


Remote Fieldwork in Homes During the COVID-19 Pandemic: Video-Call Ethnography and Map Drawing Methods

International Journal of Qualitative Methods
Volume 21: 1–12
© The Author(s) 2022
DOI: 10.1177/16094069221078376
journals.sagepub.com/home/ijq


Ash Watson¹  and Deborah Lupton²

Abstract

Restrictions on physical movements and in-person encounters during the COVID-19 crisis confronted many qualitative researchers with challenges in conducting and completing projects requiring face-to-face fieldwork. An exploration of engaging in what we term ‘agile research’ in such circumstances can offer novel methodological insights for researching the social world. In this article, we discuss the changes we made to our ethnographic fieldwork in response to the introduction of a national lockdown to contain the spread of the novel coronavirus. The ‘Living with Personal Data’ project, based in Sydney, Australia, and designed well before the advent of COVID-19, explores a diverse range of people’s feelings, practices and understandings concerning home-based digital devices and the personal digital data generated with their use. Using a video ethnography ‘home tour’ and an elicitation technique involving hand-drawn maps of people’s homes, digital devices and the personal data generated with and through these devices, this approach was designed to elicit the sensory, affective and relational elements of people’s digital device and personal data use at home. The fieldwork had just commenced when stay-at-home and physical distancing orders were suddenly introduced. Our article builds on and extends a growing body of literature on conducting fieldwork in the difficult conditions of the extended COVID-19 crisis by detailing our experiences of very quickly converting an ethnographic study that was planned to be in-person to a remote approach. We describe the adaptations we made to the project using video-call software and discuss the limits and opportunities presented by this significant modification.

Keywords

ethnography, mobile methods, participant map-making, COVID-19, video-calls

Introduction

When the COVID-19 crisis erupted in the early months of 2020, many countries worldwide introduced periods of stay-at-home orders and restrictions on people’s movements. Such restrictions often lasted for months or were relaxed and then re-introduced as new waves of SARS-CoV-2 infection emerged and more infectious variants of the virus took hold across the globe during 2021. Qualitative researchers who had planned conventional approaches to in-person fieldwork pre-COVID were faced with having to consider alternative methods that used remote approaches: either by engaging with digital technologies or adopting non-digital approaches such as hand-drawn or written materials that could be exchanged via physical mail services (Lupton, 2021). Important questions were raised for many researchers used to in-person methods about how to

develop a rich understanding of people’s everyday lives, feelings, relationships and spaces without being physically present to observe and document their activities. How can such research be accomplished from a distance? What are the

¹ARC Centre of Excellence for Automated Decision-Making and Society, Centre for Social Research in Health, University of New South Wales, Sydney, NSW, Australia

²ARC Centre of Excellence for Automated Decision-Making and Society, and Vitalities Lab, Centre for Social Research in Health and Social Policy Research Centre, University of New South Wales, Sydney, NSW, Australia

Corresponding Author:

Ash Watson, Centre for Social Research in Health Goodsell Building, University of New South Wales, Goodsell Building, High Street, Sydney, NSW 2052, Australia.
Email: ashleigh.watson@unsw.edu.au



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE

and Open Access pages (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

implications for the quality of the research materials and the relationship between research participants and researchers? What is lost and what can be gained by using remote methods?

Such questions are by no means new. Online and other remote qualitative methods (e.g. telephone interviews and mail-delivered surveys) have existed now for decades. Difficulties concerning access to under-researched communities who live in hard-to-reach locations were critical long before the COVID-19 pandemic began. Accessibility in research is complex and multifaceted, as scholars working with and across disability (Kasnitz & Shuttleworth, 2001), neurodiversity (Alper, 2018) and developing countries (Pavez & Correa, 2020) have shown. Given the continuing COVID-19 crisis and frequent re-introduction of restrictions on in-person activities in some regions (including our own) into a third year of the pandemic, more scholars than ever are now needing to consider the issues within the context of projects that were planned and commenced before COVID-19. Such adaptations are important topics for attention in what has become a prolonged global crisis that at the time of writing is continuing to delimit what is possible for ethnographic research projects. While there may have been a justified hesitation about turning to remote methods too quickly at the beginning of the pandemic, many projects simply cannot be delayed any longer.

A growing body of literature has begun to offer reflections on the implications of the difficulties posed by the COVID-19 crisis for conducting qualitative research. Numerous scholars have reflected on how to adapt qualitative research projects to COVID conditions (Rahman et al., 2021; Tremblay et al., 2021). A crowdsourced open-access document instigated in April 2020 presented many ideas from contributors across the world about remote methods for 'doing fieldwork in a pandemic', both digital and non-digital (Lupton, 2021). More specifically, researchers have addressed approaches including using video conferencing software such as Zoom (Howlett, 2021), mobile instant messaging apps (Kaufmann et al., 2021) and remote participatory methods (Hall et al., 2021). Access issues related to working with marginalised and vulnerable social groups (Roberts et al., 2021) have also been considered.

This literature has already begun to provide insights into the benefits and drawbacks of remote methods for qualitative research. For example, the review by Hall and colleagues (2021) of literature on remote participatory methods used after the COVID outbreak noted that such approaches have the benefit of facilitating participation by people living in hard-to-reach locations and can be engaging and enjoyable for participants. However, the authors also note that it can be difficult to build rapport in some circumstances in the absence of face-to-face encounters with participants and maintain their interest if extended fieldwork is required. Researchers have also drawn attention to the importance of carefully considering the ethics of qualitative research study design in response to COVID conditions, including the privacy implications of conducting research in people's homes during lockdown (Hall et al., 2021; Lupton, 2021; Roberts et al., 2021).

The present article builds on and extends this literature by detailing our experiences in the early months of the COVID crisis of very quickly converting a Sydney-based ethnographic study that had commenced fully in-person as originally planned to a wholly remote approach. Our project brought together close video-recorded observations of the spatial dimensions of people's homes and the digital technologies located within them with interviews and the elicitation method of participant hand-drawn maps. We argue that examining how we achieved the completion of our fieldwork after rapidly modifying our protocol can offer rich insights into new possibilities for studying people's contemporary social worlds and relationships. We therefore outline not only how fieldwork can be transformed as part of 'resilient research' (Rahman et al., 2021) but also how what we would term 'agile research' was achieved successfully. We use the term 'agile' not in its common business-world meaning but rather to suggest a response to suddenly changing research conditions that required quick thinking and action so that we could meet our deadlines but not compromise the quality of our research.

Once COVID-19 restrictions came into effect in Sydney from mid-March 2021, we, along with innumerable qualitative researchers worldwide (Lupton, 2021), were forced to work out how to rapidly adjust from in-person to remote ethnographic methods so that we could continue our fieldwork within the parameters of the budget and time allocated to our study. In what follows, we detail how and why we made the changes we did to our fieldwork and discuss the value of these for the project itself and for how we might conceptualise online research methods more generally. First, we provide a background to the project and situate our work within the existing literature on video ethnography and participant map-making methods. Second, we detail the online home visits method we developed, outlining the steps we took from participant recruitment and technological set-up through to the collection and analysis of our research materials. We then discuss this methodological approach, focusing particularly on the perspective and the pace of the online home visit. In concluding, we reflect on how this complex approach to fieldwork contributed to our original project and summarise our advice for researchers interested in using similar methods.

