Digital Tools for Qualitative Research

Trena M. Paulus / Jessica N. Lester / Paul G. Dempster >

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Companion Website

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Digital Tools for Qualitative Research

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About the Book

Welcome to the companion website for the first edition of *Digital Tools for Qualitative Research*

Digital Tools for Qualitative Research shows how the research process in its entirety can be supported by technology tools in ways that can save time and add robustness and depth to qualitative work. *It* addresses the use of a variety of tools (many of which may already be familiar to you) to support *every* phase of the research process, providing practical case studies taken from real world research.

The text shows you how to select and use technology tools to:

- engage in reflexivity
- collaborate with other researchers and stakeholders
- manage your project
- do your literature review
- generate and manage your data
- transcribe and analyse textual, audio and visual data
- represent and share your findings.

The book also considers important ethical issues surrounding the use of various technologies in each chapter.

Whether you're a novice or expert social researcher, this book will inspire you to think creatively about how to approach your research project and get the most out of the huge range of tools available to you.

On this companion website to the textbook, you'll find...

Student Resources

This section of the site is freely accessible to any student who is using *Digital Tools for Qualitative Research* by Trena Paulus, Jessica Lester and Paul Dempster.
Student resources are organised by chapter, and offer a range of content including:

- **Web links:** access relevant web links to supplement your study of the book, from leading technology blogs, forums and archives to recommended software and handy tools to aid your research
- **SAGE Journal articles:** additional reading recommended by the authors, with free access to complete journal articles from SAGE
- **Video links:** carefully selected, web-based video resources including lectures, presentations and other content to help you explore key discussion topics
- **Audio links:** including audio diaries and soundscapes
- **Activities:** practice your research skills using our online activities

About the Authors

Trena M. Paulus holds a Ph.D. in Education/Instructional Systems Technology and currently teaches qualitative research methods, discourse analysis and instructional technology courses at the University of Tennessee, USA, where she is an associate professor. She has published articles in the areas of qualitative research methods, instructional technology and computer-mediated communication. She teaches a doctoral level course on Digital Tools for Qualitative Research which provided the motivation for this text.

Jessica N. Lester is an assistant professor in Inquiry Methodology at Indiana University and holds a Ph.D. in Educational Psychology and Research. She teaches research methods courses, including a course focused on the uses of digital tools in qualitative research. She has published journal articles in the areas of qualitative methodologies, disability studies, discourse studies, and refugee studies. She recently co-edited a book focused on performance ethnography and schooling practices.

Paul Dempster is an applied health researcher who specialises in qualitative research. He is particularly interested in caqdas methods and has taught internationally on their use. He is a consultant methodologist for Transana at the university of Wisconsin and works for the NHS in Newcastle.

All figures are available to view on the companion website:

Digital Tools
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Why Digital Tools?

Reflexive practice and ethics	Analysing textual data	Analysing image, audio, and video data
Collaborating	Transcribing	Representing findings
Reviewing literature	Generating data	
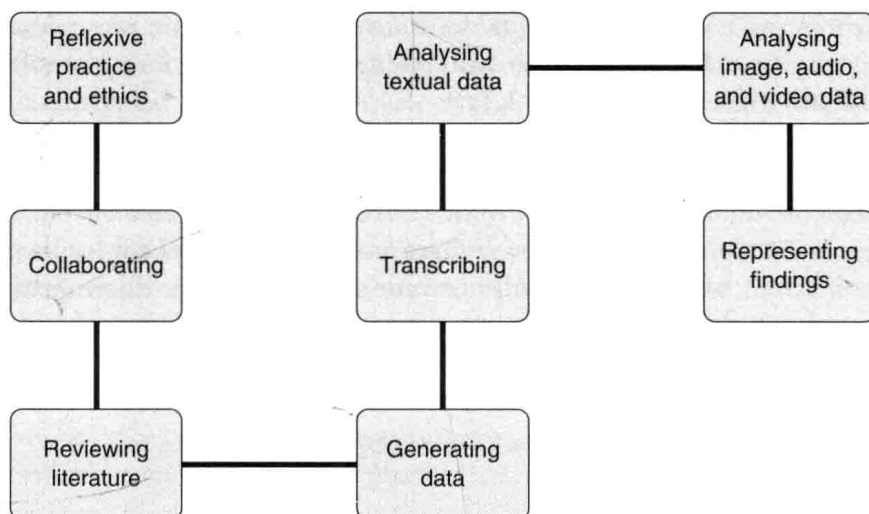
Companion website materials available here:

