CHAPTER

1

Introduction to Doing Qualitative Research in a Digital World

THIS CHAPTER WILL COVER HOW TO:

- Define and theorize the relationship between technology (materiality) and humans (sociality)
- Create reflexive digital workflows
- Select useful digital tools and spaces for effective teamwork and project management
- Be reflexive about the ways qualitative researchers and technology work together when collaborating and managing a project

INTRODUCTION

In the years since our previous book, *Digital Tools for Qualitative Research* (Paulus, Lester, & Dempster, 2014), was published, we have gathered a great deal of feedback from students and colleagues. We have used this feedback to write this revised and expanded text, most significantly by foregrounding qualitative research design and backgrounding the technological landscape—though we have also come to realize the intertwined nature of the two and how in many ways the material world of digital tools and the social world of human activity—are inseparable. We have expanded our original notion of digital tools into the more comprehensive "digital world" to encompass not only tools but also spaces. For us, this expansion has come alongside our recognition of the importance of engaging in a continual critical analysis of how the adoption of new technologies is necessary and how they transform our research practice. Indeed, many of us conduct much of our lives on smartphones, consume news through social media, communicate via group texts, and are surveilled as we leave digital traces along the way. We are engaged with digital tools and in digital spaces as an integral part of our daily lives, which has led us to ask: how can we, as qualitative researchers, explore this aspect of human life? This is where we see ourselves today as social science researchers.

Nonetheless, while our graduate students have consistently told us that research technologies need to be integrated early, and repeatedly, in their methodological training, it can still be a challenge to acknowledge the digital world as essentially inseparable from

today's research workflows. Both are continually evolving. Methodological change and technological change go hand in hand. Morse (2019), in her description of the "changing face of qualitative inquiry" (p. 1), noted that methodological

> *change comes about because of advances in equipment easing and expediting data collection and analysis. The development of computers, recorders, cameras, and cell phones have enabled larger sample sizes (often huge), rapid data collection, and microanalysis of data bits. Often data are already available online, waiting for the right question. Software now transcribes and translates, making analyses more accessible and easier.… (p. 1)*

As Kaufmann and Holbrook (2016) noted in their introduction to a special issue of *Qualitative Inquiry* on hypermodal inquiry, "evolving technologies have made other forms of data collection, analysis, and presentation not only possible but also feasible, affordable, and intriguing" (p. 159). Just a few ways in which the digital world has impacted research methods include increased capacities for recording and storing digital data, increased processing power to search large datasets, communication across space and time, and presence of both digital and physical identities (Quinton & Reynolds, 2018). A range of disciplines are now working to define the meaning of "digital," noting its impact on fields such as sociology (Lupton, 2015; Marres, 2017; Orton-Johnson & Prior, 2013; Selwyn, 2019), anthropology (Horst & Miller, 2012), and the humanities (Dobson, 2019), to name a few.

While some may come to their qualitative research practice with sophisticated experiences with digital tools and spaces, others may not. Even for those with a readiness to change, it can be hard to know how to create an optimal digital research workflow—that is, those "technology mash-ups…[with] creative combining of digital tools with different capacities" (Davidson, Paulus, & Jackson, 2016, p. 608). There are also many, many tools to consider. Duca and Metzler (2019), for example, identified 418 tools and software packages used by social science researchers, organizing them into the categories of "social media analysis, text labelling and annotation, surveying and recruiting participants" (p. 4). Knowing where and how to start can be challenging.

Contrary to what one might have assumed, even experienced researchers and doctoral students "tend not to be early adopters or keen users of the latest technology applications and tools in their research but only use applications that can be easily absorbed into their existing work practices" (Gouseti, 2017, p. 640). Perhaps unsurprisingly, adopting a new digital tool requires being able to see its relevance to the work that needs to be done (Dowling & Wilson, 2017). Digital tools that do tend to be adopted by researchers include e-mail and Skype (though face-to-face meetings are often preferred), library databases and electronic resources (to minimize carrying around stacks of paper), word processing and data analysis software, online survey tools, and transcription software. Of no surprise to technology adoption theorists, the adoption of these tools

is often due to ease of use, convenience, and availability of training and support (Dowling & Wilson, 2017; Gouseti, 2017). As it turns out, creating online academic identities is not a common practice. Graduate students, for instance, do not always see how they are (or can be) part of a larger community of practice (Gouseti, 2017) nor do they feel they have the guidance to do so. Many students report relying on their supervisors and peers to encourage technology adoption (Dowling & Wilson, 2017), with peer conversations essential to learning about individual tools.

In many ways, we hope this book can contribute to this conversation, supporting readers as they learn about today's technological landscape and work towards generating, and reflecting on the consequences of, a unique digital workflow that will support them in carrying out meaningful studies.

Before jumping into this conversation, we believe it is important to situate our discussion in relation to some of the theories and definitions of technology that matter for social science researchers. Understanding the trajectory of thinking about, resistance to, adoption of, and conceptualization of technology in the social world is particularly helpful to understanding one's affinity for or resistance to new digital tools. Theorizing versus neutralizing technology is a critical first step. We begin by exploring relevant definitions of technology and key theoretical developments in how technology has been conceptualized.

We then move on to discuss two initial considerations when designing qualitative research in the digital world: the role of reflexivity and creating a collaboration and project management workflow. We must always be asking how we participate in the making and remaking of social science. In the digital world, "a reflexive awareness of the effect of our methods on the analyses we produce helps us see digital devices as sociomaterial practices that coevolve with the lives lived in interaction with them" (Fielding, 2019, p. 763). We therefore include a discussion of reflexivity in this first chapter in order to revisit it in subsequent chapters—particularly as it relates to articulating how digital tools and spaces are shaping our research practice and vice versa. Indeed, as our tools are coresearchers, they are both extending and supporting our methodological work, but also introducing "new activities and discourses, as well as unexpected tensions and contradictions" (Adams & Thompson, 2016, p. 89). Given that so much of social science research is interdisciplinary and commonly done on teams, we position the discussion of project management and collaborative practices, too, as a critical consideration before discussing research design in Chapter 2.

DEFINING AND THEORIZING TECHNOLOGY

In *Digital Tools for Qualitative Research*, we framed digital tool adoption in terms of affordances theory (Gibson, 1979), noting that all new tools have affordances and constraints, and we encouraged researchers to be reflexive around their technology use. Our focus was on technology as a *tool*. As we are often confronted with researchers reluctant

to adopt new technologies out of a fear of tools "taking over" (Jackson, Paulus, & Woolf, 2018), our approach has been to push back against this technologically deterministic view (MacKenzie & Wajcman, 1999) by emphasizing that humans do, in fact, have agency over their technology use. Other scholars have taken up and emphasized the "entanglements" (Orlikowski, 2007) that exist between humans and the material world. Adams and Thompson (2016), for instance, argued that:

> *a software program's design and architecture must make certain assumptions about its users, about workflow, about vocabulary, and about the purpose and meaning of their activities. It predetermines what its users may and may not do and have access to in its environments; its lexicon and functional affordances expand but also constrain the possible conversations and activities that may unfold in its context. (p. 95)*

They argued that users are "shepherded along the limited trajectories of knowing and doing on offer by the software" (p. 96). We disagree with this characterization as it comes close to a return to technological determinism (explained further below); yet, we do agree with Adams and Thompson's critique that we did not do enough in our previous book to engage the theoretical literature around the relationship between humans and the tools that they use. We also agree with Adam and Thompson's suggestion that:

> *no matter their methodological commitments … when [researchers] adopt a new technology, they necessarily submit their professional practices and ways of knowing to possible and sometimes significant revision. (p. 114)*

They proposed a way of "interviewing objects" in order to engage in reflection and reflexivity engage in understanding our role as "co-practitioners in the performance and reshaping of practices" (p. 114), which we revisit later in this chapter.

Defining what we mean by digital tools, digital spaces, and/or the digital world is no easy task. Technology has always had contradictory meanings and definitions—from referencing the latest digital device to describing an "oppressive system of total control that turns means into ends, seeking only its own perpetuation" (Schatzberg, 2018, p. 2). Humans have always had strong reactions to technological innovation and change in part because "defining the technological not only activates the border between nature and culture, but goes to the heart of what it means to be human" (McQuire, 2006, p. 255). Technology is often characterized as applied science—where scientific discoveries are put to practical use to "solve" human problems. However, some fear that in doing so we move ever further away from our natural way of being and often create new, unanticipated problems.

People's responses to and beliefs about technology are often framed as dichotomies in the literature, with individuals falling at different places on the spectrum depending on which technology is being discussed. Schatzberg (2018) distinguished between an

instrumental view of technology, which situates it as a tool that serves ends defined by others; and a cultural view in which technology is a creative expression of culture and imbued with human values. Both, of course, are true—technologies are a set of concrete material practices that are always both cultural and instrumental. Schatzberg noted that intellectuals in particular often display ignorance and hostility toward the "practical arts" that technology represents, viewing it as a threat while elevating "pure" knowledge over its practical application. We have encountered this view frequently from researchers who display everything from reluctance to resistance to the idea of integrating digital tools and spaces into their practices.

