Research practices for a pandemic and an uncertain future: synthesis of the learning among the social research community 2020–2022

Melanie Nind, Andy Coverdale & Robert Meckin

Published online: 06 Feb 2023.

Submit your article to this journal ↗

Article views: 417

View related articles ↗

View Crossmark data ↗

Routledge
Taylor & Francis Group

Research practices for a pandemic and an uncertain future: synthesis of the learning among the social research community 2020–2022
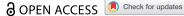
Melanie Nind [ID][a], Andy Coverdale[a] and Robert Meckin [ID][b]

[a]National Centre for Research Methods/School of Education, University of Southampton, Southampton, UK; [b]National Centre for Research Methods/School of Social Sciences, University of Manchester, Manchester, UK

ABSTRACT

This paper synthesises a large dataset on how social research methods and practices have been adapted or designed for use within pandemic conditions and a climate of crisis and uncertainty. The data were generated through two rapid evidence reviews of the methodological literature and in dialogue with social researchers in online knowledge exchange workshops. The authors apply the concepts of crisis, uncertainty and sustainability to discuss the ways in which social researchers are able to conduct research and make it valid, trustworthy and ethical in times of great challenge for research. The paper provides a big picture of the challenges and the degree of maturity and sustainability of various methodological responses. The authors conclude that some methods are at a critical juncture in their development for times of crisis and uncertainty and that these merit particular attention for those involved in capacity-building for social research.

Introduction

In August 2020, we set out to find out how social research methods were being successfully adapted or designed for use within pandemic conditions. This knowledge garnering work was initiated by the UK government funding body as one way of supporting the research community in a time of crisis. As Teti, Schatz and Liebenberg (2020) have powerfully argued, the COVID-19 pandemic was a social, and not just medical, event of epic proportions. Virtually no aspect of social life was untouched by the pandemic and lockdown measures, social distancing and travel restrictions significantly denied access to research sites and disrupted research practices. The research community responded rapidly by producing and sharing institution-based and method-/issue-focused resources (see, e.g. Earthlab; Global Health Network), crowdsourcing solutions (e.g. Lupton, 2020), blogging (e.g. Jamieson, 2020; Ravitch, 2020), and initiating special issues addressing methodological issues and contributions (see, e.g. Kohler, 2020; Markham et al., 2021). There was the common desire, often borne of crisis, to help one another.

In the UK-based study that underpins this paper, our vision was to engage with researchers as they were changing their research practices, and with the relevant grey and published literature as it emerged (see https://www.ncrm.ac.uk/research/socscicovid19/). We aimed to both shape and synthesise the evidence available in a timely fashion and the project evolved to focus on the future sustainability of research practices in times of heightened uncertainty. The design involved rapid

evidence reviews in dialogue with knowledge exchange workshops, as we outline further below. We summarised our key findings in terms of (i) making research happen, (ii) making research valid and trustworthy, and (iii) making research ethical, to which we later added (iv) making research sustainable. In this paper, we further reflect on these four dimensions within the context of a time of crisis when research practices were inevitably changing in response to the challenges of the pandemic and its aftermath. We address the question: *How have social research methods been successfully adapted or designed for use within pandemic conditions in ways that are sustainable for future periods of crisis and uncertainty?* We pay particular attention to the affordances of social research methods and the capacity of people to adapt to, and make sense of, change. Based on research that involves dialogue and synthesis, the paper by its very nature builds on the work of others. Its originality lies in the unique big picture synthesis of learning accumulated from a considerable body of evidence and in the application of theoretical concepts to inform methodological development.

The paper is structured so that we first discuss the underpinning conceptual framework. We then provide information on the study and methods before addressing what we can learn from the extensive dataset about research methods and practices in times of crisis. This paper does not provide the full synthesis of the evidence reviews or the wider project. These findings are reported in detail elsewhere (see Nind et al., 2021, 2022). It does, however, draw on 301 mapped and 202 synthesised papers, and dialogue with over a hundred researcher participants to illustrate an emerging large-scale picture of social research method(ologie)s that have flourished, been successfully adapted or developed, or hit problems in the context of the pandemic years from 2020 to the time of writing. Distinct from other literature, we critically reflect on trends in social research practices collated from a considerable body of dialogue and literature and on the future sustainability of methodological developments unfolding as uncertainty prevails.

Conceptual framework

In this section, we discuss the concept of crisis as we apply it in the paper, linking in concepts of uncertainty, and introducing ideas about maturity and sustainability of research responses. Fitzgibbon (2022, p. 31) writes of crisis:

> Whether personal, local, or global, crisis disrupts our understanding of how to respond. Our tools no longer fit the task. Our research may not fit either. New urgencies distort and undo earlier purpose and influences. We find just moments after assessing a situation that we must reassess. And then reassess again. How then should we proceed? Which influences should we accept or resist? Which tools are no longer 'fit for purpose' and for how long should we set them aside?

The crisis – or as Koppe (2022, p. 46) sees it 'point change, or series of events, that disrupt the social world, introducing a period of uncertainty' – calls everything into question, including the immediate issue of what should we do. Crises demand urgent response and rushed decisions based on incomplete knowledge, they also demand learning for the future. Crises ripple out so that the original crisis prompts other crises and, for researchers as for others, personal and professional crises demand swift thinking, reflection and multiple decisions on questions without single answers. Crises 'tend to crack open an uncertain future, exposing us to emotionally laden transitionality' (Green et al., 2022, p. 83).

Much of the literature on methodological responses to the COVID-19 pandemic refers not just to crisis but to the challenge of uncertainty (e.g. Jairath et al., 2021), or even profound uncertainty (Wood, 2020), as if this was an inevitable and unwelcome consequence of crisis. While inevitable, uncertainty may be framed more positively as having potential benefit once interruption becomes seen as productive. Yet uncertainty can also lead to high levels of concern (Stilgoe, 2007) and demand a public sense that the (social) scientists are in control (Mellor, 2010). While the precarity associated with uncertainty may differ according to context (Rahman et al., 2021), Sedysheva (2021,

p. 83) illustrates how uncertainty with research plans could contribute to 'deep personal crisis'. Uncertainty leads to anxiety and perceived loss of control and therefore to measures to regain control (Barnes, 2020) or manage/avoid further risk (Rahman et al., 2021) to bring some measure of certainty or ability to be adaptive (Buddefeld et al., 2021). This desire to manage local uncertainty in the face of global uncertainty (Star, 1985) relates to the concept that uncertainty is the socially constructed product of the inadequacy and irrelevance of current knowledge (Star, 1985; Stilgoe, 2007). The concept of uncertainty tends to be linked to similar concepts as in 'VUCA' – 'Volatility, Uncertainty, Complexity and Ambiguity [which is] is a litmus test for recognising unpredictable external environments' (Fletcher & Griffiths, 2020, p. 1). Commenting on the magnification of VUCA in the pandemic, Fletcher and Griffiths (2020) see the challenge as being able to re-imagine and learn lessons in light of it. Like seeking control in crisis, they urge us to 'be prepared, embed an agility into the organisation, become digitally enabled' (p. 3) so that we are better prepared for any future crisis. While uncertainty may be transformative – the urge is to take the uncertainty out of uncertainty! In that this might mean addressing fragility and enhancing flexibility by improving digital maturity (Fletcher & Griffiths, 2020), this brings us nicely to the concepts of maturity and sustainability.

