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Behavioural economics vs social practice theory: Perspectives from inside the United Kingdom government

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ABSTRACT

This paper contributes to the ongoing debate on the role of the social sciences in influencing energy and environmental policy. It presents the views of research professionals inside government on the apparent stand-off between proponents of behavioural economics and adopters of social practice theory in academic energy research.

Drawing on auto-ethnographic insights and interviews with government social researchers (GSRs) working on energy and climate change, we chart the rise of behavioural economics within the UK government, discussing the reasons behind its success, and its limitations. GSRs' perspectives on energy research using practice theory are presented, juxtaposed with arguments which help to explain why policy engagement is not a ubiquitous ambition for all energy researchers.

We find that government social researchers actively engage with a range of theoretical approaches and social scientific methods. They express enthusiastic interest in research using practice theory, but point to a need for applicable evidence if they are to use it in their own practice. Applying insights from the two theories themselves, we tentatively suggest ways in which GSRs could help, and be helped, to incorporate practice theory into mainstream policy discourse.

1. Introduction

Behavioural economics has become one of the most successful social sciences when it comes to influencing energy policy discourse. Moving beyond *homo economicus* as a way of understanding energy behaviours, it highlights how individuals can be subject to systematic bias, and may be 'benevolently nudged' towards policy goals such as reduced energy consumption [1]. Proponents of practice theory in the energy research community have criticised the behavioural economics approach, arguing that 'nudge' interventions fail to challenge the systems and structures which embed patterns of energy consumption into the social world [2,3]. Rather than focus on the individual as the principle unit of research, this approach, developed primarily in sociology, places the *practice* at the centre of analysis.

The goal of this paper is to contribute to the ongoing debate on the role of the social sciences in influencing energy and environmental policy [4–8]. Presenting perspectives from inside government, it addresses the apparent standoff between proponents of behavioural economics and adopters of social practice theory in academic energy

research. Our focus is on the UK, which has become a leader in applying behavioural economics to policy, particularly since the formation of the Behavioural Insights Team (BIT) in 2010. Established by David Cameron's new coalition government, BIT has now gained global influence [9]. Meanwhile, UK energy researchers have also been at the forefront of developing, applying and debating practice theory [[10,11] see also debates initiated by [2,5]]. Although we focus on a single country and two distinct theories, the paper makes a contribution to understanding the relationship between research and policy, with international relevance.

Our empirical investigation seeks to understand how social research is used to inform policy development, and the reasons behind the relative success of behavioural economics in gaining influence within the UK government. The paper draws on auto-ethnographic insights and a set of in-depth interviews with civil servants working on energy, environment, sustainability and transport policies across Whitehall¹ departments. Some social scientific literature has argued that government policy making is wedded to the epistemic tradition of methodological individualism, and the notion of individual behaviour change [2].

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However, we show that GSRs are both aware of and open to non-individualistic social science including practice theory. We discuss the reasons why practice theory remains peripheral within mainstream policy discourse, presenting perspectives from GSRs, juxtaposed with arguments which help to explain why policy engagement is not a ubiquitous ambition for all energy researchers. Acknowledging the fervency of argumentation on all sides, and applying insights from the two theories themselves, we tentatively suggest ways in which GSRs could help, and be helped, to incorporate practice theory into policy discourse.

2. Literature review

2.1. Behavioural economics, behavioural insights and nudge

Moving beyond the idea that individual behaviour is motivated by purely rational economic decision making, behavioural economics draws on psychology and neuroscience to describe how individuals' behaviour, decision-making processes and thinking patterns can be subject to systematic bias. Amalgamating a range of concepts including advertising and marketing, behavioural economics has created its own distinct lexicon, with terms such as 'choice architecture', 'discounting' and 'loss aversion' describing factors which influence individual decision-making [1].

Despite its name, behavioural economics is more aligned with psychology than economics, a point borne out by the fact that one of its best known figures Daniel Kahneman won the 2002 Nobel Memorial Prize in Economics for his contributions, despite reportedly never having taken a course in economics [12]. Its nominal affiliation with economics, as well as the accessible writing of proponents such as Kahneman [13] and Thaler and Sunstein [1], have helped it to develop a following from public audiences and policy makers around the world. In popular discourse the term '*Nudge*' (the title of Thaler and Sunstein's 2008 book) has become synonymous with behavioural economics itself, describing ways in which individuals can be benevolently influenced when making decisions. Underpinned by the concept of 'libertarian paternalism', nudge seeks to promote and defend the notion of individual choice, arguing for government policy which supports citizens to make decisions in their own best interests [14].

For over a decade the UK government has taken an active interest in the potential for behaviour change to contribute towards a low carbon transition, including commissioning large evidence reviews [15], and generating its own models for behaviour change [16,17]. Since 2010, when David Cameron became Prime Minister, behavioural economics has been gaining influence in UK public policy. Having declared *Nudge* to be his favourite book, he established the Behavioural Insights Team (BIT) within the Cabinet Office, recruiting Thaler as an official advisor. Nicknamed the 'Nudge Unit', BIT was given a cross-departmental remit and an initial requirement to recoup at least ten times its own annual running costs [18]. It delivered on this goal, with successful projects such as adding the sentence 'pay your tax or lose your car' to car-tax reminder letters, and asking patients (rather than receptionists) to write out their own GP appointment cards to reduce missed appointments. BIT has been 'spun-out' of the Cabinet Office but continues to work with 15 government departments and agencies [9], using the principles of behavioural economics to contribute towards policy areas as broad as health, education, crime, finance and energy [19]. As well as working with BIT, civil servants within Whitehall departments now conduct behavioural insights work themselves, or in collaboration with other third parties.

Academic critiques of behavioural economics have come from a variety of disciplines. Some authors take issue with the political and philosophical stance of libertarian paternalism, with its focus on the individual and ties to neoliberal economics. Jones et al. [14] draw on Foucauldian theories of governmentality and psychological power to identify how a new form of citizen is being created by libertarian

paternalism; one which is both infantilised by nudges towards health, wealth and happiness, while conversely engaged with as a reflexive and analytical agent.

Despite claiming both influence from psychology and neuroscience, the distinction between the two is not always clear. Felson and Reiner [20] argue that there has in fact been little empirical analysis of *how* nudges influence decision making using data and theories from neuroscience, nor is there adequate evidence on the longer term impact of habituated responses as compared with reflexive decisions. Others have argued that invocations of neuroscience in bestsellers such as *Nudge* are often selective, unscientific and used to give authority to subjective argumentation [21–23].