Tiles and Oberdiek (1995) framed this spectrum of beliefs about technology in terms of optimists and pessimists. Optimists, they argued, believe that humans retain control of technological innovations, choosing whether to use them or not. From this perspective, technology is viewed as passive, value neutral, and under human control. We adopted this view in our previous book. In contrast, the pessimistic view is characterized as being skeptical of scientific advances and views humans as becoming enslaved by autonomous, pervasive technologies of our own creation. Tiles and Oberdiek (1995) suggested that pessimists tend to frame technology as entire systems and practices rather than devices. They further noted that:

> *Our attitudes toward computers … easily oscillate …. [W]hen using a personal computer with a familiar and not terribly sophisticated program one will regard it as just another machine … but confronted with a large machine running sophisticated software we regard it as an authority: inhuman only in the perfection of its rationality, the ruthlessness of its logic, it assumes the proportions of a superior being. (p. 257)*

In this way, whether or not people even notice technology can depend upon how comfortable they are with it, with a pessimistic or optimistic view likely shifting depending on which technology is being considered. Qualitative researchers, we have found, are likely to be unreflective about and generally optimistic about using recording devices for collecting interview data (with Nordstrom, 2015 being a notable exception). On the other hand, we have often encountered pessimism about the use of qualitative data analysis software (QDAS) and automated transcription practices.

Finally, Feenberg (2002) distinguished between the instrumental view, in which technology is seen as subservient to political and cultural values, and what he calls substantive, in which technology is seen as an autonomous cultural force that overrides all competing values. The instrumental view, Feenberg argued, is most common in the social sciences, with technology tools considered to be standing by ready to serve the user's purposes. From this perspective, technology is framed as neutral—that is, indifferent to the ends it is employed to achieve, useful in any social context, and indifferent in respect to politics. In contrast, Feenberg's substantive theory of technology does *not* view technology as neutral but rather as constituting a new cultural system that restructures

the social world and shapes social life. From this perspective, technology is not simply a means to an end but becomes its own way of life. By choosing to use technology, Feenberg (2002) argued, people are often committing to much more than they realize.

In our earlier book, we implicitly took up a more instrumental (Feenberg, 2002) and optimistic (Tiles & Oberdiek, 1995) view of technology; however, as we have continued to develop our own thinking in this area, we have come to find Schatzberg's (2018) definition most useful. From Schatzberg's perspective, technology is framed as a "set of practices humans use to transform the material world, practices involved in creating and using material things" (p. 2). We also agree and align with Tiles and Oberdiek (1995), who noted that:

> *technologies by their very specification are introduced not into purely material contexts but into social contexts. They are to be used by human beings to perform tasks previously done other ways by other means, possibly by other people or to do wholly new things. Their introduction is bound to have social effects. (p. 253)*

Indeed, this is the perspective that we have taken up in the development of this book, one that offers researchers a generative way to think about their own use of digital tools and spaces.

Technological Determinism

To more fully understand these contrasts in technology beliefs, it can be helpful to know that theories that acknowledge the reciprocal relationship between technology and social life developed as a response to *technological determinism*. Technological determinism frames technology as a kind of imperative—on an inevitable trajectory with society which in turn adapts to the needs of an autonomous technology (MacKenzie & Wajcman, 1999). From this perspective, humans are viewed as having a passive role, being left to figure out how to adapt to the changes that technology forces on them, rather than being viewed as an active participant in this process. Technological determinists often believe that it is the intrinsically best, most efficient technology that will be adopted, no matter the local context. Of course, as MacKenzie and Wajcman (1999) noted, what is best from one view is not the best from another (i.e., worker vs. employer, women vs. men), and subsequent theories of technology have challenged this belief—some of which we consider (in an abbreviated way) next.

Social Shaping of Technology

As MacKenzie and Wajcman (1999) noted, what *is* true about technological determinism is that technology does matter. Social shaping of technology (SST) is a theory that frames the relationship between technology and social context as reciprocal (Williams, 2019). A critique of technological determinism, SST argues that technology is a social product emerging from a series of *choices* between different options. This view emerged in the

1960s and 1970s as the consequences of modern life and technological change on health, the environment, and the workplace became more apparent. SST challenged the view that technology is benign or neutral; rather, values and special interests shape technological decisions (Williams, 2019). When we adopt a technology, MacKenzie and Wajcman noted, we may be choosing more than meets the eye.

Critics of digital technologies in educational contexts, too, have noted that digital tools are not neutral:

> *More attention needs to be paid to the interplay between the use of digital technology and people's emotions, feelings and affect. … [D]igital technologies do not simply support the transmission or exchange of information … instead [they] mould peoples' values, beliefs and behaviors. Conversely, it is also necessary to explore how these digital technologies are themselves shaped by people's emotions, moods and feelings.… (Castañeda & Selwyn, 2018, p. 4)*

SST treats technological change as intrinsically *social* rather than being driven by an internal machine logic. Technology can really function only within and as part of a particular sociotechnical system and that system's context of knowledge, use, meanings, and values. Change is part of a sociotechnical transformation—with the technology and social arrangements being coproduced (Russell & Williams, 2002).

Social Construction of Technology

In the 1980s social constructionist thinking was also a response to the then-dominance of technological determinist paradigm. Social construction of technology (SCOT) theories, pioneered by Pinch and Bijker (1984), brought insights from the sociology of scientific knowledge to bear on technological development. This school of thought seeks to explain failures *and* successes in technology adoption. SCOT theories contradict two claims of technological determinism—that technology is autonomous and that it develops on its own linear path. Instead, development occurs through an evolutionary process by which a number of design variations are created but eventually only one or two are selected. This is the notion of "interpretive flexibility" (Pinch & Bijker, 1984), which is "the way in which different groups of people involved with a technology (different relevant social groups) can have very different understandings of that technology including its technological characteristics" (MacKenzie & Wacjman, 1999, p. 21). New technologies are ambiguous at the beginning of development because several designs are competing for adoption. Selection and adoption are due to the feasibility of the design and social/economic power of interested groups within a larger social context (including its norms, values, interpretations). Eventually one wins out and a standard emerges, but it can be unseated if the conditions that favored it change (Feenberg, 2012).

Technology is considered to "work" only when it has been accepted by a social group. That it does work is something that should be explained, not assumed to have been inevitable (MacKenzie & Wajcman, 1999). Success and failure are not due to intrinsic

properties of the technology, but due to histories of adoption and improvement. A limitation of the SCOT view is that because some social groups were not part of the adoption process, they are subsequently not considered in the analysis of technology use. For example, if women are excluded from a decision-making process, it does not mean that gender is not relevant to its adoption (MacKenzie & Wajcman, 1999).

Actor–Network Theory

Actor–network theory (ANT) moves past the idea of "social shaping" or a "reciprocal relationship" of social life and technology (Fulk & Yang, 2017). ANT challenges technological determinism in that technology is treated not as a stable artifact but one that evolves as it is influenced by interested groups, artifacts, and institutions. Further, the material dimension is considered as important as the social. ANT considers both humans and nonhumans, in both the social and the material world, to be actors with agency in a network of associations with others, rather than causal agents. Rather than viewing social context as influencing technology and systems, society is instead just one of the many connecting elements in a network. Technology itself is conceived of as "an emerging and increasingly stabilised network of material and non-material elements. The nature of the project and the identities and interests of actors involved are transformed as the network takes shape" (Russell & Williams, 2002, p. 38).

Critics of the SST, ANT, and SCOT theories have noted that they generally ignore sociological concepts such as gender, class, and race and do not take ethical or political stances based on the consequences of technological developments, even when they disproportionately disadvantage certain groups or have negative social consequences (MacKenzie & Wajcman, 1999). However, in a more recent interpretation, Adams and Thompson (2016, p. 8) identified four tenets of ANT: creating an opening for treating objects as legitimate actors; examining how a practice emerges from assemblages and networks; engaging in translation (looking at how assemblages come to be and how actors interface with others); and exploring the politics of object assemblages through more critical explorations of power and legitimacy ("the politics of object assemblages").

Critical Theories of Technology

Critical theory argues that the values of certain systems and the interests of those in power are installed in technology's design and have political consequences. It departs from other social theories by treating technological worlds as "terrains of struggle on which hegemonic forces express themselves through specific design strategies in opposition to subordinate groups that are more or less successful in influencing the future form of the artifacts with which they are engaged" (Feenberg, 2012, pp. 3–4). Technology, Feenberg proposed, occurs at the intersection of ideology and technique where the two come together to control human beings and resources in conformity with "technical codes." A technical code is the realization of an interest in a coherent solution to a general type of problem, and this solution then serves as an exemplar for a whole domain of technical activity.

