Humanities & Social Sciences Communications

ARTICLE

https://doi.org/10.1057/s41599-021-00755-4 OPEN

Check for updates

Citizen social science in practice: the case of the Empty Houses Project

Alexandra Albert [1]✉

The growth of citizen science and participatory science, where non-professional scientists voluntarily participate in scientific activities, raises questions around the ownership and interpretation of data, issues of data quality and reliability, and new kinds of data literacy. Citizen social science (CSS), as an approach that bridges these fields, calls into question the way in which research is undertaken, as well as who can collect data, what data can be collected, and what such data can be used for. This article outlines a case study—the Empty Houses Project—to explore how CSS plays out in practice, and to reflect on the opportunities and challenges it presents. The Empty Houses Project was set up to investigate how citizens could be mobilised to collect data about empty houses in their local area, so as to potentially contribute towards tackling a pressing policy issue. The study shows how the possibilities of CSS exceed the dominant view of it as a new means of creating data repositories. Rather, it considers how the data produced in CSS is an epistemology, and a politics, not just a realist tool for analysis.

[1] Extreme Citizen Science Research Group, Department of Geography, University College London, London, UK. ✉email: a.albert@ucl.ac.uk

Introduction

The significant development of citizen science over the last 5 years is highly notable, as evidenced, for example, in its increasing professionalisation and institutionalisation—with national and international citizen science associations—such as the European Citizen Science Association (ECSA), the Citizen Science Association (CSA) in the United States, the Australian Citizen Science Association (ACSA) and their associated conferences; the recognition of citizen science at national and international policy levels; and the launch of a specialised journal on citizen science—Citizen Science Theory and Practice. There is much discussion about what constitutes citizen science, particularly given its recognition as a transdisciplinary approach in current debates (Benyei et al., 2020; Irwin, 1995). Citizen science promotes the participation of nonprofessional scientists in scientific research, from question design to data collection and data analysis (Wiggins and Crowston, 2011). Citizen science can be broadly classified into two strands (Pykett et al., 2020): a 'democratic' citizen science, characterised by the 'responsibility of science to society', and 'participatory' citizen science, where individuals 'contribute observations or efforts to the scientific enterprise' (Cooper and Lewenstein, 2016, cited in Eitzel et al., 2017, p. 6). However, contemporary debates in the field of citizen science are careful to resist a narrow definition because any exclusionary approach will necessarily fail to address the 'challenge of accommodating considerable heterogeneity' within the field (Auerbach et al., 2019). Such proponents advocate for collaboration among all engaged actors, and encourage the citizen science community and associated collaborators (such as funding agencies) to determine the best design specifications for their own unique contexts, enabling citizen science to achieve its full potential. In this way, terminology in citizen science is important (Eitzel et al. 2017), especially considering the increasingly international, multi-cultural, multi-disciplinary and multi-lingual interest in citizen science (Pykett et al., 2020).

Such developments in the field of citizen science have given rise to considerations of how citizen science might play out in the social sciences (Albert et al., 2021). Arguably, citizen social science (CSS) draws on a rich legacy of participatory research methods in the social sciences that engage citizens in conducting social research, involving them in some, or all, of the research process, from ideation, research design, data collection, and analysis, through to dissemination and impact. This is seemingly not starkly different from what can be understood to constitute citizen science in the natural sciences (Frigerio et al., 2018). However, discussions about CSS bring to the fore its particular legacy, and the dichotomy CSS gives rise to: it is either perceived as a new term, or a concept that has been in existence for some time, even if under a different name. For participants, such demarcations and distinctions are not so relevant; however boundary work can be important in terms of clarification and to enable the easy adoption and potential institutionalisation of the knowledge produced.

CSS as a field in its own right, is still in its infancy, and is emerging in multiple different ways (Tauginienė et al., 2020; Albert et al., 2021). Where CSS has been theorised in the academic literature, the focus has usually been on its potential as method: as a form of crowdsourced data collection, and in a context of increasing technological advancements in, and possibilities for, data gathering (Heiss and Matthes, 2017). Just like citizen science, which involves the public in large-scale collective volunteer science projects, CSS presents both a challenge and an opportunity. It presents an opportunity for collecting data that would not otherwise be collected, but it can also challenge how social research is undertaken, raising questions around who can collect data, who can analyse it, and how it can be used. Consistent with current debates in the field of citizen science, it is necessary to retain a conceptualisation of CSS in its broadest sense, as an approach using participatory methods to address social concerns.

Whilst some theorising of CSS has already been done, and more is undertaken as the field develops, and particularly in this current special issue, the number of practical examples of how CSS works in practice remains few and far between—this is the overarching issue that this article seeks to address. In particular, it seeks to explore the affordances and challenges to the participation of citizens in social research to produce knowledge outcomes. It further seeks to open up the debate on the possibilities of blending, overlapping, or confronting the different participatory methodologies already present in the field of social sciences, and the current approaches in citizen science projects. Lastly, the article seeks to shed light on how CSS works in practice, thereby exploring how to implement good standards in CSS.

To explore these issues, the article draws on empirical evidence from a case study into the Empty Houses Project, set up to explore the possibilities of crowdsourcing social data to try to tackle a pressing policy issue—namely the issue of housing. The Empty Houses Project consisted of three elements: (a) a pilot project to explore how such an approach might work in practice; (b) a campaign to raise awareness about the project; and (c) a data collection window. Subsequent stakeholder walking interviews were undertaken to unpack the challenges and opportunities to reporting; and also policy and practitioner interviews were undertaken to better understand how the data might be used, as well as wider contextual issues with the subject of empty houses. This article predominantly draws on these stakeholder interviews to better understand how this form of CSS works in practice.

The contribution of the article lies in its empirical explorations of how a particular form of CSS might work in practice. The innovative and important aspects of this study are the ways in which it problematises the notion of crowdsourcing social data for social research and simply plugging data gaps. The study serves to highlight that there are also significant epistemological implications to undertaking CSS that cannot be ignored. The article sheds light on how the possibilities of CSS exceed the dominant view of it as a new means of creating data repositories. Rather, it considers how the data produced in CSS is an epistemology, and a politics, not just a realist tool for analysis.

The article proceeds with a review of the literature specifically considering how CSS has been theorised and the gaps within this, as well as reviewing literature on the social life of methods, and theoretical discussions about the politics of knowledge production. A contextual background is subsequently presented about the Empty Houses case study, including a critical review of the methodological considerations used, particularly in relation to walking interviews, a specific approach that constitutes one aspect of the Empty Houses Project. The analysis of the case study elucidates the opportunities and challenges that the particular form of CSS produced in the Empty Houses Project gives rise to. These are opportunities for reflection and meaning making, opportunities to produce new data, and new responsibilities as knowledge is made together. With these opportunities come challenges around data quality and the robustness of claims; the meaningfulness of participation and ethical issues of CSS; and how the data will be used. The analysis of the case study in this article generates a discussion about the ways in which CSS reconfigures roles and responsibilities in the research process, and makes participants more aware of the issue at stake. It also produces questions about the epistemological implications of CSS, particularly around the construction of knowledge.