Addressing the policy implications of behavioural economics, Lodge and Wegrich [24] argue that there is a rationality paradox at the heart of nudge. Whilst emphasising the bounds of rational choice for individuals, it does little to acknowledge the limits to rationality embedded in its own approach, as well as within government policy procedures. They argue that nudge assumes that the benevolent, rational policy maker is able to identify bounded rationality in others and identify their suboptimal choices. In reality, the resources and approaches adopted by government limit their own rationality. Financial constraints, political priorities and a tendency towards confirmation bias are presented by the authors as factors contributing to a policy landscape that 'pretends to be evidenced based in order to find seemingly low cost, high-intelligence measures'. However, there is evidence that behavioural insights professionals are seeking to counter these criticisms, including critical reflections on trial design and the use of Randomised Control Trials (RCTs) [25,26], developing the methodology design principles 'Test, Learn, Adapt' [27] and publishing negative findings [28]. The Behavioural Insights Team have recently published a number of articles addressing this criticism under the heading 'behavioural government' [29].

2.2. Practice-inspired critiques

While behavioural economics has been the subject of critiques from a variety of disciplines, it has been particularly lamented by energy researchers using practice theory. One criticism frequently made in the context of energy policy is that nudge is simply not ambitious enough to bring about the scale of change required to radically decarbonise the economy. Sceptical of epistemological models which focus on the individual, practice theorists have criticised the notion of behaviour change in research and policy [2]. Instead, practice theory has been used to emphasise how energy demand is bound up within the doings and sayings of everyday life [30]. Individuals do not seek to 'consume' energy for its own ends, but rely on it to facilitate everyday practices such as commuting to work, being comfortable at home, or laundering clothes [31]. These energy-using practices have become embedded in contemporary social life, and rely on complex and embedded infrastructures such as national road networks, the domestic building stock and national electricity grids. Even if individuals were motivated through a variety of nudges to change their behaviours, there are myriad socio-technical structures that inhibit behaviour change. The next section introduces practice theory approaches to energy demand research, and discusses recent efforts to link this perspective to policy.

2.3. Practice theory and policy: A contested relationship

With roots in philosophy and sociology, theories of practice have become influential in social scientific research on energy and sustainable consumption. Rather than focus on the individual, these approaches take the *practice* as the unit of analysis, showing how social activity is made up of a constellation of human, material and discursive elements [32]. This framework offers insights into the establishment, development and trajectories of energy consumption, and has been employed to trace the lives of practices such as showering [33], cycling

[34], laundry [35] and domestic lighting [36]. The following review of literature focuses on how practice theory has been employed to comment on, critique, and envision alternative futures for energy policy.

Sahakian and Willhite [37] identify examples of city-scale policies including the ‘London on Tap’ initiative. This initiative sought to reduce the environmental impact of restaurants by normalising the ordering of tap-water. Supported by analysis and debate about this social norm in the press, by a competition for the design of a new carafe, and with a link to the charity Water Aid, the initiative sought to change the practice of consuming water alongside an expensive meal by addressing its multiple elements simultaneously. The authors highlight how the materials (water, glass packaging), meanings (conventions around proper behaviour in restaurants), and competences (the performance of fine dining) were all affected by the multi-dimensional campaign, using this as evidence that there is potential for practice-informed policy initiatives to influence more sustainable forms of consumption.

Larsen [38] uses social practice theory to investigate cycling practices in Copenhagen. Widely considered to be a global leader in urban cycling, many explanations for its success focus on its physical infrastructure investments. However, Larsen identifies ways in which the municipality sought to normalise cycling, by de-politicising the practice and counteracting the development of oppositional discourse between motorists and cyclists. Adopting Shove et al.’s [30] three-element model, he also highlights the ways in which policy interventions helped to develop *competences*, through public campaigns. Larsen argues that while these supportive planning practices have helped to mould practice ‘entities’; it is through heterogeneous performances of everyday cycling that the practice has become embedded in urban life. This practice-informed conclusion helps to show that policy makers and city planners are not solely responsible for influencing urban transport, but their actions can help to shape the trajectories of practice.

One policy example stands out in practice-based energy research due to the frequency by which it is cited by authors and offered as an example of multi-factorial policy. ‘Coolbiz’ was an initiative of the Japanese Ministry of the Environment in 2005. As part of a drive to reduce the energy consumption of government buildings, a policy decision was taken to expand the ‘envelope’ of accepted indoor temperatures: heating and air-conditioning would no longer operate at indoor temperatures between 20C and 28C [30]. In support of this change in building management policy, the government also changed their guidance on acceptable workplace clothing, encouraging the use of loose fitting garments and short sleeved shirts. Clothing brand Uniqlo supported the move by stocking a new range of professional clothing, and the Prime Minister was photographed wearing short-sleeved shirts without a necktie [39]. Although the initiative was not directly inspired by theories of practice, it has been promoted as an example of multi-elemental policy and a potential model for similar energy-demand policies in future [39,40].

Such rich policy case studies are rare however. Coolbiz continues to be cited as an example in energy literature despite now being over a decade old, with few efforts to replicate this being found internationally. A number of authors have called for more ‘practicable’ applications of practice theory, to ‘deliver new insights on policy levers for influencing change towards more sustainable consumption practices’ [[37], see also [4]].

Directly addressing a policy audience and acknowledging the influence of psychological models of behaviour, Tim Chatterton has sought to integrate practice theory with behavioural approaches [3,11]. Acknowledging the limited influence of energy sociology within policy, a recent publication includes a call for the policy-influential field of social marketing to adopt the principles of practice theory [41]. This paper builds on earlier work including Hargreaves’ [42] and Spotswood et al.’s [34] attempts to add theoretical depth to behaviour change initiatives by incorporating a practice perspective.

Another key figure who has written extensively on different models of behaviour for a government audience is Andrew Darnton [11,16].

His ‘Individual-Social-Material Tool (ISM)’ integrates – without assimilating – insights from both behavioural science and practice theory. It emphasises the relationships between *individuals’* values, beliefs, skills and habits; the *social* context, including norms and meanings, institutions and networks; and the *material* environment including technologies, infrastructure and rules and regulations [43]. This approach has informed the Scottish Government’s efforts towards meeting its Emissions Reductions Targets, helping to promote the uptake of solid wall insulation, electric vehicles and walking for short journeys [44].

