# Model Description: Social Practice Model

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The purpose of this document is two fold, first it introduces social practice theory as an alternative analytical tool to the dominant rational choice perspective. Second, it provides a brief summary of a first model conceptualization of the social practice model being developed by the University of Surrey. At this stage, two draft models of social practices exist, one of which has been presented at the European Social Simulation conference this year [1]. The model presented here is a conceptual advancement of [1]. At this stage it is still an conceptual model that has not been implemented. The conceptualization also includes an ongoing discussion whether the simulation model should be implemented as an Agent-based model or whether other simulation approaches are more suitable. Before, describing the model it is worth briefly outlining the basic principles associated with social practice theory, which acts as the theoretical framework underpinning the model.

## I. Social Practice theory

Over the last 40 years there have been numerous attempts to identify the determinants of human behaviour in order to direct it into more pro-environmental channels (see e.g. [2], [3] for reviews). This work has attempted to identify individuals beliefs, attitudes and values and use them as predictors of behaviour, which can in turn be modified to promote behaviour change. Fundamental to this work is the assumption that behaviour is the outcome of a rational process undertaken by rational individuals.

The most widely cited of these approaches is the *Theory of Planned Behaviour* [4] which argues that behavioural intention, which precedes actual behaviour, results from interactions between an individuals attitude towards the behaviour in question, their beliefs about what others think about the behaviour – the subjective norm – and their perceived level of control over the behaviour, or perceived behavioural control. However, in recent years this approach which indirectly suggests that, providing that the necessary cognitive components can be identified and modified, a desired behaviour change will follow, has been subject to substantial criticism. One of the main reasons is its lack of consideration of habitual behaviours and the social and material contexts in which people perform their actions [2].

In contrast to these behavioural models, which focus solely on individual agency, SPT adopts Giddens's [5] theory of structuration which seeks to find a balance between structure and agency. Giddens in [5] concludes that human agency and social structures are shaped recursively. As activities emerge and are enabled by structures of rules and meanings, these structures are constantly re-enforced and legitimised in the flow of human action. Consequently, it is the practices themselves, featuring both structures and agents, not two independently given sets of phenomena, that form the basis of our social arrangements. As Giddens [5, p. 2] argues:

> The basic domain of study of the social sciences... is neither the experience of the individual actor, nor the existence of any form of societal totality, but social practices ordered across space and time.

Attention is therefore no longer focused on individual decision making, but on 'the doing' of various social practices and the inconspicuous consumption which forms an integral part of many practices [6]. As a result, the individuals become what Reckwitz [7] describes as 'carriers' of social practices rather than the centre of attention. Central to practice theory is the idea that it is through these engagements with practice that individuals come to understand the world around them and develop a more or less coherent sense of self [8].

Despite this focus on 'Practical Consciousness' [5], practice theory does not suggest that individuals are completely passive. Instead it argues that they are skilled agents who actively negotiate and perform practices in the course of their daily lives. In terms of reducing the environmental impact of consumption, practice theory suggests that transforming practices to make them more sustainable is a far more effective approach than simply persuading individuals to make different decisions. As Warde [8] notes, "the principal implication of practice theory is that the sources of change behaviour lie in the development of practices themselves".

Although these basic principles can be applied more or less universally to all theories of practice, there is 'no unified practice approach' [7]. Nevertheless, there are a number of common features that are becoming established as 'core' components of practices. It is universally agreed that practices are made up of a number of different *elements*, which are linked together. While there is some debate regarding precisely what constitutes an element and what the key elements which make up a practice are, there is a growing consensus around Shove's [9] understanding of practices as being made up of

three core elements. The first of these: *materials*, encompasses objects, infrastructures, tools, hardware and the human body itself. The second element: *competence*, is drawn from what Giddens [5] describes as practical consciousness, deliberately cultivated skill and shared understandings of good or appropriate performance in terms of which specific enactments are judged. The final element: *meaning* constitutes a combination of what Reckwitz [7] describes as mental activities, emotion and motivational knowledge [9]. Essentially it refers to the social and symbolic significance of participation at any one moment.