This presupposes there are many different possible technological solutions to social problems. From a technological determinism view, efficiency drives technological choices. However, Feenberg argues that many factors *besides* efficiency play a role in design choice. Technological choices are responsive to many interests.

Rather than a concrete "thing," critical theory views technology is an ambivalent process suspended between different possibilities. Technological development is neither neutral nor a specific destiny but a site of struggle. Indeed, different technological outcomes result when some aspects of humanity are privileged and others are marginalized. "What human beings are and will become is decided in the shape of our tools no less than in the action of statesmen and political movements" (Feenberg, 2012, p. 3).

Foucault, too, used technology to refer in large part to power and governance, writing about "technologies of the self" and "technologies of power." He did not use "technology" to refer to devices per se but "to methods and procedures for governing human beings" (Behrent, 2017, p. 55) to highlight ways in which power relations operate within sociotechnical systems. Rather than proposing a general theory of technology, Foucault accounted for specific histories of technological practice that have been overlooked in traditional accounts of modern forms of power (Behrent, 2017, p. 56).

When reflecting on the impact of technological developments on research, Fielding (2019) asked, "What are the implications of neoliberal times for social research, and what role is being played by new digital technologies?" (p. 762). He noted that "commercial interests have long had a profit-driven interest in social research and a significant role in developing and popularizing specific methods" (p. 762) such as the survey and interview tools being used by businesses for market analysis. Now, of course, digital interactions provide immediate and accessible information about what people actually do, traceable by the owners of this information who may choose to treat or sell it as data.

Affordances Theory and Sociomateriality Theory

Gibson (1979) described the affordances of an ecological environment as "what it offers the animal, what it provides or furnishes, either for good or ill" (p. 134). Affordances exist relative to a particular being (human or animal), making them unique to posture and behavior. Material objects suggest affordances, such as being wieldable, graspable, or portable. Gibson argued that an environment's affordances "are in a sense objective, real and physical, unlike values and meanings, which are often supposed to be subjective, phenomenal and mental" (p. 134). However, he goes on to say that affordances are both objective *and* subjective because affordances are equally a "fact" of the environment and of behavior. Natural, artificial, and cultural environments cannot be separated—we create artifacts out of nature according to cultural norms. Van Dijk and Rietveld (2017) noted that since affordances do not occur in isolation, but as part of a large "niche," sociomateriality theory (Orlikowski, 2007) becomes quite relevant. Affordances are situated—things and people offer multiple possibilities for action that belong to a larger

sociocultural context. These "constellation of practices" (Van Dijk & Rietveld, 2017, p. 3) are sociomaterial in nature.

Orlikowski (2007) critiqued the distinction that researchers often make between studying technology adoption, diffusion, and use as separate phenomena, arguing that this view loses sight of how every practice is always bound up with materiality. Rather than focusing on technological effects (which is techno-centric) or on human interactions with technology (which is human-centered), Orlikowski argues that the material and the social are *constitutively entangled* (p. 1437). Instead of privileging either humans or technology or linking them through mutual reciprocation, "the social and the material are inextricably related—there is no social that is not also material, and no material that is not also social" (Orlikowski, 2007, p. 1437).

Acknowledging that ANT and other theories have already taken up this stance to decenter the human and afford agency to material artifacts, Orlikowski (2007) argued that the notion of constitutive entanglement departs from mutual or reciprocal interaction because to "shape" or "influence" each other presupposes a priori independence of the entities. Constitutive entanglement, in contrast, positions various aspects as completely interdependent with no aspect having independence from, priority over, or privilege over another.

Fox and Alldred (2015) provided a useful example of how sociomateriality theory and a new materialist lens can be helpful in understanding research methodology, framing the entire process as an *assemblage*: "The research-assemblage comprises the bodies, the things and abstractions that get caught up in social inquiry, including the events that are studied, the tools, models and precepts of research, and the researchers" (p. 400). They argued that social research should shift from a focus on human agency to attend to "affective flows and the capacities they produce"—with an "effort to disclose the relations within assemblages, and the kinds of affective flows that occur between" them (p. 402). A materialist analysis, they argued, opens the "black box" of research and "opens to scrutiny the micropolitical of different research-assemblages, or territorialisation and de-territorialisation, of who gains and who loses in the processes of research" (p. 405).

We hope this brief review of theories of the relationship between the material world and the social world can help make decisions around the adoption of research technologies more visible and explicit. That is, adopting new technologies neither mandates particular changes in practice (technological determinism) nor are they neutral tools with no influence at all (instrumental view). From individual researchers retaining agency over the use of their tools, to the mutual shaping of tool and the research practice, to an investigation of how those with power are influencing how particular tools and practices are constructed and adopted, what is given is that the relationship between our tools and practices, these "digital confluences" (Adams & Thompson, 2016), must be carefully considered.

CREATING REFLEXIVE DIGITAL WORKFLOWS FOR EFFECTIVE TEAMWORK AND PROJECT MANAGEMENT

Whether it is labelled reflexivity (Hertz, 1997; Pillow, 2003), bracketing (Giorgi, 1985), or positionality (Glesne, 2011), attending to the relationship between the researcher and the research context is central to nearly all qualitative traditions (Watt, 2007). Encouraging researchers to be reflexive about their use of technology is not as frequently encountered in the literature. The researcher is the instrument of the study and, as such, their choices, assumptions, and biases impact the design and the outcomes. Reflexivity is the process of intentionally attending to the perspectives, attitudes, and beliefs that shape design decisions and meaning-making—including the use of technology. Reflexive researchers continually examine their choices, while taking note of how their positionality both limits and privileges how knowledge claims are created.

Reflexive research (Alvesson & Sköldberg, 2009) attends to how "linguistic, social, political and theoretical elements are woven together in the process of knowledge development, during which empirical material is constructed, interpreted and written" (p. 9). Reflexive researchers must always attend to how working with data is an interpretive act, rather than data corresponding to some objective truth about reality. Alvesson and Sköldberg suggest that social science researchers should be reflecting on how empirical materials are handled and how data are processed; the relationship between assumptions, theory, and method; the political and ideological character of the research; and decisions of representation and authority (2009).

Blurring, disruptions, and entanglements are all useful metaphors for the relationship between the digital world and making sense of it through research (Savin-Baden & Tombs, 2017). This "making sense" requires going beyond a focus on digital tools to creating a strong theoretical foundation to help explain their intersections with the social world. As suggested by Paulus, Jackson, and Davidson (2017):

> *These explorations should also take us beyond specific tools into new theoretical territory. These are questions we may only begin to ask if we engage in forms of reflexivity that push beyond simplistic opinions about the broad influence of technology in our work (as though it is monolithic) or the specific technological tools we use (as though they are fixed). (p. 754)*

Reflexivity as a practice can be framed not only from the perspective of the researcher but also from the perspective of the tools themselves. Adams and Thompson (2016) combined ANT with phenomenology to propose what they called "interviews with digital objects" to give objects a voice. In this way they take seriously the sociomaterial view that humans and digital artifacts have agency and are equal participants at a research site. Drawing on phenomenology as a form of qualitative inquiry, they

have developed eight heuristics to make visible through questioning the "relevant nonhumans found at one's research site" (p. 19). To interview an object is "to catch insightful glimpses of it in action, as it performs and mediates the gestures and understandings of its human employer, and as it associates with others" (p. 18). Four heuristics are related to data collection, that is, attending to what these objects are saying and doing: "gathering anecdotes, following the actors, listening for the invitational quality of things, and studying breakdowns, accidents, and anomalies" (p. 21). The other four are related to data analysis—heuristics to help untangle our involvements with digital things: "discerning the spectrum of human-technology-world relations; applying the laws of media; unravelling translations, and tracing responses and passages" (p. 21). Reflexive practice questions at the end of each chapter draw upon these proposed heuristics.

A variety of tools can be used to document reflexive practice. For example, a journal can be used to track "experiences, ideas, fears, mistakes, confusions, breakthroughs, and problems that arise during fieldwork" (Spradley, 1980, p. 71). The journal becomes a key location for open reflection on the research process and creation of an audit trail for outsiders to become familiar with the decision-making process. Blogs (discussed further in Chapter 6) can be used to record research activity chronologically, while providing a place for others to respond. They can be updated remotely via phones and/or other handheld devices, making it possible for researchers spending full days at a research site to be consistently engaged in reflexive practice.