Concerned with moving policy ‘beyond behaviour change’, a number of authors have explored how practice theory might permeate the processes of policy making and implementation [45,46]. Reflecting on their attempts to integrate practice based ideas of social change when consulting on three conventional behaviour change projects, Strengers et al. [47] found that despite having limited impact on the way the projects were implemented, they were able to ‘broaden the definition and scope of what it means to do social change’. In the same collection, Spurling and McMeekin [48] identify three forms of intervention available to policy makers aiming to steer mobility practices: recrafting elements of existing practices; substituting practices; and changing how practices interlock. Critical of policy approaches which design ‘external’ and ‘one-off’ interventions for behaviour change, they call for a new policy paradigm which acknowledges the complexity of, and connections between, systems of practice. Given that demand for mobility is related to the ‘multiple domains of life, including work, leisure and the home’, they call for a reframing of the problem in policy discourse, and for innovative solutions which cut across the jurisdictions of traditional government departments. Promoting the growth of working from home practice, for example, may involve adapting building codes and standards, corporate norms and information technology [49].

In the UK, some attempts have been made to draw together policy makers, businesses and researchers from a variety of academic disciplines to provide a platform for sharing ideas and approaches to sustainability policy. These include The Nexus Network [50], the Centre for the Evaluation of Complexity Across the Nexus (CECAN) [51] and the IEA’s Task 24 project focused on Demand Side Management. For some researchers however, such efforts are not radical enough, and attempts to create interdisciplinary coalitions often fail to acknowledge fundamental epistemological differences. Shove, for example, has argued that disciplinary framings of problems such as climate change are rooted in traditions of knowledge production that are like ‘chalk and cheese’ [52]. In a seminal paper, she argues that current government behaviour change policy is bound up in the logic of methodological individualism, and marginalises more ambitious attempts to steer energy consuming practices at a societal scale [2]. Shove has distanced herself from incremental efforts to influence policy making while this paradigm persists; arguing that while efforts to integrate practice theory with behavioural approaches ‘might look like fruitful integration, such moves are doomed to failure’ [2].

Shove’s deliberately provocative writings have led to much debate on the interaction between social theory and policy, including an exchange which became known as the ‘chalk and cheese debate’ [53,52,54]. Sidestepping the challenge of reconciling epistemological differences, Wilson and Chatterton [54] call for a more pragmatic approach to climate change policy, including a more neutral definition of behaviour as ‘observable action’; not confined to individuals, nor at odds with a practice perspective. Rather than lament the government’s framing of climate policy, they argue that ‘the introduction into government of new approaches needs to be done at a practical level, alongside currently accepted models, as a necessary prerequisite to the contestation of the dominant theories of behavioural and social change.’ [54].

A recent editorial by Keller et al. critiques the ‘position of pure theorising’ adopted by some proponents of practice theory [4]. They argue that such a ‘comfortable’ position has the effect of perpetuating

the ‘short-sighted and resource-wasting behaviour change efforts’. For these authors, ‘even if theories do not directly translate into the daily nitty-gritty of policy-making and implementation, they can inform and inspire’ [4]. The debate will continue within the academic literature on the trade-off between the practical opportunities and the theoretical compromises involved in seeking to link practice theory with policy. What is clear is that energy researchers setting out with this aim face the *dual* challenge of finding a receptive audience within government and addressing opposition from within the academy.

3. Government Social Research

GSR is one of 25 civil service professions, with researchers recruited from a variety of disciplinary backgrounds and working across Whitehall departments. The role of a GSR involves keeping abreast of academic debates, absorbing contributions from contemporary social science, using insights and evidence from research, and commissioning studies and reports where specific research gaps are identified. GSRs ‘measure, describe, explain and predict social and economic phenomena’, to an audience of policy makers and ministers, and are guided by a Competency Framework which emphasises the use of sound methodologies and scientific principles [55]. Government social research was formalised as a profession in 2000, but has been the subject of little research.

Two studies stand out as exceptions to this rule. In their extensive discussion of evidence, research and public services, Nutley et al. [56] chart the rise of government social research in the UK, which flourished under the Blair administration. Having been peripheral within the systems of professions which constituted the Civil Service [57], one of Blair’s ministers said:

Social science should be at the heart of policy making. We need a revolution in relations between government and the social research community – we need social scientists to help to determine what works and why, and what types of policy initiatives are likely to be most effective. (Blunkett, 2000, cited by Nutley et al. [56])

The authors describe how the number of GSRs doubled from 1997 to 2007, as the notion of evidence-based policy became dominant. Starting out with high expectations, Nutley et al. suggest that in Blair’s third tenure, a degree of disillusionment had set in, as the contribution of social research evidence toward major policy initiatives such as the Crime Reduction Programme had not prevented it missing its goals. Critiquing the framing of research evidence within policy discourse, they argue that the critical question at the interface of social research and policy is not *whether* evidence is used, but *how* it is used.

Kattitzi provides another comprehensive account of GSRs in the UK, focusing on the period 2001–2015. He found that this community of practice were epistemically diverse and dynamic, meaning that they drew on a range of social scientific research, and adapted their methodological approach and messaging to suit different audiences [58]. Focusing on the role of GSRs in two UK government departments with responsibility for energy, climate and environmental policy, this study found that as a product of the ‘challenge function’, which is inscribed in their professional practice, meaningful changes had been achieved in policy processes [58]. Whereas Nutley et al. indicate that government social research had reached its height in policy discourse in the early 2000s, this study indicates that they had retained influence, and had secured a jurisdiction within the systems of professional practices of Whitehall [57].

4. Methods

The idea for this paper emerged from a knowledge exchange meeting between a team of Government Social Researchers and a research group at a UK university. At the meeting, the two authors of this paper gave surprisingly similar presentations on behavioural

approaches to energy research and practice theory, leading to further discussion and collaboration.

This paper combines data from two main sources. Firstly, a series of discussions between the authors produced a wealth of notes and transcribed recordings. The first author is a university based researcher, with recent experience of implementing behaviour change programmes for small and medium sized enterprises (SMEs) on a regional basis. The second author is a GSR with experience of working across central government. With a background in psychology and quantitative methods, their work now focuses on behavioural insights. This author has actively developed links with academics and takes a keen interest in applications of behavioural economics as well as practice theory. Auto-ethnographic reflections on over a decade of professional experience as a GSR inform the analysis and argumentation [59]. This includes experience of training, knowledge-exchange, commissioning and evaluating research projects.

