The Role of Experiential Learning and Social Interaction for Changing Practices?

Toke Haunstrup Christensen
Danish Building Research Institute
Aalborg University
Copenhagen, Denmark
thc@sbi.aau.dk

***Abstract* — The paper presents initial theoretical suggestions on how practice theory might be combined with understandings of learning as an experiential and social activity. The aim is to inspire to further thinking about how to make practice theory more "applicable" for designing changes towards a low-carbon energy system.**

***Index Terms*— Practice theory, smart grid, feedback, households, learning, social interaction.**

I. Introduction

Many researchers – particularly within the field of practice theory studies – have criticized the dominant approach towards the involvement of citizens in the smart grid for being naïve. For instance, Y. Strengers writes that it is based on a misleading understanding of the individual (energy) consumer as a *resource man* who is "an efficient and well-informed micro-resource manager who exercises control and choice over his consumption and energy options" (p. 34-35 in [1]).

Social practice theory offers an alternative to the individualistic and rational-choice based understanding within the smart grid community. Instead of the individual agent, practice theory places *social practices* as the central unit of analysis (see, e.g., [2] [3]). Practices are *collective entities* of "doings and sayings" constituted by heterogeneous and mutually dependent elements, while energy consumption is seen as the *outcome* of people performing daily practices that are meaningful to them (e.g. preparing meals or making their home comfortable). Therefore, changes in practices (and energy consumption) are only achieved if some or all of these elements are changed.

However, saving energy through a comprehensive approach that simultaneously addresses all the elements constituting energy-consuming practices appears as an insurmountable task. Therefore, there is a need for developing a more pragmatic, mid-level approach, which is – on the one hand – grounded in the practice-theoretical insights about the collective nature of social practices, but at the same time indicates ways to design interventions that also involve (individual) citizens actively in changing everyday practices in a less energy-intensive direction.

In this paper, I outline some first theoretical suggestions on how practice theory could be combined with an understanding of learning as an experimental and social activity. I hope that these tentative ideas can inspire to further thinking about how to make practice theory more "applicable" for designing changes towards a low-carbon energy system. I will use energy feedback as a general example for the discussion.

II. Bringing Daily Practices into Reflection

We perform most of our daily practices as unconscious routines. If the aim is to promote less energy-intensive everyday practices, it therefore takes efforts to make people reflect on their daily practices.

Drawing on practice theory, R. Wilk [4] has developed an analytical model (Fig. 1) showing how unconscious habits and routines can be made "visible" and subject to reflection and discussion through the process of *cultivation*. There are many ways to foster cultivation. Other people can make us aware of habits that we do not think about ourselves; we can experience conflicts between different routines that make it necessary to make a conscious choice or adjustment; or – with reference to energy feedback – information can be delivered to householders with the aim of bringing daily, energy-consuming practices into question.

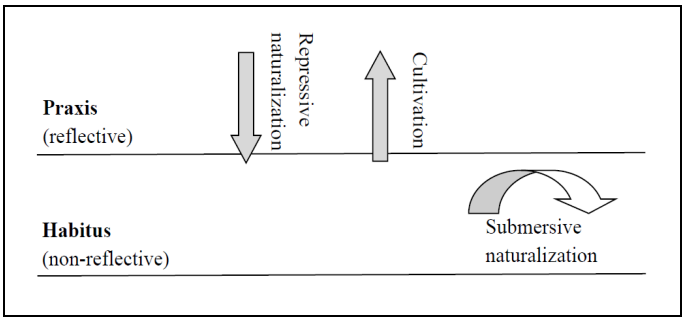

Fig. 1 Processes of cultivation and naturalization (based on [5])

The opposite of cultivation is *naturalization*, which describes "the processes which push conscious practices back into habitus, or keep them from surfacing into consciousness in the first place" (p. 150 in [4]).

In many cases, practices never surface from the realm of unconscious routines (habitus) because they are so widespread and closely associated with the social and cultural understanding of "normal behavior" that it takes great effort to make people aware that these practices are contingent and can be subject to changes. Examples could be daily showers or indoor temperatures. Wilk calls this submersive naturalization, as this kind of routines "remains thoroughly submersed in the habitus."

