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Bound by ethical complexities and socio-material histories: an exploration of household energy consumption in Singapore

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ABSTRACT

Households are increasingly subject to environmental regulation and intervention in today's carbon-constrained world. Highlighting cross- disciplinary synergies between practice theory and material geographies, I illuminate the lived complexities of everyday energy-use in Singapore. Based on an ethnographic study of 8 households, it is apparent that energy practices are sustained and reproduced through the subjectivities of materialities, practical ethics, socialised rules and histories, embedded withinin the spatio-temporalities of the actually-existing household. For energy conservation policy and research, these findings suggest non- engagement with the complexities of household energy-use. By promoting a single normative vision of 'Green' energy practices, energy conservation initiatives risk alienating people with practices that do not resonate with household dynamics as they are lived. Instead, an enagement of 'practices' instead of 'behavior' opens up a more expansive field for research and policy engagement in the dynamic and path dependent processes of social normality, and more effective means of encouraging more sustainable ways of living.

1. Introduction

Responding to climate change has spotlighted the importance of behavior change strategies [61,152]; also see special issue by Vergragt et al. [157]. Environmental gains and social change, we are made to believe, can be achieved by educating, incentivising or moralizing people' behavior (cf. [83]). Consequently, what Moloney and Strengers [94] term 'Going Green' has gained discursive hegemony, where pro-environmental behavior is articulated through 'small [everyday] actions, techno-efficiency measures and 'green' product choices in and around the house' [94]. Yet this narrative of social change through 'behavior change' narrowly restricts the scope of how to live sustainably, how to induce such behavior, and who should make this change [125,172].

As Lutzenhiser and Shove [80] noted more than 15 years ago, this partiality of problem and solution framings stems from disciplinary biases that pervade the energy research field. Although energy studies have relatively diversified since then, as Benjamin Sovacool [139,140] highlights, a disciplinary gulf still persists (also see [18]. Between 1999–2013, most energy-related research is usually quantitative, focusing on technical aspects of energy systems, with only 2.2% addressing social and behavioral dimensions [140]. Thus, Sovacool [139] concludes, 'Engineers and economists are ignoring people and miscasting decision-making and action' (529). Rather, pro-environmental behavior is usually articulated with theories and models rooted in economics and (social) psychology, constituting another disciplinary bias [126,168]. Accordingly, Wilhite [163] comments on this disciplinary silo-ing, noting that 'technological optimists and energy behaviouralists have oversimplified the ways that new technologies affect practices' (121).

Notwithstanding, since Elizabeth Shove's [125] 'Beyond the ABC [attitude-behavior-context]. . .' paper, there has been an encouraging and sustained engagement between social practice theory and various resource-intensive ways of living. Contrary to the methodological individualism of economistic and psychological paradigms of 'behavior', a practice approach recognizes the co-constitutive dynamics between meanings, competences and materialities that give rise to socially-shared ways of (re) producing everyday life [114,131]. However, this growing body of work remains, for the most part, concentrated within particular geographies, e.g., The Sustainable Practices Research Group in the UK (http://www.sprg.ac.uk/), lead by prominent practice theorists Elizabeth Shove, Dale Southerton, Gordon Walker and others. Not surprisingly then, most practice-based studies have clustered within Northern and Western Europe (e.g., [15,41,50,64,99].

In this Singapore-based study, I hope to make two small contributions to the literature. With the exception of Hitchings and Lee's [54] study of the material culture of air-conditioning (arguably

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bordering on social practice theory) in Singapore and Sahakian's [113] multi-disciplinary study of air-conditioning practices in Manila, there is a dearth of practice-based scholarship in Southeast Asia. While there is robust discussion around a practice-based problem-framing to environmentally-problematic behavior in Europe [142], research and policy discourses in Singapore are still couched in the methodological individualism of economics, behavioral economics and psychology [52,71,81]. As Southeast Asia's most affluent country with a disproportionately large ecological footprint [11,171], a fresh and more expansive conceptualisation of 'behavior' is sorely needed to address growing energy and resource demands. I hope this first practice-based study of household energy consumption in Singapore will contribute to the diffusion of the practice approach beyond Europe.

In this ethnographic study of 8 Singapore households, I also aim to illuminate cross-disciplinary engagements between social practice theory and material geographies. By first adopting practice theory as a theoretical starting- point, I seek to conceptualise continuity and change in household energy practices in Singapore, examining why certain household energy practices have become normalised and accepted as normality. Then, demonstrating linkages to material geographies, I illustrate the contradictions and ambiguities of embodied practices situated within the spatial and temporal order of the households [72]. By bringing practice theory and material geographies together, this paper enriches the conceptualisation of and constitution of everyday life 'as it is lived'.