Second, semi-structured interviews with other researchers currently or recently working in central government were recorded and transcribed verbatim. Participants were selected using snowball sampling, starting with the immediate professional network of one author. Participants included six GSRs, one policy official, and one university researcher with experience of working within government. There are roughly 1000 government social researchers in total. However only a small number work on energy, and even fewer GSRs are familiar with both behavioural economics and practice theory. All interviewees had research training, with three qualified to PhD level. Disciplinary backgrounds ranged from economics, statistics (2), to psychology (2), sociology (2), geography and public policy, and all had worked on policies relating to energy demand. Given the necessarily small sample, the findings should not be interpreted as representative of the views of all GSRs.

Interview data was coded and categorised according to themes emerging from discussions. It is worth noting that for several participants, the interview was the first time they had explicitly reflected on and compared the two approaches. Following the production of a draft manuscript, a process of ‘member checking’ was then undertaken, to amend and refine contributions [57].

We aim to clearly distinguish the views of participants and the interpretations and arguments made by the authors. As such, verbatim quotations are featured throughout the following section. The arguments made in the concluding sections are based on the authors’ interpretations and analysis.

5. Findings

5.1. The use of research and evidence in policy

‘Evidence’ is a more appropriate term than ‘research’ for describing the pragmatic ways that government researchers draw on academic work. Revealing of the pragmatic approach taken by government is the frequency by which the question ‘what works?’ was used by interviewees, and in policy literature [60,61].

This phrase describes a distinct approach to social research, and became embedded in government thinking through the creation of the ‘What Works Network’ in 2014. With seven centres dedicated to producing, evaluating and disseminating robust evidence across a range of policy areas, their audience includes institutions within and outside of government. *What works* is now a phrase used within government to refer to a particular set of methodological principles, including a framework for evaluating evidence. However, in this paper, it is interpreted more broadly, as a way of describing an epistemological approach.

As trained researchers, GSRs see themselves as intermediaries, liaising between academia and other civil servants, including those responsible for generating policy. Interviewees claimed to be open to a variety of research methods and types of evidence, pointing to inter-

disciplinary approaches used in internal policy evaluations, the breadth covered by The Magenta Book [62], and other innovative methods [51]. However, it also became clear that the processes of developing social and environmental policy at the national scale were influenced by a distinct epistemological paradigm which prioritised reproducibility, generalisability and tended to examine individual behaviours over broader societal change. Several interviewees described how randomised control trials (RCTs), which are widely used in the medical sciences, had become the preferred method for establishing reliable, generalisable, ‘good’ evidence.

The use of RCTs to test policy interventions relating to energy demand divided interviewees, with one expressing frustration and describing the technique as a ‘category error’ when applied to socially embedded energy behaviours. Conversely, another bemoaned the rarity of quantitatively evaluated studies, describing them as a ‘piece of gold’ which would take ‘centre stage’. For most interviewees, RCTs represented one of a variety of research tools; valuable when testing particular interventions, but limited in providing wider insights about the nature and dynamics of energy demand:

‘Society is evolving all the time and an RCT assumes that what you’re looking at is a universal finding and can be applied in any context you look at, but that’s... not the case in social life. RCTs are great in a medical context, less so in a social context.’

‘The trials are always about the impact, there is not much in there about ‘why’ necessarily.’

‘We think about the instances where we could do a tightly controlled RCT. Where we could just tweak, or do one thing versus another. But there aren’t that many things. So if we’re doing a trial you want to think about something more comprehensive than the RCT approach, it’s hard.’

These quotations indicate that as a group of highly trained interdisciplinary social scientists, GSRs were acutely aware of the narrow epistemological tradition within which they worked. However, this reflexivity also extended to an empathetic understanding of the pressures, constraints, priorities and educational and political backgrounds of their audience of policy makers and ministers who rely on researchers to understand and translate key concepts. Despite being epistemologically broad and methodologically balanced, policy colleagues were likely to be more focused on shorter term horizons, more attuned to political sensitivities, and as one GSR put it, more likely to say ‘where is the number?’.

5.2. ‘Intuitively it clicks with people’: The influence of behavioural economics and nudge

Given their appreciation of various research methods and theoretical approaches, interviewees were asked how and why behavioural economics had become influential within the current political and policy-making paradigm in the UK. From their responses four themes emerged: accessibility, co-option, evidence and applicability. Each of these are described alongside quotations from interviews in Table 1.

As well as describing in detail and with relative consistency the reasons behind behavioural economics’ success, GSRs were aware of its limitations. Whereas ‘nudges’ had been applied in tax policy and operations with successful outcomes, similarly designed trials concerned with reducing energy demand had not produced significant change in behaviours. One interviewee had worked with BIT to test the effect of providing households with information and advice about heating controls:

GSR: ‘We looked at when people get an annual gas boiler safety check, using that as an opportunity to provide people with information and advice. We worked with BIT to develop an RCT to test whether or not those who received info and advice used any less gas.’

Interviewer: ‘And what did you find?’

GSR: ‘They didn’t, no. There are a lot of reasons for that. It might be because you need more than just a one-off intervention. There is literature that says to change people’s habits and behaviours through smoking, eating healthily, drinking, it requires a drip feed of information from a number of different sources rather than just a one-off thing to change ingrained habits around how you heat homes... But it was useful because it showed that we need to do more than just give people information leaflets.’

Another example mentioned in two interviews was a recent BIT report on a trial of interventions for changing commuting behaviours at Heathrow [28]. Interventions included sending emails to workers to increase car sharing, the offer of a one-week free bus pass and a one-to-one discussion about travel choices. The report found that light-touch nudges had not been effective at changing travel behaviours. For one interviewee, this demonstrated the limitations of nudge-style policy interventions such as targeted information and personalised emails, and confirmed that reducing car journeys required investment in quality public transport services, and disincentives such as parking charges:

‘Where the bus is more expensive than driving, people are not going to find themselves on a bus by accident!’

However, another interviewee emphasised the positives in this BIT report, arguing that well-designed research with negative outcomes can be valuable for policy makers:

‘Even if you don’t find positive impacts from behavioural insights, like with the Heathrow trials, an RCT can be a very useful way of saying ‘if it doesn’t work, then we shouldn’t fund this’. In fact it’s a bit of a godsend, because those type of approaches are already being used across the country, and we fund them. So we are now more certain that these type of approaches don’t work, and we’ll be more sceptical about funding them in future.’

Another GSR argued that where nudge interventions had been successful, they often build on changes to social norms already taking place, and rely on ‘hard levers’ such as regulation to provide a foundation:

‘Everywhere where they’ve introduced nudges, the social norm has been in the direction of travel. Otherwise it’s not a nudge, it’s an obstacle. Where it’s really had an impact is where there is an intrinsic driver already.’