Background and original study design

The 'Living with Personal Data' project, funded by the Australian Research Council from 2019 to 2021, aimed to identify how people incorporate and live with digital technologies in their homes and make sense of the personal data these devices generate in and beyond domestic spaces. We adopted a sociomaterial approach to investigate how a group of people living in Sydney use digital technologies within the home setting (the project website can be found at <https://livingwithpersonal.data.blog/>). Our research questions included identifying their practices, understandings and feelings

related to the digital information about them that these devices generate. These personal data include information about people's online interactions, their geolocation and physical movements and potentially many other attributes, such as their health indicators and consumption habits. We aimed to explore people's 'data sense' practices (Lupton, 2019). This involved identifying how the participants from a diverse range of backgrounds generate and respond to their personal data, how they incorporate these details about themselves into their lives, and what concerns they may have where this information goes and who else may use it or view it.

To gain a depth of insight into a diverse range of people's practices, feelings and understandings of digital technologies and data, we designed the project to involve a total of 30 participants from across the Sydney area. This included an equal number of women and men of diverse ages, education and ethnic/cultural backgrounds (reflecting the cultural diversity that is characteristic of the local area population). To facilitate recruitment, a research company was commissioned to identify such potential participants from its volunteer research participant panels, following which we would make contact via email and provide those who had expressed interest with the project information and consent form. This information package detailed the phases of the home visit as described above: a video-recorded tour of their homes and digital technologies, plus creative activities using pen and paper and discussion of their personal digital data. When planning our home visits, we also considered the issue of potentially identifying attributes (i.e. people's faces or voices) and incorporated this into our participant consent process.

All participants were required to have good English language skills so that they could participate fully in the research and be using at least one digital device in their homes. Our resulting sample of participants ranged from 20 to 75 years of age, with a wide range of income levels. Their homes ran the gamut from one-bedroom apartments to 5+ bedroom houses. Some participants lived alone or with a variety of others: housemates, a spouse or with a large family including multiple generations, newborns and adult children. Half of our participants were university educated. All of our participants had smartphones, and most had multiple smart or digital data-generating devices in their household, though not all had a reliable internet connection at home.

Participants were sent the participant information and consent forms by email ahead of the home visit and were asked to return the signed consent form before we visited them. Part of this consent process was giving participants the opportunity to decide whether these identifying attributes could be shared (e.g. in research articles or presentations using video clips from the recordings) in advance of the home visit taking place. We were able to protect their anonymity either by not using stills or video materials involving them or by editing these materials so that voices could not be heard or faces were cropped out.

Our fieldwork commenced in early February 2020, just weeks before the first impacts of then very new COVID-19

pandemic began to take effect in Australia. As planned from the beginning of the study (and approved by our university's human research ethics committee), our team of two researchers visited people in their homes in different parts of Sydney. We asked one participant in each home to lead the tour and take part in the interview and map drawing activity. There were often other household members in the background or occupying rooms. In these instances, we politely greeted them and acknowledged their presence but did not ask them questions or direct our camera towards them.

During these home visits, we used a semi-structured interview schedule to talk with participants about the integration of digital devices into their household spaces and family routines. Drawing on now well-established methods for video ethnography in homes (Nansen et al., 2011; Pink & Leder Mackley, 2014; Pink et al., 2016) one of us used a small, handheld digital video recorder to record the visit, while the other team member conducted the interview and took written notes. Both researchers sat with and walked through the participants' home spaces with them while we talked and recorded. We also incorporated the method of participant-drawn maps as an elicitation technique for discussion. Once the home visit had been completed, Watson wrote extensive field notes, documenting and reflecting on what we had learned from the visit. These field notes, together with our video recordings and the hand-drawn maps constituted the corpus of our research materials for analysis (for initial findings, see Watson et al., 2021a, 2021b).

Given our sociomaterial focus, in designing the project we were inspired by work which places emphasis on tactility and the materiality of device use as well as the data generated by devices (Lupton et al., 2018; Moores, 2014; Pink et al., 2017a; Richardson & Hjorth, 2017) – how people 'feel' the device and data (Hjorth et al., 2018; Lupton, 2017). Our approach was founded on methods which centre the video camera within the research encounter, to capture a visual record of domestic spaces and moving (re)enactment of everyday digital technology use (Hjorth et al., 2018; Kennedy et al., 2015b; Pink, 2007; Strengers & Nicholls, 2018). This recording mode is not in a discrete sense – for instance between a single device and device use – but in a relational assemblage. Observation extends to how space and other things in the home are co-located and co-generative of the meanings and practices associated with devices and data (Desjardins et al., 2020; Moores, 2012; Richardson et al., 2017; Strengers et al., 2019). Informing this focus is work on the 'digital mundane' (Leszczynski, 2019; Pink et al., 2017b) and the more-than-digital landscape of technology use, or 'non-media-centric media studies' (Krajina et al., 2014). All these approaches emphasise the importance of looking beyond media or devices in seeking to understanding the broader sociomaterialities of use in ethnographic inquiry.

This literature informed our expanded focus within the home setting and everyday routine beyond those digital devices which are visibly obvious and dominant. It thereby

directed our attention towards the relational and affective aspects of technologies and their incorporation into the mundane routines of domestic life. To put this focus into ethnographic practice, we drew from the ‘home tour’ approach used by researchers interested in digital technologies in the domestic setting (Desjardins et al., 2020; Kennedy et al., 2015a; Nansen et al., 2011, 2015; Pink & Leder Mackley, 2014). In this approach, participants, inviting members of the research team into their home, lead a tour highlighting the spatialities of where digital devices are sited or travel into and how other residents use them as a household. This structure allows for a strong sociomaterial style of ethnographic interview, where the presence, spatiality and sociality of devices and ‘timescapes of home’ (Liu, 2020) may be illuminated: including the connections and relationships between the digital devices themselves as well as the digital data they generate when they are used.

Building on these approaches, we designed a method using a video-recorded ethnographic interview set in participants’ homes which focused on exploring their senses and feelings related to the socio-spatialities of digital technologies and personal data. We used a semi-structured interview to guide us in our conversation as we walked around the home with the participant, but this was supplemented and individualised as the tour progressed, building on what the participant was saying to us and showing us. Unlike video ethnography approaches which centre the creation of a more professionalised and public-facing film (see for example Hughes, 2021; Redmon, 2019), our intention was for our video recordings to become part of a multimodal participant case study which also included partial interview transcription, still images taken from the video footage, researcher field notes, and participant-generated creative artefacts. This set-up also allows for a not-inconsequential amount of participant direction: as the research team are physically led from room to room, participants may decide and have control over what researchers see and record of their private spaces.