A simple example often used to explain how practices evolve is 'showering'. Showering is a relatively recent method of cleaning oneself that has rapidly evolved in many western countries over the last fifty years. Previously, it was considered the norm to take a bath once or twice a week. However, over the past 50 years bathroom infrastructure has changed to incorporate showers (*materials*). There have also been corresponding changes associated with 'normal' levels of personal hygiene (*meanings*) along with conventions related to the way in which people prepare themselves for the day ahead (*competence*) [10]. As these elements have come together and been regularly repeated by skilled actors one aspect of everyday life has been transformed, evolving into the new and now standard practice of showering.

Showering has now become a routinized part of daily life for billions of people living in western society and deeply integrated into everyday life. Furthermore, as the practice is performed by more people and new associated products become available (such as shower gels) the practice continues to evolve.

In summary, SPT de-emphasises the idea of studying human behaviour in favour of exploring how social practices are ordered across space and time. Social practices emerge, evolve and eventually die out as a result of the reconfiguring of their component elements and their reproduction by skilled practitioners.

## II. Model Description

For the simulation four main processes which need to be considered when designing a social practice simulation model have been identified:

- households (rather then individuals) performing practices,
- the spread of these practices to other households,
- the change of the elements of practices over time, and
- the adoption of practice elements by households.

Figure 1 displays the current conceptualization of the social practice model which is planned to be used to allow to elaborate on the above mentioned processes.

The model consists of five different components which are to be represented in the simulation:

- social practices,
- the elements comprising social practices, namely: materials, meanings and competences, and
- households performing the practices by combining (and utilizing) the different elements.

To explain how these components, consider the example of showering as a social practice:

- Showering is a social practice that is regularly performed by households.
- For performing the showering practice households combine different elements, including for example:
  - a shower (material),
  - shower gel and shampoo (material),
  - water (material),
  - social conventions of cleanliness (meaning), and
  - skills to operate a shower (competence).
- Every practice is combined from elements of all three categories.
- The regular performance of the showering practice by households (in form of the regular combination of the same elements of that practice) has resulted in a general change of understanding of cleanliness in the population, which in turn had an influence on people's perception of what the right amount of cleaning/washing is, which in turn resulted in a change of household cleanliness practices towards more showering.
- The spread of the showering practice furthermore resulted in the advancement and developed new elements related to the showering practice. This includes material elements such as power showers as well as competence elements - operating power showers - and meaning elements (just described update of cleanliness convention).
- At the moment this change of old practice elements and introduction of new practice elements is conceptualized to be induced by external generic update factions (the functions can be different for different elements).
- The new elements have an influence on the perceived 'easiness' of the performance of showering by households, which thereby influence the showering practice.
- At the current stage, it still has to be better understood households of what demographic types (e.g. Acorn classification http://en.wikipedia.org/wiki/Acorn_(demographics)) combine what kind of elements for practices (and what conditions). For this more empirical and literature research has to be conducted.

Resulting from a short survey at the first wholeSEM conference likely input parameters for the simulation are (i) characteristics of the population to be analysed and policy interventions to be considered; (ii) and output results are the adoption rate of different practices (over time) as well the energy consumed by households. As a result of the latter output, a translation of practices to energy consumed by them is required for the model.

As a further input for the social simulation we currently also consider a set of narratives the stakeholders can select between. These narratives are typical scenarios of the UK's energy future and would for example specify what innovation rate is expected until 2050 (what for example could feed the update functions for the elements).

