
People, Technology, and Energy: Configurations of Practices and Place

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Abstract

Smart home technologies should be designed to fit into people's everyday lives. This requires technologies that embrace the complexities of family dynamics, practices and place, and support people in going about their daily routines instead of standing in their way. The specific expression of this complex nexus changes over the course of people's lives, not only because people change but because the configurations of practices change. In this position paper I present a practice theory inspired approach to explore and engage with everyday practices as a way of understanding energy consumption in the home. I argue that insights generated through this approach can support the life course paradigm and be used to create empirically based guidelines for designing dynamic and flexible smart home technologies.

Author Keywords

Practice theory; energy; smart home technology

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

Working as an anthropologist within the energy domain, I am engaged in different projects that explore ways to reduce energy consumption in private households. Smart home technologies play a central role in this work, and our research is carried out in multidisciplinary teams with computer scientists, designers, engineers and anthropologists. Most of the work I do revolves around understanding the complex interplay between people, technologies and energy consumption in the context of people's homes and putting this knowledge into play with my colleagues in the design process.

Too often, smart home technologies within the energy domain are designed in a way that frames people as rational micro-resource managers [6]. This approach overlooks central aspects of the ways in which resource consumption is constituted, negotiated, and changed through the performance of everyday practices in people's daily lives [2,3,4,5,6]. If we want to design solutions that support people in living more sustainably, we need to broaden the scope.

Understanding energy consumption, and finding ways to change it, requires deep knowledge about the people and the contexts that we design for. We need a broader and more holistic approach to account for the complex interplay of people, technology and energy that shape resource consumption in the home. A life course paradigm, as presented in the abstract for this workshop, is one way of achieving a more dynamic and nuanced view of the user. In the following, I present a practice theory inspired approach as another alternative. I argue that by extending the life course approach to include elements from theories of practice,

we will be able to give a more detailed account of the elements that affect people's behavior in different stages of their lives, and be better equipped to design for them.

Why Practices Matter to Technology Design

One of the reasons why we find the practice approach useful in our work in R&D projects within the energy domain, is that it allows us to go beyond the individual and look at all the different elements that affect practices in different contexts.

Inspired by existing approaches to practice theory [5], we have developed a framework we call The Contextual Wheel of Practice (COWOP), shown in Figure 1.

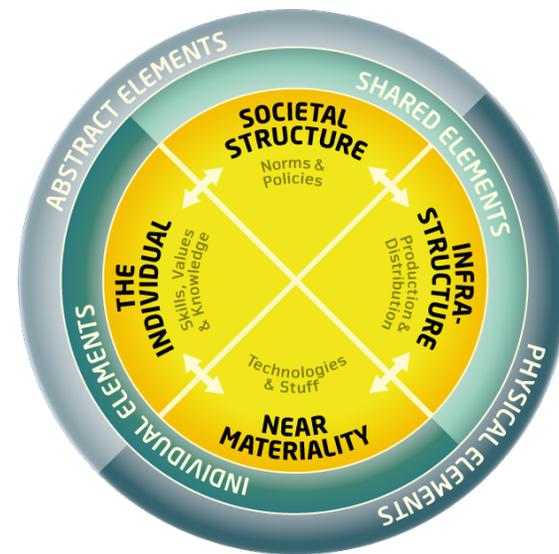


Figure 1. The Contextual wheel of Practice, a framework to understand and design for practices.

We use COWOP as an exploratory and explanatory framework to analyze practices – as well as a guideline for the design of interventions or technologies [1].

COWOP consists of four different elements, illustrated by the four quadrants of the wheel (Societal Structure, Infrastructure, Near Materiality and The Individual). All the elements affect energy-consuming practices and therefore need to be taken into account if we want to understand and explain the particular configurations of everyday life in the specific contexts for which we design.

Configurations of Practices and Place

In order to situate practices more clearly, Sarah Pink argues that the theories of *practice* should be combined with a theory of *place*. This will help us to better understand practices as part of a wider environment and to highlight everyday life as a dynamic and changing site where practices are interwoven and contingent on other processes, materialities and representations [4].

This focus on configurations allows us to see how different elements relate to each other and to the wider ecology around them. We can also see how changes in any one of these elements can bring about changes in practices that can trigger the need for alterations in the smart technologies of the home, or changes that this technology needs to be adapted for in different ways.

In this sense, a deep understanding of the configurations of everyday life, based on a practice approach, can help deepen understandings of life transitions and how the changes (in practice) associated with these transitions lead to changing requirements in relation to the smart home

technologies. By looking at for example laundry or cooking practices, we can learn much about the configurations of family life in a specific context. Young families with small children do the laundry on a daily basis and have very fixed cooking and eating practices, while older couples tend to have more flexible practices. However, practices are not only shaped by the individuals performing them but also affected by other structural and material elements. This includes for example the layout and condition of the house, working hours and the types of appliances in the home used for carrying out different everyday practices. Therefore, we need to also take these other elements into account if we want to design technologies that fit into people's everyday lives.

Supporting Sustainable Lives

Smart home technologies in relation to energy should be designed to support people in living more sustainably. Looking at people's practices is a good place to start because this perspective offers the detailed richness of a micro-level approach while still maintaining a macro-level perspective – both in the contextualization and in the interconnectedness of practices. The practice approach allows us to understand how energy consumption is configured in a given context and thereby clarify the scope we have for change. It helps us see where and how smart technologies can be used as supporting mechanisms, or if other initiatives should be used instead.

In this way, I would argue that a practice-based approach, combined with a theory of place, supports and extends the life course paradigm – at least when it comes to energy consumption. It includes more elements in the account of what is at stake in a given

context and how technologies might be applied to support or reconfigure different practices.

The goal of our R&D projects is to reduce resource consumption. However, in order to reach this goal, we need to focus on how we enable people to obtain what they want in a more sustainable way. To do this, we need to be able to break down resource consumption into smaller elements to see how the pieces fit together or how they might be reassembled in different ways to support changes in practices.

The same can be said for understanding the dynamics of life transitions. We need to be able to account for the different elements of the transition to understand which elements change, which stay the same, and how technology can support the shifting dynamics in play. This is what the practice approach helps us do and why I believe this approach would also be applicable within other domains as a starting point for designing resilient and appropriate smart technologies that support people in their daily practices throughout the different transitions in life.

Workshop Expectations and Contribution

I am fairly new to the CHI community. Therefore, I hope to use this workshop as an opportunity to learn from scholars within the field and contribute to the work of defining potential roads ahead for future smart technologies by providing qualitative user insights from the energy domain. I believe the approach outlined in this paper can bring valuable perspectives to the

discussions at the workshop and I look forward to unfolding it further in this context.

Acknowledgements

This work has been supported by The Danish Council for Strategic Research as part of the EcoSense project (11-115331) and has been partly funded by the Danish Energy Agency project: Virtual Power Plant for Smartgrid Ready Buildings (no. 12019).

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