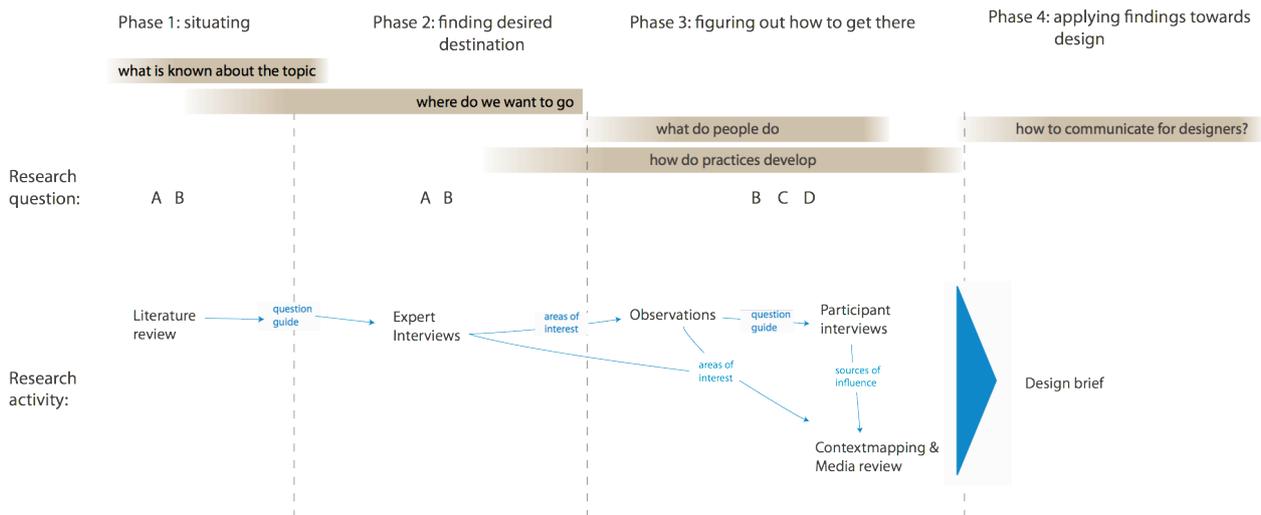
Six research activities were used in the project: a literature review, interviews with experts from five different areas of the food system, observations, participant interviews, contextmapping, and a media snapshot. These are divided into three loosely overlapping phases according to the knowledge desired from each. Information gained from each research activity was used to guide the structuring of subsequent ones (marked in blue in Figure 3).

The first phase involved acquiring an overview of food in history and the food system at present. This included its place in society, understanding how behavior around food practices develops, and sustainability issues. The second phase was concerned mainly with determining environmentally desirable directions for food practices to go towards, and the challenges and possibilities presented in arriving there. The third phase examined actual food practices and the settings in which they took place. This was intended to guide designs towards practices that have a reasonable likelihood of being reproduced. The last phase dealt with how to apply findings about food practices towards design interventions.

The following research questions were used to guide the process:

- A. What are the (un)sustainable aspects in the food system?
- B. What conventions, objects, and skills influence the development of food practices?
- C. What food acquisition activities are undertaken by participants?
- D. What are the sources of the conventions, objects, and skills?