Using an audio or video recorder to engage in reflexive practice might be particularly appealing for those who are already using such a device for data collection. Mobile devices and ubiquitous webcams support the use of video for reflexive practice even while still in the field, or by recording an audio-file on the way back to the office. Cloud-based note-taking tools enable synchronization across computing devices. For instance, a researcher can create field notes, record audio-files, make to-do lists, and archive e-mails while in the field on the mobile version of Evernote, and then synchronize them with the desktop computer later. Even when working in a location with no Internet access, a new "note" can later be synchronized once online.

A good example of engaging in reflexive practice around the use of digital tools is Mainsah and Prøitz (2019). The authors reflect on their use of Facebook and texting and illustrated their "intimate experiences of fieldwork encounters in which different spheres of the researchers' world come into collision, and where fieldwork boundaries are constantly shifting" (p. 276). They argued that these new technologies are "reconfiguring human and nonhuman relationship, and bringing new forms of embodied, sensory, and emotional engagement" (p. 272). In Vignette 1.1, Austin Oswald illustrates how MAXQDA data analysis software helped make studies more transparent to participants and coresearchers.

Vignette 1.1 Enhancing Research Participation With MAXQDA

AUSTIN G. OSWALD, THE GRADUATE CENTER OF CUNY

As an emerging social work scholar who is deeply committed to broadening participation and creating research that is of use, I often find myself working alongside communities to interrogate and interrupt interlocking systems of injustice. My research focuses on the social lives of gay men aged 65 years and older (Oswald, 2019; Oswald, Gardner, & Giunta, 2019; Oswald & Roulston, 2018). Engaging in collaborative research at the borderlands of complex social problems is messy, nonlinear, and, at times, overwhelming. Working with diverse stakeholders who hold different perspectives is enriching just as it is complicated. I have learned that developing effective strategies to enhance workflow, relationships, and transparency is integral to the success of my scholarship. QDAS, specifically MAXQDA, is one strategy that has helped me engage with my coresearchers in an organized and systematic manner. As a longtime Mac user, I was first attracted to MAXQDA because it was the only QDAS program that was compatible with both OS X and Windows software. In recent years, more QDAS programs like ATLAS.ti and NVivo offer a Mac version; however, MAXQDA has a long and friendly history with Mac users.

MAXQDA has been particularly helpful in my work for a number of reasons. Working with communities under siege and surveillance makes it vital that precautions are taken to safeguard anonymity and confidentiality. MAXQDA provides an additional layer of protection through an internal password system that prevents unauthorized people from accessing study materials. Unique usernames and passwords can be generated for coresearchers using the user management system, affording access to different privileges depending on the role of the person in the research collective (i.e., ability to edit/add/delete documents, coding privileges, memoing and diagramming capabilities, etc.). This helps to facilitate participation while also adhering to the constraints of the IRB, which expects that hierarchical structures are in place to ensure the appropriate people have access to the appropriate materials and research responsibilities.

Like many other QDAS programs, MAXQDA offers an integrated platform where multiple forms of data can be imported, stored, and secured. Coresearchers can collaborate asynchronously on projects to organize, explore, and interpret data throughout the research process. Memo writing is an important aspect of qualitative data analysis and useful for gaining analytic momentum (see Figure 1; screenshots were taken from a qualitative study carried out in New York City in 2016–2017). Memos can be written directly in MAXQDA and linked to codes and categories, grounding the memo in the data. Memos are automatically

FIGURE 1 Memo Function

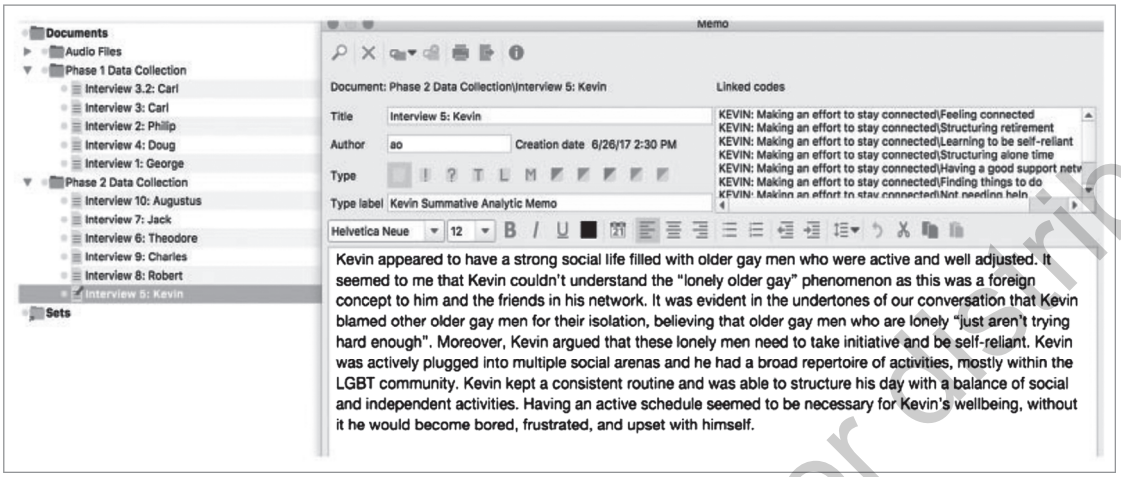
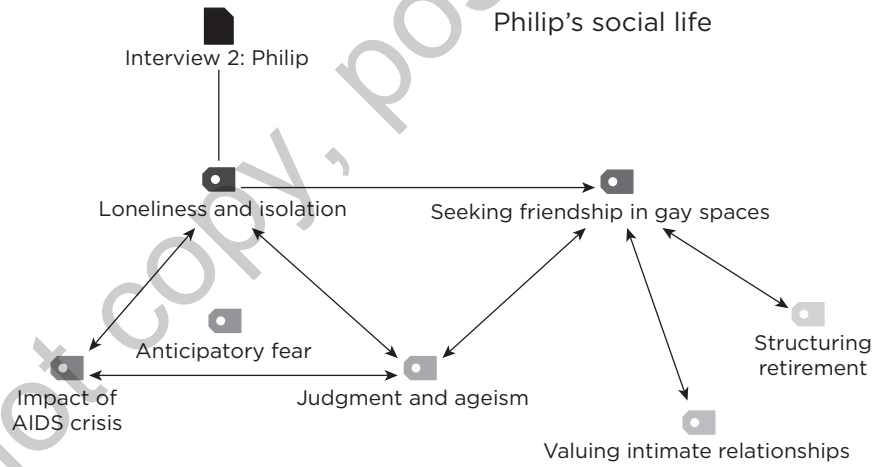


FIGURE 2 Creative Coding



timestamped and archived with the unique user ID of the person who created the memo. This helps to document the inductive design by creating an audit trail for others to follow. I have found this to be particularly helpful in communicating ideas between coresearchers about the emergent analysis. The memoing

function provides a space for people to share their interpretations as they unfold in real time.

Some people may find it easier to convey their ideas visually rather than in writing, and the creative coding feature of MAXQDA is designed exactly for this purpose (see Figure 2). Creative coding is a tool where users can visually display linkages between codes and categories through diagramming and other creative self-work. In creative coding, users are provided with a blank canvas where codes can be imported and played with recursively for the purpose of organizing data into hierarchical structures and diagrams. This function provides users with the option to incorporate color coding and symbols in their analysis, which I have found helpful. Creative coding can be used as a tool to enhance communication and participation with the people you are working with who are visual learners.

References

Oswald, A. G. (2017). Improving outcomes with QDAS: A reflective journey. *Qualitative Social Work*, *18*(3), 1–7.

Oswald, A. G. (2019). A poetic gaze into gay aging. *The Qualitative Report*, *24*(7), 1610–1617.

Oswald, A. G., Gardner, D., & Giunta, N. (2019). The LGBT Elder Americans Act: A critical analysis of policy through life course and equity perspectives. *Advances in Social Work*, *19*(1), 121–137.

Oswald, A. G., & Roulston, K. (2018). Complex intimacy: Theorizing older gay men's social lives. *Journal of Homosexuality*, *67*(2), 1–21.

Collaborative Practices in the Digital Workflow

As illustrated by Oswald's vignette, researchers in the digital world are not only collaborating more often with each other, but, increasingly, with participants and citizen-researchers (Fielding, 2019). We could argue that part of this collaboration is between the researchers and the material artifacts (digital tools) they employ. As participatory and collaborative action research methodologies become more prevalent, researchers are seeking better ways to stay connected with participants, procure feedback on data interpretations, and represent the findings in useful ways. Patient and public involvement has become integral to health research funding. At its core, successful collaboration is in essence a *creative conversational process* (Paulus, Woodside, & Ziegler, 2008, 2010). These conversations are eventually reified through final products such as journal articles, books, and performances (see Chapter 9), which themselves become part of the research conversation. Challenges to teamwork include working across time zones, relationship breakdowns, too much disagreement or, conversely, groupthink. Intercultural teams may have very different norms, values, and assumptions, all of which must be navigated with care. Further, writing collaboratively can pose challenges in terms of authorship and intellectual property concerns.

