Household sustainability and online research methods: a scoping paper

Ellsworth-Krebs, K. (University of St Andrews)
Marshall, M. (Umeå University)

Abstract:
In this scoping paper we highlight where online methods may be going and how they might better contribute to studies of sustainable practices. We do so by conducting a literary review focusing especially on previous research conducted within the humanities and social sciences.

1. Bringing online methods home in sustainability research

It was only 15 years ago that social media and smart phones were not part of everyday life, the word 'blog' had not even been coined (Frick, 2016). Yet today the Internet is ubiquitous, there are increasingly blurry boundaries between the virtual and real world, and these new technologies and relationships are altering our understanding of communication, data and social inquiry (Davidson *et al.* 2016). Increasingly, the Internet is a popular research site (Morrow *et al.* 2015) and this scoping paper aims to introduce the potential, and challenges, of online research to household sustainability discourses. Indeed, as we will highlight and explain, the use of both methods born in the Internet (i.e. natively digital) and extension of social science methods onto the Internet (i.e. virtual) are relatively underexplored in this scholarship, an oversight we begin to redress.

We start by outlining our procedure for undertaking a literature review to scope out the extent to which online methods has been used in household sustainability scholarship, commenting on our exploration of key journals and keywords as well as the limitations of this broad-brush search (Section 2). We then go into more detail of the very limited number of studies in household sustainability and social science energy research (Section 3) and draw on recent writings on online methods more generally to inform recommendations and future research directions (Section 4).

2. Current framing: online surveys, smart meters and clicktivism

Before we explain the findings of our literature review, we first articulate our theoretical starting point in sustainable consumption scholarship and define online methods for the purpose of this scoping paper. Our respective research is informed by social practice theory (Shove, 2010; Shove *et al.,* 2012) and analysing the 'home' as a socio-technical locus (Ellsworth-Krebs *et al.,* 2015); this approach means that we are interested in the material, practical and social aspects of everyday practices and we argue that the Internet offers a wide range of data on this considering that it allows individuals to communicate with text, imagery, audio, video, and hyperlinks (Ellsworth-Krebs and Reid, 2017). For instance, online photos and videos could allow a researcher to observe performances of cooking in various contexts temporally and spatially. Subsequently, our review of literature is in particular seeking other studies that investigate household sustainability and energy demand as the result of everyday practices – as opposed to a focus on techno-economic explanations of human activity. We define online methods to be those which involve accounts transmitted via the Internet: this includes for instance blog posts, forums, Amazon product reviews.

This short essay is meant to act as a ground clearing exercise, supporting further use of online methods in relation to household sustainability, sustainable consumption and social science energy research. The first step thus was to explore the extent to which online methods has already been used in this community of scholars. The review employed a literature search using a set of keywords (i.e. digital, virtual, online, method, energy, hous*, sustain*), together with a snowball approach (i.e. article bibliographies and additional keywords) and review of selected journals (i.e. Energy Research & Social Science; Theory, Culture & Society; Environment & Planning A; Housing, Theory, and Culture; Journal of Consumer Culture; AREA). Through this process we aimed to explore uses of online methods within the fields of

digital sociology and digital humanities; limiting the search to papers that involve the home and sustainability.

Online surveys were found to be relatively common through this process. For instance, a search of *Energy Research and Social Science* quickly turned up over ten examples, many of which relate to 'smart' energy transitions and smart meters (Kastner and Matthies, 2016; Lienert *et al.,* 2017; Naus *et al.,* 2015; Sagebiel *et al.,* 2014; Wittenberg and Matthies, 2016). However, this led us to reflect on the extent to which online surveys are an innovation, which relates to a classic debate between virtual and digital methods (explained previously in Reid and Ellsworth-Krebs (2016)). These studies appear to benefit from the ease of recruiting participants by putting surveys online, but otherwise are simply an extension of traditional social science methods. While we are not partial to 'natively digital' methods, those which could not exist before the Internet (e.g. analysing 'likes' or hyperlink references, sheer volume of digital amateur films), we understand online methods to be a sort of blurring between the two. Subsequently, we are less concerned with online surveys and more interested in the sharing that is enabled by the Internet. Indeed, we are interested in online methods in household sustainability scholarship because the Internet makes personal experiences more public and creates spaces for a variety of voices (Morrow *et al.,* 2015). Arguably, a blog is different from a paper diary in terms of access and audio-visual content that can be shared. Thus, we *are* keen to use tools 'born' in the Internet such as Youtube, crowdsourcing, and smartphones as well as online ethnography – in fact these are the focus of section 3.

