



Practice theory and the green energy consumer

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Abstract:

Much consumer oriented environmental policy has targeted energy consumption in homes. It may be questioned, however, to what extent and in which ways the individual consumer is the right target of such a policy. Recent practice theory from Schatzki, Reckwitz and Warde emphasize that consumers should to a greater extent be seen as carriers of practices than as individuals deciding practices. In this paper Schatzki's practice theory is described in detail and based on Reckwitz, it is afterwards extended with theories on technology including appropriation and domestication of technology, transition theory and a discussion of scales of technology. The paper thus discusses practice theory and how it can be used to understand the role of objects and technologies in the constitution, change and development of routines and practices related to the use of everyday-life technologies, as it is by using these technologies that energy is consumed in homes.

Key words

Practice theory, transition theory, infrastructures, consumer practice

Introduction

The idea of this paper is to get a better grasp of the daily routines and practices that are done in households and that have as a secondary effect the consumption of energy. For the past decades quite a lot of research on households' energy consumption has been carried out both from a cultural consumption perspective and a socio-technical perspective. It has been argued that there is a general tendency within cultural consumption to overstate the conspicuous consumption approach in favour of focusing on more routines consumption practices (Gronow and Warde, 2001). Following this criticism Elisabeth Shove showed in her influential book how new norms and higher standards of comfort, cleanliness and convenience are constructed along with the introduction of new technologies and that these shifts have a huge impact on households' energy consumption (Shove

2003). From a more theoretical perspective we have at the same time seen what some call 'The practice turn in contemporary theory' (Schatzki, Cetina and Savigny, 2001) and as both Shove and Warde have pointed out, this might be highly relevant for the understanding of consumption. According to them, the quality of practice theory is precisely that it stresses the routine aspect and the collective and conventional nature of consumption (Warde, 2005) and that it stresses the importance of the role of the artefacts involved in constituting new practices (Shove & Pantzar, 2005).

In this paper I intend to follow and develop this line by exploring the content and ideas of practice theory as it is developed by Schatzki (Schatzki, 1996, 2002). First, I will give an introduction to the theories of Schatzki with a focus on the different elements and links that he proposes and will discuss the advantages and differences compared with previous theories of practice by Bourdieu (1976, 1984) and Giddens (1984). Next I will propose ways of extending the practice theory of Schatzki to better include the material, e.g. things and technologies, as has been discussed by especially Reckwitz (2002a, 2002b). In this extension I will concentrate on three aspects including how people relate to and domesticate technologies, how new practices evolve in a co-production with new technologies and finally how questions of infrastructure, scale and systems of technologies can be understood in practice theory. Following this is a discussion of similarities and differences in the understanding of both change and stability in the technology theories on the one hand and the practice theory on the other. In the conclusion I will discuss advantages and problems of this combination of practice theory and technology theory in the understanding of energy consuming household practices.

Practice theory – in the words of Schatzki

What is practice theory?

In the introduction to "The practice turn in contemporary society" Schatzki emphasises that there is not one common understanding of what practice theory is, but many different contributions and they originate in philosophy, social science as well as cultural theory and science & technology studies (Schatzki, 2001). What they have in common is that practice theories place practices at the centre of the understanding of the social where other theories may emphasize e.g. actions, language, system or structure in their definition of the social. Practice theory is thus not just a theory of practice; it is actually a challenge to the understandings of cultural and social theory up till now. The most coherent and developed contribution to practice theory comes from Schatzki, and even he is one of the contributors to the practice theory who put less emphasis on the role of things in practice (Reckwitz, 2002b) I will start by introducing the concepts from Schatzki's work. The following builds on his latest book from 2002 on practice theory, where in addition to new contributions he also repeats, develops and defends his own work from 1996.

Schatzki sums up that "a practice is a temporally evolving, open-ended set of doings and sayings linked by practical understandings, rules, teleoaffective structures, and general understandings. (...) the organization of a practice describes the practice's frontiers: A doing or saying belongs to a given practice if it expresses components of that practice's organisation" (Schatzki, 2002, p. 87). In the following I will explain and develop the content of this quote, and I intend to illustrate the concepts with examples from

energy consuming everyday practices like clothes washing and indoor comfort regulation.

What are practices?