Digital tools can support this methodological commitment to collaboration and can itself become a co-collaborator. Qualitative data analysis software is innovating in order

to meet this demand—with tools like NVivo server, ATLAS.ti in the Cloud, and Dedoose shifting to a cloud-based platform which allows multiple analysts to access the project simultaneously. Mobile versions of ATLAS.ti and MAXQDA help make software accessible in the field, and Quirkos was designed specifically to support citizen science and participatory research endeavors. In *Qualitative Research and Complex Teams*, Judy Davidson (2019) describes her team's use of NVivo as part of their digital tool kit, highlighting in particular the writing tools. Dr. Davidson shares her experience in Vignette 1.2.

Davidson's "researcher toolkit" previews many collaboration tools. There are an increasing number of group collaboration spaces available online, some of which

Vignette 1.2 Qualitative Researchers at Play: Digital Tool Kits for Teamwork

JUDITH DAVIDSON, UNIVERSITY OF MASSACHUSETTS LOWELL

Twenty years ago as a newly minted PhD with a specialty in qualitative research, it was never my intention to become a technology booster, nerd, whatever-you-call-it. When I coauthored *Qualitative Research Design for Software Users* with Silvana di Gregorio (2008), I thought my dive into QDAS had been a short-lived fling. Little did I realize the notion of technology would undergird pretty much everything I would do in some form or another.

In 2008, when our book was published, the idea that QDAS would serve as the sole foundational or anchoring technology for a qualitative research project was a very challenging concept for many researchers. In 2019, barely a decade later, I no longer focus on QDAS alone. With the rise of digital tools in so many forms, for me, the new challenge is the digital tool kit in which QDAS is embedded and the ways qualitative researchers shape and deploy those tools, particularly as they participate in team-based research—a crucial and related development of the last decade.

In *Qualitative Research and Complex Teams* (2019), I had the opportunity to sketch out this concept as it was coming into focus for my students and I at the University of Massachusetts Lowell. In my model, the qualitative research tool kit contains three kinds of digital tools: (1) communication and project management tools; (2) literature and data connection tools; and (3) qualitative research data organization and management tools.

Note that each area generally contains more than one tool. In fact, it is usually a mixture of different kinds of tools that are constantly being tested, improved, changed out, and reconfigured. The development of the tool kit and the way I

Components of the Digital Tool Kit

Communication and Project Management	Literature and Data Collection	Qualitative Research Data Organization and Management
• Synchronous and asynchronous communication tools for individual and group interactions • Project planning tools • Digital storage • Tools to support individual and collaborative writing • Dissemination tools including social media forms	*Literature Collection:* • Reference Manager • Web clipping and note-taking *Data Collection:* • Will vary based upon face-to-face or virtual collection of data. Might include audio and visual recording, mobile applications, and note-taking devices.	• Qualitative Data Analysis Software (QDAS); necessary for organizing materials collected from diverse members in diverse forms and analyzed by broad number of individuals. Provides tools for organization, visualization, and probing materials. • Be aware of how the tool allows for (or restricts) collaboration • Tool selected should integrate with reference manager, note-taking, and other digital tools used in the project

Source: Davidson (2019), p. 52.

conceptualized it had much to do with the shift in qualitative research from the imagined single, autonomous researcher to researchers who work in continually changing interdisciplinary, multimethodological global clusters (Davidson & Bresler, 1996).

As I look back on the 20 plus years described above, I remember the different projects, their various and unique technological challenges, and the ways these encounters served as a pathway for me from the early days of QDAS to today's world of the qualitative research digital tool kit. Despite the differences today as then, the issues for me are: what is the function I need to fulfill? What tool can best serve that need? How do I purpose or deploy the tool with the ethics, understanding, and knowledge that guide me as a qualitative researcher?

References

Davidson, J. (2019). *Qualitative research and complex teams*. New York, NY: Oxford University Press.

di Gregorio, S., & Davidson, J. (2008). *Qualitative research design for software users*. Maidenhead, UK: Open University Press.

Wasser (Davidson), J., & Bresler, L. (1996). The interpretive zone: Conceptualizing collaboration among teams of qualitative researchers. *Educational Researcher*, *26*(4), 5–15.

are open source or free (e.g., Google sites, Slack, Trello), and some of which are commercial, proprietary, and/or more expensive (e.g., Microsoft Sharepoint). Such spaces provide a variety of communication (e.g., video-conferencing, messaging) and project management tools (e.g., file storage, editing, whiteboards, calendaring systems, to-do lists). Commercial tools may afford greater stability, security of information, and customer support, but are likely to be more expensive and perhaps available only through institutional subscriptions. If there is already institutional access to a digital work environment or course management system, such as Microsoft Sharepoint and Teams, it may be easiest to learn and use that particular system. However, institutions may or may not allow access to outside collaborators. In Vignette 1.3, Melanie Richardson shares her digital workflow for project management and teamwork.

As introduced by Richards in her vignette, Zoom, Microsoft Teams, and Google Meet are examples of video-conferencing tools that support online meetings in real time. With these tools, *creative conversations* can continue with people who are not colocated. These applications now support desktop and screen-sharing applications. In Vignette 1.4, Vivian Tamkin illustrates her team's use of Zoom for reflective team research.

Vignette 1.3 Remote Project Management: How Collaborative Tools and Spaces Empower Researchers

MELANIE B. RICHARDS, EAST TENNESSEE STATE UNIVERSITY

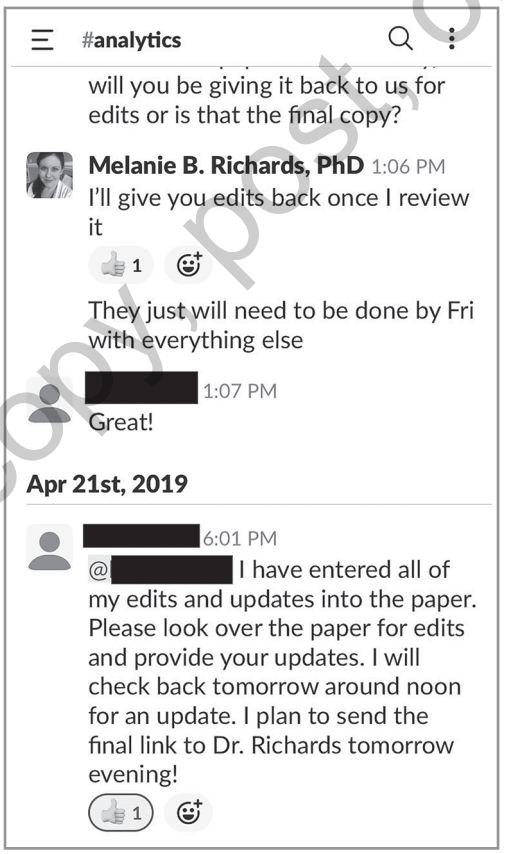
In industry, there has been an increasing trend of workforce globalization and remote work enablement. The Bureau of Labor Statistics reports that from 2003 to 2009, the percentage of US workers who spent some time working from home increased from 19 to 24% and has remained at that level through the most recent data available from 2018 (Bureau of Labor Statistics, 2019). In academe we have seen similar trends, though we have generally lagged behind industry. However, in March 2020, COVID-19 quickly exacerbated the need for remote project management and collaboration.

I've been a longtime fan of technology that assists in project management. Prior to my current role as an assistant professor of media and communication, I was working at major US-based nonprofit organizations and managing remote teams spread out across multiple time zones. When the COVID-19 stay-at-home recommendations went into effect for our campus, I was already teaching several courses fully online. However, once we went fully online as a campus, I became even more reliant on my favorite project management applications. I provide an overview of these and describe how I use them below.

Team Communication: Slack

Contrary to the name, Slack is all about enabling productivity through rapid team communication. Through the Slack app, accessible via the desktop website or mobile application, teams can join a common workspace and communicate directly with one another both as a group and as individuals. The tool allows for notifications when new messages are posted, and you can also tag individuals to draw their attention to specifically pertinent messages. Users also have the option of starting new conversation channels within a workspace for topics pertinent only to a subset of the larger team. Slack integrates fluidly with Microsoft OneDrive, Google Drive, Zoom, Outlook, and many other beneficial programs. Another great benefit of Slack is that the base level of the tool is provided for free, so it's easy to test and see if it will work for your team's needs (Figure 1).