Figure 3: Methods overview



2.2 Comparison with other approaches

2.2.1 Data collection vs. analysis

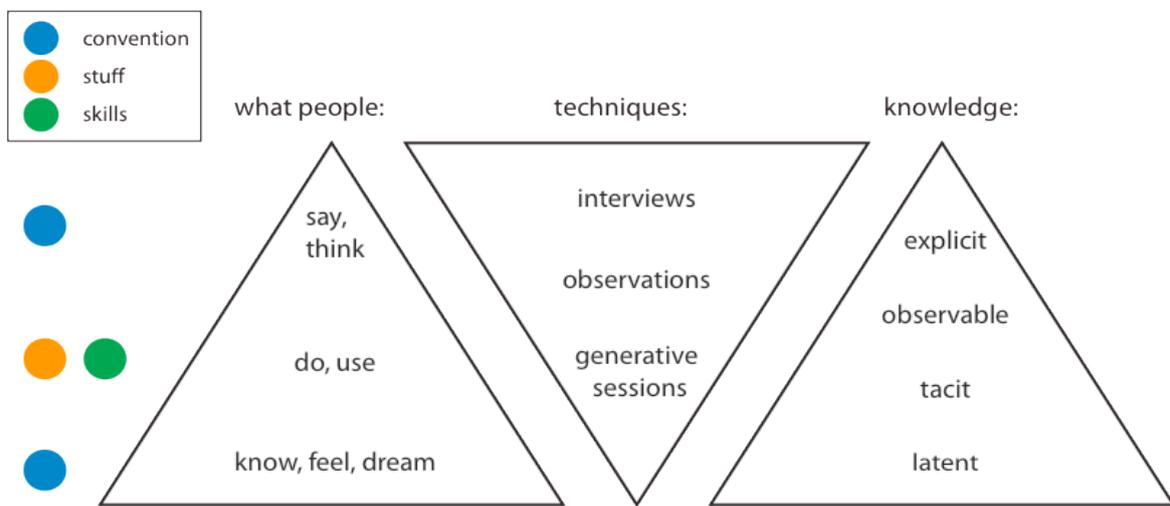
As indicated by the research activities described in Figure 3, existing design research methods have been employed. The practice theory approach lies not so much in proposing a new type of information-gathering activity, but rather guides the types of data to be gathered as well as the way information is understood and assembled. In fact, data previously analyzed using other approaches can be revisited after the fact, and re-analyzed from the perspective of practice theory as in Halkier's (2009) study of food consumption. If taking a practice theory perspective is not primarily in the method of data collection (although some ways are more suitable than others, as will be discussed), the question that follows is what kind of analysis should be performed for a practice theory approach towards design?

Revisiting the definition of practice theory from the previous section, a practice is made up of three general types of elements- conventions, stuff, and skill; and the interaction between them. It is in the first part of this definition, the elements themselves, where traditional research methods are useful for data collection in uncovering those elements that compose

a practice. Visser, et al. (2005) in situating contextmapping relative to other research activities propose the set of pyramids in Figure 4.

As indicated by colored dots, the classes of knowledge (together with the activities and techniques used to learn about them) have parallels with the elements that compose a practice. This correspondence illustrates how the research methods can be used in a practice theory approach. Stuff and skill for example, are elements that are well-suited to observation since the material world, and (to a lesser extent) proficiency in doing, have highly visible qualities.

Figure 4: Levels of knowledge and techniques to access them. Adapted from Visser, et al. (2005)



Knowledge of the elements may reveal conventions at play, artifacts and spaces involved, and skills employed. Beyond this, an understanding of how these come together- the second part of the definition- is required. As Shove and Pantzar (2005, p.45) state “when thinking about how practices evolve, it becomes clear that *relations* between material objects and associated images and forms of competence are of defining importance” (emphasis in original). This is not a clear-cut process and involves examining a number of sources, often jumping back and forth between them. Some of those used for the project are described below.

2.2.2 Relating the elements of practice

Reviewing history. History is a rich source of information into how configurations of these elements led to the evolution of practices, providing insight into the dynamics that lead to change or persistence (Munnecke, 2006). For example, the rise of snack foods in the Netherlands from about the 1960s can be attributed to a coming together of factors that include among others the industrialization of the food supply (Wintle, 2006), technologies used at sales-points such as gas-powered ovens and electrically-heated automatic vending machines, and a steady decline in conventions for home-meals as people moved to cities and spent increasing time on urban activities (de la Bruheze & van Otterloo, 2003). The end result is the prevalence of such practices as kroket-eating at office canteens. Two aspects to this may be worth noting: without any of the factors mentioned, the specific practice could not have taken its current form. Secondly, the existence of the elements alone are not sufficient to specify the practice. It is also the way that they relate to each other that matters. In other words, the elements are necessary, but without their specific configuration, insufficient in determining how the practice takes shape.

Observations. Observation of the performance allows the researcher to see the practice as it unfolds in steps. Some of the elements of practice are apparent, such as the material artifacts and environment. But the nature of the other elements- skill and in particular, convention (what Shove & Pantzar refer to as practices' "soft parts" (2005, p.60), make these components difficult to recognize even if their existence contributes to the practice being observed. Asking participants to 'think out loud' while they carry out their activities provides a way for the doers themselves to both identify these components as well as relate them to the concurrent physical context and activity.

As someone is picking up an orange for example, saying "I need the vitamin C because I'm worried about acne" reveals conventions regarding nutrition and beauty that are not evident by the visible aspects of the activity alone.