The maturity question, *How far have we come?* – or *Where are we on a continuum of progression towards where we need to be?* – is a crucial one for many organisations made all the more pertinent by crisis and uncertainty; it is complemented by the bigger sustainability question, *Can/should we keep going like this?* While the concept of sustainability is usually applied to issues of the climate, environment, planning and so forth, critical to it is the idea that the development under question 'seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future' (Brundtland, 1987, p. 39). Sustainability necessitates balancing multiple priorities (economic, environmental and social) (Smythe, 2014). Scholars of sustainability often seek to understand what plays a pivotal role in achieving sustainability, asking questions about who benefits and who suffers. In our terms, research and research methods need to be able to withstand crises like the COVID-19 pandemic, and we need to understand what any necessary adaptations and adjustments mean for the future.

Methods

Our study was given ethical approval by the University of Southampton Faculty of Social Sciences Ethics Committee. It was designed to interconnect research community engagement and review of the emerging evidence in three iterative phases:

- Phase 1 (August 2020–February 2021) comprised eight knowledge exchange workshops on Zoom with 58 diverse researchers in total, analysis of the emergent grey literature presenting methodological responses to the COVID-19 crisis and rapid evidence review of work published in 2020 that could answer the question: *How have social research methods been successfully adapted or designed for use within pandemic conditions?* The emphasis was on finding out fast and providing immediate support by sharing developments in a systematic fashion.
- Phase 2 (March–September 2021) was a continuation comprising an additional three Zoom knowledge exchange workshops with 29 researchers and instigating review of the 2021 literature.
- Phase 3 (September 2021–June 2022) engaged a selected group of ten researchers in three in-depth Zoom workshops to share how they were grappling with research amidst unprecedented uncertainty.

In this paper, we use the rapid evidence review data while acknowledging that analysis of the workshop fieldnotes, transcripts and generated artefacts also shaped the findings. The reviews were

conducted by two researchers from the study team adapting the *Knowledge to Action* framework of Khangura et al. (2012). Six bibliographic databases were searched: Scopus; Web of science; PsycINFO; Coronavirus Research database; ERIC; and Social Science Premium Collection. The search combined terms related to applying, developing or adapting research methods with terms related to social conditions and public health mandates accompanying Covid-19: ('research method*' OR methodolog* OR qualitative OR quantitative OR fieldwork OR survey* OR interview* OR 'focus group*' OR observation* OR *ethnog) AND (Covid* OR coronavirus OR pandemic OR lockdown OR 'social distan*' OR 'face cover*' OR face mask*). Additional hand-searching supplemented the systematic search.

Studies were identified that met **ALL** of the following criteria:

Scope

- Focuses on social research methods (used by researchers in any discipline)
- Provides description and/or rationale for the fit of the research methods that have been (or were in train to be) applied, developed or adapted to the social conditions and public health mandates accompanying COVID-19

Paper type

- Journal article report or discussion of individual empirical studies or synthesis/review of these or peer-reviewed published conference proceedings
- Written in English

Timespan

- Published 1 January-31 December 2020/1 January-31 December 2021.

Screening using a series of graduated filters was conducted by one researcher with involvement of the other in approximately 25% of cases, including all instances of researcher uncertainty (following Nordhausen & Hirt, 2020).

Data extraction enabled mapping of the kinds of research, geography, discipline, participant groups, and pandemic conditions. Key methodological contributions were recorded in a process of flagging papers for a deep read for the narrative synthesis. Papers for the synthesis were appraised for relevance and quality using an *all things considered* approach (Popay et al., 2006), taking into account clarity; attention to the methodological literature; attention to theory; depth of rationale for the method/adaptation of method; consideration of ethical challenges; evidence of reflexivity; technical merit; internal coherence; evidence of testing the method to produce viable findings; clarity of the basis for the conclusions; and the authors' own evaluation of the strengths and limitations. The full protocol can be seen in the Rapid Evidence Review Reports (Nind et al., 2021, 2022).

Making research happen: methods that helped make sense of the situation

The data illustrate the conditions that interfered with social researchers' ability to research during the pandemic: mandates to stay at home, closures, cancellations of events (see, e.g. Fritz et al., 2020; Vicente et al., 2020); need for physical distance; and restrictions on travel (see, e.g. Leemann et al., 2020; Lovo, 2020). These, together with alarming rates of death and severe illness, were associated with increasing levels of anxiety and stress (Fell et al., 2020; Markham et al., 2021; Moraes Silva & Mont'alverne, 2020), bereavement and grief, disorientation, time pressures (Gummer et al., 2020; Huber & Helm, 2020), and rapidly changing priorities (Markham et al., 2021; Scherpenzeel et al.,

2020; Sovacool et al., 2020). Added to this was the dynamism and uncertainty as 'rules' for interacting were changing and the exacerbation of inequalities with the pandemic, particularly affecting people with disabilities (Partlow, 2020), with lower incomes (Liegghio & Caragata, 2020) and from rural communities (Ndhlovu, 2020).

Importantly, researchers saw opportunities amidst the chaos and tried new things. Some methods were a good fit for the conditions; our own use of knowledge exchange workshops which had a metaphor-based biographical element, for instance, showed how dialogic methods support emotional wellbeing, cognitive processing and practical management of challenges, making them particularly welcome (see Coverdale et al., 2023). Other expressive and creative methods were well suited to these needs including letter writing (Maycock, 2021); diary writing (Gwenzi et al., 2020; M. Jones et al., 2020; Scott et al., 2021); digital storytelling (Malachowska et al., 2021); self-recording using mobile probes (Goldstein et al., 2020); using photographs and drawing (Isaacs et al., 2021) and other arts-based methods (Green et al., 2022). Rather than needing major adjustment for COVID-19 conditions, these methods supported expression in whatever modes participants had available to them to communicate their embodied experience. Perhaps most suited to the pandemic context was autoethnography, showcased in one major research initiative and special issue (Markham et al., 2021). Autoethnographic writing supported people, particularly academics, in sense-making in the pandemic (Chemi, 2020; Lee, 2020; Sarkar, 2020), meeting emotional needs (Martel et al., 2021) and flourishing.

Making research happen: finding ways to adapt

Researchers also managed to continue research by adapting their research practices with minor to fundamental changes, substituting or combining methods in new ways. Surveys were widely adapted by changing modes from in-person interview to online, postal or telephone. Some mode changes represented significant innovation, such as the growth of CATI-mobile phone surveys in India (Nagpal et al., 2021) or novel combinations such as in-depth telephone interviews (with vulnerable people and community leaders) preceding online surveys of the general population (Moraes Silva & Mont'alverne, 2020). The ability to pivot and be flexible has been critical. Strategies included modifying or reducing questions (Sastry et al., 2020), making content-related adjustments (Will et al., 2020) to suit the new mode, or supporting the cost of mobile phone use for research (Agarwal, 2021; Khalil et al., 2021).

Qualitative researchers also used remote methods, sharing reflections on pivoting from in person to online individual interviews (e.g. Cuevas-Parra, 2020; Ellis & Rawicki, 2020; Ndhlovu, 2020), group interviews (Dodds & Hess, 2021; Verma & Bizas, 2020) and focus groups (Howlett, 2021; Jones et al., 2020) or to telephone interviews (Jones et al., 2020; Snow, 2020). Use of online and telephone interviews and focus groups was found to change, rather than weaken, research relationships (see, e.g. Snow, 2020). The limitations have become well known, including lack of digital access (Melis et al., 2021), technical challenges for some groups (Ellis & Rawicki, 2020), and reduced feedback and interaction (Walker et al., 2021) or comfort and empathy (Webber-Ritchey et al., 2021). Others, however, report benefits: flexibility and convenience for participants (Alanazi et al., 2021; Khalil et al., 2021; Tarrant et al., 2021), alternative modes being creative and sustaining (Gratton et al., 2020), generating rich, deep data (Cuevas-Parra, 2020), with less talking over each other in focus groups (Halliday et al., 2021). Phone interviews sometimes created safe and relaxed spaces to voice opinions and discuss sensitive topics/challenging life experiences (Khalil et al., 2021; Renosa et al., 2021; Serekoane et al., 2021). Interviewers have incorporated cultural probes sent ahead by post (Couceiro, 2020) and built relationships from a distance supported by community leaders and local stakeholders (Melis et al., 2021).