CSS in the literature

CSS can be seen to emerge in the academic literature as a fast developing field, mainly derived from citizen science, and can also be contextualised in the literature on participatory methods in the social sciences, particularly those of co-production and participatory action research (PAR). PAR draws on a model of community organising that supports the capacity and expertise of people experiencing an issue first-hand (Friere, 1996). Arguably PAR is a research style, an orientation to enquiry (Reason and Bradbury, 2013), and not a 'method' or a 'procedure' for research as such. It involves 'a series of commitments to observe and problematise through practice a series of principles for conducting social enquiry' (McTaggart, 1996, p. 248). PAR as an approach questions the power dynamics in the research process, and challenges not only the status of researchers as experts, but also creates spaces of reflexivity about how knowledge is generated (Tolman and Brydon-Miller, 2001).

CSS clearly links to more participatory and action forms of research (Purdam, 2014), and co-production such as community-based participatory research where user knowledge and insight, and also engagement and iteration, are central (Richardson, 2014). Whilst the links to such approaches are relatively clear (Holmes et al., 2017), they are not exclusive to CSS. Similar to PAR, Jasanoff (2004, p. 3) frames co-production as more of 'an idiom—a way of interpreting and accounting for complex phenomena so as to avoid the strategic deletions and omissions of most other approaches in the social sciences'. The origins of co-production as a term can be traced to the use of participatory methods in town and regional planning (Bell and Pahl, 2018); and the provision of public services (Barker, 2010; Ostrom, 1990). Co-production builds on older ideas about 'participatory action research' (Holmes et al., 2017; Lewin, 1946) and 'knowledge exchange' (Flinders et al., 2016; Beal et al., 1986). Furthermore, there is a growing body of literature that argues for a wider role for various publics in scientific research as co-producers of knowledge (Richardson, 2014; Armstrong and Alsop, 2010; Martin, 2010; Nutley et al., 2007).

Citizen science has been predominantly pursued in the natural sciences (Tauginienė et al., 2020; Crain et al., 2014). However, of the two distinct legacies of citizen science in the literature as stated in the introduction section, Irwin's foundational work on citizen science and environmental sustainability associates the term 'citizen science' with science that focuses on the concerns of citizens, as well as citizens' contextual knowledges generated outside formal scientific institutions. Irwin draws on Mulkay's (1991, p. xix) perception of sociology's ultimate task as being not 'reporting neutrally the facts about an objective social world, but as that of engaging actively in the world in order to create the possibilities of alternative forms of social life'. This relates to Bordieu's (2003) notion of public sociology as both traditional public sociology, where the sociologist makes connections to public issues, but also as organic public sociology, created in close connection with the public (Burawoy, 2018). This also resonates with Burawoy's (2005) claim for public sociology to be brought into sociology to engage multiple publics in multiple ways. The concept of 'actively engaging with the world' is clearly a task for the sociologist, which is every bit as fraught as that presented to the scientist since it involves a reappraisal of knowledge structures and relationships to 'external' groups (Irwin, 1995). In this way, CSS raises important questions about how knowledge is produced in the social sciences, highlighting the interrelation between facts and values, and critiquing 'the realist ideology that persistently separates the domains of nature, facts, objectivity, reason and policy from those of culture, values, subjectivity, emotion and politics' (Jasanoff, 2004, p. 3).

Where CSS has been directly discussed in the literature, it is presented as an approach 'where members of the public can assist with research, and record their beliefs and opinions at volume' (Housley et al., 2014 p. 12; Procter et al., 2013). Furthermore, it is seen as having 'the very pragmatic goal of securing scalable human effort for the analysis of large social media datasets… offering meaningful engagement with the research' (Housley et al., 2014 p. 12). Housley et al. (2014, p. 12) are more ambitious in their approach, seeing CSS as 'providing a basis for forging a new relationship between the social science academy and society.' In this way, the role of citizens in CSS constitutes 'volunteers involved in collecting data about what they see around them as they go about their usual daily activities…The role is different to simply volunteering to participate in a research study, such as giving an interview, joining a focus group or responding to a survey, as it is about citizens gathering data about the world they observe around them' (Purdam, 2014 p. 375). Kythreotis et al. (2019) move beyond this to suggest CSS as an approach to representing new methodological and theoretical territory that resonates with more diverse and heterogeneous forms of social knowing, values and cultures of citizens. Their framework 'makes citizens co-learners within the research process by actively enabling them to explore transformatively changing institutionalised research and policy systems' (Kythreotis et al., 2019, p. 4).

CSS needs to be conceptualised and framed, in the context of a renewal of interest in the politics of method in the social sciences (Lury and Wakeford, 2012; Busher et al., 2010; Adkins and Lury, 2009; Rabinow and Marcus, 2009; Savage and Burrows, 2007; Thrift, 2005). The position presented by the work on the 'Social Life of Methods' highlights how questions of method raise 'fundamental theoretical questions about the limits of knowledge itself' and reflect on 'new ways of understanding the relationship between the cultural, social, and material' (Savage, 2013, p.18). The implications of CSS present an opportunity for opening social science methods up to public involvement, and for a more committed or socially engaged practice that enables citizens to connect private troubles and public histories.

Background to the Empty Houses Project

The Empty Houses Project aimed to explore notions of crowdsourcing social data; it did not aim to question whether empty houses exist, but to explore how citizens might be engaged in identifying empty houses, and thereby potentially assisting in tackling a pressing policy issue. In many parts of England there are neighbourhoods with persistently high levels of empty homes. These neighbourhoods are concentrated in the North, Midlands and some coastal areas (Action on Empty Homes, 2019a). Neighbourhoods with higher levels of empty homes also tend to have lower house prices, poorer and more transient households than the rest of their local authority area, and higher levels of sub-standard privately rented sector accommodation. Empty homes have a negative impact on communities, as they can attract vandalism and flytipping, and depress the overall scene or feel of the street. Bringing them into use can provide good quality secure affordable housing in areas where people want to settle (Action on Empty Homes, 2019a). Furthermore, communities can bring in investment and enhance the sense of ownership and belonging, provide work experience and training for local and vulnerable or excluded people, as well as creating opportunities for social enterprise and community-based infrastructure to help to address longstanding underlying issues (Action on Empty Homes, 2019a). According to official statistics, long-term vacant dwellings in England numbered 216,186 on 1 October 2018, an increase of 10,893 (5.3%) from 205,293 on 2 October 2017. Long-term vacant dwellings are 0.9% of the dwelling stock. There were a total of

634,453 vacant dwellings in England on 1 October 2018, an increase of 28,562 (4.7%) from 605,891 on 2 October 2017. Vacant dwellings are 2.6% of the dwelling stock (Ministry of Housing Communities and Local Government, 2019). 2018 saw not only the second year-on-year rise in long-term empty homes in England, but also the fastest rise in numbers since the financial crisis of 2008. In the context of a widely acknowledged national housing crisis in the UK, this increase drew attention and concern from many quarters (Action on Empty Homes, 2019b).

Charitable organisations such as the Empty Homes Agency[1] have analysed the publicly available data on empty homes in the UK. Their analysis raises questions around whether the measures and ways in which the official figures are collected, are the most effective ways in which to generate an understanding of the 'reality' of the empty houses situation in the UK. The Empty Homes Agency has been campaigning to tackle the issue, by both providing data analysis and reports on the issue of empty homes, using the official statistics, as well as launching media campaigns such as Empty Homes week[2] to raise awareness about the issue and to provide suggestions of what can be done. Other organisations, such as the Empty Homes Network[3], has its roots in the Local Authority Empty Houses network and works on the issue of empty houses, but mainly in a capacity to support practitioners. The Empty Homes Network is the successor to the National Association of Empty Property Practitioners (NAEPP), established in May 2001 to support people involved in delivering empty property strategies. It was launched by empty property practitioners with the support of government ministers, the Housing Corporation and the Empty Homes Agency. Primarily, the Empty Homes Network aims to foster mutual support and understanding amongst Empty Property Practitioners, and to promote policies and practices, which offer effective responses to the challenges presented by empty property.