For this study, five participants aged between 20 and 40 were observed.

Interviews. In-depth interviews allow further investigation of the more abstract elements of practice (Watson & Shove, 2008). This makes it a useful follow-up to the observations, where the connections between what has been observed, and suppositions about how these relate to other practice elements (due to familiarity with the subject, common-sense, or through the 'think out loud' procedure described above) can be explored. While done as a follow-up to the observations, reviewing the observation data beforehand may help establish the patterns to be explored during the interview.

Paired contextmapping. The use of pairs in contextmapping can create a situation where participants must confront what is routine. Reckwitz (2002 ,p. 249) describes a practice in the following way:

A ‘practice’ (Praktik) is a routinized type of behavior which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, ‘things’ and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge

When participants narrate food habits with a familiar partner, what is perfectly routine for one and not deserving of thought may not be so for the other. Asking them to do the session together creates a situation where Reckwitz’s “routinized type of behaviour” may be challenged and examined in terms of the more abstract elements of “understanding”, “mental activities”, and “states of emotion”.

It should be noted that a possible downside to the approach may be a tendency to justify behavior, and what is said may not necessarily reflect the full complexity within which activities take place. Participants’ explanations do, however, provide insight into what they think contributes to their own actions, and equally valuably, what they consider to be acceptable explanations (i.e., conventions) regardless of their accuracy.

Table 1 illustrates how the activities relate to practice theory. It should be noted that while the elements and their relationships have been described separately for clarity, in actuality the elements do not exist in isolation from how they relate to each other.

Table 1: Research activities and practices

	Literature review	Expert interviews	Observations - Participant interviews - Contextmapping		Application towards design
Information acquired	<ul style="list-style-type: none"> •The food domain •Sustainability issues •Evolution of food practices over time 	<ul style="list-style-type: none"> •The food domain •Different perspectives •Future (sustainable) directions 	<ul style="list-style-type: none"> •Types of food consumption practices and how they are performed 	<ul style="list-style-type: none"> •Evolution of practices between people •Elements constituting practices 	(N/A)
Practices	<ul style="list-style-type: none"> •Historical evolution of general food practices 	<ul style="list-style-type: none"> •General food practices at present and dissemination/transformation over space (as understood by interviewees) 	<ul style="list-style-type: none"> •Performances of specific practices 	<ul style="list-style-type: none"> •Dissemination of specific practices •Practices into their elements •The elements examined as configurations 	<ul style="list-style-type: none"> •New elements & configurations •Same elements with new configurations

3. Findings

A few conclusions and selected passages from the various research activities are given below. These are based on the compatibility of the insights with the main focus of the project: an improvement in sustainability by using design to influence practices.

3.1 Opportunities for change

3.1.1 Waste reduction

This appears to be among the most promising directions for change. It is an area with much room for improvement in environmental impact, one where the consumer has rare control (at the household level) within the food system, and it does not require sacrifices in food choice, quantity, or expense.

The extent to which food products can be accurately determined to have an impact on the environment is based on conditions of place, season, production and distribution methods particular to each product and place. This makes universal assertions regarding the (un)sustainability of types of food beyond the individual product level difficult.

The strong norms against wasting food expressed by participants and their performance of some practices to prevent waste, such as dealing with ingredients towards the end of their life, suggest opportunities for fitting this into existing practice.

As stated by Cuijpers (one of the institutions representing food-system experts): *Because food waste, in your household, is quite a lot, as well as in terms of its feasibility: when you're trying to stop that waste, you don't have to change any habit or pattern of what you're eating.*

The amount of food waste seems to be supported by recent figures showing that 8-11% of food bought by Dutch consumers is thrown away (Ministry of Agriculture Nature & Food Quality, 2010).

3.1.2 Where patterns become vulnerable

While major life changes are a recurring theme in adjustments to food related behavior, these are infrequent and their occurrence lies outside the control of design. A more subtle and constant factor learned from participants seems to lie in the physical traces of food through which people encounter each other's food habits, such as when one spots a new type of food left by a flatmate and tries it out of curiosity, or sees food that is about to spoil and tries to make something out of it. Trying and enjoying a new dish provides, perhaps unsurprisingly, another avenue to new practices.

An example is the case of Paul and his flatmate Madge, where the contextmapping activity revealed how some rotting bananas regularly left by Paul are often made into banana bread.