All interviewees mentioned the fact that energy consumption is the result of a variety of factors and behaviours cannot be removed from their social context. The scope of nudge interventions was cited as a significant limitation:

‘2–3% is better than nothing. For nudge that’s par for the course. But for the kind of wholesale change that we need to drive in the energy and climate change space, that’s not enough. You need much bigger, more effective measures.’

These quotations demonstrate that the interviewees were aware that the scope of behavioural economics was not sufficient to match the scale of change necessary to meet stretching climate targets. However, GSRs’ ability to effect change is mediated by the structures surrounding them, including the design of energy markets and the remits and norms of government institutions. For example, one interviewee who had previously worked for the Department of Energy and Climate Change (DECC²) said:

‘DECC didn’t have job centres, we didn’t send out tax forms. We

² DECC was dismantled in 2016, with the majority of its civil servants becoming part of the newly created Department for Business, Energy and Industrial Strategy (BEIS).

Table 1
Reasons behind the success of behavioural economics in policy.

Normal Theme Description	Interview Quotations
Accessibility <ul style="list-style-type: none"> ● Use of human-scale stories and narratives which resonate with audiences at all levels. ● Accessible books including Nudge have helped to generate public enthusiasm. ● Recognised figures such as Richard Thaler and David Halpern have been critical to its development. 	<ul style="list-style-type: none"> ● ‘Intuitively it clicks with people and you can see that they’re understanding the concepts, and it’s not just highfaluting academic language. They see it as instantly as something they can relate to, because that’s the way they think themselves. I don’t think you can get that with social practice theory.’ ● ‘[The success is] mainly because of the nudge unit. People still recognise it when you say something. It’s got that brand.’ ● ‘[On BIT] they’re very slick... They’ve got all these snazzy tools, techniques - things that are really easy for policy makers to grasp, and lots of nice case studies.’ ● ‘Behavioural insights have had a champion at the heart of government for 8 years, and that’s not to be underestimated.’ ● ‘[BIT are] seen as accessible, quite commercially savvy.’
Co-option <ul style="list-style-type: none"> ● Behavioural economics has produced a distinct set of terms and concepts which helps to establish a broad and inclusive framework. It has done so by co-opting ideas from a range of disciplines, including psychology, neuroscience and economics. 	<ul style="list-style-type: none"> ● ‘It’s hard to describe where behavioural economics ends and psychology begins. It’s all bundled into one thing.’ ● ‘The principles are the same. It’s still psychology 101. It’s good stuff, because it’s spoken in a language which is amenable to classical economists.’ ● ‘I think the language is important because economics is the dominant analytical profession.’
‘Evidence’ <ul style="list-style-type: none"> ● Behavioural nudges are amenable to testing using methods such as RCTs. These produce quantitative outcomes which can be integrated with economic analysis. 	<ul style="list-style-type: none"> ● ‘The answers from nudge type research are quite clear. In general, clarity of message around findings and what you do with findings has a huge impact on the actual uptake of them.’ ● ‘If we have an estimate of percentage, and you can put into a model and get a cost and an impact, then that just fits the process of policy making that we have.’ ● ‘The test that is relevant for us is ‘is it better than the other evidence that we have?’ Just because we don’t know everything, doesn’t mean it’s not the best of a bad bunch.’
Applicability <ul style="list-style-type: none"> ● Nudge policies can be tested at a variety of scales and deployed incrementally. ● They appeal to policy makers operating with constrained budgets and timescales for interventions. 	<ul style="list-style-type: none"> ● ‘Nudge approaches to energy saving; they’re relatively small impacts, but they’re still worthwhile doing, because if they’re not that expensive to implement... then why not.’ ● ‘You don’t have to change legislation. You can undertake a nudge project and implement any successful interventions very quickly. Whereas if you want to change the driving test, that’s going to be a really long piece of work, it’s going to require years of work.’ ● ‘It is just small changes, which are essentially free to do. Changing wording on letters. It’s working I think because it goes: ‘hey here’s what we’re doing already and have been doing for years, and here’s just a little tweak and it has this benefit.’ ● ‘You can always start from little things and work up. People want to do something now, rather than waiting.’

didn’t actually have any public facing stuff... everything we did was delivered via energy suppliers, through installers, through putting incentives out there for a market.’

In addition to these structural constraints, another GSR described how DECC’s remit stretched across all sectors of the economy, meaning that his role spanned households across the UK, as well as businesses of all sizes:

‘What can I hope to achieve? Nothing unless I can boil it down into meaningful, tangible chunks.’

This is an important perspective from within government, particularly when juxtaposed against some social scientific energy research which calls for more ambitious, cross-jurisdictional energy policy [39,48,63,64]. Behavioural economics, as opposed to practice theory, can more readily be condensed into such ‘chunks’. This finding shows that a broad remit can be perceived as negative by civil service professionals.

5.3. GSR perspectives on practice theory

For the GSRs interviewed for this paper, practice theory represents a radically alternative approach to understanding energy demand. Most agreed that its strengths include offering historical perspectives on the trajectories of energy consuming practices; providing understandings of

wider socio-material contexts; and helping to explain why interventions with more narrow approaches do not succeed.

Whereas nudge instruments are short term in nature, practice informed analyses of energy demand draw lessons from outside the scope of conventional policy evaluation timescales. Spurling for example, traces the development of central heating and the changing internal layouts of domestic properties following the switch from Town Gas to Natural Gas in the 1970s [65]. Such contributions were welcomed by GSRs working with large portfolios of energy and climate policy. One interviewee, for example, had worked alongside policy teams to address the long-term challenge of decarbonising heat in the UK, which amounts to 40% of final energy consumption [66]. They described the multiple challenges this problem presented to government. Firstly, given drastic changes in heating practices in the recent past, predicting future demand was difficult. Second, there was no clear technological solution, with electrification and the use of hydrogen involving major transformation and expense. These, combined with the fact that energy prices are politically, socially and ethically charged, meant that the scale of the problem far outstretched solutions which could be informed by behavioural economics.

For each of the GSRs interviewed, practice theory offered a radically different way of framing energy consumption when compared to other approaches which take demand for energy services as a given [67]. One interviewee for example, described the ‘revelatory’ moment when practice theory had helped them to realise that ‘people don’t

consciously use energy... they do other things'. However, despite this GSR and other interviewees citing the strengths of practice theory for understanding energy demand, they were aware of its limitations, just as they had been for behavioural economics. The challenge described by all was *how to use and apply* its insights in their own work. For several interviewees, the main barrier to using practice-based insights was a lack of applicable, suitable evidence:

'I see few examples of applying insights from SPT. But I recognise that it gives a true and valid description of what we can learn from changes in energy demand in the past.'
'We'd need to have something that's accessible, that's got some evidence underneath it, some case studies.'