Making research valid and trustworthy

The pandemic has impacted not just how social researchers conduct their research, but how they work to ensure its validity and trustworthiness. This was a dominant concern for survey researchers in 2020 when the pandemic was impacting survey recruitment and necessitating mode changes part-way through studies (Burton et al., 2020; Sakshaug et al., 2020; Walker et al., 2021). This raised key questions about the implications of mode effects for consistency, representativeness, internal validity and comparability of survey data (Chatha & Bretz, 2020). In response, researchers used the same interviewers across modes to mitigate mode effects (Gummer et al., 2020; Will et al., 2020) and used experiments (Panter-Brick et al., 2021) and subsample or secondary populations for comparison across modes (Leemann et al., 2020; Sastry et al., 2020). Such efforts have provided greater understanding of mode experiences (Leemann et al., 2020) and distinguishing mode effects from pandemic effects (Will et al., 2020). Even so, the challenge of achieving representative survey samples has been exacerbated by the pivot to multi-pronged sampling and using social media (Ali et al., 2020; Ramlagan et al., 2021).

Comparability of survey data amidst major societal change is concerning. Fell et al. (2020, p. 1) ask: 'How can we ensure that conclusions drawn from data collected during the pandemic are valid, representative, generalisable to a post-pandemic world, and comparable to the pre-pandemic one?' In response, survey researchers have included guidance on how to answer questions from a pre-COVID or in-COVID time perspective (Burton et al., 2020; Will et al., 2020), by adding new questions (Burton et al., 2020), separate COVID-specific modules, sometimes with their own mode (Gummer et al., 2020; Will et al., 2020), or adding surveys within longitudinal studies (Burton et al., 2020). There has been a drive to produce data and report findings quickly to inform policy and action (Huber & Helm, 2020; Ramlagan et al., 2021; Sakshaug et al., 2020), with speed a trade-off with the representativeness of survey samples (Connelly & Gayle, 2020; Fell et al., 2020; Huber & Helm, 2020).

Turning to trustworthiness in qualitative research, some researchers have argued that ethnographic research should be, and is, well positioned to respond to validity issues raised by the pandemic by accounting for changes in method and object. When, as in ethnography, experience is the main method (Pandian, 2019), the typical distinction between object and method is dissolved. For other researchers using qualitative methods, building participant trust has been critical to the trustworthiness of the research in its role as fundamental to producing rich data. We return to this in the next section.

Making research ethical

The rethinking of research plans during the pandemic has been seen as an ethical imperative (Kara & Khoo, 2020). Researchers have been juggling the need to do research with the need to address heightened risks to participants, to themselves (Rahman et al., 2021) and other stakeholders. Carrying on has necessitated not just adapting research methods and designs, but agile, careful decision-making about deferring and resuming in which ethical questions have been at the forefront (see, e.g. Malila, 2020; Pascal & Bertram, 2021). There has been little evidence of people deciding not to do their research at all having weighed that it constitutes an unnecessary burden to continue (Fell et al., 2020). Often the stance has been that it is ethically most responsible to continue as this causes least detriment to locally embedded research collaborators and researched communities (Carayannis & Bolin, 2020). Moreover, social research can contribute unique and valued insights into crises like the pandemic (Pacheco & Zaimağaoğlu, 2020; Scott et al., 2021) and do good through providing outlets to talk and connect (Averett, 2021; Kobakhidze et al., 2021; Snow, 2020).

The pivot to digital methods has raised major ethical challenges, such as working with limited communicative access to participants' wellbeing (Braun et al., 2020; Partlow, 2020) and across the digital divide (Chatha & Bretz, 2020) with inequalities in digital access interacting with inequalities

in research representation. Researchers have developed strategies to build rapport and trust and to monitor participation in online spaces (Roberts et al., 2021).

Over and above these challenges, the research evidence we scrutinised and generated underlined the need for radical reflexivity for ethical practice (Ravitch, 2020) and highlighted critical and feminist ethics of care approaches (Averett, 2021; Liegghio & Caragata, 2020). Participant wellbeing has been promoted by using methods that are therapeutic (Pacheco & Zaimağaoğlu, 2020) or that provide a sense of purpose (Clarke & Watson, 2020; Gratton et al., 2020).

The pandemic has also initiated a shift in research relationships. Restrictions on access to research sites and communities have led to an increased reliance on gatekeepers, research partners and local researchers (Verma & Bizas, 2020). Most significantly, with researchers less able to travel from richer, more privileged areas, local researchers in the Global South, in low- and middle-income countries, and in conflict areas have assumed more prominent roles, empowering them to challenge established power imbalances, and call for greater equity in the recognition and remuneration of knowledge and expertise (Carayannis & Bolin, 2020; Mwambari et al., 2021; Nambiar et al., 2021).

Making research sustainable: methods, methodologies and practices for an uncertain future

Garnering a big picture of changes to social research in the pandemic brings the advantage of gaining a longer view. Our work has spanned the first methods papers to appear addressing the impact of the pandemic through to when a mix of business as usual, vastly changed social context, and new uncertainties began to emerge. Therefore, we now turn to what we have learned about methods, not just for the challenges of pandemics and other crises, but for an ongoing uncertain future. One certainty is that methodological and ethical issues will require continued review and reflection. Methodological adaptation during COVID-19 involved a process of unlearning and re-learning (Renosa et al., 2021). This has left fundamental questions about the future of research practice, with Lane et al. (2021) suggesting pauses to projects can be productive, creative spaces. Similarly, it is helpful to pause and take stock of which of the changes to research discussed in this paper are sustainable into the future, through necessity or desirability, and to reflect on what we have learned that we should retain or develop further. Our experience of this project sheds light on the ongoing discussions we need to be having in a 'pandemic-triggered . . . revaluation of academic research norms' (Smith, 2021, p. 176).

A major discussion is emerging about the future of in-person and online methods and about combining them in survey and qualitative research, raising the questions of whether it is sustainable to retain a mix of these (see, e.g. Chatha & Bretz, 2020; Cuevas-Parra, 2020; Dodds & Hess, 2021; Gummer et al., 2020; Scherpenzeel et al., 2020; Will et al., 2020). Decisions will, it seems, be guided by finance in pressed economies as research funders look for cost-effective options. Also, important are questions of how much mode choice we can, and should, give participants, many of whom are connected and skilled online in ways that were unimaginable pre-pandemic. Is there any going back, we wonder, from what Braun et al. (2020) refer to as 'the onlineification of everything'. There are certainly pressures to ensure that the gains made in widening digital inclusion in research are sustained and extended. Social researchers, we argue, play an important role in further highlighting and addressing the digital divide.

Doing social research in the pandemic brought wellbeing into the spotlight as researchers and research participants struggled together and apart with threats to their lives, livelihoods, plans and dreams. With the affective dimension to the fore and researchers' human vulnerabilities exposed, having seen inside each other's homes, shared in each other's routines, will we go back to emotionally distanced research or will we continue to feel joy in being in the physical or online presence of others involved in our research? Some of the emotionality of the early pandemic literature had already faded in 2022, yet the need to support researcher well-being, which has

suffered during the pandemic (Sedysheva, 2021) is an ongoing one, demanding the development of sustainable research norms and mechanisms for caring for both researchers and researched. More systemically, it has become clear that the long-standing global inequalities in research exposed by the pandemic need to continue to be challenged. For future sustainability, we need to build on the new opportunities and empowerment that have arisen for local researchers in the Global South.