An approach to crowdsourcing data on empty houses is not new—for example George Clarke, the British architect and TV presenter, mounted a large-scale public campaign in 2011 to raise awareness about the issue of empty houses and to encourage people to send in their observations of empty houses either online, or via a hotline (Clarke, 2011). His show 'The Great British Property Scandal' (2011, transmitted on Channel 4), and its BBC counterpart 'The Empty Homes Show' (2011), both explored the depth of the housing crisis and what can be done about empty homes. Furthermore, in April 2012 the Coalition Government appointed George Clarke as its independent empty homes advisor. His role involved promoting bringing empty homes back into use; raising public awareness of the benefits of bringing empty homes back into use and encouraging people to report empty homes in their area; motivating councils, housing associations and voluntary groups to identify innovative and good ideas, and to share this across communities; challenging Government and other public bodies to ensure publicly owned homes are not left empty; and exploring whether current plans for demolition in councils could be scaled back (Wilson et al., 2018; DCLG, 2012). Most local authorities have a specific team dedicated to the issue of empty homes, with these teams running their own campaigns. Furthermore, every local authority website has a page with specific information about how to deal with empty houses and the opportunity to report any empty houses.

The official data on empty houses is calculated via council tax payments and cross-checked with data from the Land Registry (Empty Houses Agency, 2016). The Empty Homes Agency's analysis draws attention to issues such as the potential misclassification of derelict properties, and undercounting due to exemptions from council tax payments, or under-utilised properties not counting as vacant for council tax purposes. The aim of the Empty Houses project was not to duplicate these previous efforts, but to probe the process of reporting an empty house to better understand the participants' perspectives in the process and to prompt an examination of the barriers and obstacles to reporting.

Methodology

The Empty Houses project initially consisted of three different stages to set up a form of crowdsourced CSS to probe how such a project might work: (a) a pilot stage to explore how such an approach might work in practice; (b) a campaign to raise awareness about the project; (c) a data collection window. The pilot stage of the project was run for 2 weeks, and responses were sought from five participants, selected at random, in order to determine the wording of the instructions and to see what sort of data was submitted. The results were monitored and the categories and wording of the instructions altered appropriately. The instructions for how to submit observations of empty houses were then set up on a Wordpress blog page[4], which became the main interface for the project. Submissions were sought in the form of the address including postcode of the empty house, the type of house, what suggested that it was empty, how long it is thought to have been empty, whether it had been reported to the local authority, and any other information that might be considered relevant. In this sense, the project was very much intended to explore how CSS might work in practice from the outset.

In order to generate as much interest and awareness about the project as possible, a systematic promotional campaign was developed using social media platforms such as Twitter and Facebook to regularly promote the project, to intervene and take part in conversations around the aims of the project. The project was also promoted via emails to university lists and contacts, and printed flyers were distributed in public places, on public notice boards and in other social spaces across the city. Blog posts were written for the Policy@Manchester blog[5], outlining the keys issues around empty houses and what can be done with them, and for the Big Issue North, in the 'Why Don't We…'column. The author also appeared on a local television station That's Manchester TV for their Big Debate show to discuss the project and the issues surrounding empty houses. There was also a news feature on the same station about the project, with the aim of trying to encourage people to send in observations of empty houses in their local area.

The project was initially open for a period of 3 months. A total of 20 responses were submitted to the project in that time. The project remained open for a further month in an attempt to allow for further submissions to the project. The data was collated via the online Google form and then downloaded and stored on a password protected hard drive. Due to the low levels of data sent in to the project, some adaptations to the project were necessary, and two further stages were added: (d) walking interviews to unpack the challenges and opportunities to reporting; and (e) policy and practitioner interviews to better understand how the data might be used, and contextual issues with the subject of empty houses. The walking interviews became a rich data source, allowing for a clearer understanding of the process of reporting empty houses, and thereby participating in CSS. Furthermore, the eight walking interviews allowed for dialogue and reflection on the approach, beyond simply setting up the project and the participant observations of doing so, since the analytical power of walking interviews lies in how they constitute a form of 'working it out' together with the interviewees, and thereby also a form of CSS.

A series of eight walking interviews were undertaken with people who had already submitted data or who were involved in housing activism, to better understand the barriers to reporting

and any issues participants may have had. Participants were recruited based on whether or not they had shown interest in the project and already submitted data (half of the interviewees had submitted form data), or were involved in different housing-related projects (2 interviewees), or were activists working to affect change in relation to housing in Manchester (2 interviewees). Walking interviewees gave informed written consent to participate in the interviews, and the research was approved by the University of Manchester institutional ethics committee. The interviews were semi-structured with a loose list of topics to be covered during the time. At a meeting point suggested by the interviewee, they were asked if they had noticed any empty houses in their local area. If yes, they were asked to lead the way, walking there, allowing them to choose the route and to raise any issues or topics whilst walking. If participants said no, they were asked to set off on a route of their choosing around their local area. The walking interviews generally lasted for about one hour and, as the interview progressed, the conversations developed into more in-depth discussions around whether the activity being undertaken could be considered to be social science and what participants understood by the term CSS. Furthermore, part of the walking interviews included a discussion of the potential ethical issues of CSS, and any barriers to participating in reporting empty houses. The walking interviews were recorded and transcribed for analysis. The process of recording was easier than expected, owing to the quality of the sound recorder used (a ZoomH4) and no significant issues of inaudible recordings occurred.

There is a long history in ethnography of researchers 'walking alongside' participants in order to observe, experience, and make sense of everyday practices (for example Evans and Jones, 2011; Carpiano, 2009; Anderson, 2004; Kusenbach, 2003; Reed, 2002); and develop live methods (Back and Puwar, 2012; Clark and Emmel, 2010) and mobile methods (Büscher et al., 2010; Büscher and Urry, 2009). Walking interviews were preferable over static interviews in this instance for a number of reasons: the method allows participants to potentially have a greater degree of control over the research process, particularly in deciding where to take the researcher (Clark and Emmel, 2010). Also the participant can show, rather than describe, the environments the researcher is interested in, placing events, stories and experiences in their context, which can act as a prompt to participants and help participants to articulate their thoughts. It can act as a method to engage with our identities as reflected in our surroundings (Crivellaro et al., 2015). In this way, the participant's narratives, told in their lived environment, can add detail to the researcher's understanding and insight. In many ways, the route of the walk, and the environment of the locations walked through, becomes a form of elicitation process, prompting further areas of discussion and questioning that might not have happened in a fixed interview setting. Rather than an individual activity, the walks can be seen as collective, relational and dynamic endeavours (Suchman, 2000), aimed at creating collective experiences and opportunities for dialogue (Crivellaro et al., 2015). This means walking interviews can provide opportunities for serendipitous and unanticipated things to occur, as well as throwing up issues of contradiction, factors which are also the case in static interviews, but which are more likely to come to the fore in walking interviews.