www.uk.sagepub.com/paulus

Learning Objectives

- Highlight the historical perspectives around the use of digital tools within the qualitative research process.
- Consider how the diffusion of innovation theory might serve to explain technology adoption by the qualitative research community.
- Examine the concepts of affordances and constraints as related to digital tools.
- Identify the crosscutting themes of the book, including reflexive practice, collaboration, transparency and ethics.

Introduction

From paper and pen for taking notes in the field to tape recorders and video cameras for capturing interviews and social interactions, qualitative research has always been shaped by the tools we choose to use. We now live in a digital age, where cloud computing, mobile devices and social media are constantly changing

the nature of our relationships with technology and with each other. We acknowledge that the use of digital tools for qualitative research is not a new idea, nor has it been without controversy. Davidson and Di Gregorio (2011) provided a comprehensive overview of the history of technology in qualitative research, highlighting the uneasiness between the two. Of particular concern has been the use of data analysis software. Paulus, Lester and Britt (2013) noted in their discourse analysis of introductory qualitative research textbooks that most authors limited their discussion of digital tool use to devices such as audio recorders, transcribing machines and data analysis software. Further, many of the texts framed the use of digital tools (especially data analysis software) as something to be done with caution. We feel that this overriding focus on data analysis software, while important, has resulted in the exclusion of a broader discussion regarding the potential affordances and constraints of digital tools *across the qualitative research process*. Twenty years ago, Miles and Huberman outlined 14 uses for 'computer software' for qualitative research: see Table 1.1.

These uses for digital tools are still relevant to qualitative practice today, but few such applications are discussed with much regularity in our qualitative research community. While the CIBER (2010) report published by University College in London found that researchers are using social media for increased communication, access to research communities and greater dissemination of findings, the study also noted that most researchers were not yet using the full

Table 1.1 Uses of computer software in qualitative studies (from Miles and Huberman, 1994)

1. Making notes in the field

2. Writing up or transcribing field notes

3. Editing: correcting, extending, or revising field notes

4. Coding: attaching keywords or tags to segments of text and making them available for inspection

5. Storage: keeping text in an organized database

6. Search and retrieval: locating relevant segments of text and making them available for inspection

7. Data 'linking': connecting relevant data segments to each other, forming categories, clusters or networks of information

8. Memoing: writing reflective commentaries on some aspect of the data as a basis for deeper analysis

9. Content analysis: counting frequencies, sequences or locations of words and phrases

10. Data display: placing selected or reduced data in a condensed organized format, such as a matrix or network, for inspection

11. Conclusion drawing and verification: aiding the analyst to interpret displayed data and to test or confirm findings

12. Theory-building: developing systematic, conceptually coherent explanations of findings; testing hypotheses

13. Graphic mapping: creating diagrams that depict findings or theories

14. Preparing interim and final reports

range of tools available. There seems to be a large gap between *awareness* of new tools and the actual *use* of them, attributed to a lack of clarity around the benefits of the tools and/or lack of time to learn them. This matches our own experiences as researchers, and, we suspect, the experiences of many others.