The crisis of pandemic times brought the agility and flexibility of methodological practices into the spotlight. There is much to be learned from researchers (e.g. Lane et al., 2021) who responded positively to pandemic uncertainty with optimistic refocusing and reframing to reinvigorate research and research relationships. The literature indicates a desire to embed resilience in future projects in which researchers can be 'more aware of when to adapt and change and when to take a break, pause, and evaluate' (Rahman et al., 2021, p. 8) and much learning about how to 'plan for unexpected disruptions' (p. 2). There is a desire to minimise the impact of crises and other disruptions through strategic and adaptive research design and enhanced risk assessment as advocated by Hermans et al. (2021), and to develop proactive contingency planning as advocated by Rahman et al. (2021); this may be most important for longitudinal research. Douedari et al. (2021) highlight that major uncertainty requires major flexibility, which places new demands of research funders as well as researchers. Sustainable working is likely to involve social researchers and funding bodies working together to build options into research grants for changes to timelines and flexible use of methods and budgets.

Making research sustainable: emerging, maturing and consolidating methodological adaptations

In addition to sustainability discussions, there are areas of methodological adaptation to crisis that are important because they are at a critical point of development. Here, we can apply a maturity model in that such models 'describe the development of an entity over time' (Klimko, 2001, cited by Wendler, 2012). Evolving methods adaptations being discussed in the methods literature may be at an early stage, a critical juncture in terms of potential sustainability, becoming quite embedded, or somewhere between these points. Concern with these different stages of maturity is evident in the recent funding call in the UK from the Economic and Social Research Council[1] that follows on from our work. The funding council seeks research 'to refine recently developed methodological approaches [since the first lockdown in March 2020] to enable them to be fully embedded in social science research practice . . . maximising their contribution to social science research'.

Maturity models represent a well-used way of conceptualising progress towards a goal using delineated steps (Storm et al., 2014). Steps or stages might be *awareness, evolving, operational, sustaining*, or *initiated, developing, defined, integrated and optimised*, marking the transition from building awareness to continuous innovation (see ISH4 Systems for Health Framework, PAHO n. d). The research council is concerned with *refining* and *consolidating* methods developments showing that a maturity model offers a convenient way of conceptualising progress towards strategic goals that are valuable for decision-makers. Maturity models are intended to help see evolving trends and 'trouble spots' and 'to stimulate discussion among practitioners to initiate activities for continuous improvement' (Boughzala & de Vreede, 2012, p. 306). While originally developed for evaluating effective delivery of software development projects to mitigate the risk of project failure, and now widely applied in quality assurance (Boughzala & de Vreede, 2012), evaluation and validation of maturity models themselves lack maturity, as Wendler (2012) shows. Nonetheless, the core ideas have resonance when considering the progress of social researchers adapting to crisis and uncertainty.

At the earlier end of an imagined methodological methods maturity continuum are adaptations to crisis that still very exploratory, often flagged by social researchers for further work, such as exploring how the clinical and healthcare practice response to COVID-19 of virtual consultations can be adopted/adapted by social researchers (Tremblay et al., 2021). Early-stage adaptations may

make isolated appearances in the literature without echoes across different projects, for example, developing an online version of Q methodology (Alanazi et al., 2021). Equally relatively immature may be on a less granular scale, such as the methodological shift involved in doing anthropology at a distance, what Podjed (2021) calls armchair anthropology.

It becomes more difficult to comment on the level of maturity of developments in methods and methods practices that clearly precede the COVID-19 but that were boosted by the crisis. Letter-writing and telephone interviews, for example, had gone out of fashion but became newly relevant, gaining fresh attention and illustrating that progress may be less smoothly linear than maturity models might assume. Approaches like ethnography are ever-evolving, and the evolution towards digital versions was spurred on by the crisis (Lee, 2021), whereas the approach of community-based participatory research, mostly used with marginalised groups who suffered badly in the pandemic, had a bumpy ride (Valdez & Gubrium, 2020). In terms of the well-established practice of methodological bricolage (Buddefeld et al., 2021), novel early-stage versions emerged such as using mobile instant messaging interviews in mixed methods or longitudinal studies (Kaufmann et al., 2021) and triangulating multiple available data sources, such as interviews with secondary data (see Kobakhidze et al., 2021). Another example is mixing and combining online and offline methods to create hybrid in situ methods like walking interviews with the researcher connecting from a distance via mobile phone app proposed by Shareck et al. (2021).

At the other end of the continuum from early-stage adaptations to crisis are the methods that were repeatedly rehearsed and refined during the pandemic and that we argue are quite embedded and likely to be self-sustaining now that sufficient knowledge about them has been gained and put into the public domain. We include here: conducting online interviews in which rapport is established (Renosa et al., 2021; Roberts et al., 2021) and conducting online focus groups in which the technical and ethical aspects are successfully managed (e.g. Howlett, 2021). Considerable progress has been made in making best use of community leaders, local stakeholders and local researchers for engaging groups who are remote or vulnerable, older people and people experiencing poverty to sustain and nourish local relationships and contributions in research in times of crisis (Melis et al., 2021; Moraes Silva & Mont'alverne, 2020). And importantly there is a growing evidence base on selecting and using expressive methods to fit particular populations, such as collaborative autoethnographies for academics and students (Markham et al., 2021; Martel et al., 2021), digital diaries for young people (Gwenzi et al., 2020; Malachowska et al., 2021), and mobile phone use for remote populations (Nagpal et al., 2021) that all worked in this last crisis. There is also repeated evidence about using new variants of (collaborative) autoethnography to develop understanding of the impact of crises on people's everyday lives and support them with meaning making and coping.

Perhaps, the most interesting outcome of applying maturity model thinking to our synthesis is the identification of methodological developments that are at a critical juncture. It is these that perhaps most require funding for their refinement and consolidation so that they become sustainable. We include here the need to enhance capacity to diversify sampling and recruitment practices, including using social media, to establish good response rates in surveys particularly among under-represented groups; this was much needed in the recent crisis (see Ali et al., 2020; Ramlagan et al., 2021). Similarly, capacity building is needed to address the digital divide and other inequalities, such as access to safe, quiet, private spaces, solutions to care burdens and social stigma, by finding methods and providing resources, rewards and incentives that reduce barriers to participation (see Lathen & Laestadius, 2021). Also, at a critical juncture are efforts to better understand how to build and sustain research relationships when working remotely; design remote, mixed, or flexible mode surveys with representative samples and mitigations for mode effects; adapt visual tools such as Likert-scales, and visual approaches such as Photovoice for incorporation into telephone methods; adapt in person workshop-based methods to online versions facilitated by video conferencing in which use of chat functions and collaborative whiteboarding platforms are optimised; adapt methods typically used in home visits to online (or hybrid) methods, including making stronger

use of people and objects in the home as research tools. We suggest particularly critical might be expanding mobile instant messaging interviews and other usages of smartphone apps for research and achieving optimal trade-offs between pace of data collection/analysis and rigour and ethics in time-critical research, particularly rapid surveys and rapid qualitative studies. These shine out as issues in the pandemic where the potential is yet to be realised and where the solution or points of principle are yet to be established.

Conclusion

We draw some brief conclusions from this work. First, it is not sustainable that every researcher finds their own way through crises and uncertainty in social research without an evidence base to draw on. Capacity to refer to analyses of emerging and tested methodological adaptations must be helpful for research quality, even if in every case the method must adapt to the evolving situation. The global nature of the COVID-19 pandemic meant that a significant body of methodological literature was published in a short period of time. This is very different from previous, arguably more localised recent crises, such as hurricane Katrina, the Ebola outbreak, and the financial crash in high-income countries. The social and health impacts of these were researched, but less so the process of conducting social research. The COVID-19 pandemic has many legacies and one is the building of capacity to research in periods of crisis.