Paul: *I buy bananas and I don't eat them and they get rotten*

Madge: *and I see them and say 'looks like that's ready for banana bread'*

3.1.3 Skills

There are some food-related skills that play a large role in opening up possibilities for reconfiguring available materials (primarily ingredients, but also cooking implements). This may be valuable in waste reduction by making more use of what is available, and seem to be related to a familiarity with ingredients, their combinations, and basic cooking techniques. Maria, in one of the observations, describes how she came upon a new recipe in the following way:

Sometimes, today we have the salmon. So I'm thinking from that point on. Sometimes I just like looking around. if I find a good mango then I think of what I can do with mango. I discovered (preparing salmon with katjap) recently. I was thinking what kind of taste would be good with salmon...then I thought maybe we can combine it with something more exotic...I started thinking about soy sauce and honey, then I thought if I take katjap it's kind of sweet already so maybe it would work...sort of a honey glazing.

3.1.4 Fruits as functional

Interviews with experts and a review of literature indicated that there is a tendency in Dutch culture to value food for its function- nutrition and health. Work with participants suggested that this expresses itself strongly in how they viewed fruits (and to a lesser extent, vegetables). These were spoken of primarily in terms of their assumed health benefits, with little conveyed of the emotional or pleasurable aspects to food. There may be potential for waste reduction in this area, with fresh fruits and vegetables having the highest waste losses among the food groups (United Nations Environment Programme, 2009), and as much as 42% of fruit lost through waste in the home (OECD, 2001, 2002).

This convention is often expressed negatively as well- reflecting an awareness that fruit-eating is generally accepted as something that ought to be done. Irma: *Well.. to be honest, I am not a big fruit eater. Very bad, I know.. but my parents didn't put that into our system somehow.* However, the difference between recommended and actual fruit intake in young adults in the Netherlands suggests a disparity between knowledge and practice (Snoek, van Strien, Janssens, & Engels, 2007).

Work with participants suggests that this may be related to a value-action gap. Fruit is widely regarded as something that people are supposed to eat, and so it is bought (seemingly with the full intention to consume it). However, practices in the home can take patterns that make keeping up with these values difficult. In the case of Irma for example, she buys fruit almost weekly, then puts these away in the cupboard or at the bottom of her bag (so that she has a

snack available when travelling). However, she often forgets that she has fruit in either location, possibly because both are out of sight. Instead of developing a pattern for eating the fruit, she has developed a pattern for checking for rotting fruit at the end of the week in order to throw them out.

3.1.5 Meat and emotion

Meat is a focal point, but attitudes towards it vary greatly. In contrast to fruit, participants showed passion towards meat ranging from opposition to desire. In the review of literature and in interviews with experts, it is one of the few areas where there is general agreement that the meat industry is among, if not the, the most environmentally harmful within the food system.

Paul enjoyed the eating of meat, and extended its importance to preparation:

I like people helping me cut vegetables because I think that sucks. But I want to make the meat myself

Willem explained how being a vegetarian required him to pay careful consideration to his diet due to the absence of animal protein:

...I'm a vegetarian. So the first thing I would have less than someone else would be proteins based on the higher proteins from meat, fish, or soy. Nothing else has it so if you're looking at this kind of stuff you say 'oh I have to manage this'

3.2 Elevating the special place of meat

Promoting sustainable practices in meat was selected as a design direction due to the centrality of meat in sustainability issues and its deep emotional content, which could well illustrate the role of conventions in shaping practices.

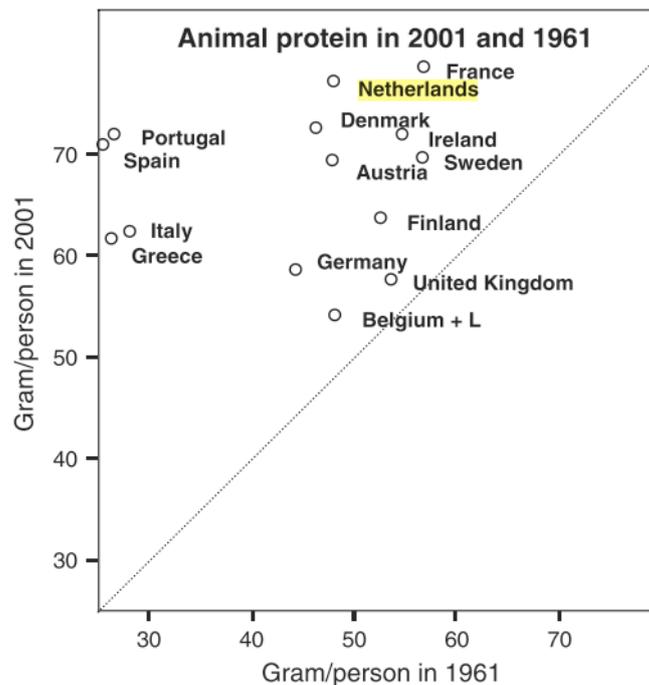
Eating meat in Holland was certainly less common in the past, and seems to have been associated with the slaughtering season around the fall (Lindgreen & Hingley, 2009; Wintle, 2006). Recipes show the use of animal parts now rarely used (or seen) such as head-meat pickled with vinegar and horseradish, and feet and muzzles stewed in wine (Barnes & Rose, 2002, p. 40).