In order to probe further into the different perspectives and types of knowledge about the issues of housing and empty houses, and the processes of identifying empty houses, a series of nine one-hour long, semi-structured interviews were also undertaken with housing practitioners and housing policy officials. Potential interviewees were either approached by the researcher, asking if they would be interested in participating, or in some instances, potential interviewees approached the Empty Houses Project, either via social media, email or via the blog page, asking questions about the project. In responding to such queries, a dialogue was established with them and then an extended conversation, either face-to-face where possible, or over the phone/Skype as an alternative, was proposed.

In most instances, the interviews were conducted over the phone, or via Skype. Where they were conducted face-to-face, they were recorded and transcribed. Those conducted over the phone or Skype were not recorded, but extensive notes of the conversations were taken by the researcher. These interviews enabled a deeper understanding of the issues surrounding empty houses more broadly, as well as shedding light on how the data generated from the project might be used, and any other issues surrounding the processes of identifying and reporting observations, beyond those discussed in the walking interviews.

To analyse the data from the project, a process of thematic analysis was used to draw out themes, and review them, before then going back to draw out the themes in more detail, depth and richness. The interviews were transcribed by the author, generating transcripts that were then set out coherently, thoroughly read and digested. Memos were written as the transcripts were read and the data was coded using open, and selective coding, following the stages recommended by Braun and Clarke (2006). It was possible to check the wider contextual issues and preliminary themes in some of the interviews with policy and housing practitioners. These transcripts, in conjunction with field notes and observations, were systematically reviewed and grouped according to the emergent themes, ideas, and concepts. These components were then re-evaluated, regrouping as necessary, and gradually refined and linked to other conceptual categories. The aim of this approach was to hold the data themes and emergent notions and theories in a consistently dialogic relationship (Thomas, 2002; Pollen, 2013) by combining analysis of the interviews and observations, in conjunction with other data types, and contextual data and field notes.

What opportunities and challenges arise in CSS?

An analysis of the data produced during the project, as well as eight walking interviews to better understand the intervention, and nine policy interviews to understand how the data might be used, sheds light on the way in which CSS plays out in practice. Walking interviews are cited below as WI and then their corresponding number according to Table 1, and the month and year on which the interview took place. The policy and practitioner interviews are cited below according to whom they were with—see Table 2—and the month and year on which the interview took place.

Opportunities

Opportunities for reflection and meaning making. In participating in the project, there was a sense from the walking interviews that being tasked with attempting to spot empty houses enabled participants to re-engage with their local environment or to see it in a new light, and to generate meaningful knowledge about place. Furthermore, another interviewee indicated that 'by doing it, it makes you think more about it' (WI6, December 2016). This interviewee suggested that participating in CSS can affect the individual by engendering a greater level of reflection about an issue, and the generation of 'active research subjects' as suggested by a practitioner, and distinctive forms of agency (Savage, 2013). Another interviewee referred to the difference between personal subjective 'noticing' of empty houses and when these observations are bound up in a more structured and purposeful action. They also contrast the notion of solitary or individual observations

Table 1 Demographic information of walking interview participants.

No.	Age	Gender	Occupation	Greater Manchester Area
1.	35	M	Software developer	Ancoats
2.	33	F	Postgraduate researcher	Whalley Range
3.	34	M	Third sector worker	Withington
4.	40	F	Social policy researcher	Kersal
5.	26	F	Housing charity worker	Stretford
6.	30	M	Postgraduate researcher	Longsight
7.	24	M	Housing activist	Levenshulme
8.	22	M	Housing activist	Rusholme

Table 2 Empty Houses probe—policy and practitioner interviewees.

No.	Organisation name	Type of organisation/role of individual
1.	Empty Homes Agency	Campaigning charity
2.	Individual housing campaigner	Community campaigner
3.	Empty Homes Network	National association
4.	Student Union	Student union housing adviser
5.	Generation Rent	Housing campaign group
6.	Local Authority Research & Empty Houses team	Local authority
7.	Homelessness Charter	Local councillor
8.	Individual housing campaigner	Ex-Empty Houses Agency
9.	Greater Manchester Housing Action Network	Network of housing activists

versus the collective activity of participating in a project. Arguably participation always affects those who take part as they come to terms with what is around them, and even if it does not transform participants into researchers, there is still the potential for new ways of seeing and for new epistemologies to be produced.

Opportunities to produce new data. Interviews with members of a Local Authority, as well as with housing practitioners on the one hand, highlighted the ways in which citizen-generated data could be used to supplement existing data sets, to bring a more nuanced understanding to the official statistics, and eventually as a way to try to bring empty houses back into use. On the other hand, property developers, and other more commercially minded organisations and individuals, also showed interest in the data generated in the project.

The local authority interviewees drew attention to the importance of citizen-generated data in a context of constrained resources. They referred to the 'good old days' when they had the resources to do surveys on empty properties in each ward, and develop 'a list of the top 20 empty properties' (Interview with local authority team members, January 2017). One of the interviewees reflected on this:

> We used to go out and look for them. We just don't have the capacity for it now! (Interview with local authority team members, January 2017)

In many ways, citizen-generated data is viewed as a way to help cover the lack of research budget available to the local authority in a time of constrained resources. Manchester City Council has had over a third (37%) cut from its budget between 2010 and 2016 due to spending decisions taken by central government. These cuts have brought about increasing levels of poverty and homelessness in Manchester, and the pressures on local service delivery are acute (MacGregor and Pardoe, 2018; Etherington and Jones, 2017).

When asked about the role of citizen-generated data, one Local Authority interviewee responded to the question of whether they might use citizen-generated data, and whether there is a role for it, saying:

> Definitely! Definitely! The point that I'm making is that I don't think citizens understand that it's their role… I think citizens think it's our job. (Interview with Local Authority team members, January 2017)

This comment highlights the mismatch in expectations between what policy makers expect of citizens—to collect data and participate—and their perception of citizens not seeing this as their responsibility. Participants in the walking interviews were precisely concerned about how the data might be used, and therefore were reticent to participate. The notion of citizen responsibility for data generation links to comments in the walking interviews about participants considering it their 'duty' to participate.

New responsibilities as knowledge is made together. CSS also generates new responsibilities for social researchers and policy makers, but also for citizens as knowledge is made together. It rearranges the power dynamics of the research process. An interviewee argued for a role for citizens or non-experts in the analysis of the data, not just its collection, stating:

> Could citizens not be scientists too? If you're going to include citizens, they should be given the power to produce their own analysis, not just their own data. Otherwise they just end up doing the scientist's job for free—and it's the really dull part of the job…We have this view of science and social science as top down, where the scientist knows everything and science gives people tools to read the world…from above. But I guess it's limited this way. The analysis that goes with the data collection is more social science. If people just collect the data there's nothing in it for them…if it's just about reporting stuff, it's a really dull job isn't it? (WI4, December 2016)

This walking interviewee suggested that the top-down process of collecting data, for scientists to use, is a 'really dull job', since it is the analysis of the data where the meaningful, and interesting, part of the research process takes place. The affordances of CSS here appear to be the way in which such an approach values the everyday, mundane social enquiry, which has the potential to scaffold it to come together as a 'bottom up' social science.