In addition to the video-recorded tours and interviews, we asked our participants to complete hand-drawn maps for us, which we then used as focal materials to continue our conversation. There is a considerable body of recent literature which shows the value of creative and hands-on methods for researching publics’ understandings and use of their personal digital data (Bates et al., 2016; Lupton & Michael, 2017; Lupton & Watson, 2021; Markham & Pereira, 2019; Nissen & Bowers, 2015; Thudt et al., 2017; Watson et al., 2021b). Among these, participant map-making methods drew our attention for their potential for being readily implemented within the home visit setting, oriented towards social and material elements of domestic and other relevant environments (Brickell, 2012; Donnelly et al., 2020; Marte, 2007; Padilla-Petry et al., 2021), and as a way to make visible the felt yet often unseen elements of technological relations and data generation (J. Bates et al., 2016). Participatory hand-drawing as a research elicitation technique has been identified as a way

of inspiring responses that cannot always be readily articulated using words, including affective responses and relational connections between humans, objects and space (Chen, 2018; Padilla-Petry et al., 2021; Søndergaard & Reventlow, 2019). We wanted to experiment with its possibilities as a way of inspiring our conversations with our participants.

We planned for participants to use paper and pens/pencils we provided to draw a ‘home map’ and an ‘out of home map’ showing the networks of devices, data, places and people relevant to their digital technology use during a typical week. Drawing on Guillemin and Drew’s (2010) work on the production and use of participant-generated visual methods, we were sensitive to the active role we have as researchers in the production of these artefacts. By following the tour component with this hands-on creative activity, we could work as researchers to create a flow to the home visits so the maps would enrich and develop the insights from the home tour and springboard further conversation that started with a tangible sense of data: of what personal digital data are and how they are generated, where these data go, and how people feel about their data.

The video-call home visit

We commenced fieldwork in early February 2020, completing five of the 30 planned home visits in person before COVID-related restrictions were announced in Australia. When international border closures, school, university and workplace shutdowns, physical distancing and stay-at-home orders were announced by Australian federal and state governments from mid-March (Lupton, 2020), we drew a halt to our fieldwork. As we began to work exclusively from home, we spent some time devising a way to continue the project without physically visiting participants’ homes.

There are established approaches for employing remote video-based qualitative methods to study people’s digital technology use and domestic environments (Archibald et al., 2019; Lo Iacono et al., 2016), including recent work set specifically within the context of the COVID pandemic (Lobe et al., 2020). Such projects provide a useful template for taking research wholly online. Of key value in this context is research employing video-calling interviews and mobile methods (Lupton et al., 2018; Merriman, 2014; Nehls et al., 2015; Spinney, 2015). Projects directed at understanding people’s conceptualisations of (im)mobilities (Büscher & Urry, 2009; Murray, 2009) also became newly significant in the context of COVID lockdown. Rather than us opting for asynchronous or sequential methods such as video diaries (see C. Bates, 2013; C. Bates & Moles, 2021; Pink et al., 2015), this body of work directed our modification planning toward real-time and mobile video possibilities where the ‘tour’ style of ethnographic interview and a simple hands-on map-making activity might still work.

As soon as we realised that we would have to turn to remote methods to complete our fieldwork, we applied for a modification to our study protocol to be approved by our

university's human research ethics committee. Once this was granted, from April 2020 we were able to proceed with using our new methods. To briefly summarise our adaptations: rather than having two members of the research team visit participants' homes in-person (as a safety precaution and for ease of video recording the visit), Ash Watson connected with participants one-on-one using the video-call platform Zoom. We asked participants wherever possible to join the call using an easily portable device (ideally a smartphone for ease of movement but potentially also a tablet or laptop computer). This enabled them to take us on a tour throughout their home before completing the map drawing activity and rest of the interview with Watson still chatting to them and recording the encounter using the Zoom app on her home laptop computer. The questions asked of participants during the home visit remained the same, as did the prompts for completing the hand-drawn maps by participants. After completing the video-call home visit, participants were asked to make copies of the maps they made (photographed or scanned) and send them to the research team via email. These adapted requirements were included in the revised study information documents for potential participants so that they would be able to consider whether they were willing or able to be able to join the study with these requirements in mind.

Set-up

Our 25 video-call home visits took place over a 5-month period, between April and August 2020. The first part of each visit was organising the set-up. The contact details of potential participants and a participant-identified schedule of availability were passed on to our research team by the commissioned research company. Watson then made contact with the participant, noting their expression of interest and providing the project information and consent form documents via email in an interactive PDF format. Once she had answered any questions participants had about the project via phone or email, and participants had completed and returned the additional screening questions and consent form via email, Watson confirmed a date and time and sent a unique Zoom link and password for the call. This email included details for how to join the call via a laptop using an internet browser, or via the Zoom mobile app. Most participants joined using a smartphone or tablet computer.

For Watson, who conducted all the video-call visits, suddenly working from home – in a small open-plan apartment near the then-closed university campus, with temperamental Wi-Fi, no home office space, and a partner also working remotely in the same confined environment – meant that finding a suitable configuration at the researcher end took some trial and error. Her laptop computer was balanced atop stacks of novels on a modest-sized dining table or, when outside noise would interfere, lodged in a bookshelf in a bedroom (the only space with a door to close, besides a bathroom).



Figure 1. Still footage from a participant's video-call home tour, showing the participant pointing out their tablet computer on a side table next to a sofa, together with a television remote, pot plant and earbud charger.

The process of recording the visits also took some initial trial and error. One early session was recorded via the mini video camera we used for the in-person visits, pointed at Watson's laptop screen and also balanced on a pile of books. However, the quality of recording was not ideal and the camera itself was precariously positioned. Another session was recorded via the laptop's 'screen capture' tool. While this method captured excellent quality footage that showed both the participant, the researcher and the Zoom window during the entire home visit, the file size was so large that its processing froze Watson's computer and took hours to upload to our secure cloud-based data storage system, making it unmanageable for multiple visits.

The remaining bulk of the recording was done via Zoom's own recording feature. While this footage shifts between the participant and researcher depending on noise made (e.g. lagging on the researcher following a hum of agreement despite the participant still speaking and continuing the home tour), it was a suitable-enough quality for the purposes of our project. Zoom settings allows for automatic recording to begin as soon as a meeting is started. However, we opted to not use this feature. Instead, after verbally summarising the aims of the project and confirming what participation would involve, we provided participants some time to say hello and ask questions before asking their permission to begin recording.

Video-Call Home Tour

To formally begin each visit, Watson began the conversation by asking participants to talk about themselves and the kinds of digital devices and software they commonly use. Taking into account the kinds of details and feelings participants were initially raising, Watson then asked about how often participants engaged with their digital devices on a typical recent day, who else in their household also uses those (or other) devices, and if and how any of those devices connect or interact with each other. She would then ask participants to talk

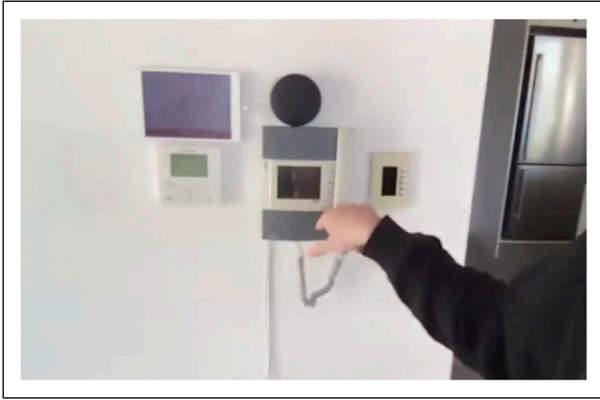


Figure 2. Still footage from a participant's video-call home tour, showing the participant pointing to their smart home 'hub'.

through everything they did on a recent normal day, from waking up to going to sleep, to gain a deeper sense of affective, relational and routinised or 'mundane' dimensions of device use.