The basic element of a practice is bodily doings and sayings, and as a comment on the linguistic turn in recent decades Schatzki emphasizes that the doings are as important as the sayings (p. 77). The context of the doings and sayings are important as both doings and sayings can change meaning according to the context. A practice is a set of doings and sayings, and as a way of understanding and describing these sets Schatzki introduces a hierarchy with *doings and sayings* at the basic level, and with collections of sayings and doings forming a level of *tasks*, which in turn at a higher level with several task can form *projects*. He explains that different sayings and doings can often form the same task. If the task is to dry washed clothes for instance, this can obviously be done in different ways for instance either by using a tumble dryer or a clothes line. The same is true for the level of projects. If we consider clothes washing as a project, this can obviously also consist of many different tasks and sayings and doings like deciding what to wash, tell teenagers to clean their room for dirty clothes, sorting the clothes, putting it into the machine etc. A practice thus embraces a set of hierarchically organised doings and sayings, tasks and projects, and the participant in any given practice will normally carry out actions at all three levels. Furthermore practices need not be regular; they can comprise occasional, rare or novel sayings and doings, tasks and projects. Buying a washing machine, for instance, is part of the washing practice; however it is a doing that is much rarer than the doing of filling the machine with clothes. Practices are social and by performing a practice you coexist with not only those you interact with (for washing practices primarily other family members), but also with all other people performing this practice, e.g. most people in western societies share washing practices.

What guides practices and individual activities?

Activities by individuals are guided by practical intelligibility, which is basically what makes sense for the individual person to do. Thus practical intelligibility is an individual thing, and the way it is guiding certainly does not have to be in the most rational or normatively correct way. When interviewing people on how they regulate their indoor climate, you can get very different views of how thermostats work and what is healthy or not, as related to indoor climate (Gram-Hanssen, forthcoming). Some for instance argues that it is unhealthy to keep a high indoor temperature, or that airing a room is a matter of showing control and personal strength. And some argue that it is easier to air a room if one keeps a high temperature. The question whether these ideas in a scientific understanding can be called true is secondary, what matters is that it actually guides individuals practices. People do what from their practical intelligibility makes sense for them to do.

In contrast to individual activities, practices are collective and need collectively shared links to hold together the sayings and doings. Schatzki propose four links of what holds sayings and doings together in practices:

1. Practical understanding
2. Rules
3. Teleoaffective structures
4. General understandings

Practical understanding is about knowing what to do, and knowing how to identify and react to something. It is a capacity underneath the action; however, it does not determine the action. Practical understanding carries out those acts that practical intelligibility singles out. Using the indoor climate as an example again, I understand practical understanding as being able to and knowing how to actually regulate the heating and ventilation systems.

By *rules* is meant explicit rules of how to do things, what is allowed and what is not, thus this does not include tacit or implicit rules. Again with heating as an example, some neighbourhoods with shared district heating systems might have written rules of how to handle the system for instance in relation to payment and maintenance or in relation to what the temperatures should be summer and winter.

Teleoaffective structures, a compound term made up of teleological and affective, is about being goal oriented, where the goal is directed by normative views or moods. To illustrate this I think the norms of cleanliness and how these norms are part of holding washing practices together is a good example. Teleoaffective structures are not individual like the practical intelligibility; instead they are properties of practices. This also means that a person does not have to be aware of the teleological end of a practice to take part in the practice. When individuals explain their washing habits, they do not refer directly to cultural understanding of what is clean and what is not. Their actions, however, will most probably follow these general norms. The practice thus contributes to the construction and reproduction of the teleoaffective structure, which at the same time also takes part in the linking together of sayings and doings into practices. Teleoaffective structures do not govern individual activity, as this is governed by practical intelligibility. The practical intelligibility, however, is also formed during the learning processes of how to carry out the practices. It then follows that the normativity in the teleoaffective structures of a practice does shape what makes sense for people to do. Furthermore teleoaffective structures and the ends, tasks and projects that they guide are open-ended and subject to discussion and contention.

As examples of *the general understandings*, Schatzki mentions religious and communitarian understandings. The general understandings are thus commonly shared beliefs, enterprises, concerns or fates. As an example I think the idea that "taking care of the environment is a good thing" is a common understanding shared by most people in Denmark (and probably most western societies). Exactly how this should morally influence practices, however, is a question that there is much less agreement about. Schatzki, however, does not provide much knowledge of this fourth aspect of what links together practices, even though this fourth element was not part of the theory in Schatzki's first book, where he only describes the three first elements as what holds together practices (Schatzki, 1996:89), and it is not mentioned either in an article by Schatzki from 1997 (Schatzki, 1997). In these older descriptions from Schatzki it seems as if the general understandings are part of the teleoaffective structures.