Another type of naturalization is repressive naturalization, which describes how people often force a practice back into habitus if alternatives have challenged this practice or if it is a new practice that people intend to turn into a normal routine. Examples could be when people try to change their diet or change practices in order to save energy.

Without cultivation, it will not be possible to make householders think about their own practices and how to save energy. Typically, feedback projects aim at promoting cultivation through information and visualization of energy consumption, e.g. via smart phone apps. In most cases with limited success [5], because – among other things – it takes competences to interpret energy data and linking these to one's daily practices.

III. Promoting Practice Changes through Experiential Learning and Social Interaction?

When certain practices are brought into consciousness, the next step in promoting energy savings is to ensure that these will remain at the reflective level long enough to realize real changes in the performance of the practices. Here, social (community) interaction could play an important role; exchanging experiences and ideas with others face-to-face or via social media might help people to maintain their attention to these practices *and* sharing ideas on how to change them in order to save energy. Also, possibilities of experimenting with changing practices are important – e.g. supported by *real-time* feedback on energy consumption (also called direct feedback). Previous studies (e.g. [6]) show the importance of householders being able to see what impact their changes of daily habits have on the energy consumption as this supports their personal learning process.

Community interaction and experimentation support both individual and social learning. Thus, we should regard energy saving as a continual (or at least prolonged) *learning process* and not as a single incident aimed at making people adopt a new technology or specific behavior. If energy savings are going to be significant and lasting, it is important to base practice changes on learning processes that ensure that new practices become (embodied) daily routines at the non-reflective level (i.e. naturalized). Otherwise, there will be a high risk of the "fallback effect", i.e. when energy savings wears off again after some time ([6], [7]).

For inspiration on how to create energy feedback designs that support this kind of thorough and prolonged learning processes, D. Kolb's experiential learning cycle model could be a help [8]. It emphasizes that learning cannot be compared with simple adoption of new (formal) knowledge as provided in, for instance, many energy saving campaigns. Instead, learning is a prolonged process that involves also practical experiments and reflections about the outcome of these. Figure 2 shows the model with examples relevant to energy saving in households.

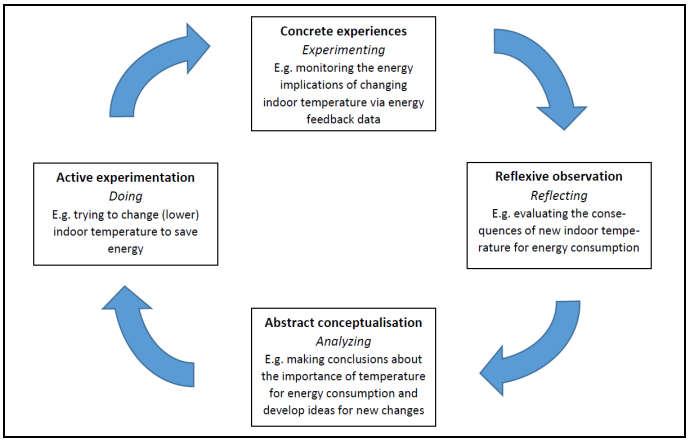

Fig. 2 Kolb's experiential learning cycle – with examples related to energy feedback

Ideally, feedback designs should promote the householders' active experimentation with (changing) their daily practices and facilitate their abilities to monitor the outcomes of these experiments (e.g. realized electricity savings) as well as the reflexive observation and abstract conceptualization. Here, feedback that involves "bench-marking" and sharing experiences with others (peers) could be important.

The importance of social interaction for learning is emphasized in studies of *communities of practices* [9]. As Sahakian & Wilhite [10] write, the key is to "view learning not as an individual experience but as participatory and social" (p. 31). Therefore, creating forums for social interaction between participants in feedback demonstrations in order to support the participatory and collective learning processes could be important. These should support the participants' considerations about, experimenting with and adoption of less energy-intensive everyday practices.