This opening conversation varied in length and detail, but typically took between 10 and 30 minutes before Watson would suggest they move into the tour part of the home visit. She would ask to see the devices the participant had just spoken about, as well as any others they came across while moving around the home, as well as the rooms in which these devices were located. Some still shots, taken from the home tour video footage, are shown in Figures 1 and 2. As these images show, the video-call home tour allowed participants to show us how their digital devices were sited as part of sociomaterial assemblages, involving not only other digital technologies but also other living things, home furnishings, electrical appliances such as fridges, television remote controls and lamps, and the doors, windows and walls of the home.

As many of our participants were living in small apartments, often the video-call tour would be short in duration. Some participants could walk through the rooms of their home, quickly pointing the camera at their digital technologies, in much less than a minute. This meant that we were not achieving the aims of the visit. We quickly realised that we had to learn to significantly slow the pace of this tour with questions and requests. Had the tours been undertaken in person, we could have easily slowed down the participant using body language, such as lingering in a room or pointing the researcher-held camera toward a particular space to prompt more discussion. This was not always easily achieved using the Zoom medium, as the mobile tour often featured technological issues such as a lag between audio and video, which made interjecting with requests for more or a longer 'view' more difficult. Another problem we encountered was that in some participants' homes, while their internet connection was strong where they typically use their mobile devices, when touring the home this connection often dropped out, either making the video feed blurry, delayed or completely lost.

Over time, Watson built on her experiences by adapting the words used when leading into the tour component, spending more time emphasising that the tour was not designed to check that participants were accurately describing their digital technologies. Rather, she emphasised, it was important to go slowly so that we might both discuss their different rooms and spaces as the tour progressed. Both during the tour and after the participant had been through each of their rooms, Watson also asked questions about their experiences and feelings about their devices – what was helpful, useful, supportive, annoying and frustrating. Using these probes during and immediately following the tour helped extend these affective visions beyond an application or device itself in isolation and to also bring into view relational, spatial and temporal influences.

Data Maps

On completion of the tour component of the video-call home visit, we asked participants to sit somewhere comfortable for them to talk while also drawing and writing. In the in-person home visits, we would ask participants to draw two maps: a 'home map', which showed the devices in their homes and what rooms they are used in, and an 'out of home map' that showed the other places/spaces where participants used devices in a typical week such as while travelling, at work, shopping, exercising or socialising. However, as the majority of our video-call home visits took place while participants (and the research team) were following government guidance to stay at home, most people (understandably) only drew a 'home map'. Given the pandemic context, this change was not (only) a loss, as it helped to make visible some of the new or novel technologically mediated ways participants were doing their usual 'out of home' things from home.

While explaining the map drawing activity, we stressed to participants that we were not seeking a professionalised artistic creation but rather a visual representation of the spaces and things that were shown to us in the home tour. Most (but not all) participants took a floor-plan approach, drawing the rooms of their house from above and then drawing or labelling where their digital technologies tended to reside. For the most part, remote participants' screens continued to show their own faces while they drew their maps. If these participants worked silently, Watson asked them to narrate what they were doing for the purposes of the recording. All participants shared in detail what they had drawn after their initial maps were completed by holding their paper up to the camera. In this discussion, if participants noted a material connection between devices or a spatial movement, we asked them to indicate these attributes on the map: for instance, by drawing lines between objects or arrows across the spaces, if they had not done so already (as shown in the examples in Figure 3).

Once participants had mapped their rooms and technologies, we directed the discussion and further mapping to focus on the digitised information those devices generate and the ways in which participants engaged with these personal data. As shown in Figure 4, the digitised information recorded on

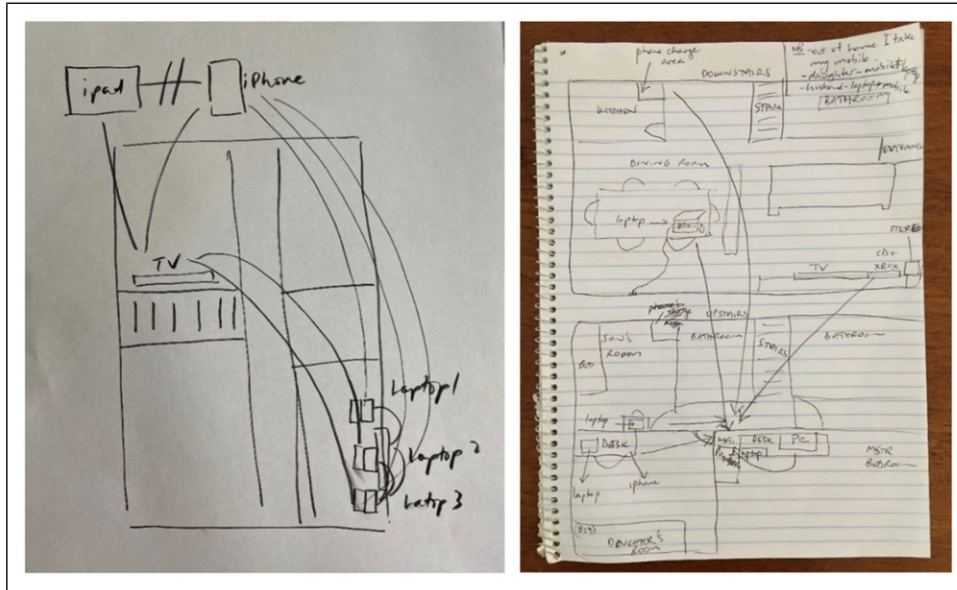


Figure 3. Examples of the hand-drawn maps by participants demonstrating connections between the digital devices in their homes.