Integrated and dispersed practices and their delimitation

Practices can be differentiated into integrated and dispersed practices. Integrated practices are those that get the most attention in the practice theories and they are the most complicated, in the sense that they consist of more elements and specific organisations. Examples of dispersed practices with relation to energy consumption in households are cooking practices,

washing practices, communication and entertaining practices, whereas examples of dispersed practices are asking, describing and the practice of turning a switch or a tap on or off. As can be seen from these examples, dispersed practices are elements in the integrated practices, in such a way that many different dispersed practices can be part of the same integrated practice, and that any dispersed practice can be part of a multiplicity of different integrated practices. It is important to mention that simple dispersed practices are not guided by all four elements, but usually only by a practical understanding, as they are most often both free of rules and not governed by teleoaffective structure. Actually it is exactly because of the absence of these structures that it is possible for the dispersed practices to work in such different types of settings.

A particular doing or saying, or a dispersed practice, might be part of not only one but several practices and the same is true for a given organisational component. So, how to distinguish one practice from another? The delimitation is given in the understanding of a practice as a set of doings and sayings linked by practical understandings, rules, teleoaffective structures and general understandings. This means that what practices exist, is an empirical question of the actual existence of such packages. The same holds true for the question of who is member in a practice. This is not a normative question but a factual one of who is actually following the norms of what is obligatory or acceptable to do and say.

Practices establishing social order: Debating Giddens and Bourdieu

As stated previously, practice theory is not just a theory of practices; it is actually challenging the hitherto cultural and social theories on the more fundamental understanding of social orders. Schatzki's thesis is that social orders are established in practices or in other words that social practices are the contexture in which social orders develops. This is actually the opposite of how it is often thought, where actions would be seen as determined or influenced by the social. Schatzki is very explicit about this and about the importance of social orders being funded in something concrete rather than in abstract structure or abstract machines, as he writes. To develop this further I want to describe how Schatzki contrast his theory with those of Bourdieu and Giddens, who in many other ways are otherwise seen as part of the origin for the practice theory.

Basically Schatzki criticises both Bourdieu and Giddens for being too abstract and over-intellectual (interesting, as I do not exactly find Schatzki non-intellectual!) in their understanding of practices (Schatzki, 1997, 2002). Habitus, respectively practical consciousness, are core concepts from Bourdieu and Giddens in their understanding of practices, and Schatzki writes that his concept of practical understanding is what comes closest to these two concepts. Practical understanding resembles habitus and practical consciousness, Schatzki states, in being a skill that underlies activity, it differs, however, in that it normally does not determine what makes sense for people to do (as habitus always does and practical consciousness often does). Instead practical understanding executes the actions that practical intelligibility singles out. Understanding this has to do with understanding the relation between action and practice (the following builds on Schatzki, 1997). Both Bourdieu and Giddens have two ways of seeing how practices and actions relate to each other: One is that practices are the spatially-temporally extended manifolds of actions, and the other is to see practices as the carrying out of actions. Practices are then more ontologically fundamental

than actions, whereas actions are related to practices. All practice theorists have this in common in opposition to more individualistic theorist, who sees the individual action as the more fundamental. However, this relation between action and practices deals with both the organising of practices and the determination of action, and this is where Schatzki differs from both Bourdieu and Giddens. For Giddens and Bourdieu the same structures are both the medium and the result of practices. For Bourdieu habitus is what determines the actions in a given field and habitus is constituted through objective conditions in this field. In Giddens' understanding, sets of rules and resources organise practices and govern the individual actions through practical consciousness. According to Schatzki who here follows Wittgenstein, to relate action to practical consciousness or habitus, however, causes a serious problem because by doing this they do not realise that what governs actions cannot be formulated in rules but has to be practical in its content. Instead Schatzki in his theory as we have seen formulate a manifold of links that holds together practices and introduces the practical intelligibility as what governs the individual action. In this way he holds that his theory of practice as the site of the social is more based on actual practices than on abstract structures.

From an empirical research point of view I wish to add that the separation between practical intelligibility, which is the explanations that people themselves are able to give of their actions, and common structures that hold together practices and need a theoretical analysis to be revealed, seems very fruitful.