The other use of online methods that emerged from this literature review was research employing the Internet as a space for 'eco-activism' or intervention in sustainable consumption (Frick, 2016; Haider, 2012; Humphrey and Jordan, 2016; Merrick, 2012; Wood *et al.,* 2014). This again related in part to the opportunities for learning and engagement presented by smart meters, such as using games to increase energy literacy (Timm and Deal, 2016; Wood *et al.,* 2014). Furthermore, activism through 'eco-apps' (i.e. identify eco-products) (Humphrey and Jordan, 2016); blogging, twitter and social media (Haider, 2015); and digital exchanges (i.e. support ethical consumption such as Freecycle) (Eden, 2015) were explored. These authors were generally sceptical, but hesitantly optimistic, of labelling these online interactions as examples of 'ethical consumption' or simply 'clicktivism' (i.e. an individual feels they've done enough because they have 'liked' an environmental post or petition (Frick, 2016; Humphrey and Jordan, 2016)). Interestingly, there was often discussion of how crowdsourcing made involvement more or less an act of eco-activism. For instance, Humphrey and Jordan (2016) were critical of eco-apps that provide consumers with research-based information on the social and environmental impact of products rather than allowing consumers to contribute reviews and identify products and lifestyles as 'environmental'. Yet crowdsourcing and prosumption (Ritzer, 2014) (in which online users are blurring the traditional role of producers by creating content: Wikipedia, Facebook, YouTube, etc.) have also been cautioned as exploitative practices. Despite some of the concerns, crowdsourcing presents an interesting area to consider further because it demonstrates the utility of using the Internet for recruitment and intervention – and we return to this in the next section.

Thus, our keyword search hints at online research methods in household sustainability scholarship generally being associated with online surveys (i.e. easy recruitment), smart meters (i.e. opportunities presented by digital era), and eco-activism or 'clicktivism' (i.e. online sites and social media becoming an arena for distributing information on how to live more sustainably). However, this framing does not necessarily lend itself to our practice-informed approach to sustainable consumption and understanding the social organisation of normality (Shove, 2010). Eco-activism, eco-blogs, and similar however provide insight to the promotion – or neglect – of specific sustainable everyday practices in a certain social context, an thus the meaning-making behind domestic practices (cf. Haider 2015). In the next section we present the very limited number of studies which we found that speak more to this objective,

thereby highlighting where online methods may be going and how they might better contribute to studies of sustainable practices.

3. Potential framing: crowdsourcing, online ethnography, and visual provocations

This section gives more detail about a few studies in the arena of sustainable consumption that use online methods more creatively to investigate everyday home life. Building on a few studies we highlight the utility of online methods in relation to crowdsourcing, online ethnography, as well as the collection of visual data and analysis.

3.1 Crowdsourcing

Online methods may be useful in terms of recruiting participants. As we saw in the section above, online surveys have already been popular perhaps because of this ease of access to participants and low cost for dissemination of questions. However, we suggest that online surveys are not a particularly novel use of the Internet (e.g. virtual/digital debate) and instead seek to highlight services that have emerged with the development of the Internet (cf Ritzer 2010 on prosumption). For instance, Pritoni *et al.* (2015) used crowdsourcing through Amazon Mechanical Turk to recruit participants across the US to take photos and answer questions about their knowledge and use of thermostats. Amazon Mechanical Turk is an online crowdsourcing service; since 2005 several similar online services have developed recruiting workers for tasks that machines cannot complete easily and usually only take a few minutes for a person to complete, or at most half an hour. These services match customers with workers and manage payment, data compilation and quality control (Pritoni *et al.,* 2015). Furthermore, these have recently become available in other languages (e.g. French, German and Japanese), raising potential for cross-cultural studies. Amazon Mechanical Turk is the largest of these with over 500,000 workers in 190 countries in 2014. This is an interesting example of using visual data collection and documenting know-how through the use of the Internet and has been used more commonly in behaviour experiments but does not appear within the social practice repertoire. Notably, this approach avoids some of the ethical issues of online methods, as we reflect on more in the next two-subsections, and also offers a wide and diverse population, short design and result cycle, low cost data collection, easy to use web infrastructure (which can be an issue, cf. VisionsLive) and anonymity yet identifiability of participants (Pritoni *et al.,* 2015).

3.2 Online ethnography

Another aspect of online methods that has already been used in household sustainability is online ethnography. The most developed work in this area is by Royston (2014, 2015), who explores blogs and online forums to get an insight into everyday tinkering and management of heat flows, revealing the richness of data and detail of household practices that can be found online. Kuijer (2014) has also highlighted using travel blogs to understand practices in different countries, for example these provide very rich and detailed accounts of bathing. Merrick (2012) also used a form of participant observation, documenting (primarily her own) experiences of being on Australian forums devoted to simple and sustainable living as a supplement to her surveys. This work aims to understand the flow from the online into the offline (Merrick, 2012). Her work suggests the need for further research of how these flows – between different people as well as between the online and offline – happen in the making. Logging or observing how individuals actually use these sites and when and how they transform the knowledge into actual practices can inform understanding into how these influence the development of the meaning, competences and material that constitutes a practice (cf. Shove *et al*., 2012). Some of these subtleties and concerns that arise from Merrick's (2012) reflection of the extent to which online discussions are an extension of casual conversations and interactions are ongoing discussion outside of household sustainability scholarship (cf; Haider, 2012; 2015; Morrow *et al.,* 2015; Veen *et al.,* 2011). These other authors explore the ethical concerns of online ethnography and how to handle a material originally not intended for research and may be likely to contain private and sensitive information.