2. The rise and fall of the ABC

In environmental research and policy, dominant understandings of behavior and behavioral change are informed by the ABC model [125], which presents a framing of behaviour informed by individual attitudes, beliefs and contextual forces (see [63,66,154,168]. In this section, I briefly chart the development and present critiques of the ABC paradigm.

2.1. ABC on the rise

The earliest and simplest model of pro-environmental behavior emerged in the early 1970s based on neoclassical economic theory [70]. In this economistic view, individuals are rational actors, guided by information about private costs and benefits, hence influenced by income, price, personal preferences and utility [9]. Therefore, influencing pro- environmental behavior was a matter of fully quantifying private costs and benefits [145]. For example, quantifying the monetary and non-monetary cost-effectiveness of energy-efficient retrofits in US homes [62], or measuring discount rates for energy-efficient appliances [77,151].

However, the role of information in guiding the rational actor is suspect. For one — human beings are not calculating self- maximisers, whose actions can be reduced and predicted through demand elasticities responding to price changes [154]. Two — individuals are not always rational, in an economic sense. Because human cognition is bounded, decision-making can fall prey to various cognitive biases, such as social preferences and loss aversion [19]. Thus, provision of environmental information does not necessarily translate into pro-environmental behavior [6].

Rather than being irrational, individuals are a- rational, where day-to-day decisions are navigated with a low degree of cognition, guided by automatic and habitual behavior [173,146]. Challenging the neoclassical paradigm, social psychologists carved out a behavioral niche for the social sciences within energy research and policy in the early 1980s [166]. Drawing on Ajzen's [1] Theory of Planned Behaviour and Dunlap et al. [29,28]. New Ecological Paradigm, normative values and attitudes were integrated into behavior models [122,144]. Consequently, through this value-attitude-behavior paradigm, the sustainable 'consumer' and 'household' have been constructed from lifestyle values and socio-demographic variables [38,44,158].

However, there still needed to be greater contextualization of what constitutes pro-environmental behavior, situating individuals 'within specific social, cultural and geographical contexts, according to the agreed rules of particular social practices' ([14]:276;[97]). Providing an 'integrative' view of 'behavior', Stern's [143] ABC model explains behavior through attitudinal factors, contextual forces, personal capabilities and habits. Granted, behavior is a complex phenomena, and there is no one best model to assess pro-environmental action [70]. Nonetheless, the ABC model has become the dominant paradigm guiding policy around behaviour change strategies today [125,126].

2.2. The ABC on trial

In this sub-section, I advance a systematic critique of the ABC model, suggesting a need to re-examine its assumptions and formulations. I begin with the ontological assumptions that underpins the ABC model, suggesting that this reductionist and mechanistic ontology is unsuited for understanding social complexity. Notwithstanding flaws, this ontology has translated into narrow epistemic and methodological ways of 'seeing' and studying 'behaviour', which obscures the big(ger) picture around everyday and inconspicuous consumption.

The ABC approach may seem to be a positive move away from the *homo economicus*, where strategies target 'individualistic properties of individual people' ([31]:190). Unfortunately, however much it tries to contextualize social reality, it still falls prey to a ontological and methodological individualism. According to this economistic ontology, society is the aggregate of individuals and individuated actions [32]. Thus, understanding society becomes a matter of atomizing the social, like a machine that can be reduced and understood in a mechanistic way [60,89]. Yet in Brown's [13] ground-breaking work unifying the social sciences and the humanities (what he calls the 'human sciences'), he persuasively argues that the shared object of the human sciences is not individuals, but 'an irreducible and irrepressible sociality' (2: emphasis added). Thus, if 'what is distinctively human about human affairs is the immanence of sociality. . . [then] the individual should be the last rather than the first referent of the philosophy of mind, action, and knowledge, and of the human sciences' (7).

What this means in practical terms is that human action, comprising complex modalities of values, norms, duties, purposes and materialities – what is usually black-boxed as 'behavior' – cannot be fully understood through positivistic methodologies. For instance, studies of the value/attitude-behavior connection are usually rooted in quantitative psychology, where the relationship between mental values, behavior and encoded variables may not be clear [150]. Consequently, there is no one-to-one correspondence between underlying mental processes and pro-environmental behavioral outcomes. Conceptualizing 'behavior' and values as individuated variables again reflects a mechanistic ontology - that human action can be compartmentalized, reduced to abstract variables with linear and predictable interactions, just like a machine can be understood as the sum of its mechanical parts [89].

Notwithstanding its widespread application, the integrated social-psychological model fails to consistently predict behaviour. In Bamberg and Möser's [4] meta-analysis of 163 empirical studies, the integrated social-psychological model could only predict 27% of behavioral variance. Not surprisingly, they admit that 'the processes contributing to the actual enactment of pro-environmental behavioral intention are [still] not fully understood' (23). Like-