Practice theory, artefacts and technology

As Schatzki writes in the introduction to "The practice turn in contemporary theory", one of the things which divides scholars who consider themselves as part of practice theory, is the question of what role things, technologies and matter should have in the theory. Most would agree that things are an important element in most practices, however for some of the theorist this is as mediators between the primary social relations whereas the post-humanists will argue that non-humans take a role in their own right (Schatzki, 2001). Schatzki is obviously not part of the post-humanistic turn himself, and he is explicit that what he calls activities are human activities, and what can be called nonhuman agency, belongs to social orders (the result of the practices) and not practices in themselves (Schatzki, 2002). However in this paper I am interested in that part of practice theories that in a more profound way takes in things and technologies as these are essential in the understanding of household energy consumption. For this purpose I will in the following introduce the work of Reckwitz who argues for an elaboration of Schatzki's theory by bringing in the work of Latour's symmetric anthropology. Actually Reckwitz writes that not only does he think that such an inclusion of Latour in Schatzki's work is possible, he thinks it is required, and furthermore he thinks it can help to make Latour's work more understandable (Reckwitz, 2002b).

Reckwitz: bringing Latour into the theory of Schatzki

In his article Reckwitz is searching for the status of the material in different approaches of cultural theories. He divides cultural theories into three different (historic) periods and discusses how the material has been thought of in each of these periods (Reckwitz, 2002b). The first period is the sociology of knowledge, including Manheim, Scheler and Durkheim, and

Reckwitz argues that the way the material is thought of here is as social structures. The second period includes all of the cultural turn in social sciences, as e.g. (post)structuralism, semiotics, constructivism and social phenomenology. Though there are big differences in these understandings, they share the view of the material as something that only exists as carriers of meaning and objects of knowledge. Reckwitz admits the general merits of these cultural approaches, however, at the same time he also asks for a less intellectual understanding of the material. This understanding, he writes, should first be able to see human activities with things as something that is not just related to other subjects or structures, second to understand that social order also is a product of socially stable artefacts and third to see social change as following from change of artefacts. And Reckwitz argues that the best place to look for such insight is to go to Latour, as this is where we get the things and artefacts into the theory without falling back into the materialist-idealistic approach of the knowledge sociology.

The symmetric anthropology of Latour is an attempt to understand the link between the cultural and the material without having a constitution one way or the other (Latour, 1993). The material is neither the basis of the cultural nor a matrix of symbolic objects; it is artefacts taking part in social practices in line with human beings. Latour tries to develop his own language on this, and central concepts are networks or practices, hybrids and nature-cultures. However in Reckwitz's opinion, this language is never fully developed into a social theory, and it has problematic elements as the claimed status of objects as actors in their own right (Reckwitz, 2002b). Rather than elaborating on Latour's work, Reckwitz, however, wants to insert Latour's ideas into the practice theories.

So what does Reckwitz bring with him from the Latourian approach. If we look at what Latour calls historically specific nature-cultures, we see that they consist of different social networks or practices, including not only human beings and their relations, but also things that are seen as equal components in the constitution of the practices. Especially in contemporary society with its enormous expansion of technical artefacts, it becomes increasingly difficult for a social theory if it overlooks how things take part in the constitution of social practices. Related to my subject, you can imagine how difficult it would be to understand washing and cooking practices without considering washing machines and refrigerators.

Latour talks of the hybrid status of things: on one hand they are socially and culturally handled and interpreted, but on the other hand they are definitely also more than just cultural representations as they are used and have an effect on their own. In their materiality and in being handled and produced, the objects or things are a necessary and irreplaceable part of creating and holding together practices and furthermore they make social reproduction possible beyond temporal and spatial limits. Things act as resources that can both enable and constrain practices, and they can work as instruments that do not only transmit messages, but also mould both the form of the message and the type of communication. Thus social change may also strongly depend on changes in the technical media. On the other hand things or technologies do not determine specific activities. To have an effect, things must be used, and they can only be used if those using them have the know-how, understandings and interpretations of the thing – thus the relation between the thing and the human agent is basically a relation of practical understanding, where the human agent learns to know and use the thing and this knowledge materialises within the practice. In this way things

can also be seen as materialized understandings and then not only bodies but also things are sites of understanding. Reckwitz sums up that "Social order and reproduction can be adequately understood only when we realize their double localization: as understanding incorporated in human bodies and as understanding materialized in artefacts." (Reckwitz, 2002b, p 213). Also Reckwitz echoes Knorr Cetina and writes that in this way actions between human beings lose their omnipotence as they are joined by equally important actions between humans and non-human artefacts (Knorr Cetina, 1997). However Reckwitz does not agree with all aspects of Latour's symmetrical anthropology. In his view artefacts only have an effect insofar as they are handled by human agents, which is the reason why their importance cannot be the same or the equal of that of human bodies and their embodied understandings.