Second, researchers need to consider and address the significant ethical and epistemic challenges alongside the practical and technical challenges of research impacted by COVID-19 and other crises and uncertainties. We need to recognise that 'crises could come in many forms' (Rahman et al., 2021, p. 9) interrupting and disrupting research in small and big ways making it wise to embed research resilience wherever possible or to make more radical shifts in positioning research as forever unfixed and context-dependent. By this we mean resilience in the way Rahman et al. (2021, p. 9) use the term, 'the ability to adapt and continue the research throughout a crisis while maintaining consistency with the overall research design to successfully complete a research project', and in the wider sense of the research community developing capacity with remote and flexible research methods and combinations of methods to fit changing conditions. The institutions supporting social research have a critical role to play in ensuring changing research practices meet current needs with minimal threat to future working.

Third, there is limited benefit in trying to intricately map methodological progress across stages of maturity. Application of maturity model thinking risks closing down opportunities to grow methodologically in rhizomic rather than linear fashion and it risks implying more certainty than there is. The state of maturity of methodological adaptation to crisis will vary across disciplines, cultures, participant group, subject matter, and especially the resource-richness of the national context. Nonetheless, identifying methodological developments that are at a critical juncture could help to indicate where the methodological capacity-building focus should be. Notwithstanding the longer term need to also progress methodological developments from early to embedded levels of maturity, with finite resources, this might shed light on where investment should be in readiness for crises ahead.

Note

1. https://www.ukri.org/opportunity/embedding-methodological-development-in-social-science-research -2022/.

Acknowledgments

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

Notes on contributors

Melanie Nind Professor of Education, Fellow of the Academy of Social Sciences, is a co-director of the National Centre for Research Methods (NCRM). She was principal investigator for the NCRM Changing Research Practices for COVID-19 project series and leads on pedagogy for NCRM. Her work spans disability studies (learning disabilities), (inclusive) pedagogy and (inclusive) methodology. Her books include *What is Inclusive Research?* (Bloomsbury Academic, 2014, reprinted 2020) and (with Alicia Curtin & Kathy Hall) *Research Methods for Pedagogy* (Bloomsbury Academic, 2016).

Andy Coverdale is a research fellow in the Education School and the Centre for Research in Inclusion at the University of Southampton former research fellow for National Centre for Research Methods. He is interested in working collaboratively with people with learning disabilities and using participatory and inclusive research methods. His recent work includes exploring 'self-building' in learning disability communities and the teaching of digital accessibility in academic and workplace settings.

Robert Meckin is a presidential fellow in the School of Social Sciences, University of Manchester and research fellow at the National Centre for Research Methods (NCRM). He is interested in methods in the social and natural sciences. His recent work includes considerations of sensory modes of knowledge production; an NCRM edited collection on contemporary investigative methods; different collaborative efforts in the interdisciplinary field of synthetic biology; and approaches to knowledge production in the field of computational social science. He continues to explore creative and sensory methods for uncertain times and for the social dimensions of health therapies.

ORCID

Melanie Nind 🆔 http://orcid.org/0000-0003-4070-7513
Robert Meckin 🆔 http://orcid.org/0000-0003-1071-9679

References

Agarwal, B. (2021). Reflections on the less visible and less measured: Gender and COVID-19 in India. *Gender & Society*, *35*(2), 244–255. https://doi.org/10.1177/08912432211001299

Alanazi, A. S., Wharrad, H., Moffatt, F., Taylor, M., & Ladan, M. (2021). Q Methodology in the COVID-19 era. *Healthcare*, *9*(11), 1491. https://doi.org/10.3390/healthcare9111491

Ali, S. H., Foreman, J., Capasso, A., Jones, A. M., Tozan, Y., & DiClemente, R. J. (2020). Social media as a recruitment platform for a nationwide online survey of COVID-19 knowledge, beliefs, and practices in the United States: Methodology and feasibility analysis. *BMC Medical Research Methodology*, *20*(1). https://doi.org/10.1186/s12874-020-01011-0

Averett, K. H. (2021). A feminist public sociology of the pandemic: Interviewing about a crisis, during a crisis. *Gender, Work & Organization*, *28*(S2), 321–329. https://doi.org/10.1111/gwao.12616

Barnes, S. J. (2020). Information management research and practice in the post-COVID-19 world. *International Journal of Information Management*, *55*, 102175. https://doi.org/10.1016/j.ijinfomgt.2020.102175

Boughzala, I., & de Vreede, G. (2012) A collaboration maturity model: Development and exploratory application. 45th Hawaii International Conference on System Sciences, 306–315. https://doi.org/10.1109/HICSS.2012.47

Braun, R., Blok, V., Loeber, A., & Wunderle, U. (2020). COVID-19 and the onlineification of research: Kick-starting a dialogue on Responsible online Research and Innovation (RoRI). *Journal of Responsible Innovation*, *7*(3), 680–688. https://doi.org/10.1080/23299460.2020.1789387

Brundtland, G. H. (1987) *Report of the World Commission on environment and development: Our common future*.

Buddefeld, J., Murphy, M., Ostrem, J., & Halfpenny, E. (2021). Methodological bricolage and COVID-19: An illustration from innovative, novel, and adaptive environmental behavior change research. *Journal of Mixed Methods Research*, *15*(3), 437–461. https://doi.org/10.1177/15586898211019496

Burton, J., Lynn, P., & Benzeval, M. (2020). Effects of the COVID-19 crisis on survey fieldwork: Experience and lessons from two major supplements to the U.S. panel study of income dynamics. *Survey Research Methods*, *14*(2), 241–245. https://doi.org/10.18148/srm/2020.v14i2.7746

Carayannis, T., & Bolin, A. (2020). Research in insecure times and places: Ethics of social research for emerging ecologies of insecurity. *Items*. https://items.ssrc.org/covid-19-and-the-social-sciences/social-research-and-insecurity/research-in-insecure-times-and-places-ethics-of-social-research-for-emerging-ecologies-of-insecurity/

Chatha, C. J., & Bretz, S. L. (2020). Adapting interactive interview tasks to remote data collection: Human subjects research that requires annotations and manipulations of chemical structures during the COVID-19 pandemic. *Journal of Chemical Education*, *97*(11), 4196–4201. https://doi.org/10.1021/acs.jchemed.0c01018

Chemi, T. (2020). It is impossible: The teacher's creative response to the COVID-19 emergency and digitalized teaching strategies. *Qualitative Inquiry*, *27*(7), 853–860. https://doi.org/10.1177/1077800420960141

Clarke, N., & Watson, D. (2020). Crafting during Coronavirus': Creative diary approaches for participant-centred research. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19* Vol. 3. (pp. 19–28). Policy Press.

Connelly, R., & Gayle, V. (2020). Social surveys during the COVID-19 pandemic. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 volume 1 response and reassessment* (pp. 67–71). Policy Press.

Couceiro, L. (2020). Disorientation and new directions: Developing the reader response toolkit. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 volume 1 response and reassessment* (pp. 30–39). Policy Press.

Coverdale, A., Nind, M., & Meckin, R. (2023). Research methods learning in temporary online communities during Covid-19. In M. Nind (Ed.), *Handbook of teaching and learning social research methods*. Edward Elgar.