3.3 Visual data and analysis

Finally, and following on from online ethnography, we found the use of online methods to be especially useful because it offers access to visual data and analysis. In the social practice methodologies blog, Maller and Strengers (2016) have explained their own use of compiling online photos of different comfort and cleanliness practices as a way to teach about and uncover technologies, competencies and artefacts in various geographical and historical contexts. Notably, using digital video is an increasingly prominent field of study (that household sustainability scholarship could draw on and contribute to), AREA has recently had two special issues on the rise of digital film as a research method and output as well as critiquing participatory videos. Strangelove (2010) is one of the most prominent researchers arguing for the utility of YouTube in social science. In his study of home videos, Strangelove (2010) shows how YouTube can give an insight into social norms. The videos, he argues, "often capture the particular and idiosyncratic character of ourselves and our local culture while also reminding us of the universal nature of our everyday lives" (2010:40). YouTube, and other forms of home produced video sites, offer glimpses of how people live, allowing the viewer to enter someone else's home. The representations of the home, of family life and dwelling are influenced by conventions in different media (Strangelove 2010; Laurier, 2015) but nonetheless offer an interesting opportunity as entry points to study practices of, and in, the home. However, this again raises ethical concerns which we reflect on in the concluding section.

4. Conclusion: Online methods

This short scoping paper has reviewed literature on household sustainability which used online methods. Generally, this was related to online surveys and investigation of 'eco-activism', subsequently we drew attention to the potential to use online methods in future scholarship in terms of crowdsourcing, online ethnography, visual data collection and analysis. We recognise that this review presents a quick overview of the field and may be limited by the keywords and journals of the search. Furthermore, some journals (e.g. Energy Policy) do not consider online methods to be 'rigorous scientific methodology' and thus prominent journals on housing, energy and sustainability may not be outlets for this type of research even though it may be occurring.

Previous papers have started to identify and outline these online methods tools. Timan and Ellsworth-Krebs (2016) briefly provide an argument of the general relevance of online methods to (home energy) researchers and demonstrate a basic use of digital tools developed by the Digital Methods Institute (i.e. LinkRipper, IssueDiscovery) and data visualisation from DensityDesign Lab. Continuing in this vein, Ellsworth-Krebs and Reid (2017) identify a wider number of tools and argue for online methods to be considered more by social practice researchers. Our contribution was different from these short papers, aimed as a ground-clearing exercise to take stock of the understanding of online methods in household sustainability scholarship. Certainly, the methods we collected under the "online methods" umbrella are diverse and our recommendations around crowdsourcing, online ethnography, and visual data collection are not exhaustive of the potential for using the Internet in this area of scholarship.

Using online material requires, as all other research, ethical consideration. Even though a lot of material, such as blog posts and YouTube videos, are published openly for anyone to read or view, this does not necessarily meant that people producing the material imagined their content would be used in research. Haider (2012: 643) considered blogs to be least ethically problematic (without specifying why), but still contacted each blogger to inform about her research. When doing crowdsourcing or observing forums, both 'lurking' and contacting may prove difficult. An informational post in a forum is not necessarily read by all users and objections by member may complicate the possibility to gather any data. Additionally, there is the issue of confidentiality and anonymity. Even if no names are included, both direct quoting and describing a site makes the sources easily accessible through a search engine. Social media and forums with restricted membership or login, may also contain sensitive and highly

personal information. A crucial question is how do we as researchers overcome some of these issues since online methods have much potential for studying (domestic) practices through multiple perspectives (see Morrow *et al.* (2015) for an extensive discussion relating to online ethics and power relations).

Sustainable domestic practices are not isolated actions within a certain household, they are influenced by social norms and political infrastructures. The Internet provides a venue for exploring the household's practices in connection with a wider social context. The digital and the non-digital, or the online and the offline, both give insights into our everyday lives and ways of being in the world and how the two binaries constitute each other (Miller and Horst 2012; Morrow *et al* 2015). Thus, the Internet is not only an influential venue for sustainable inspiration (Haider 2012; 2015) or perhaps 'clicktivism' (Merrick, 2012), but also a place to share glimpses of domestic life through social media. Several of the cited studies use the online to source for existing material and demonstrate how the online contains a rich archive of everyday life. We recognise the choice of methods depends on the kinds of questions being asked, but we argue that online methods could be an important asset in everyday investigations of home life and sustainability. Arguably, researchers need to be more cognisant that these online spaces themselves are an extension of the domestic sphere when studying (sustainable) practices from a home perspective considering they are often integrated into everyday life by people. Hence, studying the online in its making or when being used in/integrated into the domestic sphere is highly relevant.

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