Though Reckwitz is doing a good job in incorporating things and technology in the practice theory, there are aspects of the technologies' role or place within practices that I think need to be further explored and discussed. As I am working with practices related to households' energy consumption, I am interested in the relation between users and the individual appliances in the everyday life as well as the users' relation to the whole energy system. Furthermore I am interested in both the stability and the change of routines. In the following I first want to introduce theories that emphasise the large technological systems and the inertia these kinds of systems impose on practices, and then I will focus on how new practices emerge in co-evolution with new artefacts. And finally I will focus on the relations between the user and the technologies and the processes of domestication and appropriation.

Large technological systems, transitions and the physical infrastructure

Bas van Vliet has written a PhD thesis on the greening of the grid and I will use part of his work to pin down some of the main aspects of how the physical infrastructure influence and relate to household consumption (van Vliet, 2002). Large integrated technological systems are for instance grids that are built for the purpose of delivering a specific commodity to its customer. It can be the electricity grid, district heating or gas pipes and it delivers a uniform, continuous and mainly invisible product to its end-users, who seldom has any choice as there is only the same network and as products are essential for basic practices within the household.

In the understanding of how this type of big technological systems with many single artefacts and actors has come into existence, van Vliet refers to the work of Huges (1983) who studied the evolution of electricity systems between 1880 and 1930, as well as to other studies and traditions within technology studies. One of them is the technological transition theory, and it can in many respects be seen as bringing some of the most relevant aspects of the other theories together, which is why I will concentrate on this in the following.

Technological transitions are big technological changes in the societal organisation of for instance housing, transport, communication or production. Technological transitions are not only changes in technologies, but also in the social network surrounding and sustaining these technologies and therefore technological transitions do not easily break through. However, as history shows, they do happen. Transition theories as described by Kemp and others (see e.g. Rip and Kemp, 1998; Kemp, Loorbach and Rotmans, 2006, Gells, 2002) focus on both the inertia and the changes and in doing this they

build on a long tradition from science and technology studies. Basically transition theory work with a multilevel framework consisting of three levels: niches, regimes and landscapes.

The metaphor of landscape is chosen, because it refers to a material and hard structure, which it is very difficult to change, and the landscape level work as the context and structure of all interaction between actors. The landscape level includes for instance the physical infrastructure as well as the legislation and deep rooted ethical norms of a society. "The Socio-technical landscape is a landscape in the literal sense, something around us that we can travel through; and in a metaphorical sense, something that we are part of, that sustain us" (Rip and Kemp, 1998:334)

The notion of regimes comes from evolutionary economics where it focuses on how engineers working to develop new technologies follow technological trajectories, because they are locked in certain ways of thinking about and doing things. In transition theories the idea of regimes are extended to include a more sociological understanding of "rules" (Geels, 2002). "A technological regime is the rule-set or grammar embedded in a complex of engineering practices, production process technologies, product characteristics, skills and procedures, ways of handling relevant artefacts and persons, ways of defining problems; all of them embedded in institutions and infrastructures" (Rip and Kemp, 1998:338). Among some theorist the understanding of regimes is further extended to include more actors, as users, policy makers, societal groups, suppliers, scientist, capital banks etc. Following this broadening of the understanding of technical trajectories Geels use the word *socio-technical* regimes rather than just technological regimes to refer to this meso level of the model (Geels, 2002). Developments at this level follow the line of already known ways of doing things, they follow technological trajectories that are built into routines, knowledge structures, organisations and physical structures. The regime level thus counts for stability in the way e.g. technologies, knowledge and organisations develops. And as van Vliet writes: "Technological trajectories seem nowhere as evident as in circumstances of fixed networks, where large scale investments have accumulated over the years and physically impede changes or alternatives to the basic features of the system" (van Vliet, 2002:35)

The niche is the most crucial level in relation to technological transitions as here is where radical changes are able to develop in a small scale in isolated or protected environments (e.g. the army) and then later eventually be transferred to regime and landscape level if for different reason these show openings or tensions (Rip and Kemp, 1998). The three levels of landscape, regime and niche form part of a hierarchy, where the lower levels are dependent on the higher levels and changes in niches thus also depend on the configuration in regimes and landscapes. However, Geels criticises this strong focus on the niche level as the only place for radical changes and by using a case-study on the transition from sailing ships to steam ships he argues that an accumulation of niche developments together with changes in landscape and regime levels provides a better understanding.