While lack of knowledge may be one reason for lack of use, digital tools also challenge the way things have traditionally been done. Rogers' (2003) diffusion of innovations theory notes that the moment an innovation is introduced, communication begins between the 'early adopters' – those who quickly accept and begin to use the innovation – and the 'late' or even 'non-adopting' resisters – those who delay acceptance and/or may reject the innovation altogether. Those who do adopt the innovations learn about the benefits the tools can bring and eventually incorporate them into their daily work. Rogers argued that *how* the new innovation is communicated to people is important and suggested that it is the early adopters and the resisters who can be highly influential to those who remain undecided. In the case of qualitative research, it is possible that the way that the established scholars in the field (methods instructors, book authors, leaders in the field) talk about the importance (or lack thereof) of digital tools across the qualitative research process may shape how new researchers (students) adopt the tools in their own practice.

Digital tools for qualitative research can mean much more than the use of specialized software packages for data analysis. Whenever we have discussed this book with audiences, no matter what the venue, their assumption has been that by digital tools we must be referring only to data analysis tools. While specialized software packages certainly have an important role to play, there are many more tools available and many more phases of the research process in which to explore their role. Our students, for example, often want to know how to use the digital tools they use in their everyday lives for their fieldwork. Prensky (2011), a game designer, has written extensively about how university students today represent the first generation to grow up with new technologies as part of their everyday lives. Prensky referred to these individuals as *digital natives*. In contrast, those of us who did not grow up with, but have adopted the new technologies, are referred to as *digital immigrants*. While many of us who teach qualitative research methods are digital immigrants, our students are digital natives, and they understandably expect to learn about how they can use the tools they grew up with in their research practice.

Our intent with this book is to reframe how we talk about digital tools for qualitative research. We argue that just as they are an essential, inescapable part of our daily lives, digital tools can be an essential part of our research lives. We hope this book will help researchers conceptualize how the qualitative inquiry process *in its entirety* can be supported by digital tools in ways that can add robustness and depth to qualitative work. More specifically, we have written this book not only for those who are learning about qualitative research, but also for those who teach qualitative research, and those who have been doing qualitative research for some time and who wish to learn more about how digital tools can support, if not transform, their process.

About the Authors

Our own paths to qualitative research and to the exploration of digital tools to support the process have varied. I (Trena) have a background in applied linguistics, teaching English as a second/foreign language and, more recently, in instructional technology and online learning environments. I teach qualitative research methods at the graduate level but came to the use of digital tools somewhat reluctantly. I consider myself a relatively late adopter of digital tools, needing to first be convinced that a new tool's added value will be worth my investment of time and effort in learning it. Computer-mediated communication is one of my research areas, and I have had my students keep reflective blogs for many years. So, the use of social media tools for collaboration and engaging in researcher reflexivity was one of the first ways I explored using digital tools in my research practice. It was not until after I was tenured and promoted that I felt I could take the time to learn a data analysis tool (ATLAS.ti), but doing so transformed my entire research practice in ways that I could not have envisioned. I have since become an advocate for increasing access to and support for computer-assisted qualitative data analysis software (CAQDAS) at my university, and, through the process of writing this book (and teaching a course on the same topic), I have learned a great deal myself.

I (Jessica) was first introduced to digital tools to support research practices as a PhD student. Early on in my training, my adviser (Trena) encouraged me to begin blogging about my research experiences, chronicling my questions, concerns and musings. I maintained this private blog throughout my thesis work, with only my adviser and two colleagues being given permission to read and respond to my posts. Further, I have been trained in several CAQDAS packages (ATLAS.ti, MAXQDA, NVivo and Transana), eventually incorporating these tools into my research practice. Yet, as graduate school ended and I moved into a full-time faculty position, I quickly became aware of my lack of experience and understanding of how new forms of social media might shape my everyday research practices, from data collection to the dissemination of research findings. For instance, despite being engaged in the ongoing collection of naturally occurring classroom conversations, I was somewhat late to consider the potential uses of mobile devices for data collection. Just recently, I have begun to use my smartphone, iPad and a variety of 'apps' to support my research process. Of course, these new tools bring with them ethical dilemmas, something that we have attended to throughout this book.