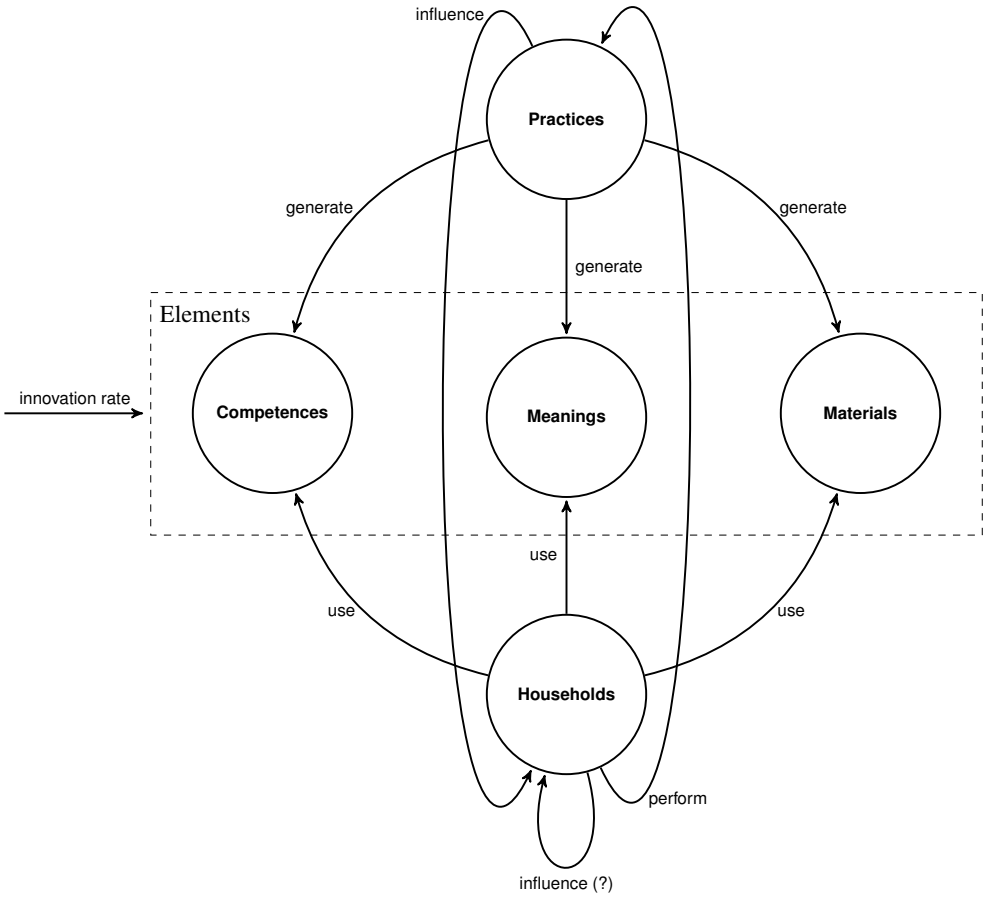


Fig. 1. Components of the Social Practice Simulation Model

## III. Summary and next steps

In this paper we have outline the basic principles of social practice theory and presented some preliminary ideas for an energy-consuming social practices ABM. The novelty of our approach is that – due to their important role in their own spreading, we model the practices themselves as agents and link them both to the performances of households as well as product developments of industry.

In the above description we have focused on one practice, showering. However, as we progress further we aim to advance our model to account for several practices and the relations between them. For this purpose we have identified five specific social practices which we are currently collecting qualitative empirical data on by means of walking interviews:

(i) heating, (ii) laundry, (iii) television watching, (iv) cooking, and (v) electronic communication.

In addition we will be collecting real time data on the energy used in the performance of these practices, to get a better picture of the relationship between actual and perceived energy consumption in households.

The reason for focusing on these five practices is twofold. First, they formed the basis for much of the conversation during the pilot interviews and represent a significant proportion of total domestic energy use. Second, they are interlinked, both on a practice level (e.g. electronic communication has resulted in more home-office work, which in turn has resulted in home being heated during the day), and on an elements

level (e.g. cooking and laundry both require water). It is this interconnectedness, or co-evolution of practices, which will become the focus of the model, allowing us to demonstrate to policy makers the value of considering energy consumption as a by product of practices, rather than simply the result of a series of rational choices. In a series of preliminary conversations with the UK Department of Energy and Climate Change, we have started to establish dialogue which will allow us to feed their input into the model.

We aim to provide our models to policy makers to help their understanding of practice issues. This is why we recently discussed the first ideas for the ABM's interface with staff of the UK Department of Energy and Climate Change. A resulting future task is to integrate their input into the first prototype of our model and to obtain input on it.

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