Following in this line by using the concepts of the transition theories but criticising the understanding that novelties always develop in niches and spread from here, Elisabeth Shove has studied how practices of comfort, cleanliness and convenience has co-developed with all three levels of technologies (Shove, 2003). Shove shows that transitions have to be understood both as bottom up (from niche to landscape) and top-down (from

landscape to niche) processes, as well as on a vertical level where 'systems of system' develops, e.g. washing practices being dependent on systems of washing machine technologies, as well as systems of new fabrics. And while practices and (systems of) technologies has co-evolved, expectations and norms of what a normal life should be like has changed in a rather unsustainable way.

New practices – new products

Technology theories described above all have as a basic understanding that new technologies and new practices co-evolve. However, they focus on it from a system perspective that might seem rather far from the single practice. To get a closer look at the micro-level close to the consumer, Shove and Pantzar did an exemplary work in their study on Nordic walking (Shove and Pantzar, 2005). Here they show how a pair of sticks and the practice of walking, both quite well-known things for thousands of years, has been developed into a new practice: Nordic Walking. In the construction of the new practice both consumers and producers have played an important role in creating images, artefacts and forms of knowledge, and they describe how new practices engender and entail new forms of production and consumption. Shove and Pantzar are inspired by practice theory as developed by Schatzki, Reckwitz and Warde, however they tend to use a more simple form of it, as they focus their study on three elements of a practice that are meanings, competences and products, and on the dynamic relationship between these three elements. They argue that neither the sticks, nor the know-how of walking nor the idea of walking for fun or exercise are new, but that the combination and integration are made in a new way and thus form a new practice. They conclude that neither the producers of the sticks nor the consumers could have invented this new practice alone or can reproduce the practice alone. Furthermore they conclude that though Nordic Walking is seen in different countries, they find it misleading to say that it has spread from Finland to other countries. Rather they find that new variants of Nordic Walking, that is new practices, are emerging in new contexts. In their description of how the meanings, competences and knowledge of Nordic Walking are institutionalised they draw on discussions from technology and transition theory of how building institutions and networks are important elements in developing new technologies. As the notion of niches suggests, this might be easier to do in small environments or communities, where the system builder already knows other actors or can easily get in contact with them. In the case of Nordic Walking, a well connected group of actors including sports institutes, organisations and manufacturers are seen as an important ingredient in the rather fast development of Nordic Walking (Shove and Pantzar, 2005).

Appropriation and domestication of technologies

The third and last element concerning technologies that I wanted to relate to practice theory is the question of appropriating and domesticating technologies. Theories of domestication deal with how people relate to new things and technologies in the different consumer phases of acquisition, use and disposal of goods (see e.g. Lehtonen, 2003). Domestication is not only about a consumer getting used to a new product and learning to use it. In the process both consumer and product may change and the result is not always the use pattern that was anticipated by the producers. An even closer look into the relations that develops between the consumer and

consumer good can be found in an article by Kaj Ilmonen (2004). Based on among others the Russian psychologist Vygotsky, Ilmonen describes how the first step in the process of appropriation is internalisation, where one commodity is singled out and given a place in our social life, for instance a house is turned into a home. This internalising is actually in the beginning a cognitive adoption, in the sense that all goods require skills and know-how to be used properly. This cognitive adoption is in many cases an ongoing process and during this process we transform our relationship with the product, we go from objective understandings to subjective minds in our relation to the thing. This process is not necessarily an individual process, for instance a family together creates the feeling of home, and the process is also under broader cultural influence. This implies that different types of consumers, for instance related to gender and age differences, might undertake this process in different ways. However generally the more we are involved with and committed to the thing, the stronger role it plays in our life, the stronger this process is. Following this cognitive adoption in the appropriation process is the way we decorate or configurate the products to make them a part of us or as a way of extending our self and form a territory around our body (Lupton and Noble, 2002). Furthermore also the way we take care of the goods express our feelings for them, Ilmonen writes. The appropriation process not only changes our relation to the objects it also change our practices as our use over time becomes routinized, and depending of the type of product we might even stop to think about the product as it becomes just part of what we do. The last part of the appropriation process, according to Ilmonen, is the process of externalising, where we show other people what we have done with our product, for instance how we have decorated our home or the result of our skills with the computer. And by this we might take part in the development of the practices, as others might respond to our ideas and use them as well.