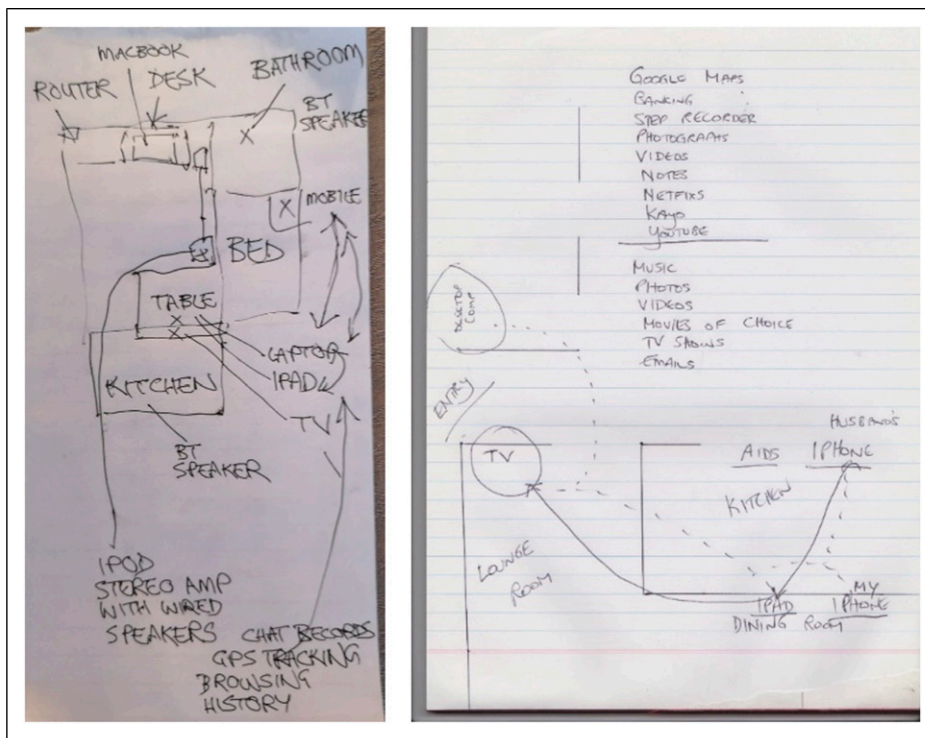


Figure 4. Examples of participant maps, showing relationships between personal data, devices and home layouts.

participants’ maps ranged from fitness tracking to financial and shopping records, media consumption, communications, social media use and geolocation information. Given that the maps tended to be quite simple drawings, much of this personal data detail was verbally discussed rather than written down by participants. The data noted on participant maps makes visible the key kinds of personal information they associated with those

devices or most strongly felt the generation of through their device use, rather than reflecting the extent or complexity of their understandings and perceptions of personal data.

It was from this discussion that we asked participants to provide more details about their digitised information: from where it is stored to its value and who they feel is responsible for its security and protection. This structure – moving from

the home tour to the map-making activity, to a discussion about personal data – assisted the conversation about digital data to be tangibly related to participants' own digital devices and their own device use. When participants talked about personal data at the beginning of the home visit, these conversations tended to be more abstract and less connected to their own devices, spaces, relationships and experiences.

To conclude the video-call home visit, participants were asked if there was anything else they wished to discuss or felt important to add, and whether they had any questions for the research team. They were also reminded to send us a copy of their maps via email, by taking a photograph of the artefacts using a smart device or by using a scanner.

Post-Visit

After each video-call home visit was completed, we uploaded and saved the video recording to the research team's secure cloud-based data storage system and began writing detailed field notes about the visit. Later, these field notes were combined into a participant case study document with the video recording in its entirety, screenshots selected from the video for illustrative purposes, copies of the participants' maps, sociodemographic information collected in the pre-visit screening questionnaire, and transcriptions of selected moments from the recording. Due to the time-consuming nature of transcribing videos, we relied on repeated viewing of the video footage together with the other research materials for use in our analysis. The sections selected for transcription were those that the research team decided enhanced and made more workable other data, such as footage of a participant explaining their map or describing how a device worked that was not easily seen on the footage. Together, these materials constituted our corpus for analysis.

Discussion

Perception and perspective are orienting ideas within the literature on visual and video-based methods (Fitzgerald et al., 2013; Hockey & Collinson, 2006; Lofthus & Frers, 2021; McNaughton, 2009; Pink, 2011). This work has progressed understandings of how the visual is imagined and practically used in social research, especially regarding the phenomena that may be brought into view during data collection, and the layers of perspective that may be gained when multiple members of a research team can view and re-view footage several times during analysis. Unable to directly experience both the space and the space-recorded, the video-call medium generated differences in the home visit time and across the research materials that were generated in our researcher-participant encounters. Our researcher field notes could not capture those elements 'outside' the frame (see Grunditz, 2021) such as an embodied impression of a room, sensory aspects not picked up by the participant's mobile device, or a sense of the whole house in place (e.g. in a neighbourhood)

which researchers can garner from travelling to a participant's home and knocking on their front door.

It was very difficult to identify what we could not see and whether we may have missed anything in our video-call tour. This kind of observation was almost impossible when we were not physically sharing the same space as our participants. Similarly, during the map-drawing activity, a participant's map-in-progress was typically out of sight for the researcher and therefore the process of map-making was not captured on the video recording. Balancing a digital device with the camera in the right position while also drawing and writing was impractical and potentially disruptive to try and achieve. We instead needed to work to have this process captured for the video via audio and a show-and-tell style discussion.

The video-call based method, and the pandemic context in which we undertook our video-call home visits, also cemented for us the ways in which video ethnography can serve as a window into feeling. Our video-call approach was another way of engaging in 'go-along' methods that have already been pioneered by digital ethnographers. Pink et al., 2017a; Spinney, 2015 have explored the shared experiential sense and cultivation of empathy which video-based ethnographic methods can generate. Focusing on methods of/for movement and mobility, Spinney (2015) considers the rich sense of sociality and materiality which may be cultivated via methods that allow a researcher to 'go-along' with a participant. Reflecting on the combined value of mobile and bio-sensing technologies in research, Spinney argues that:

mobilising our methods so that we can move with our participants physically, virtually or emotionally is at its heart a call to be transformed by our research; to get involved, to feel and care and be moved by what we are studying in the hope that our abstractions will be 'less' abstract... mobilising method is more about a sensitivity to following traces and connections across space and time than it is about a particular mode of engagement. (Spinney, 2015, p. 242)

Moving beyond a more traditional focus on the empathetic power of the video product, Pink et al. (2017a, p. 379) also focus on the process of video-making using tiny action cameras worn on the bodies of participants that record footage in the absence of the researchers. They argue that when seeking to understand the experiences of others 'we need to be prepared to do so with such a way that engages us *with* them, and that is negotiated and subject to shift, rather than in doing research *about* them' (Pink et al., 2017a, p. 379). In the case of the study by Pink and colleagues, participants used the body-worn cameras to record footage of their cycling trips which was then viewed together with the researchers at a later time. In the absence of being able to cycle alongside the participants, the video footage captured the cyclists' perspectives on their rides, which they were invited to discuss and explain to researchers during the shared video viewing.

Both these methodological calls resonate with our adapted video processes, where participants held their own mobile device as they moved through their homes, connecting on real-time video-call with a researcher. In some ways, the participants' privacy was more protected than in our original in-person home visits, as in using video-calling technologies they were able to fully control those features of their homes they wanted to show us. The trade-off for us as ethnographic researchers is that we were limited in viewing the participants' home space as it was shown to us via the video captured on the participants' mobile devices. The researcher could 'go-along' with the participant through the space, and the participant thereby directed the home tour *and* what was recorded of that tour. The reflections by Spinney and by Pink and colleagues also resonates with the unfolding negotiations that became a dynamic part of our video-call home visit, between technological affordances/limitations (e.g. internet connectivity, camera view, a thumb over the microphone) and generating enough multimodal research materials in sum with participants (e.g. assuring participants that a longer discussion about a part of the house was okay when this could not be seen on video because, e.g. the video lagged, or a baby was asleep).