IV. Conclusion

Figure 3 summarizes the theoretical perspective suggested in this paper. This is surely a tentative approach, which needs further elaboration. In particular, it seems important to develop the understanding of the role of social interaction (e.g. in communities) for the cultivation process and the experiential learning cycle further.

However, I hope that these initial thoughts can inspire to further thinking about how to develop also more pragmatic or "applicable" versions of practice theory, which could be useful for the design of smart grid solutions that "work in practice".

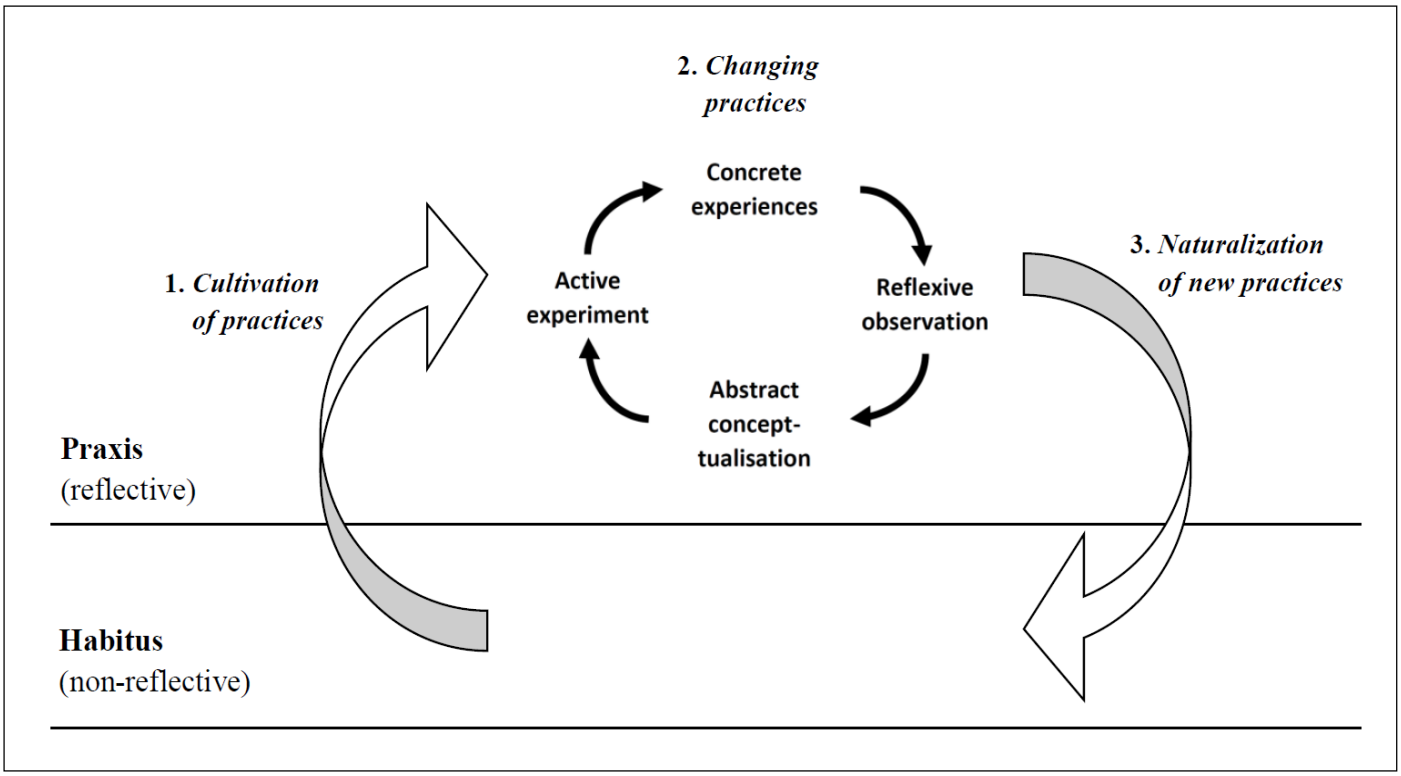

Fig. 3 Wilk's and Kolb's models combined

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