The experience of asking the walking interviewees to reflect on something they had not necessarily considered before gave rise to interesting methodological challenges. Asking the walking interviewees directly in such ways engaged 'citizens' in CSS unequivocally and immediately. The very act of undertaking

such interviews drew attention to how CSS intrinsically prompts an 'opening up' of research and a sense of 'working it out together'. When asked whether they considered participating in the Empty Houses Project to be CSS, a walking interviewee stated:

> I don't think a person who's looking at CSS should be scared about having a framework, but maybe putting a framework immediately links it to expertise and the professionalism of the method… but it doesn't then mean that it's taken out of the control of the citizen, as they've then got the choice to take part and they're the ones collecting the data. (WI3, December 2016)

These reflections on CSS as an approach are noteworthy in the way in which they draw attention to the tension between, on the one hand, a framework into which to put one's observations that formalises the approach, and almost 'professionalises' it, as the walking interviewee alluded to. On the other hand, the opportunity for participants to report how they want, with the control over the data remaining in the hands of the participant.

Challenges. Whilst participating in CSS brings with it the opportunities stated above, it is necessary to reflect on some of the challenges, as raised during the walking interviews in the Empty Houses project.

Data quality and the robustness of claims. Notions of data quality and robustness are a key challenge in CSS, and discussions of data quality are not straightforward. The tasking of data generation in the Empty Houses project was open-ended, and the interpretation of the task was left for participants to interpret themselves. The walking interviewees noted difficulties with the interpretation of the task, and questioned what the criteria for observing an empty house might be. The tensions of the different positivist and constructivist approaches to mapping empty houses were highlighted in the walking interviews, drawing attention to the need for social science training for participants, and for CSS projects to be designed very carefully, building capacity, rather than testing it. One walking interviewee reflected on some of the issues around subjectivity and observation data:

> People aren't neutral observers—they all have their own intentions and interests, and they didn't sign a contract to do work. It's not professional but they will need to put professional standards on it or have professional people to double check everything done by the people. (WI4, December 2016)

Here the walking interviewee adhered to mainstream scientific notions of 'professional' quality standards in, and responsibility for, data collection. The question remains of how to verify the data quality of the empty houses submissions. The interviewee also drew attention to the ethnomethodological notion that members are analysts of social order instructions and they have to fit their own actions into that order. Thus, at some basic level, we are all analysts of the social, but then there are layers of professionalisation, expertise, standardisation, institutionalisation, power, politics and interests. The question remains of whether CSS forges new connections, and horizontalises the analysts. The project suggests that it depends very much on exactly how 'citizens' are positioned, and how they position themselves. The details of how CSS projects are organised matters immensely.

In many instances people appear to undertake endogenous research practices even if they do not consider what they are doing to be social research, since that is perceived as the preserve of the so-called 'experts'. Furthermore, this raises questions about what it is about social science that makes it a skilful and expert activity, and how that is practiced in a way that makes it difficult to do, even though all members of social life are social analysts. CSS produces tensions between notions of inclusion of all social actors in the generation of information about the everyday, and the notion that many of the participants do not necessarily feel entitled, or empowered, to participate in the analysis of this information, or in the interpretation of what it means. Many participants were only too aware of the complexities of this part of the research process.

Some of the walking interviewees distinguished between unstructured observations that are just 'using your senses' and the more formalised framework entailed in their perception of social science. This distinction is interesting, particularly given the nature of the Empty Houses Project, whereby reporting observations of empty houses could be considered to be a less reflexive activity. At the same time, it highlights how probably any fact thus observed, is actually a constructed fact, and much more ambiguous and contextual than the idea of 'observation' suggests. An 'empty home' is many things, as discussed by the walking interviewees. The participant quoted above did not necessarily consider their observations of the world around them to be social science, as they are 'just' unmediated observations and lack a framework or structure with which to categorise and classify them. It raises the question: who gets to do social science? Or who gets to create such frameworks or structures and how?

Meaningfulness of participation. The walking interviewees were committed to the project and felt involved as citizens in trying to tackle the issue of homelessness, but also needed shared end-goals or motivations to take part for shared common good. As one interviewee commented:

> I would want to participate when you know there's a practical benefit, like if it serves people in the community, but you've got to wonder why people take part. Does everyone have a shared end goal which I think there would need to be for a common good? (WI3, December 2016)

This interviewee queried the practical benefits of participating in the project, and whether there might be 'a shared end goal' motivating people to take part. Another interviewee presented a different perspective, alluding to their feeling of a citizen's duty to participate in attempting to tackle the issue of empty houses: 'I feel involved as a citizen to act on it' (WI4, December 2016).

The question arises of what it means to take part in CSS, and whether observing and reporting empty houses is something that people do anyway, or whether it necessarily needs to be a more conscious form of participation and practice. The walking interviewees discussed what taking part in the project means for them—as one interviewee stated:

> I walk around to clear my head every so often but I don't think this is part of my daily activity. I mean I'd be really bored with doing something online like that Zooniverse stuff, but I'd be quite happy doing empty houses. It's like walking around maybe with a purpose or something? Although it would have to be practical—I wouldn't want to do it in the rain. (WI6, December 2016)

This interviewee drew attention to the difference between online participation in contributory citizen science projects, such as those that can be accessed via the online platform Zooniverse, that sources volunteer contributors to analyse and interpret large datasets, and 'walking around with a purpose' recording observations of empty houses. They were clearly keen to participate in the latter even if it is not part of their daily activities. Another interviewee reflected with a contrasting

suggestion on the notion of participating in CSS being part of one's daily activities:

> Can you piggyback on habit with a chore? I guess this is the only way to embed a practice in social life. I'm not sure I buy into the idea that you can just tap into something that people do anyway. It has to be more of a committed practice or something. (WI5, December 2016)

This interviewee reflected on the issue of whether it is possible to incorporate a 'chore' in the sense of data collection, within someone's habits or routine. They also drew attention to the notion of 'just tap[ping] into something that people do anyway', a potentially problematic notion in the sense that it hints at a form of exploitation of those practicing the 'chore'. Another interviewee commented:

> Yes just this lack of awareness to at all consider reporting on it … and if it's your habit, you go out of the house, you go to work and you go back, then it's also your routine. How would you like to disrupt this? I think it needs to be disrupted or you don't notice. It's not active observing. I mean when you just say it's not a burden, it's just the activity of just stand here, walk by and have a magic app, and just click it and say ok here's an empty house boom! So your data is collected…but I think for me it would be more the burden of what happens to the data. (WI7, December 2016)

This distinction between 'active' and 'passive' observation highlights a level of reflexivity about what it is that participants are actually doing when they report their observations of empty houses to the project. The interviewee also reflected on the challenges of disrupting one's everyday routine by asking people to actively observe and report data. Whilst dismissing the sense of this being a 'burden' on the participant in practical terms, the interviewee suggested that the weight of responsibility is transferred to considering how the data will be used.

Whilst some participants were happy to contribute by collecting data, other participants seemed to question the 'meaningfulness' of participating in CSS. Some of the walking interviewees also raised the issue of whether participating in the project was in fact working for free:

> I like the idea but there's a danger of turning people into just working for free. It depends who it is actually serving, and what the purpose of the project is, and what impact it has on people's lives. (WI4, December 2016)

This interviewee draws attention to the ways in which CSS can potentially mask the human labour, and the work that contributing to it entails. Another interviewee questioned the ethics of mobilising non-experts to collect data for researchers:

> If I'm entirely honest, it's a cheap way to get people to do stuff…it's about getting people with less skills to do something you don't have time for. But then there's something like the Mass Observation Project which seems less bad because it's respecting people's views more than getting them to do the donkeywork. (WI6, December 2016)

The same interviewee reflected that:

> It often seems to be about getting people who aren't experts to do things that experts don't have time to do…it's not like it's meaningful! (WI6, December 2016)

These reflections draw attention to how the process of participating in CSS is perceived to be meaningful in varying degrees by the participants who are concerned to better understand how the data they help to produce will be used.