Cuevas-Parra, P. (2020). Co-researching with children in the time of COVID-19: Shifting the narrative on methodologies to generate knowledge. *International Journal of Qualitative Methods*, *19*, 160940692098213. https://doi.org/10.1177/1609406920982135

Dodds, S., & Hess, A. C. (2021). Adapting research methodology during COVID-19: Lessons for transformative service research. *Journal of Service Management*, *32*(2), 203–217. https://doi.org/10.1108/JOSM-05-2020-0153

Douedari, Y., Alhaffar, M., Duclos, D., Al-Twaish, M., Jabbour, S., & Howard, N. (2021). 'We need someone to deliver our voices': Reflections from conducting remote qualitative research in Syria. *Conflict and Health*, *15*(1). https://doi.org/10.1186/s13031-021-00361-w

Ellis, C., & Rawicki, J. (2020). A researcher and survivor of the holocaust connect and make meaning during the COVID-19 pandemic. *Journal of Loss & Trauma*, *25*(8), 605–622. https://doi.org/10.1080/15325024.2020.1765099

Fell, M. J., Pagel, L., Chen, C., Goldberg, M. H., Herberz, M., Huebner, G. M., Sareen, S., & Hahnel, U. J. J. (2020). *Validity of energy social research during and after COVID-19: Challenges, considerations, and responses*. Energy Research & Social Science. https://doi.org/10.1016/j.erss.2020.101646

Fitzgibbon, A. (2022). Just because you can, doesn't mean you should. In H. Kara & S.-M. Khoo (Eds.), *Qualitative and digital research in times of crisis: Methods, reflexivity, and ethics* (pp. 17–29). Policy Press.

Fletcher, G., & Griffiths, M. (2020). Digital transformation during a lockdown. *International Journal of Information Management*, *55*, 102185. https://doi.org/10.1016/j.ijinfomgt.2020.102185

Fritz, S., Milligan, I., Ruest, N., & Lin, J. (2020). Building community at distance: A datathon during COVID-19. *Digital Library Perspectives*, *36*(4), 415–428. https://doi.org/10.1108/DLP-04-2020-0024

Goldstein, R. Z., Vasques, R. A., & Loschiavo dos Santos, M. C. (2020). Doing design research with youth at/from the margins in pandemic times: Challenges, inequalities and possibilities. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 volume 3 creativity and ethics* (pp. 112–119). Policy Press.

Gratton, N., Fox, R., & Elder, T. (2020). Keep Talking: Messy research in times of lockdown. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 volume 2 care and resilience* (pp. 101–110). Policy Press.

Green, D., Levey, A., Evans, B., Lawson, W., & Marks, K. (2022). The arts of making-sense in uncertain times: Arts-based research and ethnography. In H. Kara & S.-M. Khoo (Eds.), *Qualitative and digital research in times of crisis: Methods, Reflexivity, and Ethics* (pp. 59–77). Policy Press.

Gummer, T., McGonagle, K., & Fomby, P. (2020). Effects of the COVID-19 crisis on survey fieldwork: Experience and lessons from two major supplements to the U.S. panel study of income dynamics. *Survey Research Methods*, *14*(2), 241–245. https://doi.org/10.18148/srm/2020.v14i2.7740

Gwenzi, G. D., Anaduaka, U. S., Adjei, S. B., Oladosu, A., & Sam, S. T. (2020). Methodological and ethical considerations in the study on children's everyday lives under COVID-19 in three African countries: Ghana, Nigeria and South Africa. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 Volume 2 care and resilience* (pp. 48–57). Policy Press.

Halliday, M., Mill, D., Johnson, J., & Lee, K. (2021). Let's talk virtual! Online focus group facilitation for the modern researcher. *Research in Social and Administrative Pharmacy*, *17*(12), 2145–2150. https://doi.org/10.1016/j.sapharm.2021.02.003

Hermans, K., Berger, E., Biber-Freudenberger, L., Bossenbroek, L., Ebeler, L., Groth, J., Hack, J., Hanspach, J., Hintz, K. S., Kimengsi, J. N., Kwong, Y. M. C., Oakes, R., Pagogna, R., Plieninger, T., Sterly, H., van der Geest, K., van Vliet, J., & Wiederkehr, C. (2021). Crisis-induced disruptions in place-based social-ecological research - an opportunity for redirection. *Ecological Perspectives for Science and Society*, *30*(2), 72–76. https://doi.org/10.14512/gaia.30.2.3

Howlett, M. (2021). Looking at the 'field' through a Zoom lens: Methodological reflections on conducting online research during a global pandemic. *Qualitative Research*, *22*(3), 387–402. https://doi.org/10.1177/1468794120985691

Huber, S. G., & Helm, C. (2020). COVID-19 and schooling: Evaluation, assessment and accountability in times of crises—reacting quickly to explore key issues for policy, practice and research with the school barometer. *Educational Assessment, Evaluation and Accountability*, *32*(2), 237–270. https://doi.org/10.1007/s11092-020-09322-y

Isaacs, A., Squires Gallagher, C., & Hawkes, C. (2021). How is COVID-19 shaping families' relationships with food and the food environment in England? A qualitative research protocol. *International Journal of Qualitative Methods*, *20*, 160940692199137. https://doi.org/10.1177/1609406921991371

Jairath, N. N., Benetato, B. B., O'brien, S. L., & Griffin Agazio, J. B. (2021). Just-in-time qualitative research: Methodological guidelines based on the COVID-19 pandemic experience. *Nursing Research*, *70*(3), 215–221. https://doi.org/10.1097/NNR.0000000000000504

Jamieson, L. (2020) COVID 19 and 'Big Qual' Research, *The Editors Notebook* https://ijsrm.org/2020/04/16/covid-19-and-big-qual-research/

Jones, M., Khincha, R., Kondylis, F., & Uwamayriya, L. (2020) Practical tips for implementing remote surveys in the time of the great lockdown, *World Bank Blogs*, https://blogs.worldbank.org/impactevaluations/practical-tips-implementing-remote-surveys-time-great-lockdown

Kara, H., & Khoo, S. -M. (2020). How the pandemic has transformed research methods and ethics: 3 lessons from 33 rapid responses. *LSE Blog*. https://blogs.lse.ac.uk/impactofsocialsciences/2020/10/26/how-the-pandemic-has-transformed-research-methods-and-ethics-3-lessons-from-33-rapid-responses/

Kaufmann, K., Corinna 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*, 160940692110296. https://doi.org/10.1177/16094069211029697

Khalil, K., Das, P., Kammowanee, R., Saluja, D., Mitra, P., Das, S., Gharai, D., Bhatt, D., Kumar, N., & Franzen, S. (2021). Ethical considerations of phone-based interviews from three studies of COVID-19 impact in Bihar, India. *BMJ Global Health*, *6*(5), e005981. https://doi.org/10.1136/bmjgh-2021-005981

Khangura, S., Konnyu, K., Cushman, R., Grimshaw, J., & Moher, D. (2012). Evidence summaries: The evolution of a rapid review approach. *Systematic Reviews*, *1*(1). https://doi.org/10.1186/2046-4053-1-10

Klimko, G. 2001. Knowledge management and maturity models: Building common understanding. In *Proceedings of the 2nd European Conference on Knowledge Management* (pp. 269–278).

Kobakhidze, M. N., Hui, J., Chui, J., & González, A. (2021). Research disruptions, new opportunities: Re-imagining qualitative interview study during the COVID-19 pandemic. *International Journal of Qualitative Methods*, *20*, 160940692110515. https://doi.org/10.1177/16094069211051576

Kohler, U. (2020). Survey research methods during the COVID-19 crisis. *Survey Research Methods*, *14*(2), 93–94. https://doi.org/10.18148/srm/2020.v14i2.7769

Koppe, Z. (2022). Ethnography in crisis: Methodology in the cracks. In H. Kara & S.-M. Khoo (Eds.), *Qualitative and digital research in times of crisis: Methods, reflexivity, and ethics* (pp. 30–42). Policy Press.