For these GSRs, being able to point to tangible examples of fully evaluated policy interventions overseas, at a local scale or in another sector is crucial when presenting new ideas to policy makers. Whereas behavioural economics has allied itself with quantitative methods and the RCT, practice theory has no parallel.

'If we could have some evidence on its application as well as theory.... We would be the ones who would be promoting it.'
'Social practice theory needs to be crystallised in concepts which people can understand. You need micro-applications of it. Little trials of social practice theory.'
'That's what you need - an *intentional* social practices approach, to give it ammunition.'

The example of the Japanese initiative Coolbiz was discussed with three interviewees who each acknowledged this as a success. However, two pointed out that this intervention had not been designed with practice theory in mind, and that they would need more examples, ideally from Britain, to support them if they were to promote similar cross-cutting policy approaches.

While the majority of respondents suggested that 'micro-applications' of practice theory would be crucial for it to gain more prominence within government social research and ultimately the policy agenda, one interviewee pointed to the fact that energy research informed by practice theory tended to highlight the need for larger scale change:

'Elizabeth [Shove] or others will say 'you need to change housing infrastructure, or heating infrastructure'. Really big stuff... She's absolutely right that it would take a national programme to make these changes, the way that there were national programmes to introduce electricity and etcetera. It's the scale that is daunting, and the question is whether there is an intermediate win. Nudges can be much, much smaller.'

This observation reveals the fundamental difference between a practice-based approach and the scope of UK energy demand policy as perceived by this GSR. While they agreed in principle with the vision and ambition of practice theory, they felt that their own role and those of policy-making colleagues was to seek more immediate, and necessarily smaller, solutions.

6. Discussion

6.1. Why policy engagement is not the goal for all social scientists

For many energy researchers using practice theory, the prevailing model of policy development in the UK is inadequate for several reasons. Firstly, the findings above indicate that the question of 'what works?' guides much of the work of GSRs. However, *what works* is a concept loaded with epistemological implications. In pursuing the goals of generalisability and reproducibility, the question lends itself to methods such as RCTs, where researchers can rigorously test hypotheses in controlled circumstances. However, RCTs work best when the research question is narrow, and factors which might complicate results are controlled. Given that energy demand is bound up in the

myriad doings and sayings of social life, it is perhaps unsurprising that neither of the two UK trials cited by interviewees found any significant effect from the behavioural interventions tested.

Second, from the – notably broad – perspective of those using practice theory, government social research insufficiently accounts for the breadth of social scientific output. As argued by Flyvberg, social scientific research in policy making has become subject to the same epistemic logic that underpins the natural sciences, to its detriment. Rather than seek to produce cumulative, predictive theory, he calls for social scientists to help articulate 'where we are, where we want to go, and what is desirable' [68]. Beyond generalisability and reproducibility, a more inclusive epistemic paradigm might include the principles of *exploration, experimentation, or participation*. Whereas in the findings above we saw GSRs call for an 'evidence base' to allow them to begin to use practice theory in their work, some social scientists would argue that the implied definition of evidence is problematic. What constitutes evidence in studies using practice theory is unlikely to be admissible in the current paradigm of 'evidence-based policy'. Seen from this perspective, the contributions of practice theory are unlikely to be fully appreciated by civil servant audiences, as they are underpinned by concepts which are axiomatically opposed to the prevailing model of government research.

Thirdly, some proponents of practice theory would argue that the GSR profession, embedded within the prevailing logic of policy development, is entwined with a neoliberal agenda, with its emphasis on individual choice and free markets [14,69]. Previously criticised for its scant engagement with questions of political economy, practice theory is being increasingly used to address questions of power and politics [70]. As such, *what works* begs the question '*for whom*', and '*to what end*'.

Fourthly, an argument consistently made by energy researchers using practice theory is that the scope and ambition of energy and climate policy in the UK is inconsistent with the scale of climate change as a challenge [48]. In a recent contribution, Shove argued that the policy goal of energy efficiency served to embed and extend unsustainable practices and levels of service demand, which were fundamentally incompatible with the goals of the Paris Agreement [67]. What society considers as non-negotiable 'needs', can be shown, with reference to historical expectations of comfort for example, to be changeable. The paper has proven unsurprisingly controversial, and has been criticised for lacking evidence to suggest that current service expectations cannot indeed be met with the sustainable supply of energy [71].

Proponents of practice theory have also directly critiqued the use of behavioural economics, as not only leading to insubstantial change in behaviour, but potentially working against efforts for more transformative change. Strengers [72], for example, has argued that the introduction of smart meters into households could serve to be counter-productive to efforts to reduce consumption of energy and water. She suggests that 'nudges' focus on small, relatively easy changes to behaviour, providing rewarding feedback to the consumer conveying a moral 'good'. For Strengers, these interventions can detract from broader questions regarding which consumption practices are considered normal, necessary, and which might be negotiable. The study of commuting behaviours at Heathrow might be highlighted as an example of a behaviourally focused project which focuses on small scale change without addressing these more politically divisive questions [28]. In seeking to influence the travel choices of those who work at the airport, this study ignored the far bigger issue of unsustainable flying practices, and the ongoing question of whether a third runway will be built.

Seen from the viewpoint of these notable practice theorists, GSRs working on energy and climate are not politically neutral, and might even counteract efforts for more ambitious policy. These critiques help to explain why many energy researchers drawing on practice theory do not wish to engage with processes of policy making, nor government

social research, within the current paradigm. However, precisely what a model of an alternative policy making regime would look like has not been clearly or extensively articulated in this literature. Practice theory has been primarily used in energy research to critique existing practices and policies, and as Shove says: ‘social theories do not lead directly to prescriptions for action’, but can nonetheless be ‘relevant for how policy agendas are framed and for the kinds of intervention that are deemed possible, plausible or worthwhile’ [39].

6.2. GSRs as a community of practice

GSRs are the principle community of practitioners using and promoting social scientific work within the UK government and are a critical audience for researchers wishing to influence policy making, whether incrementally or transformatively. With this in mind, this section examines the practice of government social research in further detail, using contributions from both practice theory and behavioural economics.