Instructions for presentation and serving suggest that these parts were not only considered worthy of eating, but of display at the table.

...when carving a swine's head at the table, one should insert a two-pronged fork in the nostrils to steady it and cut thin slices along the neck and then the jaw-bone hams. If that does not yield enough meat, the ears may be sliced, but generally they are left intact so the head looks better on the platter (Barnes & Rose, 2002 ,p. 96).

While the range of commonly eaten animals (and their parts) has declined, the volume of meat consumption has increased dramatically (Figure 5). Today, Dutch consumers are eating about 60% more than the nutritional ideal, with a large increase in only the past 50 years (de Boer, Helms, & Aiking, 2006).

Figure 5: Change in protein composition of diet, (de Boer, et al., 2006, p.271)



The concept proposed is to further encourage the conception of meat as a special food (Harris, 1987) to reduce occasions of consumption while increasing the enjoyment of each. Efforts have been made to reduce meat consumption by highlighting its role in environmental degradation and climate change and animal welfare. The human attraction towards meat, however, is so deeply rooted that this appeal to values may have limited effectiveness. There are also health benefits to eating meat in moderate quantities (Harris, 1987), and its nutritional qualities may in fact be at the root of a biological adaptation towards a preference for it.

An approach towards reducing meat intake while recognizing its unique place among food is to establish a relationship that is more consistent with most of human history (including that of the Netherlands). Some aspects of this relationship are: a less frequent consumption of meat, meat as (even more) highly prized, the use of more types of meats, and the use of more of its parts.

Below are some aspects that affect the practice of meat eating as special. These are loosely organized starting with convention and skill and 'stuff', but in many cases necessarily overlap.

Special is somewhere between the commonplace and the offensive. Aversion to types of meat not usually eaten, and even parts of meat that are regularly encountered, appears to be strong. However, a special occasion seems to provide an opportunity to shift what is considered to be 'nasty' to something 'exotic'. This is clearly within certain limits, and in the case of these participants there seems to be a spectrum of meat familiarity within which a food can be considered special without arousing disgust. Jaap, for example, states *when meat looks that dark it looks scary to me. And that's the reason I don't like these wild animals like rabbit and deer.* This would suggest that he would not eat 'scary' deer. However, he later describes with fondness a Christmas dinner for which he prepared deer as the main course: *we just wanted something special. And deer is not that special that nobody likes it but it's a bit different from traditional beef.*

Figure 6: 'special' relative to the commonplace and the offensive



Rozin & Rozin (2005) propose that humans have an "approach-avoidance" conflict where the desire to try a new food is in tension with a fear of it. They argue that this can be resolved through the use of seasonings, which act as a cultural adaptation for introducing strange ingredients by coating them with a familiar (and safe) taste. The use of recipes that incorporate recognised tastes into novel ingredients may be another way to improve the acceptability of different types of meat.

Occasions. In the example above, Christmas was the occasion during which an unusual type of meat dish was enjoyed. While it provides some insight into how food practices can change according to occasion, such holidays are not the focus of the design outcomes for this project for two reasons: these are already situations during which special practices around meat are triggered, and their infrequency does not provide much opportunity for a regular, modest and healthy amount of meat consumption. Instead, what is proposed is a more regular yet valued consumption of meat such as its historic association with Sunday

meals (common for everyone from poorhouse residents, university students, and sailors on Dutch vessels) (Schama, 1997).

