



Original research article

Holistic narratives of the renovation experience: Using Q-methodology to improve understanding of domestic energy retrofits in the United Kingdom



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ARTICLE INFO

Keywords:

Energy efficiency

Retrofit

Renovation

Narratives

ABSTRACT

The energy efficient retrofit of existing building stocks can help to address various social, economic and environmental objectives. As the most cost-effective and least disruptive retrofit options have regularly been implemented as a priority, initiatives that seek to encourage continued retrofit are likely to require thoughtful improvements in their design. Understanding the population of households that may be interested in retrofit as a heterogeneous rather than a homogenous group is a critical part of improving support for retrofit. In this research, we use Q-methodology to disaggregate the home owner-occupier population of the UK and create narratives that represent their experience of home renovations. We consider the experience of general home renovations as typically households do not see these as distinctive from energy efficient retrofit. The narratives present a holistic perspective by incorporating a comprehensive range of the influences on the renovation experience. The developed narratives – ‘Organised and seeking greater comfort’, ‘Settled and performing a functional upgrade’, ‘Growing and needing a family home’ and ‘A lot to do and no time like the present’ – provide the opportunity to better understand those making renovation decisions and subsequently develop more appropriate interventions to promote retrofit.

1. Introduction

In countries with low demolition and construction rates it is anticipated that the currently existing housing stock will constitute the majority of the future stock for many years to come [1,2]. The rationale for government policy and other initiatives that encourage the energy efficient retrofit of existing buildings can stem from a number of different social and economic objectives including reducing carbon emissions, addressing fuel poverty, and supporting employment [3]. Whilst it can help achieve various social, economic and environmental goals, retrofit also offers private benefits to a building's owners and occupants, through the potential for reduced energy bills and improved comfort, with investment in retrofit often coming from a mix of public and private sources [4]. Policy interventions regularly involve public funding being made available with the intention of leveraging the maximum possible private investment [5]. The potential longevity of existing built environments and the various public and private reasons for retrofit mean that the potential scope for implementation can be substantial.

While a wide variety of policy interventions promoting its uptake

have been introduced, household demand for retrofit has been viewed as remaining stubbornly low in the face of these advances [6–11]. Many countries exhibit a housing stock that is majority owner occupied [12], with this form of tenure resulting in particular challenges when it comes to retrofit advocacy [13]. Retrofit support measures that have been successful, have often, understandably, prioritised the most cost-effective and least disruptive opportunities. This approach, however, means that future retrofit opportunities are necessarily more expensive and more technically difficult than those of the past [14] – raising questions over the facilitation of household demand for ongoing or deeper retrofit in the longer term. Research that seeks to inform the design of retrofit policy interventions has raised a number of criticisms of current approaches. It is frequently argued that policy intervention design too often conceives of household decision making as a solely technical and economic calculation, which is too removed from the social context. As a result, the introduction of more information on, and improvements in, the value proposition for retrofit have been presumed sufficient to achieve large scale behavioural change [15,13,16,17].

Behavioural research seeking to overcome the perceived shortcomings of current retrofit policy interventions has generated a variety

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of different recommendations. It has been suggested that conceptualisations of the decision-making process should be more *situated* within the social context of everyday domestic conditions, with a better appreciation of the different types and levels of influence that might affect a household's actions at different times [18,8,19]. It is the view of some authors that current policy sees retrofit activity (energy-related renovations) as unnecessarily distinct from other forms of home renovation i.e. amenity renovations (non-energy related renovations), and that this distinction decontextualises retrofit [17]. It is also regularly suggested that policy design would benefit from a more disaggregated, heterogeneous interpretation of the potential retrofitting population [20–22]. The details of a population's diversity in terms of personal and contextual information like property type, tenure and socio-demographics are regularly reported, but there are currently limited attempts to understand population diversity in terms of subjective viewpoints and experiences.

In response to these observations this analysis seeks to achieve a more *holistic and heterogeneous* understanding of the home owner occupier population, by carrying out a Q-methodological analysis of households that have recently been through a process of home renovation. Using a collected 'concourse' of statements that are taken from household's lived experience of the renovation process, we seek to develop a selection of representative household renovation narratives, considering both households that have had a focus on energy renovation (retrofit) and those that have not. Operating on the premise that households going through the process of home renovation are, to greater or lesser extents, subject to a wide variety of influences, we seek to create Gestalt (holistic) representations of the home renovation experience. Instead of assessing the relevance of a *particular influence* on a population as a whole, we use a *collection of the potential influences* on behaviour to develop narrative descriptions of households going through a process of renovation.