Positioned between the home tour and a focused discussion on personal data, the map-making activity served to 'reframe' and re-represent the home that participants had just video-toured (see Grunditz, 2021). For about 20 minutes, we asked participants to concentrate their minds and their pens on their own personal devices and the digitised information about them that these generate. Through a hands-on, pen and paper-based activity that focused on and reframed their digital devices and data, we could engage participants in thinking differently about technologies (Lupton & Watson, 2021). The map drawing activity asked participants to look away from their actual home, which they had just toured for us, and attune their perception to those same spaces and devices in a different way. Their hand-drawn maps then inspired discussion and reflection as we talked with the participants about what they had detailed on the maps. They also provided another perspective to our corpus of research materials for us to use for analysis, complementing the audio-visual material from the recordings made of the video-calls. We worked to (re)imagine and (re)visualise the digital using an analogue method (drawing), and in doing so, surface some of the unseen and sometimes un-felt or unnoticed ways in which home-based digital devices are used and connected to each other and how personal data are generated and circulate.

While the participants' hand-drawn maps were a key part of the original in-person home visit design, they played a role in the video-call home visits that was more valuable and significant than we had initially imagined. In the video-call mode, the maps also highlighted parts of the domestic space which were not and could not be captured via the participant-led home tour. We noted that the discussions which took place following this activity, on how people understood, made use of and felt about their personal digital data, were considerably

less abstracted than those which arose in the first part of the home visit, as the maps were able to materialise some of these connections and spatialities for both the participants and us as researchers. Often capturing the home from above via a floor plan, the maps made visible the overall layout of people's homes as well as the size, architectural style, and – through discussion and/or map labelling – the spaces and devices which were significant with/for other members of the household. The maps also helped make visible the differing presence, or what we might call the 'saturation' of digital devices.

The maps, therefore, complemented the videoed home tours by visually showing how often these technologies are used, how many spaces they are used across, and how many digital and non-digital devices are actively used as a single household or multi-household network. The maps not only captured the presence of devices but also the traces and relationships of the personal digital data their use left behind. The maps showed how the felt presence of devices and data are built over time, and through routine; phenomena that are unable to be captured in the medium of the home tour but which are significant for developing our overall ethnographic understanding of what the video-call home visit could reveal about people's relationships with their devices and data.

Almost all participants had become familiar with Zoom around the same time as we did as a research team and therefore only a small number required technological support to participate in the project. However, we acknowledge that this change likely excluded some participant populations who would have been more able to participate in in-person home visits. This includes those with limited mobility to lead a virtual home tour, those with less familiarity or confidence to participate via a video-calling platform such as Zoom, and those with limited access to a reliable internet connection to host a video-call for approximately 90 minutes. For those who could participate, the adapted requirements of participation were arguably more burdensome and required more of participants than in the pre-COVID design. Such impacts on the study sample and on participant labour are important to consider in designing project adaptations.

Conclusion

In this article, we have sought to explain how we developed a range of 'agile methods' to quickly respond to the limits imposed on an existing ethnographic project by COVID restrictions so that we could meet our timelines and funding deadlines. We noted several key differences in the ethnographic experience as we shifted from in-person home visits to conducting the visits using video conferencing applications and mobile devices. Rather than recording the home visit while 'being there' with participants and sharing the same physical space and view, in the video-call visits the full extent of our 'being with' participants was limited to the frame of the camera in the digital devices our participants used during the

call. As such, the camera was the central feature of our video ethnography approach, for both face-to-face and video-call home visits. There were discussions, (re)enactments and perspectives which the differing presence of the camera helped enable, as there were things not perceived by their limited view. In the case of our original approach, we had complete control over what our video camera was recording, while in the case of the revised method of video-calling, we had very little control, other than seeking to verbally direct our participants remotely to aim their device at certain parts of their homes.

However, there were some benefits of using remote methods that we had unanticipated when re-designing our method protocol in the wake of COVID restrictions. That our video-call home visits took place during the early months of COVID lockdown meant they helped generate a mutual window of feeling. Throughout, we were additionally going along with participants in the sense that we were also suddenly working from home and managing our professional and social lives over digital platforms such as Zoom. This helped to cultivate a rich sense of rapport and mutual empathy in many of the home visits as well as an informality that may not have been as well achieved during an in-personal home visit. Just as we could gain a window into the home lives of our participants, using video-calls as we were working from home provided the participants with a glimpse of Watson's home environment. This connection was helped by Watson intentionally not using a 'video-call' Zoom background to mask her own living room wall, and where it came up in conversations she was open with participants about her working-from-home set-up and experience as discussed above.

We did need to reconsider and attempt to compensate for the loss of embodied participation and location in the field that using video-calling technologies involved. If fieldwork involves multisensory ethnographies that reply on researchers visiting the spaces usually inhabited by their participants to obtain a sense of how these spaces feel, remote methods can never come close to generating these kinds of rich insights (Hall et al., 2021). This change is however not one marked by loss, by what we *missed* by not being there. Rather than thinking about this method in terms of what may and may not be captured in a representative sense, and of what is and is not present in terms of multisensory elements, the changes we made to our project directed us towards questions of how the video-call may augment the material – how the camera and screen embedded in digital devices may become a more mobile frame, in terms of movement through the home and in terms of perspective, as well as how an ethnographic liveliness may be brought into view.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by the Australian Research Council under Grant DP190100959 and the Australian Research Council Centre of Excellence for Automated Decision-Making and Society under Grant CE200100005.

ORCID iD

Ash Watson  <https://orcid.org/0000-0001-5826-8534>

References

- Alper, M. (2018). Inclusive sensory ethnography: Studying new media and neurodiversity in everyday life. *New Media & Society*, 20(10), 3560–3579. <https://doi.org/10.1177/1461444818755394>
- Archibald, M. M., Ambagtsheer, R. C., Casey, M. G., & Lawless, M. (2019). Using zoom videoconferencing for qualitative data collection: Perceptions and experiences of researchers and participants. *International Journal of Qualitative Methods*, 18, 1–8. <https://doi.org/10.1177/1609406919874596>
- Bates, C. (2013). Video diaries: Audio-visual research methods and the elusive body. *Visual Studies*, 28(1), 29–37. <https://doi.org/10.1080/1472586X.2013.765203>
- Bates, J., Lin, Y.-W., & Goodale, P. (2016). Data journeys: Capturing the socio-material constitution of data objects and flows. *Big Data & Society*, 3(2), 1–12. <https://doi.org/10.1177/20539517166654502>
- Bates, C., & and Moles, K. (2021). Immersive encounters: Video, swimming and wellbeing. *Visual Studies* (OnlineFirst). <https://doi.org/10.1080/1472586X.2021.1884499>
- Brickell, K. (2012). 'Mapping' and 'doing' critical geographies of home. *Progress in Human Geography*, 36(2), 225–244. <https://doi.org/10.1177/0309132511418708>
- Büscher, M., & Urry, J. (2009). Mobile methods and the empirical. *European Journal of Social Theory*, 12(1), 99–116. <https://doi.org/10.1177/1368431008099642>
- Chen, A. T. (2018). Timeline drawing and the online scrapbook: two visual elicitation techniques for a richer exploration of illness journeys. *International Journal of Qualitative Methods*, 17(1), 1–13. <https://doi.org/10.1177/1609406917753207>
- Desjardins, A., Biggs, H. R., Key, C., & , and Viny, J. E. (2020). IoT data in the home: observing entanglements and drawing new encounters [Conference paper]. CHI'20: *Conference on Human Factors in Computing Systems*, Honolulu, April 25–30 2020.
- Donnelly, M., Gamsu, S., & Whewall, S. (2020). Mapping the relational construction of people and places. *International Journal of Social Research Methodology*, 23(1), 91–108. <https://doi.org/10.1080/13645579.2019.1672284>
- Fitzgerald, A., Hackling, M., & Dawson, V. (2013). Through the viewfinder: Reflecting on the collection and analysis of classroom video data. *International Journal of Qualitative Methods*, 12(1), 52–64. <https://doi.org/10.1177/160940691301200127>