FIGURE 1 Example of a Slack Team Conversation



Document Management: Microsoft OneDrive/Google Drive

Another service I use frequently in research projects is cloud-based document storage and management. I have used both Microsoft OneDrive and Google Drive in past projects and find them both to have unique benefits and drawbacks. Both tools are wonderful at enabling collaborative document creation. For example, let's say I am working on a research study with a colleague and we both need to be able to edit a draft manuscript in tandem. I can easily put the manuscript in either OneDrive or Google Drive and we can both access and edit the document there without passing versions back and forth in e-mail. This provides reduced risk in regard to possible version control issues. I can also comment, track changes, and do all of the "normal" functions I would in an offline Microsoft Office document (Figure 2).

Lately, I have been using Microsoft OneDrive more and Google Drive less, for the primary reason that OneDrive meets the information security protocols required by our university. With OneDrive, I have also experienced fewer issues when downloading final versions of documents. Google Drive generally moves documents into Google Docs for editing, and sometimes there are issues in conversion when moving a Google document back into Microsoft Word for journal submission.

FIGURE 2 Example of a OneDrive Materials Storage Location

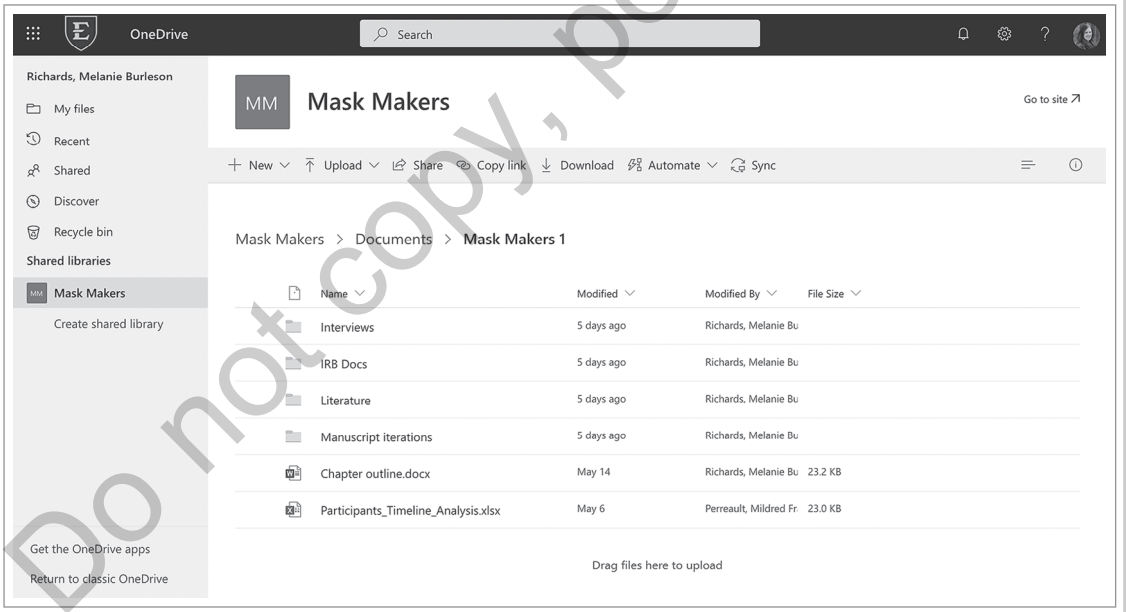
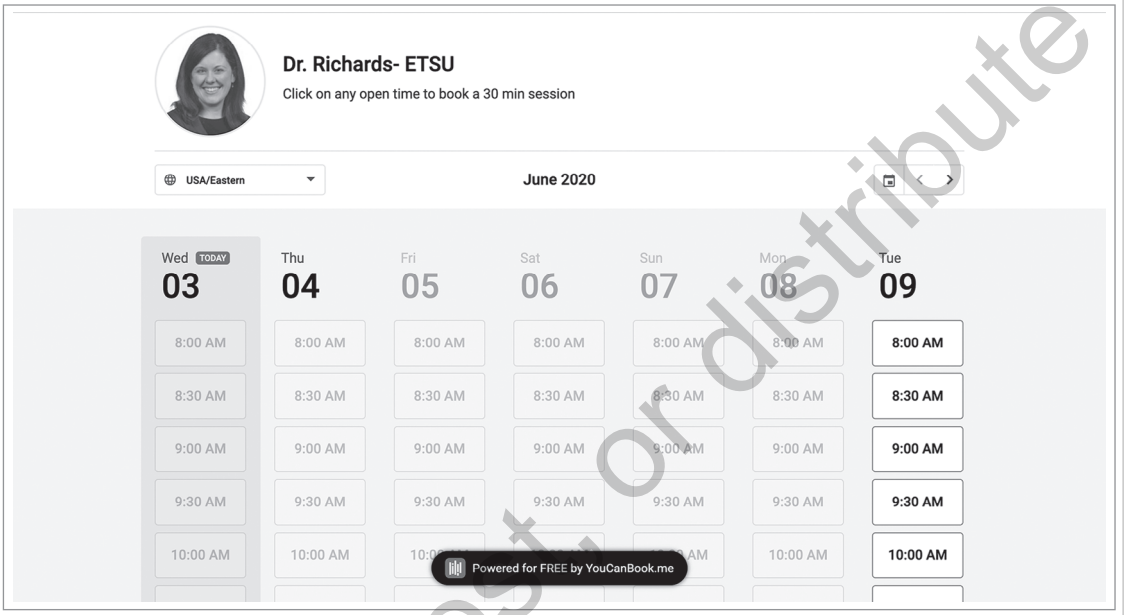


FIGURE 3 Example of YouCanBookMe Site



Meeting Scheduling: YouCanBookMe/Doodle

Another critical tool for research project management—especially when remote—is calendar management. When working from home, it's very easy to find yourself booked back-to-back with calls all day, and sometimes double booked. The basic functionality found in the Microsoft Outlook Calendar is helpful but presents challenges when coordinating meetings with researchers from different institutions and/or student researchers. This is where I've found both Doodle and YouCanBookMe to be of great benefit. Doodle is a great, free polling service that's especially beneficial when trying to coordinate meetings for larger research teams. I also used YouCanBookMe extensively during student advising this year and found it so beneficial that I then began to rely on it for scheduling the majority of my other meeting needs after that time (Figure 3).

Meetings: Zoom

As a researcher, I had been using the free version of Zoom for years for remote, in-depth interviews. Once our campus acquired an enterprise license, Zoom also became our primary video conferencing tool. Due to the pandemic's effects on remote work, all meetings quickly became remote, taking place either solely by phone or by video. All thesis research meetings also moved to Zoom for collaboration and mentoring purposes. My most enjoyable use of

Zoom this semester was a graduation commencement celebration I organized for our Brand & Media Strategy MA students. After countless Zoom meetings focused on their research and project efforts leading up to this, it was a fitting way to celebrate their accomplishments while practicing safe social distancing.

These are but a sample of the many online project management tools and services available to assist researchers. However, they are the ones I have found most helpful and utilize most often. The vast majority of these tools are also available at a basic level of use free of charge, which increases their appeal. As online coursework and remote research collaboration continue to be a necessity for academic institutions moving forward, I can only imagine increased adoption of these types of tools and continued development of complementary supporting technology.

Reference

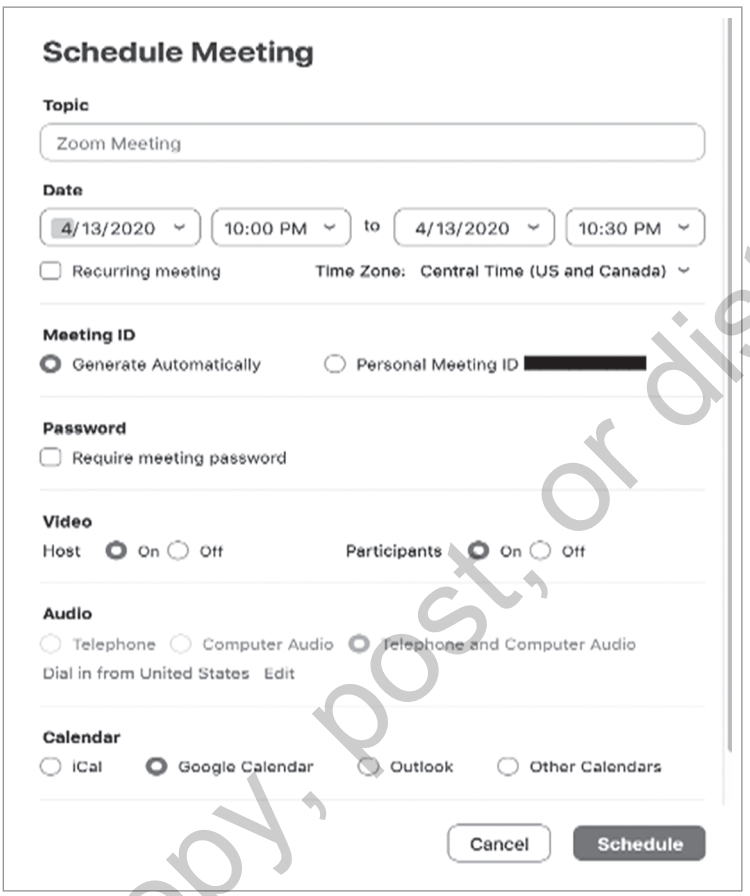
Bureau of Labor Statistics. (2019, June 19). American time use survey—2018 results. News release. Retrieved from www.bls.gov/news.release/pdf/atus.pdf. Accessed on June 3, 2020