I (Paul) was an early adopter of CAQDAS software, being the first person at my university to pioneer its use. Indeed, throughout my whole research career I have always used a variety of digital tools. I became involved almost 13 years ago in the debates being held with software developers as they tried to incorporate useful features for researchers. As a natural progression, this led to work as a freelance trainer, mainly teaching NVivo, and latterly as a methodological consultant for Transana. I have a long-standing interest in developing functionality within software and continue to work as a beta tester on a number of

software packages. My work as an applied health researcher has allowed me to interact with a range of technologies, applying them in novel ways to research problems, and also to explore large-scale implementation of digital tools in the National Health Service. I also work as a methodological troubleshooter and trainer, finding digital solutions to research problems at a university level.

As you read the book, we encourage you to reflect upon your own use of digital tools. Do you consider yourself an early adopter, late adopter and/or resister? What has influenced your views of technology? How do you orient to the use of digital tools for particular aspects of the qualitative research process (e.g. collecting data, transcribing, representing findings)? As you consider these questions, we invite you to examine how the tools you take up bring with them particular affordances and constraints.

Affordances and Constraints of Digital Tool Use

Throughout the book, we draw upon the theory of affordances. This theory originated with J.J. Gibson in the late 1970s and was popularized in the 1980s by Donald Norman, a pioneer in the field of human-centred design. Norman (1999) suggested that new inventions come with 1) conceptual models, 2) possible and actual uses of a device as perceived by the user (affordances) and 3) constraints. Any innovation presents the user with both affordances and constraints. For example, a simple audio recorder affords you the ability to listen to an interview numerous times. On the other hand, it does not capture non-verbal interaction, and recording people's voices presents new ethical challenges that simply taking notes during an interview did not – both of which can be considered constraints of the tool.

We have provided a number of opportunities within each chapter for you to consider the affordances and constraints of the tools we introduce. This, we suggest, is part of engaging in reflexive practice. As such, the concept of affordances frames how we discuss digital tools in both explicit and implicit ways.

Visit Web Resource 1.1 to read more about affordances.

Our goal for this book is to provide you with practical guidance on selecting and using digital tools *across the research process*. We hope to provide a foundation for you to think about the affordances and constraints of such tools in a meaningful way. Throughout the chapters, we develop several themes that we describe next.

Crosscutting Themes

We suggest that new tools have the potential to enable greater *researcher reflexivity, transparency of research decisions* and *collaboration*. New tools also bring into

focus *ethical dilemmas* that need to be kept at the forefront of our practice. Thus, across the book, we give particular attention to the ways in which digital tools impact these four areas.

Reflexive Practice

Within each chapter, we incorporate *reflexive practice* activities in which we ask you to engage with the topics being discussed, as you try out new tools and reflect on their affordances and constraints. Many of these activities provide an opportunity to situate your reflections in the context of a research study that you would like to design. Thus, we encourage you now, before continuing on to Chapter 2, to think of a particular research study you would like to design, or are currently engaged in, that can serve as a context for your explorations in this book. In Chapter 2, you will create a reflexive practice blog, and throughout the book you will be encouraged to make regular posts to this blog in conjunction with the reflexive practice activities. In preparation for this, consider Reflexive Practice 1.1.

REFLEXIVE PRACTICE 1.1

Think of a research study that you would like to design, or are currently engaged in. Briefly describe the project, its features and key points. Don't worry if your ideas are vague at this point. This study idea will serve as a context for the tools that you will explore in this book. Hold on to these notes and you will enter them into your reflexivity blog, which will be introduced in Chapter 2.

Collaboration

Social media, cloud computing and mobile devices have made it much easier to connect not only with other researchers, but with participants, their communities and the public at large. Chapter 3 is specifically dedicated to the topic of collaboration, but the theme is revisited throughout the book. We encourage you to be reflexive about how digital tools expand how we stay connected with others in our communities, refine how we make sense of our data, and shape who has the power to participate in our study and how.