The paper begins with a summary of the background literature that helped to inform the research. This is followed by an explanation of why Q-methodology was deemed a suitable method for the analysis and the details of the research process itself. We then go on to use the concourse of statements to describe the renovator narratives developed. Finally, we reflect on the developed narratives and consider their implications for future retrofit support and research.

2. Background

2.1. Retrofit and policy interventions

Analyses that have considered the technological and economic feasibility of retrofit routinely conclude that the technology is well established, with much of it demonstrating a cost-effective economic case for implementation [23–25]. These findings help to contribute to retrofit being considered a logical priority in low carbon transition pathways [26], and often as the preferred means of addressing fuel poverty in the long term [27]. With many countries exhibiting housing stocks that are majority owner-occupied [28,12], efforts to retrofit have to obtain the consent and collaboration of the home owner-occupier population. It has, however, been observed for some time, that technical feasibility and economic cost-effectiveness are not sufficient conditions for large scale consumer investment in home improvement; retrofit or otherwise [29,13,30].

The ambitious nature of climate change policy, the longevity of existing buildings and the current levels of energy use in buildings, mean that potential for energy efficient retrofit is substantial. In attempts to stimulate demand for retrofit, interconnected policy packages containing a variety of measures have been implemented with varying degrees of success in different national contexts [31,32,10]. Due to the prevailing liberal approach to economic governance in many national contexts [33,34], and the private nature of people's homes, retrofit policies that focus on the actions of households have tended to favour

market mechanisms and information based systems, over regulations that enforce household behaviour change [35,36].

A prioritisation of cost-effective retrofit measures in the policy packages of many countries [37] has seen the most economically and technically achievable measures being addressed first e.g. loft and cavity wall insulation. Cost-effective prioritisation or 'cherry picking' of measures [38] can create a 'lock-in effect' [39] with future retrofit becoming progressively more expensive, more difficult and less attractive [40,14]. There are thus concerns in many countries that existing policy efforts are not sufficient to meet long term targets [7]. Particular concern relates to low levels of household *demand* for retrofit, with policy perceived to influence the decisions of those already interested, but not able to convert those currently unenthusiastic about retrofitting their property [41].

2.2. Policy intervention research

Policy interventions to promote retrofit are informed by studies of decision making and behaviour that can draw on a variety of different theoretical perspectives. It is argued that policy interventions in the recent past have frequently been heavily influenced by rational choice interpretations of behaviour [42,22]. Such conceptualisations present actors as generally rational and self-seeking, and with sufficient agency to seek out cost-effective economic opportunities [43,44]. Policy that emanates from this view, therefore, focuses on improving the overall value proposition of retrofit and on offering more information on the costs and benefits of retrofit. It has been regularly argued that such approaches to policy frame opportunities as overly financial, do not properly take account of the non-monetary influences on behaviour, and treat the social context within which decisions are made as of relative insignificance [45,46,17].

Behavioural economics research informs us that not only do people regularly behave in ways that contradict rational choice expectations [47,48], but that they are often reluctant to even enter into substantive decision-making processes [49]. Social Practice Theory sees individuals as no longer the focus of enquiry and instead as a "crossing point for practices" [18,16,50]. Under such a view, it is argued that retrofit should not be regarded as a social practice in its own right, but instead should be viewed as a "bundle of still separate practices such as installing an efficient boiler or insulating a roof" [18]. Sociological interpretations consider individual behaviour and resultant energy demand to be more a result of socio-technical context than individual agency. It is therefore suggested that attempts to influence behaviour by increasing the information available on possible options, or by tinkering with the overall value proposition of retrofit, as of distinctly limited potential [22].

Many variables have been considered as possible explanatory influences on retrofit behaviour and decision making, with influences able to be conceptualised in a number of different ways. Carrying out a review of studies that considered the decision making process involved with 'energy-relevant investment', Kastner and Stern [8] contend that the most commonly assessed explanatory variables – demography, housing type, location and decision maker disposition – are of less explanatory importance than the variables less commonly assessed, notably those relating to expectation of consequence – financial, comfort, environmental changes that are associated with the action. Meanwhile, contrasting different theoretical approaches to the process, Wilson et al. [17] observe that influences are often split between those that are personal – for example, attitudes and beliefs, or relevant experience and skills – and those that are contextual – for example, household and property characteristics. It is suggested, however, that these are only the immediate or proximate influences on behaviour, and that to appreciate the ultimate influences, research must be better situated within "the conditions of domestic life" [19]. It is argued that it is from imbalances and tensions within these conditions of life – a household's vision of their home, their additional commitments and the inspiration

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