Discussion: Technology theory and Schatzki's practice theory

As shown above, there might be other technology approaches than Latour's to incorporate in practice theory. When Reckwitz in his article propose to incorporate Latourian theories in to Schatzki's work, he refers to Schatzki's book from 1996 (Reckwitz, 2002b). However, the same year Reckwitz's article was published, Schatzki published a new book, where he actually extensively discusses the work of Latour and opposes it for several reasons (Schatzki, 2002). First of all Schatzki, like so many others, reject the idea that Latour uses words indicating intentionality in relation to artefacts and technology. Furthermore Schatzki contrasts his own practice approach with theorist like Latour and Foucault, whom he calls arrangements theorists, as they focus on networks and relations rather than on practices, and finally according to Schatzki Latour is also a nominalist who opposes the idea of a context for the social order, which is an important element in Schatzki's practice theory.

As alternatives to Latour's theory, I have proposed as one of two extensions to use the ideas of appropriating and domesticating technologies, which I think can work as an extension of one of the aspects that I find underdeveloped in Schatzki's work. This is the question of how humans relates to, explore and make relationship towards non-humans. Schatzki defines his concept of teleoaffective structures as "orientations toward ends and how things matter" (Schatzki, 1997). Even though "thing" in this quote is not quite equivalent with technologies or artefacts, I think the idea of

teleoaffective structures is open for the extension of domesticating and appropriating technologies.

In this paper I have also proposed to combine transition theory and practice theory, and here I am following a line from Gert Spaargaren, who has started the discussion on how to integrate theories of transition of technology and theories of practice. Spaargaren asks if we can see socio-technical landscapes as webs of practices, regime level as clustered practices and niche as social practices (Spaargaren, 2006). As described above, also Shove and Pantzar combine practice theory and ideas from transition theory, however with a rather limited typology as compared with Schatzki (Shove and Pantzar, 2005). Even though I am not the first to suggest this combination of theories one may still argue that the two approaches, transition theory and practice theory, are far from each other in both ontological understanding and theoretical level of explanation.

Furthermore both transition theory and appropriation/domestication focuses on changes in social structures, human relations and technologies, whereas Schatzki explicitly writes that his theory is not a theory of change (Schatzki, 2002:235). As I am interested in both stability and change of practices in relation to technologies, I will focus on this from the perspective of Schatzki as well as from the technology theories in the following.

Understanding change and stability in practices

In Schatzki's understanding of stability, focus is on social orders or arrangements, which is the way that things and humans are held together by different types of relations. These relations are between real entities as opposed to abstractions and they also include relations where non-humans are the link between humans. Schatzki divides these relations holding things and humans together into four types, including: *Causal relations* (when someone or something gets something to happen directly or indirectly); *spatial relations* (all elements in social orders are physical and therefore they are also physically arranged in relation to each other); *Intentionality* (one may have intentions in relation to another) and finally *Prefigure* which he first describes as "enable and constrain" (Schatzki, 2002:44) but later argues that we need a broader definition than this. Prefigure is the way that the social present channels forthcoming actions (Schatzki, 2002:XV), something that for instance makes some actions easier or harder, shorter or longer, acceptable or not as compared with other actions (Schatzki, 2002:225). In relation to this notion of prefigure Schatzki also states that the ideas from Bourdieu and Giddens involving habitus and rules and resources are not broad enough, because they primarily understand it too deterministic (Bourdieu) or only focus on the enabling and constraining aspects (Giddens).

With the notion of prefigure, I think Schatzki is close to the idea of technological trajectories within transition theory. As described above, technological trajectories are here seen as something that is built into routines, knowledge structures, organisations and physical structures and in this way ensures that certain new ways to develop technology are more likely than others. In transition theory, landscapes and regimes are what stand for stability and these levels, I think, are quite comparable with the social order or arrangements in Schatzki's theory. The difference is that transition theory works with different levels, whereas Schatzki focuses more on the micro level of practices and considers everything surrounding this as social orders and arrangement whatever the level of stability. Of course a

major difference is also that transition theory explicitly focuses on technology even though looking at technology as co-produced with social structures and relations, and Schatzki's practice theory looks at social practices however also considering how technology can be the result of such a practice as well as the context for future practices.