Vignette 1.4 Collaboration Across the Pond: Engaging in Reflective Team Research Using Zoom

VIVIAN L. TAMKIN, THE UNIVERSITY OF WISCONSIN-MADISON

Voice over Internet Protocol (VoIP) telecommunication platforms such as Skype, Zoom, WebEx, and GoToMeeting have become increasingly more popular as viable qualitative data collection methods. These formats afford researchers the opportunity to conduct individual, in-depth interviews and focus groups with participants in synchronous, real-time connections (Iacono, Symonds, & Brown, 2016; Janghorban, Latifnejad Roudsari, & Taghipour, 2014). The real-time connections are not a substitute for the powerful in-person experience. However, when a researcher wants to cast a wide net in recruitment of potential interviewees, VoIP platforms are a real consideration. In addition to interviewing functionality, VoIP platforms present researchers with the opportunity to record and capture not only micro facial expressions of the interviewee but of themselves as well. Further, VoIP platforms gift researchers with a far reach in its usefulness in teaching qualitative research, project (or team) coordination, and professional collaboration that is sustainable. A portion of the "in the same physical space at the same time" feeling may be lost. Yet, there is still a richness and a palpable dynamic that can be experienced. I know this personally, as for a year and a half my research team has actively collaborated with a colleague and

FIGURE 1 Scheduling Window



his team solely through Zoom Video Communications or simply Zoom. During our joint team meetings, we conceptualized and developed a mixed-method study examining the lived experiences of racial socialization messages regarding interracial dating relationships in African American women.

Zoom has become a household name and has ballooned in its global daily use, with the advent of the coronavirus (COVID-19) pandemic. However, I have been using Zoom for close to five years now. When it was considered one of the newer kids on the block, the platform was up against stiff competition. But, I selected it for a number of reasons: (1) I was frustrated with the connectivity glitches in some of the other platforms, e.g., frequently dropped calls, fuzzy video; (2) I needed something more robust and user friendly and streamlined in its interface (see Figures 1 and 2); (3) I wanted a platform that had cost-effective

FIGURE 2 Meeting Window Before Participants Arrive and the Video is Off

features, such as high definition quality video, a dedicated meeting ID# (see Figure 1), and clear recordings with options for both cloud and device storage; and (4) I also wanted a platform that offered a BAA (business associates agreement) and was HIPAA-compliant. Given that I am also a licensed psychologist, this was an extremely important factor when making my final decision, as I first used Zoom for clinical supervision and consultation purposes.

As my career path moved toward increased scholarly activity, I shifted my use of the robust platform. Zoom expanded the way in which I could develop research collaborations with colleagues and students. It became a viable research tool and made true continuity of shared interests exciting! So, how did this all happen?

Well, it began with establishing a research contract and a weekly secure Zoom video connection (see Figure 1). Our virtual research team met on the same day and time week to week and cancellations followed my institution's academic calendar. Duration was set for 1.5 hours and each team member consented to the meetings being recorded as a means for generating an audit trail—this eliminated the need for scribes, and everyone expressed appreciation of this change. At each meeting, I provided team members with an agenda. We had check-ins at the beginning of each meeting followed by weekly task assignment updates. The assignment updates included the discussion of an article related to an aspect of the team's project, the review of a coconstructed recruitment flyer or e-mail script, or even preparing submission to our institutional review board.

FIGURE 3 An Active Research Team Meeting in Progress

The Zoom format provided an opportunity for students to work together in this modality, which stretched their research and interpersonal capacities.

Journaling was a weekly occurrence—each team member maintained an individual researcher journal, submitting a weekly submission to me in a word document format. This team activity supported the continuation of bracketing (Moustakas, 1994) and reflexivity (Roulston, 2010) in thinking about the research and each person's level of positionality in the process. This was crucial to do.

Via Zoom, we developed an interview guide for our joint mixed-methods study and conducted volunteer feedback sessions along the way to refine the interview guide for flow and clarity of the questions (Castillo-Montoya, 2016; Jones, Torres, & Arminio, 2013). We collectively conceptualized, worded, and submitted four professional conference proposals, all of which were accepted for either poster or panel presentations. We also outlined sections for manuscript writing and polled publication outlets, which we believed best suited the work the team was doing. Follow-up to team meetings occurred via e-mail correspondence. However, all of the research activities and tasks noted above were exclusively conducted through our weekly Zoom team meetings.

Using Zoom, a combined team of diverse undergraduate and graduate students engaged in shared series of moments (i.e., lived experiences) in the process of learning and developing understanding together (Figure 3). My primary goal was to continue collaborative efforts between two established

research teams, exploring the same line of empirical inquiry. Zoom was the vehicle through which it all happened.

What I like about it is its ease of use and clarity of prompts. I can use a personal meeting ID# for a meeting or have the system generate one automatically. The scheduling window allows you to use a password for the meeting, decide to start a meeting with video, and decide whether you want the meeting's audio accessible by phone or computer only or both. Selecting both was most helpful in our case as sometimes team members were in transit from campus to home and this option was a welcome choice in that situation. Once the meeting is scheduled, you can integrate the information into a preferred calendar choice.

Another helpful function is the Zoom meeting window (see Figure 2). Due to recent reports of *zoombombing*, Zoom added additional security features to this meeting window. One function now available is to lock the meeting (the security shield icon, third icon from left), so that it cannot be intruded upon. There is also a watermark as well as an audiomark on both the host's and meeting attendees' backgrounds. These features serve as a method for detecting unauthorized attendees in a scheduled meeting. There are several other cool features available on the lower bar, e.g., chat, breakout rooms, closed captioning, and reactions. Given the manner in which I use Zoom, I disabled the chat function.

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References

Castillo-Montoya, M. (2016). Preparing for interview research: The interview protocol refinement framework. *The Qualitative Report*, *21*(5), 811–831. Retrieved from https://nsuworks.nova.edu/tqr/vol21/iss5/2

Iacono, V. L., Symonds, P., & Brown, D. H. K. (2016). Skype as a tool for qualitative research interviews. *Sociological Research Online*, *21*(2), 103–117. doi:10.5153/sro.3952

Janghorban, R., Latifnejad Roudsari, R., & Taghipour, A. (2014). Skype interviewing: The new generation of online synchronous interview in qualitative research. *International Journal of Qualitative Studies on Health and Well-Being*, *9*, 1–2. doi:10.3402/qhw.v9.24152

Jones, S. R., Torres, V., & Arminio, J. (2013). *Negotiating the complexities of qualitative research in higher education: Fundamental elements and issues*. London: Routledge.

Moustakas, C. (1994). Phenomenological research methods. Thousand Oaks, CA: SAGE.

Roulston, K. (2010). Reflective interviewing: A guide to theory and practice. Thousand Oaks, CA: SAGE.

FINAL THOUGHTS

As noted by Tamkin, the pandemic has changed nearly everything about how we work together. Existing familiarity with tools such as Zoom has made aspects of this transition easier for some. Digital tools and spaces are part of our everyday lives and are both worthy of investigation as objects in their own right and worthy of being incorporated into research workflows, assemblages, and confluences in ways that can help us more fully understand the always-evolving state of our digital world. A deeper understanding of theories that seek to explain the relationship between material artifacts and humans can help us understand how and even why individual researchers and research communities may or may not choose to take them up as part of their practice. Further, throughout this book, as aspects of a digital research workflow are explored, regular reflexivity is encouraged in order to be aware of how "we always delegate more than we realize" and that the adoption of new technologies may result in "subtle changes in our ongoing way of being" (Adams & Thompson, 2016, p. 106).

REFLEXIVITY QUESTIONS

In this chapter, vignettes explored the use of project management and collaboration tools. Consider the theories of technology presented at the start of the chapter and reflect on the use of tools and spaces to create project management and collaboration workflows:

1. What might an ideal project management and collaboration workflow look like? What material and human actors would come together, and in what ways?
2. How might the use of digital tools and spaces solve existing dilemmas around project management and teamwork?
3. What new ways of project management and collaboration would this workflow encourage? How might the workflow transform, resist, or constrain existing methods?
4. What ethical and political consequences might result from adopting this workflow? Who or what is included, and excluded? Who or what holds power?
5. What changes to existing digital tools and spaces included in the workflow may be needed for them to function in ways that lead to high-quality findings? What changes may be needed by the people involved?