The dish. In the research done for the project, there appear to be two ways in which food is considered to be suitable for a special occasion. The first is based on the uncommon nature of the main ingredient alone. In the Christmas dinner prepared by Jaap, the use of deer meat was in itself sufficient to make the meal special, even if the preparation was not unique and identical to the way he prepares a steak made from beef: *Deer steak, it doesn't differ from normal beef in preparation. Because I wanted them medium rare. And I just asked the butcher, but I also know from earlier experience with normal beef how to handle it a little bit.* Irma's recollection of this dinner indicates that she did consider this as special: *wow. he made it quite perfect. .. wow I remember I really enjoyed that piece of meat.*

The second has to do with preparing standard ingredients in an unusual way so that it becomes something remarkable, as in the case of Paul's Filosoof dinner, whose ingredients he describe as basic: *It's just mashed potatoes with minced meat with cheese*, but the resulting dish is new and interesting. Dinner partner Madge later says *I was surprised by how tasty it was.*

It seems reasonable that a third variation where both the ingredients and the preparation are unusual is possible. However, especially with regard to meat, this may reduce the likelihood of acceptance.

Setting. Settings associated with special meals are quite different from those for an ordinary meal. A special meal is eaten at the table, with a focus on the food and company. Phrases used to describe this suggest some formality (Madge: *we eat at the table and be civilized*).

The difference in settings between regular and special meals is illustrated in the following exchange between Adriana and Willem:

Willem: *I think if you make something you pay more attention to we eat at the table. If it's more fast-food like, we eat on the couch.*

Adriana: *if we're there we're more focused on food*

Willem: *yes there we use the food as an experience. the other times we use food just to get fat*

The focus on food may actually contribute to eating healthier, more moderate quantities by discouraging mindless grazing (Wansink, 2004), in line with the healthier consumption of meat.

3.3 Summary of findings

Findings as they relate to the research questions stated in section 2 are summarized below.

A. What are the (un)sustainable aspects in the food system?

Apart from the meat industry, there is little widespread consensus as to where the most pressing problems relating to sustainability lie. Waste reduction is a promising direction for change. This area bypasses the difficulties in assessing sustainability on a case-to-case basis, is one where consumers have control, suits conventions, and has significant potential for reduction in impact.

B. What conventions, objects, and skills influence the development of food practices?

Those most closely related to the chosen direction of changing meat practices are outlined as follows:

Conventions: Conceptions of what is special, ordinary, or offensive influence what is eaten, how food is considered, and the situations in which they are eaten (and vice-versa).

Objects ('stuff'): Ingredients and flavorings used and, in particular, the types and parts of meats themselves help define the range of possible practices.

Skills: The ability to imagine and manipulate tastes and flavors can increase possibilities for new ways of dealing with food.

C. What food acquisition activities are undertaken by participants?

While the activities themselves are varied among participants, each has a fairly limited set and appears to be largely habitual in nature. These activities can take new forms during special occasions.

D. What are the sources of the conventions, objects, and skills?

Arranged roughly from long to short-term, sources include family and upbringing, experiences in travel and changes in places of residence, food (in both raw-ingredient and ready-to-eat forms) left by others who share living or working spaces, and the media (especially in the case of health and sustainability-related issues).

4. Conclusion

4.1 Practice theory in design

Applying practice theory to design is neither neat nor straightforward. However, we believe the reasons have to do with its accuracy in describing daily life- that it is messy and not prone to simple interventions. The value of using practice theory in the design process seems to have to do more with promoting a way of seeing rather than a specific set of techniques. However, this way of seeing can be enhanced by a research and design process that encourages the use of its principles.

Among the most important implications involves approaching the issue at different scales. Much of the work of designers has to do with the specific- at the level of objects and their use. Linking this with the broad perspectives offered in such fields as history and economics not only provide the overall structures within which individual practices take shape, but offer clues about the underlying dynamics by which they evolve. These can be especially valuable for designers being interested in adoption of their interventions, and, especially with increasing concerns about sustainability, their effects.

There seems to be a contradiction in terms of the place of designers taking a practice theory approach. On the one hand among the most attractive motivations to do so, and perhaps the one most in line with the nature of design, is to structure interventions for maximum effect. In this sense, the designer can be interpreted as someone who shapes the world from above. However, there are other aspects of the theory that run counter to the image of the designer as capable of manipulating society. In a real sense, by rejecting simple explanations for human behavior the theory reveals limitations as much as it does opportunities (Munnecke, 2006). The factors that shape mundane activity have a force and complexity that resists easy manipulation. But it does expose those few spaces where we may be able to give practices a push in general directions.