How the data will be used. How the data from the Empty Houses project might be 'used' was an issue of primary concern for walking interviewees, who wanted to know who would be using their observations and to what ends[6]. It was also an issue that very much affected their motivation and desire to participate in the project and some stated it as a potential deal breaker, when asked about what, for them, may constitute a barrier to participating in the project. Interviewees drew attention to the importance of knowing how the data they help generate might be used:

> If it was a random thing, you'd want to know the purpose of it. I would anyway. Because it's not a particularly fun thing to do! So yes are you doing it for a purpose…yes, I would want to know. But again maybe that's my nature? (WI6, December 2016)

This interviewee articulated the importance of knowing the purpose of the project, and therefore how the data they participated in generating, might be used. Another interviewee reflected in more detail about whether knowing what the data would be used for is important:

> Yes, I think so yes. Because if you don't know…I mean I wouldn't know what happens to it. So if the council is taking in all that data, what could we say? You may not want to know about that. I mean people could be using the data illegally or in a way that is actually technically helping them. (WI1, December 2016)

This interviewee drew attention to the ways in which not knowing about how the data submitted to the Empty Houses project might be used, and by whom, might affect participants' likelihood to report. This response also highlights the politics of data use, and how the data might be 'used' to very different ends. Another interviewee suggested that the data could be useful to chart trends over time, or at least that the data might be symptomatic of bigger issues:

> No definitely! It's definitely important for the council, or for communities in general. Just because you can also spot if it's a symptom of something bigger, a bigger problem. You can follow the tendencies and follow some patterns throughout the years to see there are more empty houses in that year and less in another year and then act on it. (WI4, December 2016)

This interviewee construed 'use' of the data on empty houses from the project as something that the council should do, in many ways enacting the expectations the local authority interviewees articulated that they could not meet. One interviewee suggested a possible way to use the data would be for community groups or grassroots initiatives to hold officials in government to account:

> I mean I don't think it always has to be about resistance, but I think there's definitely a difference between handing over data to help a local authority or the government or whatever, and having a community come together to collect data to basically affect change and also to say hang on government! Are you lying to us? Which obviously I'm a great fan of doing that! (WI5, December 2016)

This interviewee contrasted the 'handing over' of data to a local authority to act on, with a community coming together around a project to challenge official narratives and to hold official decision makers to account. In this way, participants

were concerned about the ways in which the data might be used. Even though the potential is there to crowdsource data on empty houses, by mobilising citizens to send in their observations, and the local authority is keen to use such data, the reality is more complex.

Discussion—how should participatory research be transformed to allow for active citizenship?

CSS methods draw attention to the relationship between scholarly social science knowledge and endogenous social competence, between reflection and expertise. The project sets off the inevitable hierarchy in the research process that means that roles are complex, and responsibilities in the research process are spread. Richardson (2014) warns of the risks of exploitation if citizens are merely research assistants rather than privileged respondents. This has been a critique of citizen science, which has been accused of failing to provide a sufficiently empowering process for citizen participants, since citizens are not fully involved in all aspects of the research process, and professionals or academics retain overall control (Mirowski, 2017). However, such forms of data gathering are not to be dismissed as they can play important roles, as exemplified by numerous citizen science projects. Bonney et al. (2009, p. 18) suggests that 'most projects labelled citizen science fall into the 'contributory project' model of 'researcher-driven data-collection projects', where scientists ask the question, determine the protocols, do the analysis, and members of the public collect relevant data.' Cohn (2008) argues that many undertake the work unpaid as an everyday volunteering activity, which could potentially raise further ethical questions around the placing of a form of responsibility and pressure on the citizen. However, citizens may choose to participate in the collection of data for research as a civic act, which in itself is part of the wider goal of strengthening democracy through civic participation.

In the Empty Houses project, some participants suggested they did not feel comfortable reporting on empty houses because they found them hard to identify and assumed that some prior knowledge or 'expertise' was required. There is a sense from the walking interviews that participants did not feel qualified to report, and that they are not experts in this area and therefore their knowledge does not count, or is not of sufficient quality. An analysis of the walking interviews clearly highlights, however, that citizens do know a lot about empty houses—that it is a complex concept, a private matter, a political matter, a socially sensitive isssue, something that needs to have something done about it, but that it is not simple. CSS reconfigures roles and responsibilities in the research process, and makes participants more 'aware' of the issues at stake. However, the complexities associated with defining and understanding what constitutes terms such as the public, communities, citizens, non-professionals, lay people must not be overlooked (Richardson, 2014). The power to define these concepts, and the roles associated with them are not clearly demarcated or defined. It is also important to note that some individuals will have roles that traverse boundaries, and such roles are not as clearly demarcated as we might be led to believe. CSS necessarily requires openness, flexibility, and reflexivity in a more prominent way than other research practices.

CSS opens up the potential for greater citizen involvement but also blurs the roles between researchers and researched. The experience of participating depends very much on the context of how a project was set up. The power dynamics of citizenship are changing but many citizens are aware of this, especially in the Empty Houses Project, where participants were concerned about how the data would be used and therefore did not want to report. CSS creates new responsibilities for participants and researchers alike. If the notable distinction between expert and non-expert in social science research is critique, the project shows that participants are very much aware of critical perspectives and willing to offer them. However, the way that traditional social science is done, with critical analysis being the preserve of the trained expert, means that many participants do not feel that it is their role to do the analysis.

Hymes (1996) describes ethnography as an explicit and elaborated form of the everyday practice of contextual learning: 'our ability to learn ethnographically is an extension of what every human being must do, that is learn the meanings, norms, patterns of a way of life' (Hymes, 1996, p. 13). This raises questions about observational expertise. Is everyone to some extent already a social scientist, even when not enroled in formal social science work? Are people already fieldworkers of their own lives, generating descriptive sociological data as they go about their daily lives? Or does the professionalisation of observational techniques constitute a different category of sociological data that means that this is not the case, and people need to be trained in formal and distinct sociological ways of analysing and collecting data? At some basic level, we are all analysts of the social; but there are subsequent multiple layers of professionalisation, expertise, standardisation, and institutionalisation. This is a challenge for research design and execution in CSS in terms of dealing with 'observation' data specifically, and the potentially new ways of seeing that participating in CSS can engender.

CSS can rearrange the power dynamics of citizenship; it can also create a burden on the individual participants by risking legitimising the failings of the welfare state. Narratives of 'duty' to take part, and to 'do your bit' necessarily place a greater burden on the individual, and raise questions about the supposed emancipatory potential of participatory methods such as CSS. It is crucial to recognise that in many instances of CSS-based approaches, the power dynamics are not equal; nor are they really trying to be in terms of crowdsourcing approaches. The extent to which CSS successfully challenges the privileged position of the researcher, and to what extent many of the initial imbalances of power and inequalities are inadvertently reproduced in the process of doing CSS, remains to be seen.