As well as being proponents of behavioural insights, these GSRs working on energy and climate were aware of its limitations, particularly regarding the need for drastic decarbonisation of the economy. Our findings suggest that they are less wedded to this epistemological model, nor an individualist ontology than implied by ‘straw man’ representations of behaviour-focused policy in some sociological energy research. For example, Shove’s representation of a dialogue with a policy maker includes the question ‘how can I persuade people to leave their cars at home?’, to which her fictionalised researcher responds ‘I don’t think you will get very far if you continue to define your job as one of persuading individuals to change their ways, one by one’ [39]. Our findings provide a more nuanced representation of GSRs working on energy and climate. While they are not enthralled to the notion of individual behaviour change, and are aware of the need for broader, structural change, they are themselves a community of practice, embedded in the institutional logics and traditions of government.

This is not to say that they are not important agents for change. As shown by Kattirtzi, part of their function is to *challenge* established notions of citizenship, science, technological optimism and even the role of public policy itself within the institutions of government [58]. GSRs’ professional practice involves keeping abreast of a wide range of social scientific literature, incorporating expansive, radical discourses and a range of epistemological traditions and methodologies. However, the relatively new profession is steeped in the conventions of traditional policy development, in which the role of research is to help to minimise the unforeseen and undesirable consequences of policy interventions by testing and rigorously evaluating schemes at regional and local scales, or in trials with representative samples of a target population. Their practice is influenced by an epistemological paradigm which places the principles of generalisability and reproducibility at the centre of what constitutes admissible evidence.

Although practice theory has been used extensively to reveal insights into the ways society changes, it has been criticised by some authors for its ambivalent and underdeveloped vision for future change [4,37]. As reviewed in Section 2 of this paper, a number of recent studies have begun to address this criticism by focusing on the practices of actors most able to influence energy consuming practices such as city planners, business executives and policy makers [38–40], and to observe the influence of ‘invisible’ energy policies on demand [63]. Many authors have called for transformation in these systems of professional practice [39,47,48], but *how* radical change may be achieved remains an open question. Further research seeking to understand the practices and lived experience of influential practitioners such as civil servants is a good place to start, and this is a task that we hope to contribute to in this paper.

One participant in this study explained how they had previously worked at DECC, which had a remit which included energy consuming and carbon emitting activities across the domestic and non-domestic

spheres. In principle, this cross-cutting remit has the potential to enable GSRs to draw together colleagues across government in order to develop policies commensurate with the multifactorial drivers of energy demand such as in commuting practices [48,69]. However, for this GSR, the breadth of their remit was a cause of frustration. Firstly, DECC – controlled by the junior partner in the 2010–2015 coalition government, the Liberal Democrats – is said to have been marginalised within Whitehall [75], meaning that its staff may have struggled to gather together coalitions of policy practitioners to address the interwoven nature of energy demanding practices. Secondly, such collaborations suffer from a lack of track-record, and initiatives such as CECAN [51] and the Nexus Network [50] that are already attempting to build collaborations across policy, business and academic discipline, require significant resources and funding to be successful.

By contrast, behavioural economics has a much clearer framework for bringing about change, albeit incremental. For behavioural economists, achieving small-scale change within established systems of practice constitutes success. As one GSR put it:

‘I think of nudge as working around the edges. It doesn’t really tackle the big problems. It’s good at working within the current legislative context’.

Although referring to policy interventions developed using behavioural insights, this quotation might also apply to their own experiences of working in government. Embedded within the system of professions which constitutes the UK civil service [57], GSRs themselves work within the established norms and practices of government: a situation to which behavioural economics is well suited. For example, another interviewee described how they had drawn on the principles of nudge when presenting their work internally. Ironically, what they had learned from behavioural economics’ propensity to co-opt ideas and reframe discourses using new language, they were using to introduce ideas from practice theory:

‘I haven’t been proving practice theory in practice, but I’ve been opening the door in with policy makers by asking: ‘we’ve got micro applications of behavioural economics, what have we got for macro?... It seems like it could be easy! Sociology and psychology: macro and micro economics!’

This interviewee saw an opportunity to integrate practice-based approaches where departmental remits included long-term transitions, such as in meeting the UK’s 2050 CO₂ targets through BEIS’ Carbon Budgets, or with the Treasury, which is concerned with long-term economic trends. They suggested that in promoting these ideas to policy makers and ministers, GSRs could draw on ideas from nudge, using language carefully to make their message salient:

‘At the very least, social practitioners should see the benefit of psychological approaches, if just to sell their idea to the people they need to sell it to, to give themselves that opportunity.’

The incremental model for change promoted by behavioural economics would appear to be more workable for the community of GSR practitioners as opposed to more radical calls for transformation made by practice theorists, given their position within the institutions and norms of government. However, the GSR quoted above refuted such a dichotomy, suggesting that there were more similarities between the two theoretical approaches than many wished to admit:

‘Often when you hear explanations of what a social practices approach would look like, there is something in there which you could easily label a nudge! Once you admit that, you can start to see the two approaches in tandem.’

They pointed out that Coolbiz, often cited by practice theorists, is also promoted by social marketers [39,76]. Recruiting the Japanese Prime Minister and a well-known brand to support the change in social norms could equally be claimed by behavioural economists as a form of

‘framing’, drawing on ‘messenger effects’, or individuals’ preference for ‘following the herd’ [1].

Although changing ‘defaults’ are often claimed as successes by behavioural economists, there are similarities between celebrated examples and conventional policy ‘hard levers’. For example, when the UK government introduced pension auto-enrolment, the move was opposed by some small business groups based on resistance to additional ‘red-tape’. This led the government to invest in costly measures such as providing administrative assistance to businesses, and a television and billboard advertising campaign to promote public acceptance of the change. One GSR pointed out how changing defaults was often politically sensitive, with major public relations campaigns accompanying legislation such as mandating the wearing of seat-belts in motor-vehicles, or banning smoking in restaurants and pubs. They said:

‘When it’s just about changing regulation, which we always did, [behavioural economists] would say it’s changing the default. Well, we’ve always done stuff like that!’

The *co-option* of ideas and examples by behavioural economics was identified above as a factor behind its success; a strategy that several GSRs tentatively suggested could be adopted by other social scientists. An approach warranting exploration by those interested in making practice theory more prominent in policy might be to identify past interventions which had successfully *steered practices* towards lower energy demand. Presented as practice-changing policies, these could build the foundations for more purposive interventions in the future.