- Grunditz, S. (2021). How to preserve the visible content of films in visual form throughout the analytical process? *Visual Studies*, 36(1), 25–37. <https://doi.org/10.1080/1472586X.2020.1796522>
- Guillemin, M., & Drew, S. (2010). Questions of process in participant-generated visual methodologies. *Visual Studies*, 25(2), 175–188. <https://doi.org/10.1080/1472586X.2010.502676>
- Hall, J., Gaved, M., & Sargent, J. (2021). Participatory research approaches in times of Covid-19: A narrative literature review. *International Journal of Qualitative Methods*, 20, 1–15. <https://doi.org/10.1177/16094069211010087>.
- Hjorth, L., Pink, S., & Horst, H. (2018). Being at home with privacy: Privacy and mundane intimacy through same-sex locative media practices. *International Journal of Communication*, 12, 1209–1227. <https://ijoc.org/index.php/ijoc/article/view/7050/2295>.
- Hockey, J., & Collinson, J. A. (2006). Seeing the way: Visual sociology and the distance runner's perspective. *Visual Studies*, 21(01), 70–81. <https://doi.org/10.1080/14725860600613253>
- Howlett, M. (2021). Looking at the 'field' through a Zoom lens: Methodological reflections on conducting online research during a global pandemic. *Qualitative Research*, (OnlineFirst). <https://journals.sagepub.com/doi/pdf/10.1177/1468794120985691>.
- Hughes, M. (2021). Filmmaking as empirical research: Working with people from refugee backgrounds to share stories about food. *Visual Studies*, 36(1), 11–24. <https://doi.org/10.1080/1472586X.2020.1827972>
- Kasnitz, D., & Shuttleworth, R. (2001). Introduction: Anthropology in disability studies. *Disability Studies Quarterly*, 21(3), 2–17. https://dsq-sds.org/article/view/289/327_2.
- Kaufmann, K., Peil, C., & Bork-Hüffer, T. (2021). Producing in situ data from a distance with mobile instant messaging interviews (MIMIs): examples From the COVID-19 pandemic. *International Journal of Qualitative Methods*, 20, 1–14. <https://doi.org/10.1177/16094069211029697>.
- Kennedy, J., Nansen, B., Arnold, M., Wilken, R., & Gibbs, M. (2015a). Digital housekeepers and domestic expertise in the networked home. *Convergence: The International Journal of Research Into New Media Technologies*, 21(4), 408–422. <https://doi.org/10.1177/1354856515579848>.
- Kennedy, J., Nansen, B., Arnold, M., Wilken, R., & Gibbs, M. (2015b). Digital housekeepers and domestic expertise in the networked home. *Convergence: The International Journal of Research Into New Media Technologies*, 21(4), 408–422. <https://doi.org/10.1177/1354856515579848>.
- Krajina, Z., Moores, S., & Morley, D. (2014). Non-media-centric media studies: A cross-generational conversation. *European Journal of Cultural Studies*, 17(6), 682–700. DOI:10.1177/1367549414526733.
- Leszczynski, A. (2019). Digital methods III: The digital mundane. In: *Progress in Human geography*. online first. <https://doi.org/10.1177/0309132519888687>
- Liu, C. (2020). Rethinking the timescape of home: Domestic practices in time and space. *Progress in Human Geography*, 45(2), 343–361. <https://doi.org/10.1177/0309132520923138>
- Lo Iacono, V., Symonds, P., & Brown, D. H. K. (2016). Skype as a tool for qualitative research interviews. *Sociological Research Online*, 21(2), 103–117. <https://doi.org/10.5153/sro.3952>
- Lobe, B., Morgan, D., & Hoffman, K. A. (2020). Qualitative data collection in an era of social distancing. *International Journal of Qualitative Methods*, 19, 1–8. <https://doi.org/10.1177/1609406920937875>.
- Lofthus, L., & Frers, L. (2021). Action camera: First person perspective or hybrid in motion? *Visual Studies*, (OnlineFirst). <https://doi.org/10.1080/1472586X.2021.1878055>.
- Lupton, D. (2017). Feeling your data: Touch and making sense of personal digital data. *New Media & Society*, 19(10), 1599–1614. <https://doi.org/10.1177/1461444817717515>
- Lupton, D. (2019). *Data Selves: More-than-Human Perspectives*. Polity Press.
- Lupton, D. (2020). *Timeline of COVID-19 in Australia*. Medium. <https://medium.com/@deborahalupton/timeline-of-covid-19-in-australia-1f7df6ca5f23>.
- Lupton, D. (2021). *Doing fieldwork in a pandemic*. <https://docs.google.com/document/d/1cGjGABB2h2qbduTgfqribFmoe9B6P0NvMgVuiHZC8/edit?usp=sharing>
- Lupton, D., & Michael, M. (2017). Depends on who's got the data': Public understandings of personal digital dataveillance. *Surveillance & Society*, 15(2), 254–268. <https://doi.org/10.24908/ss.v15i2.6332>
- Lupton, D., Pink, S., LaBond, C. H., & Sumartojo, S. (2018). Personal data contexts, data sense and self-tracking cycling. *International Journal of Communication*, 12, 647–665. <https://doi.org/http://ijoc.org/index.php/ijoc/article/view/5925/2268>.
- Lupton, D., & Watson, A. (2021). Towards more-than-human digital data studies: Developing research-creation methods. *Qualitative Research*, 21(4), 463–480. <https://doi.org/10.1177/1468794120939235>.
- Markham, A. N., & Pereira, G. (2019). Experimenting with algorithms and memory-making: Lived experience and future-oriented ethics in critical data science. *Frontiers in Big Data*, 2, 1–9. <https://doi.org/https://doi.org/10.3389/fdata.2019.00035>.
- Marte, L. (2007). Foodmaps: tracing boundaries of 'home' through food relations. *Food and Foodways*, 15(3–4), 261–289. <https://doi.org/10.1080/07409710701620243>
- McNaughton, M. J. (2009). Closing in on the picture: Analyzing interactions in video recordings. *International Journal of Qualitative Methods*, 8(4), 27–48. <https://doi.org/10.1177/160940690900800405>
- Merriman, P. (2014). Rethinking mobile methods. *Mobilities*, 9(2), 167–187. <https://doi.org/10.1080/17450101.2013.784540>
- Moores, S. (2012). *Media, Place and Mobility*. Palgrave Macmillan.
- Moores, S. (2014). Digital orientations: "Ways of the hand" and practical knowing in media uses and other manual activities. *Mobile Media & Communication*, 2(2), 196–208. <https://doi.org/10.1177/2050157914521091>
- Murray, L. (2009). Looking at and looking back: Visualization in mobile research. *Qualitative Research*, 9(4), 469–488. <https://doi.org/10.1177/1468794109337879>

