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Understanding the missing middlemen of domestic heating: Installers as a community of professional practice in the United Kingdom

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ABSTRACT

Despite indications that they could play an important part in shaping how people heat their homes, central heating installers have been largely overlooked in energy research. As a means of addressing this oversight, this paper draws on a British ethnographic study to explore the ways in which these 'missing middlemen' can be said to comprise a 'community of practice'. Two aspects of community membership are explored in detail: social learning processes and shared identities. This exercise shows how socially acquired understandings of their professional role and their relationship with homeowners can influence the selection and installation of heating products. The paper concludes with suggestions for how industry and policy makers might engage with this group. These suggestions focus on strategies aimed at reducing the energy used for home heating, and the installation of alternative heating technologies, both of which might benefit from an appreciation of the informal processes of community formation.

1. Introduction

In most of Europe, space heating is the largest single contributor to domestic energy consumption [15]. In the UK context, gas central heating systems[1] are the dominant form of space heating [40], and heating installers are tasked with the selection, installation and explanation of these systems in homes. They are therefore the bridge between those who design relevant technologies and those who use them. Heating installers enter properties on a daily basis, potentially influencing the technologies installed, how residents interact with them, and the subsequent energy consumed through domestic space heating.

In the UK, policy makers developing strategies to move towards alternative forms of space heating are increasingly aware of the importance of installers. For example the UK Department of Energy and Climate Change's (DECC)'s Heat Strategy recognises the need to "improve capability and competency within the low carbon heat sector" ([12], p .88), noting the provision of a voucher scheme for training along with "providing advice" ([12], p. 88) to installers. However, they lack detail on how these schemes will progress, and have made these recommendations amidst a dearth of information on how best to engage with this group. As a response, this paper explores the ways in which heating installers operate as members of a 'community of practice'. In so doing we build on a growing interest in undertaking anthropological studies of the various social and professional groups involved in creating and meeting energy demand [21,61], as taken forward by this journal [57]. Whilst such research is necessarily *situated,* in our case with the UK gas heating installer community, the approach and findings we present here are of wider relevance to those interested in the many building professionals and intermediary groups whose actions shape energy consumption.

We first outline how building professionals have currently been investigated in energy research to argue that, in their middle position, these actors can shape the technologies installed in homes and how they come to be used. Following this, we look at existing strategies to understand and influence the energy consumed through domestic central heating, and consider why the installer has been largely overlooked by these strategies. Then, we detail the empirical work drawn on in this paper before outlining the 'communities of practice' [33] concept that has been applied to explore the ways in which UK installers have undergone certain social learning processes that support a collectively shared identity. The paper then ends with how these processes of community formation might be

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[1] In this context a 'gas central heating system' is one which uses a gas-fired boiler as the heat source, which distributes heat via a series of radiators situated throughout the property.

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harnessed by policy makers and industry in pursuit of less energy consuming ways of heating homes.

1.1. Building professionals in energy research

A recent article in this journal, by Parag and Janda [46], highlighted how a persistent dichotomy between technologies and users in energy policy fails to account for the 'middle actors'. This is despite the fact that these actors are clearly "active participants in the system, capable of creating (and sometimes preventing) change above, below and across other actors" ([46], p. 103). Schweber and Leiringer [56] also point to their importance, noting that occupants do not act independently; their consumption practices are mediated by a range of stakeholders. Similarly Moss et al. [38] would agree in emphasising their role in "enabl[ing] the uptake of new technologies and changed social practices within the production/consumption nexus" (pp. 21-22). The key argument here is that these actors have the ability to influence others. As Guy et al. [22] note, they "do not occupy a neutral position in dealing with other actors. They may well mediate or facilitate, but are by no means benign in the work they perform" (p. 6).

This argument is particularly important in the context of the building professionals who have a hand in shaping domestic energy consumption [28]. These building professionals are, however, diverse; in defining them, Janda and Parag [28] include "any person or group whose work involves the construction, refurbishment, management, letting or valuation of buildings, as well as businesses that supply materials and technologies to support these services" (p.42). They include architects [27,16], energy efficiency advisors [44,45], property agents [55], builders [30], plumbers [6], low carbon technology installers [52], and heating installers[2] [4,5,13].