RESOURCES AND FURTHER READING

- To explore the history and theories of technology, we recommend McQuire (2006); Orlikowski (2007); Scharff and Dusek (2014); Schatzberg (2018); MacKenzie and Wajcman (1999); and Feenberg (2002).
- Two useful online directories of digital tools and spaces of interest to researchers include the Connected Researcher's Digital Tools for Researchers page and the Digital Research Tools Wiki (DiRT).
- Alvesson and Sköldberg's (2009) *Reflexive Methodology: New Vistas for Qualitative Research* is an excellent book for learning more about reflexivity and methodologies that can enact a reflexive stance.

REFERENCES

Adams, C., & Thompson, T. L. (2016). *Researching a posthuman world: Interviews with digital objects*. London: Palgrave Pivot.

Alvesson, M., & Sköldberg, K. (2009). *Reflexive methodology: New vistas for qualitative research* (2nd ed.). Thousand Oaks, CA: SAGE.

Behrent, M. C. (2017). Foucault and technology. *History and Technology*, 29(1), 54–104.

Castañeda, L., & Selwyn, N. (2018). More than tools? Making sense of the ongoing digitizations of higher education. *International Journal of Educational Technology in Higher Education*, 15(22). doi: 10.1186/s41239-018-0109-y

Davidson, J. (2019). *Qualitative research and complex teams*. New York, NY: Oxford University Press.

Davidson, J., Paulus, T. M., & Jackson, K. (2016). Speculating on the future of digital tools for qualitative research. *Anniversary Issue of Qualitative Inquiry*, 22(7), 606–610.

Dobson, J. E. (2019). *Critical digital humanities: The search for a methodology*. Urbana: University of Illinois Press.

Dowling, R., & Wilson, M. (2017). Digital doctorates? An exploratory study of PhD candidates' use of online tools. *Innovations in Education and Teaching International*, 54(1), 76–86.

Duca, D., & Metzler, K. (2019). *The ecosystem of technologies for social science research* (White paper). Thousand Oaks, CA: SAGE. doi:10.4135/wp191101

Feenberg, A. (2002). *Transforming technology: A critical theory revisited* (2nd ed.). Oxford, UK: Oxford University Press.

Feenberg, A. (2012). Introduction: Toward a critical theory of the Internet. In A. Feenberg & N. Friesen (Eds.), *(Re)inventing the internet: Critical case studies* (pp. 3–18). Rotterdam, The Netherlands: Sense Publishers.

Feenberg, A., & Friesen, N. (Eds.) (2012), *(Re)inventing the internet: Critical case studies* (pp. 3–18). Rotterdam, The Netherlands: Sense Publishers.

Fielding, N. (2019). New data and old dilemmas: Changes and continuities in online social research. *Qualitative Inquiry*, 25(8), 761–772.

Fox, N. J., & Alldred, P. (2015). New materialist social inquiry: Designs, methods and the research-assemblage. *International Journal of Social Research Methodology*, 18(4), 399–414. doi:10.1080/13645579.2014.921458

Fulk, J., & Yang, Y. C. (2017). Social construction of communication technology. In C. R. Scott & L. Lewis (Eds.), *The international encyclopedia of organizational communication* (pp. 2177–2195). Hoboken, NJ: Wiley-Blackwell.

Gibson, J. J. (1979). *The ecological approach to visual perception*. Psychology Press & Routledge Classic Editions. Boston, MA: Houghton Mifflin.

Giorgi, A. (1985). *Phenomenology and psychological research*. Pittsburgh, PA: Duquesne University Press.

Glesne, C. (2011). *Becoming qualitative researchers: An introduction* (4th ed.). Boston, MA: Addison-Wesley.

Gouseti, A. (2017). Exploring doctoral students' use of digital technologies: What do they use them for and why? *Educational Review*, 69(5), 638–654.

Hertz, R. (1997). *Reflexivity and voice*. Thousand Oaks, CA: SAGE.

Horst, H. A., & Miller, D. (2012). *Digital anthropology*. Abingdon, UK: Routledge.

Jackson, K., Paulus, T., & Woolf, N. (2018). The walking dead genealogy: Unsubstantiated criticisms of qualitative data analysis software (QDAS) and the failure to put them to rest. *The Qualitative Report*, 23(13), 74–91.

Kaufmann, J., & Holbrook, T. (2016). Introduction to the special issue on hypermodality. *Qualitative Inquiry*, 22(3), 159–160.

Lupton, D. (2015). *Digital sociology*. Abingdon, UK: Routledge.

MacKenzie, D., & Wajcman, J. (1999). *The social shaping of technology* (2nd ed.). Buckingham, UK; Philadelphia, PA: Open University Press.

Mainsah, H., & Prøitz, L. (2019). Notes on technology devices in research: Negotiating field boundaries and relationships. *Qualitative Inquiry*, 25(3), 271–277.

Marres, N. (2017). *Digital sociology: The reinvention of social research*. New York, NY: John Wiley & Sons.

McQuire, S. (2006). Technology. *Theory, Culture & Society*, 23(2–3), 253–269.

Morse, J. (2019). The changing face of qualitative inquiry. *International Journal of Qualitative Methods*, 19, 1–7.

Nordstrom, S. (2015). Not so innocent anymore: Making recording devices matter in qualitative research. *Qualitative Inquiry*, 21(4), 388–401.

Orlikowski, W. J. (2007). Sociomaterial practices: Exploring technology at work. *Organizational Studies*, 28(9), 1435–1448.

Orton-Johnson, K., & Prior, N. (2013). *Digital sociology: Critical perspectives*. Basingstoke, UK: Palgrave Macmillan.

Paulus, T., Jackson, K., & Davidson, J. (2017). Digital tools and qualitative research: Disruptions and entanglements. *Qualitative Inquiry*, 23(6), 751–756.

Paulus, T., Lester, J., & Dempster, P. (2014). *Digital tools for qualitative research*. Thousand Oaks, CA: SAGE.

Paulus, T. M., Woodside, M., & Ziegler, M. (2008). Extending the conversation: Qualitative research as dialogic collaborative process. *The Qualitative Report*, 13(2), 226–243.

Paulus, T. M., Woodside, M., & Ziegler, M. F. (2010). "I tell you, it's a journey, isn't it?" Understanding collaborative meaning-making in qualitative research. *Qualitative Inquiry*, 16(10), 852–862.

Pillow, W. (2003). Confession, catharsis, or cure? Rethinking the uses of reflexivity as methodological power in qualitative research. *International Journal of Qualitative Studies in Education*, 16(2), 175–196.

Pinch, T. J., & Bijker, W. E. (1984). The social construction of facts and artefacts: Or how the sociology of science and the sociology of technology might benefit each other. *Social Studies of Science*, 14(3), 399–441.

Quinton, S., & Reynolds, N. (2018). *Understanding research in the digital age*. Thousand Oaks, CA: SAGE.

Russell, S., & Williams, R. (2002). Social shaping of technology: Frameworks, findings and implications for policy, with glossary of social shaping concepts. In K. H. Sørensen & R. Williams (Eds.), *Shaping technology, guiding policy: Concepts, spaces and tools* (pp. 37–132). Cheltenham, UK; Northampton, MA: Edward Elgar.

Savin-Baden, M., & Tombs, G. (2017). *Research methods for education in the digital age*. London; New York, NY: Bloomsbury.

Scharff, R. C., & Dusek, V. (2014). *Philosophy of technology: The technological condition: An anthropology* (2nd ed.). Hoboken, NJ: Wiley-Blackwell.

Schatzberg, E. (2018). *Technology: Critical history of a concept*. Chicago, IL: University of Chicago Press.

Selwyn, N. (2019). *What is digital sociology?* Cambridge, UK: Polity Press.

Spradley, J. (1980). *Participant observation*. New York, NY: Holt, Rinehart & Winston.

Tiles, M., & Oberdiek, H. (1995). Conflicting visions of technology. In M. Tiles & H. Oberdiek (Eds.), *Living in a technological culture* (pp. 12–31). London: Routledge. Reprinted in Scharff, R. C., & Dusek, V. (2014). *Philosophy of technology: The technological condition: An anthology* (2nd ed., pp. 249–259). Chichester, UK: John Wiley & Sons.

Van Dijk, L., & Rietveld, E. (2017). Foregrounding sociomaterial practice in our understanding of affordances: The skilled intentionality framework. *Frontiers in Psychology*, 7, 1–12.

Watt, D. (2007). On becoming a qualitative researcher: The value of reflexivity. *The Qualitative Report*, 12(1), 82–101.

Williams, R. (2019). The social shaping of technology (SST). In T. L. Pittinsky (Ed.), *Science, technology & society: New perspectives and directions* (pp. 138–162). Cambridge, UK; New York, NY: Cambridge University Press.