The Empty Houses project is an acknowledgement of the situated, contextual nature of knowledge production, which aims for more agile knowledge. However, whilst this very much reflects the possibilities of CSS, the practical realities are still somewhat removed from this. The question remains of how to get away from the value-laden assumption that greater or more democratic participation is best? Implicit in the potential of CSS is the notion that participants in the research are empowered to understand a mechanism that is normally kept hidden from them. However, the analysis of the project suggests that rather than any form of democratisation of social science research, CSS can entail more of a process of working out together—as in the case of the walking interviews in the Empty Houses project, where the walking interviews constitute a form of 'doing together', a form of committed or engaged social practice in reporting empty houses together. In this way, the data generated from these interviews is dialogic, reflecting an active dialogue between the participants and the researcher, trying to make sense of the processes and practices of CSS, and discussing it whilst walking. This practice draws attention to the notion of different situated knowledges (Haraway, 1988), and the quality of insights, and that an expert position should not be a monopoly on truth and insight. Arguably, undertaking ethical social science research is a complicated process, with many questions of expertise, power, professionalisation and standardisation being raised.

Conclusions

The empirical basis of this article sheds light on how the social impact of producing and using citizen-generated data could be enhanced. However, the data generated is complex and personal,

making the simple plugging of a data gap a far from straightforward possibility. It is, however, also unique and otherwise uncollected. CSS can disrupt notions of data collection and data 'use' to solve social problems, opening up space for many diverse knowledges, and the collection of urban intelligences (Mattern, 2016). The Empty Houses project attempted to generate more 'useful' data, but it revealed the complexities of using such an approach in the context of housing.

CSS can allow for opportunities for people to reflect on social life, social orders and social structures. In allowing for such opportunities, CSS can challenge the top down approach to data collection and generation, potentially providing more valid research questions and an opportunity for sharing personal truths —or acknowledging different situated knowledges (Haraway, 1988). This has the potential to scaffold towards a more bottom-up social science that values mundane, everyday enquiry.

In a policy context there appears to be much interest in the potential of CSS to generate data to be used to inform policy (Richardson, 2013, 2014), and in participants as a future resource, as demonstrated by the traction participatory and citizen science approaches have had in the international development sector. CSS is perceived to be a strategic tool for gathering data in a time of constrained resources. This raises an important question about whom ultimately CSS is for, and who benefits from its articulation; it also links to wider debates about the idea of an emancipatory social science.

CSS adds to the repertoire of methods in the social sciences and does so at a particularly crucial time when so much of the focus has been on bigger, faster data in real time. Jasanoff (2007) suggested that science fixes our attention on the knowable, leading to an over-dependence on fact-finding and that we need disciplined methods to accommodate the partiality of scientific knowledge and to act under irredeemable uncertainty, what she calls 'technologies of humility'. These technologies compel us to reflect on the sources of ambiguity, indeterminacy and complexity; they also allow us to overlook them (Oman, 2017). There are calls for the supplementation of 'science' with the experiential, with personal truths and modes of knowing that are often pushed aside in expanding scientific understanding and technological capacity (Jasanoff, 2007). In this way CSS allows us to improve our methods so that they might serve us better, by generating and engaging in reflections on the politics of knowledge production. In particular, CSS prompts the asking of important questions in social science methods around the nature of data, who can collect it, who can analyse it and how such data can be used. Whilst such questions are exploratory and should be recognised as valuable outcomes in their own right, they should also only be ignored at peril.

Data availability

The data generated and analysed during this study involved human participants and is not publicly available as the data is sensitive data, and cannot be made public for individual privacy reasons. The research was approved by the University of Manchester institutional ethics committee and informed consent was obtained from all participants.

Received: 18 November 2019; Accepted: 26 January 2021;
Published online: 15 March 2021

Notes

1 https://www.actiononemptyhomes.org/.
2 https://www.actiononemptyhomes.org/event/empty-homes-week-2019.
3 https://www.ehnetwork.org.uk/.
4 https://emptyhousesproject.wordpress.com.
5 http://blog.policy.manchester.ac.uk/posts/2016/10/housing-crisis-the-scandal-of-empty-homes/.
6 The information on the Empty Houses Project blog as well as much of the campaign surrounding the project, stated that the aim was to work with local authorities, charities and other interested organisations and individuals, to try to bring empty properties identified back into use.

References

Action on Empty Homes (2019a) Community action on Empty Homes: using empty homes to regenerate communities. https://www.actiononemptyhomes.org/Handlers/Download.ashx?IDMF=ee3e040f-2cbf-461a-b680-4024d2193df6
Action on Empty Homes (2019b) Empty Homes in England 2019. https://www.actiononemptyhomes.org/Handlers/Download.ashx?IDMF=68fa9a2d-83f5-4ca4-936b-a8d8248484c0
Adkins L, Lury C (2009) What is the empirical? EU J Soc Theory 12(1):5–20
Albert A, Balázs B, Butkeviciene E, Mayer K, Perelló J (2021) Citizen social science: new and established approaches to participation in social research. In: Vohland Katrin, Land Anne, Lemmens Rob, Samson Roeland, Perello Josep, Ponti Marisa, Ceccaroni Luigi, Wagenknecht Katherin Eds The science of citizen science. Springer, London, (2020)
Anderson J (2004) Talking whilst walking: a geographical archaeology of knowledge. Area 36:254–261
Armstrong F, Alsop A (2010) Debate: co-production can contribute to research impact in the social sciences. Public Money Manag 30(4):208–210
Auerbach J, Barthelmess E, Cavalier D et al. (2019) The problem with delineating narrow criteria for citizen science. Proc Natl Acad Sci USA 116(31):15336–15337
Back L, Puwar N (2012) A manifesto for live methods: provocations and capacities. Soc Rev 60(S1):6–17
Barker A (2010) Co-production of local public services. Local authorities and research councils' initiative. https://www.rcuk.ac.uk/documents/innovation/larci/co-production-summaryreport-pdf. Accessed 23 Oct 2018
Beal G, Dissanayake W, Konoshima S (eds) (1986) Knowledge generation, exchange, and utilization. Westview Press, Boulder
Bell D, Pahl K (2018) Co-production: towards a utopian approach. Int J Soc Res Methodol 21(1):105–117
Benyei P, Pardo-de-Santayana M, Aceituno-Mata L et al (2020) Participation in citizen science: insights from the CONECT-e case study. Sci Technol Hum Values 45:1–34
Bonney R, Ballard H, Jordan H et al (2009) Public participation in scientific research: defining the field and assessing its potential for informal science education. A CAISE Inquiry Group Report (Technical Report). Center for Advancement of Informal Science Education (CAISE), Washington, DC
Bordieu P (2003) Firing back: against the tyranny of the market 2. Verso, London
Braun V, Clarke V (2006) Using thematic analysis in psychology. Qual Res Psychol 3:77–101
Burawoy M (2018) Making sense of Bordieu. Catalyst 2(1):1–23
Burawoy M (2005) For a public sociology: 2004 Presidential Address to the American Sociological Association. Am Soc Rev 70(1):4–28
Büscher M, Urry J (2009) Mobile methods and the empirical. EU J Soc Theory 12 (1):99–116
Büscher M, Urry J, Witchger K (eds) (2010) Mobile methods. Routeledge, London
Carpiano R (2009) Come take a walk with me: the "go-along" interview as a novel method for studying the implications of place for health and well-being. Health Place 15:263–272
Clark A, Emmel N (2010) Realities Toolkit #13: using walking interviews. ESRC National Centre for Research Methods Toolkit Series
Clarke G (2011) Help George tackle Britain's empty houses crisis. http://georgeclarke.com/help-george-tackle-britains-empty-homes-crisis/. Accessed 12 May 2018
Cohn J (2008) Citizen science: can volunteers do real research? BioScience 58 (3):192–197
Crain R, Cooper C, Dickinson JL (2014) Citizen science: a tool for integrating studies of human and natural systems. Annu Rev Environ Resour 39(1):641–665
Crivellaro C, Comber R, Dade-Robertson M et al. (2015) Contesting the city: enacting the political through digitally supported urban walks. In: Computer Human Interaction - CHI - conference proceedings. 2015, April 18–23, 2015, Seoul, Republic of Korea
DCLG Press Release, 11 April 2012 George Clarke appointed empty homes advisor. https://www.gov.uk/government/news/george-clarke-appointed-empty-homes-adviser. Accessed 12 May 2018
Eitzel M, Cappadonna J, Santos-Lang C et al. (2017) Citizen science terminology matters: exploring key terms. Citiz Sci 2(1):1–20
Empty Houses Agency (2016) Empty homes: why do some areas have high levels? Empty Homes, London
Etherington D, Jones M (2017) Devolution, austerity and inclusive growth in Greater Manchester: assessing impacts and developing alternatives. https://www.mdx.ac.uk/__data/assets/pdf_file/0030/368373/Greater-Manchester-Report.pdf. Accessed 12 May 2018