Owen et al. [44] argue that tradespeople including builders, heating installers, plumbers and electricians can apply their own ideas in shaping decisions about the technologies installed in homes. For example, instead of offering a range of options, professionals might choose those that are more familiar to them [54]. Installers and advisers retrofitting low carbon technologies have also been found operating "according to their own heuristics of risk and acceptability" ([44], p. 176). Similarly, small and medium construction enterprises (SMEs) perform an "informal but multifaceted risk assessment" when considering new technologies, that includes cost, potential for malfunction, and personal familiarity ([31], p. 526). Furthermore, the reluctance of construction professionals to amend successful strategies and their skepticism of unfamiliar products has been attributed to their concern for call backs, reliability [27] and reputation [6,31]. Beyond the selection of products, these actors can act as crucial 'conduits for information' advising and facilitating the choices of others [55].

Yet, these building professionals and practitioners remain under-investigated in energy and buildings research, where, aside from the studies cited above, the vast majority of research has, to date, focused on end users and technical factors [56]. This is particularly true in the case of domestic central heating. This paper forms part of an attempt to address this issue by presenting an ethnographic analysis of a group whose routine practices have significant domestic energy use implications: heating installers.

2. The missing middlemen of heat energy consumption in the home

To date, attempts to understand or influence the energy consumed through domestic central heating have focused on either technological strategies or on behaviour change amongst end users. These provide a limited understanding of space heating practices, in particular neglecting to account for the wider cultural context in which these practices take shape [37,35]. In the following section, these two existing strategies to reduce the energy consumed through space heating are considered in more detail before identifying the potentially important role of heating installers.

2.1. Strategies for energy saving through space heating

1. *The technical perspective*. Here we find the assumption that reducing energy consumption is achieved by improving the energy efficiency of technologies and buildings. For gas central heating systems, a notable technological strategy in the UK was the mandating of condensing boilers in the 2005 Building Regulations [39]. These operate with improved efficiency by extracting heat from the exhaust gases of a boiler, which was not captured with traditional boilers. However, the efficiency gains produced by this can be uncertain, for example, in-situ condensing boilers have been found to have operating efficiencies lower than the factory tested efficiencies they are purported to have [42]. Instead, the in-situ operating efficiency of a condensing boiler is dependent on system design, including the radiators, pipework and controls, which are all influenced by the system installer, but also effective operation, which is often regarded as the domain of the end user.

2. *Understanding users*. Attempts to influence the users of central heating systems have generally involved information campaigns, emphasising the potential for financial savings through reducing thermostat settings [10,11]. This strategy is common internationally, with campaigns for the addition of heating controls and use of particular settings being documented in American [47,49] and Australian [25] contexts, for example. However, although it would seem that these campaigns can increase users' knowledge, there is little evidence that they affect actual energy use [2]. Furthermore, they also fail to account for how end user interactions with these devices might be shaped by other influences.

Because both policy and research on this topic continues to be dominated by a focus on either central heating technologies, or on end user interactions with them [56], we lack a comprehensive picture of how space heating practices come to be. As a consequence, the contention of this paper is that both could benefit from a fuller engagement with relevant building professionals, in particular, heating installers. In this paper, heating installers are characterised as the 'missing' middlemen[3] of domestic heating research in the sense that, despite their potential for influencing heat energy use at home the dual focus of previous research has left them under-examined. The following section substantiates this argument, showing how heating installers may contribute to determining, configuring, and influencing this use of central heating systems, all of which are likely to influence the energy consumed through central heating systems.

[2] Within this paper, the term 'heating installer' is used to identify the individuals tasked with the design, selection, installation and commissioning of gas central heating systems. The specific skill set and qualifications that these individuals possess is also recognised by the term 'heating engineer' by those in the UK heating industry, and indeed, many of the participants of this research identified as such. The terms 'heating installer' or 'heating engineer' may also be used to identify those involved in the installation of other types of central heating, for example those using oil-fired boilers and heat pumps; however, the focus of this paper is those involved in the installation of gas central heating systems.

[3] We use this gendered term because of the dominance of men in the UK heating industry; all of the participants of this research were male. Indeed, the 2011 census revealed that 98% of people employed in the skilled construction and building trades are male [41].