- Nansen, B., Arnold, M., Gibbs, M., & Davis, H. (2011). Dwelling with media stuff: Latencies and logics of materiality in four Australian homes. *Environment and Planning D: Society and Space*, 29(4), 693–715. <https://doi.org/10.1068/d11709>
- Nansen, B., Wilken, R., Kennedy, J., Arnold, M., & Gibbs, M. (2015). Digital ethnographic techniques in domestic spaces: Notes on methods and ethics. *Visual Methodologies*, 3(2), 87–97. <https://doi.org/10.7331/vm.v3i2.50>
- Nehls, K., Smith, B. D., & Schneider, H. A. (2015). Video-conferencing interviews in qualitative research. In S. Hai-Jew (Ed.), *Enhancing Qualitative and Mixed Methods Research with Technology* (pp. 140-157). IGI Global. <https://doi.org/10.4018/978-1-4666-6493-7.ch006>.
- Nissen, B., & Bowers, J. (2015). Data-things: Digital fabrication situated within participatory data translation activities [Conference paper]. CHI'15: *Conference on Human factors in Computing systems*, Seoul, 18-23 April 2015.
- Padilla-Petry, P., Hernández-Hernández, F., & Sánchez-Valero, J.-A. (2021). Using cartographies to map time and space in teacher learning in and outside school. *International Journal of Qualitative Methods*, 20, 1-11. <https://doi.org/10.1177/1609406921992906>.
- Pavez, I., & Correa, T. (2020). “I don’t use the internet”: Exploring perceptions and practices among mobile-only and hybrid internet users. *International Journal of Communication*, 14, 2208-2226. <https://ijoc.org/index.php/ijoc/article/view/12275>.
- Pink, S. (2007). Walking with video. *Visual Studies*, 22(3), 240–252. <https://doi.org/10.1080/14725860701657142>
- Pink, S. (2011). Sensory digital photography: Re-thinking ‘moving’ and the image. *Visual Studies*, 26(1), 4–13. <https://doi.org/10.1080/1472586X.2011.548484>
- Pink, S., Horst, H., Postill, J., Hjorth, L., Lewis, T., & Tacchi, J. (2015). *Digital Ethnography: Principles and Practice*. Sage.
- Pink, S., & Leder Mackley, K. (2014). Re-enactment methodologies for everyday life research: Art therapy insights for video ethnography. *Visual Studies*, 29(2), 146-154. <https://doi.org/10.1080/1472586X.2014.887266>.
- Pink, S., Mackley, K. L., Mitchell, V., Wilson, G., & Bhamra, T. (2016). Refiguring digital interventions for energy demand reduction: Designing for life in the digital-material home. In S. Pink, E. Ardevol, & D. Lanzani (Eds.), *Digital Materialities: Design and Anthropology* (pp. 79-97). Routledge.
- Pink, S., Sumartojo, S., Lupton, D., & Heyes LaBond, C. (2017b). Mundane data: The routines, contingencies and accomplishments of digital living. *Big Data & Society*, 4, 1-12. <http://doi.org/10.1177/2053951717700924>.
- Pink, S., Sumartojo, S., Lupton, D., & Heyes LaBond, C. (2017a). Empathetic technologies: Digital materiality and video ethnography. *Visual Studies*, 32(4), 371-381. <https://doi.org/10.1080/1472586X.2017.1396192>.
- Rahman, S. A., Tuckerman, L., Vorley, T., & Gherhes, C. (2021). Resilient research in the field: insights and lessons from adapting qualitative research projects during the COVID-19 pandemic. *International Journal of Qualitative Methods*, 20, 1-16. <https://doi.org/10.1177/16094069211016106>.
- Redmon, D. (2019). *Video Ethnography*. Routledge.
- Richardson, I., & Hjorth, L. (2017). Mobile media, domestic play and haptic ethnography. *New Media & Society*, 19(10), 1653–1667. <https://doi.org/10.1177/1461444817717516>
- Richardson, I., Hjorth, L., Strengers, Y., & Balmford, W. (2017). Careful surveillance at play: Human-animal relations and mobile media in the home. In E. G. Cruz, S. Sumartojo, & S. Pink (Eds.), *Refiguring Techniques in Digital Visual Research* (pp. 105-116). Palgrave Macmillian. https://doi.org/10.1007/978-3-319-61222-5_9.
- Roberts, J. K., Pavlakis, A. E., & Richards, M. P. (2021). It’s more complicated than it seems: Virtual qualitative research in the COVID-19 era. *International Journal of Qualitative Methods*, 20, 1-13. <https://doi.org/10.1177/16094069211002959>.
- Søndergaard, E., & Reventlow, S. (2019). Drawing as a facilitating approach when conducting research among children. *International Journal of Qualitative Methods*, 18, 1-11. <https://doi.org/10.1177/1609406918822558>.
- Spinney, J. (2015). Close encounters? Mobile methods, (post) phenomenology and affect. *Cultural Geographies*, 22(2), 231–246. <https://doi.org/10.1177/1474474014558988>
- Strengers, Y., Kennedy, J., Arcari, P., Nicholls, L., & Gregg, M. (2019). Protection, productivity and pleasure in the smart home: emerging expectations and gendered insights from Australian early adopters [Conference paper]. CHI’19: Conference on Human Factors in Computing Systems, Glasgow, 4–9 May 2019.
- Strengers, Y., & Nicholls, L. (2018). Aesthetic pleasures and gendered tech-work in the 21st-century smart home. *Media International Australia*, 166(1), 70–80. <https://doi.org/10.1177/1329878X17737661>
- Thudt, A., Hinrichs, U., & Carpendale, S. (2017). Data craft: Integrating data into daily practices and shared reflections [Conference paper]. CHI’17: Workshop on Quantified Data and Social Relationships, Denver, 5 July 2017.
- Tremblay, S., Castiglione, S., Audet, L.-A., Desmarais, M., Horace, M., & Peláez, S. (2021). Conducting qualitative research to respond to COVID-19 challenges: Reflections for the present and beyond. *International Journal of Qualitative Methods*, 20, 1-8. <https://doi.org/10.1177/16094069211009679>.
- Watson, A., Lupton, D., & Michael, M. (2021a). The COVID digital home assemblage: Transforming the home into a work space during the crisis. *Convergence: The International Journal of Research Into New Media Technologies*, 27(5), 1207-1221. <https://doi.org/10.1177/13548565211030848>.
- Watson, A., Lupton, D., & Michael, M. (2021b). Enacting intimacy and sociality at a distance in the COVID-19 crisis: The sociomaterialities of home-based communication technologies. *Media International Australia*, 178(1), 136-150. <https://doi.org/10.1177/1329878X20961568>.