Lane, K. L., Cabell, S. Q., & Drew, S. V. (2021). A productive scholar's guide to respectful, responsible inquiry during the COVID-19 pandemic: Moving forward. *Journal of Learning Disabilities*, *54*(5), 388–399. https://doi.org/10.1177/00222194211023186

Lathen, L., & Laestadius, L. (2021). Reflections on online focus group research with low socioeconomic status African American adults during COVID-19. *International Journal of Qualitative Methods*, *20*, 160940692110217. https://doi.org/10.1177/16094069211021713

Lee, S. L. (2020). Now as a liminal space, writing as a patchwork: Autoethnographic reflections on the self in the middle of the pandemic. *Qualitative inquiry*, *27*(7), 773–777. https://doi.org/10.1177/1077800420960181

Lee, Y. (2021). *The NCRM wayfinder guide to conducting ethnographic research in the Covid-19 era*. NCRM. https://eprints.ncrm.ac.uk/id/eprint/4410/

Leemann, A., Jeszenszky, P., Steiner, C., Studerus, M., & Messerli, J. (2020). Linguistic fieldwork in a pandemic: Supervised data collection combining smartphone recordings and videoconferencing. *Linguistics Vanguard*, *6*(s3). https://doi.org/10.1515/lingvan-2020-0061

Liegghio, M., & Caragata, L. (2020). COVID-19 and youth living in poverty: The ethical considerations of moving from in-person interviews to a photovoice using remote methods. *Affilia - Journal of Women and Social Work*, *36*(2), 149–155. https://doi.org/10.1177/0886109920939051

Lovo, E. (2020). COVID-19 research crisis management for a human research ethics research project in Fiji and Tonga. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 volume 3 creativity and Ethics* (pp. 61–69). Policy Press.

Lupton, D. (Ed.) (2020) Doing fieldwork in a pandemic (crowd-sourced document). https://docs.google.com/document/d/1clGjGABB2h2qbduTgfqribHmog9B6P0NvMgVuiHZCl8/

Malachowska, A., Youssef, S., Alheiwidi, S., & Odeh, K. B. (2021). Ensuring no voices are left behind: The use of digital storytelling and diary writing in times of crisis. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 volume 2 care and resilience* (pp. 68–77). Policy Press.

Malila, V. (2020). Conceptualizing research ethics in response to COVID-19: Moral and economic contradictions. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 volume 3 creativity and Ethics* (pp. 51–60). Policy Press.

Markham, A. N., Harris, A., & Luka, M. E. (2021). Massive and microscopic sensemaking during COVID-19 times. *Qualitative inquiry*, *27*(7), 759–766. https://doi.org/10.1177/1077800420962477

Martel, K., Raupp, M., Hadi, A. A., Oleškevičiūtė, E., Mello, R., Biswas, T., & Milani, G. S. (2021). "Isn't it ironic!?!" Mobility researchers go sedentary: A group auto-ethnography on collective coping and care in pandemic times. *Gender, Work & Organisation*, *29*(1), 273–300. https://doi.org/10.1111/gwao.12734

Maycock, M. (2021). 'I Do not appear to have had previous letters'. the potential and pitfalls of using a qualitative correspondence method to facilitate insights into life in prison during the Covid-19 pandemic. *International Journal of Qualitative Methods*, *20*, 160940692110471. https://doi.org/10.1177/16094069211047129

Melis, G., Sala, E., & Zaccaria, D. (2021). Remote recruiting and video-interviewing older people: A research note on a qualitative case study carried out in the first Covid-19 Red Zone in Europe. *International Journal of Social Research Methodology*, *25*(4), 477–482. https://doi.org/10.1080/13645579.2021.1913921

Mellor, F. (2010). Negotiating uncertainty: Asteroids, risk and the media. *Public Understanding of Science*, *19*(1), 16–33. https://doi.org/10.1177/0963662507087307

Moraes Silva, D. R. M., & Mont'alverne, C. (2020). Identifying impacts of COVID-19 mixed-methods pandemic approach on vulnerable populations: A mixed-methods approach. *Survey Research Methods*, *14*(2), 141–145.

Mwambari, D., Purdeková, A., & Bisoka, A. N. (2021). Covid-19 and research in conflict-affected contexts: Distanced methods and the digitalisation of suffering. *Qualitative Research*, 146879412199901. https://doi.org/10.1177/1468794121999014

Nagpal, K., Mathur, M. R., Biswas, A., & Fraker, A. (2021). Who do phone surveys miss, and how to reduce exclusion: Recommendations from phone surveys in nine Indian states. *BMJ Global Health*, *6*(5), e005610. https://doi.org/10.1136/bmjgh-2021-005610

Nambiar, D., Benny, G., & Usaidali. (2021). Telephony and trade-offs in fieldwork with the 'unreached': On the conduct of telephonic interviews with indigenous study participants in southern India. *BMJ Global Health*, *6*(5), e006261. https://doi.org/10.1136/bmjgh-2021-006261

Ndhlovu, E. (2020). Qualitative data collection under the 'new normal' in Zimbabwe. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 Volume 1 Response and Reassessment* (pp. 51–60). Policy Press.

Nind, M., Coverdale, A., & Meckin, R. (2021) *Changing Social research practices in the context of Covid-19: Rapid evidence review*. project report. National Centre for Research Methods. https://eprints.ncrm.ac.uk/id/eprint/4458/

Nind, M., Coverdale, A., & Meckin, R. (2022) *Changing Social Research Practices in the Context of Covid-19: Updated rapid evidence review – synthesis of the 2021 literature*. Project Report. National Centre for Research Methods. https://eprints.ncrm.ac.uk/id/eprint/4602/

Nordhausen, T., & Hirt, J. (2020). Rapid reviews: A critical perspective. *Zeitschrift fur Evidenz, Fortbildung und Qualitat im Gesundheitswesen*, *158*, 22–27. https://doi.org/10.1016/j.zefq.2020.09.005

Pacheco, E. -M., & Zaimağaoğlu, M. (2020). Are novel research projects ethical during a global pandemic? *International Journal of Social Research Methodology - the Editors Notebook*. https://ijsrm.org/2020/08/20/are-novel-research-projects-ethical-during-a-global-pandemic/

PAHO (Pam American Health Organization). (2020) Information systems for health: Concept and maturity model assessment. https://docs.bvsalud.org/multimedia/2020/07/5841/is4h_mmenglish.pdf

Pandian, A. (2019). *A possible anthropology: Methods for Uneasy Times*. Duke University Press.

Panter-Brick, C., Dajani, R., Hamadmad, D., & Hadfield, K. (2021). Comparing online and in-person surveys: Assessing a measure of resilience with Syrian refugee youth. *International Journal of Social Research Methodology*, *25*(5), 703–709. https://doi.org/10.1080/13645579.2021.1919789

Partlow, E. (2020). Prioritizing inclusion, ethical practice and accessibility during a global pandemic: The role of the researcher in mindful decision making. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 Volume 2 Care and Resilence* (pp. 121–130). Policy Press.

Pascal, C., & Bertram, T. (2021). What do young children have to say? Recognising their voices, wisdom, agency and need for companionship during the COVID pandemic. *European Early Childhood Education Research Journal*, *29*(1), 21–34. https://doi.org/10.1080/1350293X.2021.1872676

Podjed, D. (2021). Renewal of ethnography in the time of the COVID-19 crisis. *Sociologija i prostor : časopis za istraživanje prostornoga i sociokulturnog razvoja*, *59*(219). https://doi.org/10.5673/sip.59.0.10

Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., & Britten, N. with Duffy, R. K. (2006) *Guidance on the Conduct of Narrative Synthesis in Systematic Reviews*. ESRC Methods Programme.