Schatzki writes that all changes start with doings from either humans or non-humans and these doings can be separated into causal doings and performance doings. Causal doings can be from humans as well as non-humans whereas Schatzki doubts that non-humans can make performance doings (Schatzki 2002:192). In Schatzki's terminology, doings from non-humans are changes in orders and by that, changes in the context of practices, whereas doings by humans can also be understood as practices in it self that are changing. The human doings that cause change in practices might be intentional or non-intentional and in the understanding of this the extended vocabulary of Schatzki on what governs the doings and sayings can be helpful. When rules and teleoaffective structure change, it is often an intentional process whereas the changes in practical understanding are non-intentional.

Compared with this the understanding of change in transitions theory focus more on the intended change and on how these changes can be spread in a wider context. Focus is on how the inertia and stability at the regime and landscape level can be overcome if development starts in a more protected environment. The end-user perspective and the change in routines and practices are not at the very centre of this theory, though; as described above, Elisabeth Shove has contributed extensively to this issue. By explicitly introducing theories of domestication and appropriation, I have highlighted this issue and also according to the question of stability and change, I think it has something to offer. When acquiring a new artefact, the user starts to learn to use it and know it, and by so doing the user develops his or her own practices and routines in relation to the artefact. In so far as practices are not individual, this process is at the same time part of sustaining this specific practice, and as users do not all use the products in the same way or as intended by the producer this is also part of the change of practices and development of new practices.

Conclusion

In this paper I have been looking for theories to understand how new everyday routines and practices, related to energy consuming appliances emerge, change and stabilize. For this purpose I have introduced the practice theory from Schatzki and I have proposed ways to extend this theory in order better to understand the role of technologies in these practices. By combining practice theory with technology theories, I have proposed a theoretical frame that is able to deal with how social, cultural and physical structures work as the context for both the stability and the change in these everyday practices, and at the same time see this context as product of practices. Compared with well-known theories of practices by Bourdieu and Giddens, the first advantage is that technology in this framework is much more present, and the second advantage, following from Schatzki's work, is that practices are at the centre of the understanding, and not like in theories from Bourdieu and Giddens, where abstract structures are the real basic level of the theory. Correspondingly the advantages of enlarging the technology theories with theories of practice is that consumer

practices get a much more central role, whereas the social structures and technologies are assigned the role of context and result. As mentioned several times in this paper, especially Elisabeth Shove has already done comprehensive research, where she combines practice theory and technology theory, however without using the more extensive version of practice theory from Schatzki. A relevant question might therefore be to what extent this more elaborate theory from Schatzki introduces new approaches of how to study and understand everyday practices compared with what Shove and others has already done? To answer this question properly I think a more empirical study has to be undertaken, but here I want to point to two aspects that I consider an advantage of the theories elaborated by Schatzki. The first is that by focusing on different types of links that hold together doings and sayings in practices, Schatzki is able to distinguish more clearly between intended and un-intended changes. The second is by distinguishing between on the one hand individual activities guided by practical intelligibility and on the other hand social practices guided by more common understandings, rules and teleo-affective structures, it might be easier to focus on the variation within practices and discuss when certain activities alter a given practice and can be seen as developing new practices. Both aspects relate to understanding change of practice from the consumer point of view, where Elisabeth Shove can be said to focus more on practices from the technology structure point of view. Furthermore this also makes it easier to understand changes in practices that are not followed by change in infrastructure and technology, as seen for instance with the changed bathing practices that we witnessed in the 1980s and 1990s without a corresponding change in bathrooms, as also described by Shove (2003).

Though I have highlighted the advantages in Schatzki's practice approach as compared with that of Giddens, I want to make a final comment on one approach by Giddens that I miss in Schatzki's theory. This is the more psychological understanding of the role that routines play in everyday life, where Giddens describe the routines as a way of creating safety and security and thus understands the routines as a help to reduce the ontological insecurity (Giddens, 1984). Incorporating this into Schatzki's understanding, I believe will add to the understanding of how prefigure contributes to extending the present actions into the future.

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