6.3. Could GSRs become advocates of practice theory?

Considering GSRs as a community of practice, we see that they have a pluralistic approach to social science, but their practice is performed within the conventions of policy making and is guided by a pragmatism embodied in the question of *what works?*. One contribution that practice theory can make to GSRs is to help them to reflect on their position within systems of professional practice in and outside of government. The nature of energy policy has shifted from a ‘command and control’ style of decision-making, and now involves multiple agents operating across ‘levels’ of governance [4,77]. If they were to become proponents of practice research, GSRs’ practical influence on established policy-making processes may be limited, but as Keller et al. [4] conjecture, by contemplating concepts from practice theory, they may help to ‘induce policy and governance practitioners both to frame some issues differently than before and to experiment with new and fresh angles in intervention design’. While the arguments in Section 6.1 explain why some practice theorists adopt an oppositional stance with regards to policy engagement, there may be ways in which GSRs might be supported to become champions of practice theory.

One critical issue which emerged from interviews was the need for an evidence base of practice-inspired studies and policy interventions, if GSRs were to become advocates of this approach to social research. Putting aside the important question of what constitutes admissible evidence as discussed above, there are in fact a number of studies which have produced the kinds of data and insights which may be readily used by GSRs. These include the Patterns of Water project [78], and METER [79], which have collected quantitative water and electricity consumption data respectively, linking these with household practices. Both projects have provided policy-relevant insights into consumption practices, segmenting their large samples by end-use practices and socio-demographic factors. Given that GSRs would welcome further projects in this mould, there is an opportunity to better promote those already completed and underway to this important community of practice. Responsibility for building an evidence base is not held solely by academic researchers however, and GSRs have an opportunity to become more than celebrants, but *carriers* of practice theory, by designing and commissioning research which they could incorporate into their work.

If GSRs are to use and promote practice theory in their work, two barriers identified during the analysis of interviews must be addressed. Firstly, several GSRs expressed unease with using ideas from practice theory, and three interviewees caveated their statements with ‘I’m not an expert, but...’. Compared with other social theory which they drew on, the practice theory that they had encountered had been difficult to comprehend:

‘Once you get your head around it, you then need to be an expert before you start applying it. That’s the kind of impression you get.’
‘You can’t apply social practice theory in a one-pager to a minister. You can apply nudging in a one-pager to a minister.’

Although practice theory offers a unique and distinctive perspective, we would argue that the principle of accessibility – one of the factors behind the success of behavioural economics – is not at odds with its contributions to energy research. In other words, for researchers wishing to promote the ideas and approaches from practice theory to GSRs, they must overcome its reputation for theoretical obscurity.

Secondly, the GSRs interviewed spoke of the difficulties of using appropriate language when articulating ideas from practice theory. They described the need to avoid using phrases like ‘individual choice’ and ‘behaviour change’, which from a practice theory perspective were ‘dirty’ words. One GSR who was passionate about the contributions practice theory might make to policy discourse but frustrated that disputed language was an apparent barrier, said: ‘let them call it nudge!’. While they acknowledged the limits of methodological individualism, abandoning its associated lexicon across government discourse felt like a step too far. For these GSRs, although the value of practice theory can be partly attributed to its radically alternative conception of the social world [32], when this strays into conceptual dogmatism and linguistic obduracy, its potential reach and impact becomes self-limiting.

7. Conclusions

Contributing to the ongoing debate over the impact of social sciences on energy policy, this paper has presented perspectives from government social researchers whose job it is to commission, translate and evaluate research for internal audiences. Interviews with a selection of GSRs have shown how research and evidence is used in the process of policy making in the UK, and their reflections on behavioural economics help to explain how and why it has achieved influence. By contrast, practice theory remains peripheral to the governance of energy and climate. GSR reflections on its contributions to energy research, as well as a summary of reasons why policy engagement is not a ubiquitous goal, have helped to explain why this is the case.

For social scientists wishing to gain influence within the existing structures of energy demand policy in the UK, GSRs are a critical audience. This paper has shown that despite the influence of behavioural economics and its associated methodological individualism, the GSRs interviewed are aware that individual behaviour change and nudge policies are limited in their ability to bring about the changes in energy demand required to meet UK carbon targets. When used by the government social researchers, the term ‘behavioural insights’ accommodates a wider range of research perspectives than behavioural economics alone, and GSRs working on energy policy are invested in using broader, sociological, geographical, anthropological or cross-disciplinary approaches to inform policy. This finding was strongly reiterated in the ‘member checking’ process. Energy demand is a complex, multi-dimensional social phenomenon, and the full spectrum of social science is required to help design, predict, interpret and evaluate the effects of policy interventions [63].

As a community of practice within government, GSRs occupy a unique position at the interface of research and policy. Consistent with their self-proclaimed pluralist approach to social scientific theory, the GSRs interviewed for this study were keenly interested in insights from

practice theory and demonstrated an appreciation for the boldness and ambition of energy researchers using it. However, much work is needed if these GSRs are to draw more extensively on practice theoretical energy research in their own work, not least to overcome perceptions of its theoretical complexity and exacting approach to language and concepts. As things stand, the respondents in this study feel uneasy about using ideas and insights from practice theory, and were unconvinced about their ability to absorb these into their professional practice.

While GSRs are *epistemically* diverse, a significant barrier to integrating practice theory into their work was reported to be the need for particular kinds of evidence, commensurate with the methodological traditions of their developing profession. The current paradigm of ‘evidenced-based policy’ is focused on using quantitative research, which is not necessarily at odds with practice inspired research [78,79]. We have argued that policy engagement is not a one way relationship, and given that part of GSRs’ practice involves issuing calls for evidence and commissioning research projects, they could play an important role in addressing this barrier.

For some proponents of practice theory, achieving impact within the framework of the existing policy-making paradigm is neither realistic nor desirable. The scale of change required to satisfactorily address climate change cannot be met without a fundamental overhaul of policy making processes. How such a transformation could be brought about remains an open question. Nonetheless, more fully understanding existing governance processes, and envisioning what alternative practices of governing could look like, are high on the social scientific research agenda.

In the meantime, this paper has shown that it is not impossible for practice theorists to have influence within the current paradigm, and we have suggested some avenues for further exploration. While GSRs are unlikely to adopt the more radical and transformational calls made in some practice-inspired energy research, for those working on intractable policy challenges such as decarbonising heat and influencing long term travel demand, there are ways in which their practice might be enriched and emboldened by the alternative perspectives it offers. What is clear is that there is both a need and potential for practice-theory inspired energy research to make a greater contribution to policy development.

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