4.2 Sustainability in food practices

Sustainability is one among many aspects to eating and a relatively recent consideration, when considered at all. The review of history and work with participants demonstrate that the meanings ascribed to food are both numerous and powerfully ingrained. Outside of top-down, legislated prescriptions on eating, finding links to more enduring aspects of food practices seem to offer a greater likelihood of achieving sustainability goals and having significance in people's lives than pursuing sustainability for its own sake.

Practice theory has profound implications for how we understand innovation and the innovative landscape of designers work domain. Traditionally radical innovation is defined as a product that creates a new market, but with practice as the unit of analysis we will

understand radical innovation as a new constellation of understanding, competences and actants. In consequence the main objective for the designer is not primarily to make products, but to configure² practices that make sense in peoples' everyday lives. (Munnecke, 2006, p.2)

Fortunately, some of these can be linked with sustainability such as those related to health and pleasure, as proposed in the design directions for the project. However, this is not true in all cases, and greater challenges may be faced in dealing with more intractable conflicts with such considerations as food availability in the developing world and economic growth.

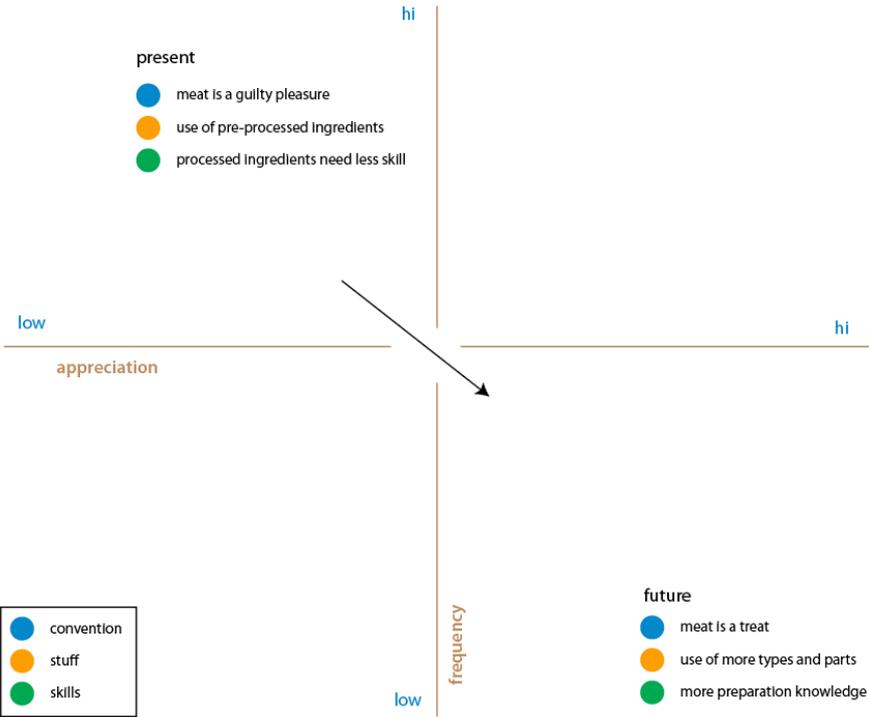
4.3 Recommendations for future research

Two main recommendations are given. The first is regarding the use of practice theory in the design process, and the second relates to the design direction in meat. In terms of using practice theory in design, it would be useful to test the outcomes in taking this approach and assess how well interventions achieve stated goals. Comparing this to the results from a traditional design process could provide insight into the value of this approach as well as point out areas for improvement.

In terms of the direction in changing meat practices, one of the findings regarding adoption of new food practices was that this often required a positive experience as a starting point. It may be worthwhile to test the meat-related findings by serving the meats that participants indicated they would not want to try such as rabbit or deer, and experimenting with different approaches to improve acceptability using combinations of environments, situations, and recipes. This might then be an entryway to the introduction of new food practices. The goal of relating eating frequency with appreciation provides two dimensions over which a future meat-practice can be projected in relation to the present (Figure 7), with the aim of designing interventions in terms of the three elements that provide a pathway between the present and desired future practice.

² Understood by the authors of this paper to be within the limitations discussed in Section 4.1

Figure 7: Pathway for the design of a future meat practice



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