Evans J, Jones P (2011) The walking interview: methodology, mobility and place. Appl Geogr 31:849–858
Flinders M, Wood M, Cunningham M (2016) The politics of co-production: risks, limits and pollution. Evid Policy 12(2):261–79
Friere P (1996) Pedagogy of the oppressed (trans: Ramos MB). Penguin, London
Frigerio D, Pipek P, Kimmig S et al. (2018) Citizen science and wildlife biology: synergies and challenges. Ethology. 2018(00):1–13
Haraway D (1988) Situated knowledges: the science question in feminism and the privilege of partial perspective. Fem Stud 14(3):575–599
Heiss R, Matthes J (2017) Citizen science in the social sciences: a call for more evidence. GAIA 26(1):22–26
Holmes B, Best A, Davies H et al. (2017) Mobilising knowledge in complex health systems: a call to action. Evid Policy 13(3):539–560
Housley W, Procter R, Edwards A et al. (2014) Big and broad social data and the sociological imagination: a collaborative response. Big Data Soc 1(2):1–15
Hymes D (1996) Ethnography, linguistics, narrative inequality: toward and understanding of voice. Taylor & Francis, London
Irwin A (1995) Citizen science: a study of people, expertise and sustainable development. Routeledge, London
Jasanoff S (eds) (2004) States of knowledge: the co-production of science and the social order. Routledge, London
Jasanoff S (2007) Technologies of humility. Nature 450:33
Kusenbach M (2003) Street phenomenology: the go-along as ethnographic research tool. Ethnography 4:455–485
Kythreotis A, Mantyka-Pringle C, Mercer T et al. (2019) Citizen social science for more integrative and effective climate action: a science-policy perspective. Front Environ Sci https://doi.org/10.3389/fenvs.2019.00010
Lewin K (1946) Action research and minority problems. Soc Issues 2(4):34–46
Lury C, Wakeford N (eds) (2012) Inventive methods: the happening of the social. Routeledge, Oxon
MacGregor S, Pardoe S (2018) Talking Rubbish in Moss Side: exploring the problem of litter in the streets and alleys of a deprived neighbourhood with a large student population. https://www.uppingit.org.uk/rubbish-research/. Accessed 12 May 2018
Martin S (2010) Co-production of social research: strategies for engaged scholarship. Public Money Manag 30(4):211–218
Mattern S (2016) Public in/formation. Places J. https://doi.org/10.22269/161115. Accessed 10 Jan 2018
McTaggart R (1996) Issues for participatory action researchers. In: Zuber-Skerritt O (ed.) New directions in action research. Falmer Press, London
Ministry of Housing Communities and Local Government (2019) Housing statistical release. https://bit.ly/2K09bAa. Accessed 24 May 2019
Mirowski P (2017) Against citizen science. Aeon Mag https://aeon.co/essays/is-grassroots-citizen-science-a-front-for-big-business. Accessed 12 May 2018
Mulkay M (1991) Sociology of science: a sociological pilgrimage. Open University, Philadelphia
Nutley S, Walter I, Davies H (2007) Using evidence: How research can inform public services. The Policy Press, Bristol
Oman S (2017) All being well: cultures of participation and the cult of measurement. PhD thesis, University of Manchester
Ostrom E (1990) Governing the Commons: the evolution of institutions for collective action. Cambridge University Press, Cambridge
Pollen A (2013) Research methodology in mass observation past and present: 'Scientifically, about as valuable as a chimpanzee's tea party at the zoo'? Hist Workshop J 75(1):213–235
Procter R, Housley W, Williams M et al. (2013) Enabling Social Media research through citizen social science. In: ECSCW 2013: Proceedings of the 13th European Conference on Computer Supported Cooperative Work, 21-25 September 2013, Paphos, Cyprus
Purdam K (2014) Citizen social science and citizen data? Methodological and ethical challenges for social research. Curr Soc 62(3):374–392
Pykett J, Chrisinger B, Kyriakou K et al. (2020) Developing a Citizen Social Science approach to understand urban stress and promote wellbeing in urban communities. Palgrave Commun 6:85
Rabinow P, Marcus G (2009) Designs for an anthropology of the contemporary. Duke University Press, Durham
Reason P, Bradbury H (eds) (2013) The Sage handbook of action research: participative inquiry and practice, 2nd edn. Sage, London
Reed A (2002) City of details: interpreting the personality of London. J RAI 8:127–141
Richardson L (2013) Putting the research boot on the policymakers' foot: can participatory approaches change the relationship between policymakers and evaluation? Soc Pol Admin 47(4):483–500
Richardson L (2014) Engaging the public in policy research: are community researchers the answer?. Pol Gov 2(1):32–44
Savage M (2013) The 'Social Life of Methods': a critical introduction. Theory, Cul Soc 30(4):3–21
Savage M, Burrows R (2007) The coming crisis of empirical sociology. Society 41 (5):885–899
Suchman L (2000) Human machine reconfigurations plans and situated actions. Cambridge University Press, Cambridge
Tauginienė L, Butkevičienė E, Vohland K et al. (2020) Citizen science in the social sciences and humanities: the power of Interdisciplinarity. Palgrave Commun 6:89
Thomas J (2002) Diana's mourning: a people's history. University of Wales Press, Wales
Thrift N (2005) Knowing capitalism. Sage Publications, London
Tolman DL, Brydon-Miller M (2001) From subjects to subjectivities: a handbook of interpretive and participatory methods. Qualitative studies in psychology. New York University Press, New York
Wiggins A, Crowston K (2011) From conservation to crowdsourcing: a typology of citizen science. In: 44th Hawaii international conference on system sciences. pp. 1–10
Wilson W, Cromarty H, Barton C (2018) Empty Housing (England). House of Commons Library Briefing Paper. Number 3012, 13 June 2018

Acknowledgements

This work presented in this article took place as a result of doctoral research funding from the UK Economics and Social Research Council. The author is very grateful for the support and advice of her supervisors whilst undertaking the doctoral research that underpins this article, and to the participants themselves for being so generous with their time and reflections.

Competing interests

The author was part of the co-editing team of this special issue but has had no part in the peer review or editorial decision-making process of this article.

Additional information

Correspondence and requests for materials should be addressed to A.A.

Reprints and permission information is available at http://www.nature.com/reprints

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.