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*, 160940692110161. https://doi.org/10.1177/16094069211016106

Ramlagan, S., Shean, Y. L., Parker, S., Trollip, K., Davids, A., & Reddy, S. P. (2021). Pushing the boundaries: Adapting research methodology to document the COVID-19 pandemic from a socio-behavioural perspective in a low/ middle level income country: The case of South Africa. *International Journal of Social Research Methodology*, 25 (3), 323–329. https://doi.org/10.1080/13645579.2021.1883538

Ravitch, S. (2020) The best laid plans . . . Qualitative research design during COVID-19, *Methodspace* https://www. methodspace.com/the-best-laid-plans-qualitative-research-design-during-covid-19/

Renosa, M. D. C., Mwamba, C., Meghani, A., West, N. S., Hariyani, S., Ddaaki, W., Sharma, A., Beres, L. K., & McMahon, S. (2021). Selfie consents, remote rapport, and Zoom debriefings: Collecting qualitative data amid a pandemic in four resource-constrained settings. *BMJ Global Health*, 6(1), e004193. https://doi.org/10.1136/bmjgh-2020-004193

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, 160940692110029. https://doi.org/10.1177/16094069211002959

Sakshaug, J. W., Beste, J., Coban, M., Fendel, T., Haas, G.C., Hülle, S., Kosyakova, Y., König, C., Kreuter, F., Küfner, B., & Müller, B. (2020). Impacts of the COVID-19 pandemic on labor market surveys at the German Institute for Employment Research. *Survey Research Methods*, 14(2), 229–233.

Sarkar, S. (2020). Of late alarms, long queues, and online attendances: My experiences of COVID time. *Qualitative inquiry*, 27(7), 820–823. https://doi.org/10.1177/1077800420960157

Sastry, N., McGonagle, K., & Fomby, P. (2020). Effects of the COVID-19 crisis on survey fieldwork: Experience and lessons from two major supplements to the U.S. Panel Study of Income Dynamics. *Survey Research Methods*, 14(2), 241–245. https://doi.org/10.18148/srm/2020.v14i2.7752

Scherpenzeel, A., Axt, K., Bergmann, M., Douhou, S., Oepen, A., Sand, G., Schuller, K., Stuck, S., Wagner, M., & Börsch- Supan, A. (2020). Collecting survey data among the 50+ population during the COVID-19 pandemic: The Survey of Health, Ageing and Retirement in Europe (SHARE). *Survey Research Methods*, 14(2), 217–221.

Scott, S., McGowan, V. J., & Visram, S. (2021). 'I'm gonna tell you about how Mrs Rona has affected me'. Exploring young people's experiences of the COVID-19 pandemic in North East England: A qualitative diary-based study. *International Journal of Environmental Research and Public Health*, 18(7), 3837. https://doi.org/10.3390/ijerph18073837

Sedysheva, A. (2021). Doing qualitative research during the Covid-19 pandemic of 2020. *Ask: Research and Methods*, 29(1), 75–88. https://doi.org/10.18061/ask.v29i1.0005

Serekoane, M., Marais, L., Pienaar, M., Sharp, C., Cloete, J., & Blomerus, L. (2021). Fieldworker reflections on using telephone voice calls to conduct fieldwork amidst the Covid-19 pandemic. *Anthropology Southern Africa*, 44(4), 161–174. https://doi.org/10.1080/23323256.2021.2002701

Shareck, M., Alexander, S., & Glenn, N. M. (2021). In-situ at a distance? challenges and opportunities for health and place research methods in a post-COVID-19 world. *Health & Place*, 69, 102572. https://doi.org/10.1016/j.health place.2021.102572

Smith, C. (2021). A screen of one's own: The domestic caregiver as researcher during Covid-19, and beyond. *Australian Feminist Studies*, 36(108), 165–179. https://doi.org/10.1080/08164649.2021.2010180

Smythe, K. R. (2014). An historian's critique of sustainability. *Culture Unbound*, 6(5), 913–929. https://doi.org/10.3384/cu.2000.1525.146913

Snow, S. J. (2020). I don't know what I'd have done without this project": Oral history as a social and therapeutic intervention during COVID-19. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 Volume 2 Care and Resilience* (pp. 25–34). Policy Press.

Sovacool, B. K., Furszyfer Del Rio, D., & Griffiths, S. (2020). Contextualizing the Covid-19 pandemic for a carbon-constrained world: Insights for sustainability transitions, energy justice, and research methodology. *Energy Research & Social Science*, 68, 101701. https://doi.org/10.1016/j.erss.2020.101701

Star, S. (1985). Scientific work and uncertainty. *Social Studies of Science*, 15(3), 391–427. https://doi.org/10.1177/030631285015003001

Stilgoe, J. (2007). The (co-)production of public uncertainty: UK scientific advice on mobile phone health risks. *Public Understanding of Science*, 16(1), 45–61. https://doi.org/10.1177/0963662506059262

Storm, I., Harting, J., Stronks, K., & Schuit, A. J. (2014). Measuring stages of health in all policies on a local level: The applicability of a maturity model. *Health Policy*, 114(2–3), 183–191. https://doi.org/10.1016/j.healthpol.2013.05.006

Tarrant, A., Way, L., Ladlow, L. (2021). 'Oh sorry, I've muted you!': Issues of connection and connectivity in qualitative (longitudinal) research with young fathers and family support professionals. *International Journal of Social Research Methodology*, 1–14. https://doi.org/10.1080/13645579.2021.1986313

Teti, M., Schatz, E., & Liebenberg, L. (2020). Methods in the Time of COVID-19: The Vital Role of Qualitative Inquiries. *International Journal of Qualitative Methods*, 19. https://doi.org/10.1177/1609406920920962

Tremblay, S., Castiglione, S., Audet, L., Desmarais, M., Horace, M., & Pelaez, S. (2021). Conducting qualitative research to respond to COVID-19 challenges: Reflections for the present and beyond. *International Journal of Qualitative Methods*, 20, 160940692110096. https://doi.org/10.1177/16094069211009679

Valdez, E. S., & Gubrium, A. (2020). Shifting to Virtual CBPR Protocols in the Time of Corona Virus/COVID-19. *International Journal of Qualitative Methods*, *19*, 160940692097731. https://doi.org/10.1177/1609406920977315

Verma, A., & Bizas, N. (2020). Conducting the emergency response evaluation in the COVID-19 era: Reflections on complexity and positionality. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 Volume 1 Response and Reassessment* (pp. 105–114). Policy Press.

Vicente, H., Delicado, A., Rowland, J., Estevens, J., Weiß, A., Falanga, R., Leßmöllmann, A., & Truninger, M. (2020). Going virtual: Finding new ways to engage higher education students in a participatory project about science. In H. Kara & S.-M. Khoo (Eds.), *Researching in the Age of COVID-19 Volume 1 Response and Reassessment* (pp. 20–29). Policy Press.

Walker, L., Bailey, D., Churchill, R., & Peckham, E. (2021). Remote data collection during COVID-19 restrictions: An example from a refugee and asylum-seeker participant group in the UK. *Trials*, *22*(117). https://doi.org/10.1186/s13063-021-05058-2

Webber-Ritchey, K. J., Simonovich, S. D., & Spurlark, R. S. (2021). COVID-19: Qualitative research with vulnerable populations. *Nursing science quarterly*, *34*(1), 13–19. https://doi.org/10.1177/0894318420965225

Wendler, R. (2012). The maturity of maturity model research: A systematic mapping study. *Information and Software Technology*, *54*(12), 1317–1339. https://doi.org/10.1016/j.infsof.2012.07.007

Will, G., Becker, R., & Weigand, D. (2020). COVID-19 lockdown during field work. *Survey Research Methods*, *14*(2), 247–252.

Wood. (2020) Resuming field research in pandemic times. Items blog. https://items.ssrc.org/covid-19-and-the-social-sciences/social-research-and-insecurity/resuming-field-research-in-pandemic-times/