Transparency

From data analysis software packages resulting in a more visible analysis process to websites which open up your work to public critique, we argue that many digital tools serve to increase the transparency and thereby trustworthiness of your study. The ability to use mobile devices to document what is happening in the field and immediately share your work with collaborators can create an immediate audit trail and afford transparencies in ways that have not been

possible before. Throughout the book, we discuss how digital tools can contribute in various ways to this transparency.

Visit Web Resource 1.2 for a link to Tracy's (2010) article on eight criteria for evaluating the quality of qualitative work.

Ethics

Not only do digital tools present opportunities to support and even transform our research, but at times they may threaten our ability to engage in ethical practices. Within each chapter, we give particular attention to the ways in which digital tools present ethical challenges and dilemmas. We ask you to consider these dilemmas in the context of the reflexive practice activities. Ethical qualitative researchers are reflexive researchers; thus, we seek to maintain a close connection between the two.

Organization of the Book

We made a choice to situate our discussion of digital tools in the broader context of the qualitative research process. In other words, we start with good qualitative research practice and then turn to how tools can support that practice. We highlight the ways in which digital tools can even *transform* aspects of the research process, while also considering times at which digital tools may limit our ability to practise ethical research. We have organized the book around the following qualitative research activities: engaging in reflexive practice, collaborating, reviewing the literature, generating data, transcribing, analysing textual data, analysing audio, image and video data, and writing and representing findings. Each chapter begins with a graphic (Figure 1.1) to remind you of where we are in the process.

We acknowledge that research is never a linear process, and that there is no such thing as *one* qualitative research process. Your process may look quite different depending on what type of qualitative work you are engaged in (e.g. ethnography, grounded theory or discourse analysis). However, we feel that most, if not all, research traditions attend to these phases at some point during an inquiry cycle. Thus, while the distinction of the phases is somewhat artificial, our hope is that it serves as a useful organizing tool. In the same vein, while we discuss the phases of the research process in individual chapters, we acknowledge that the process is iterative, emergent and dynamic. You may well be engaged in multiple phases of the process simultaneously. However, we do suggest that it is useful to think about how specific tools impact various aspects of the research process, with researcher reflexivity and ethical practices being foundational to your work.

Within each chapter, we first discuss some foundational issues to that particular phase of the process and some of the decisions that must be made as you design your study. We follow with an introduction of tools that we have found useful during that phase of the process, including **figures** to help illustrate our
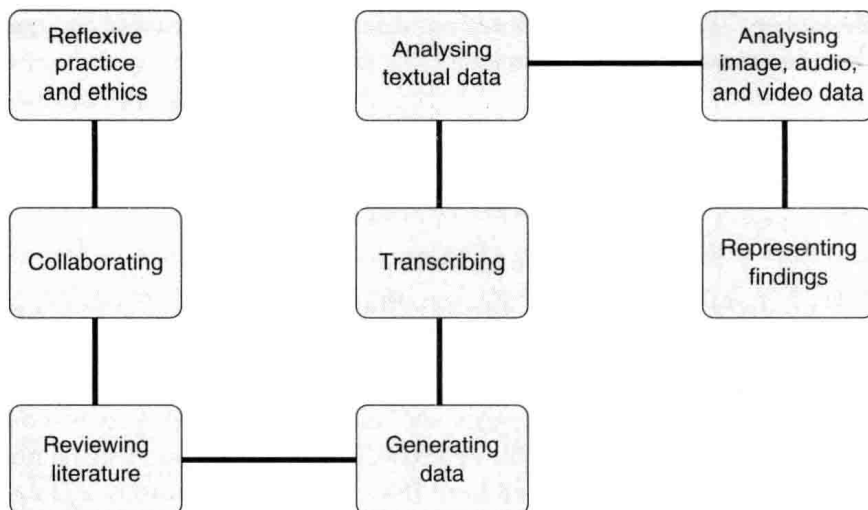
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│  practice   │         │textual data │─────────│image, audio,│
│  and ethics │         │             │         │and video data│
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Figure 1.1   The qualitative research process

discussion. We provide **case studies** that illustrate issues introduced in the chapter. **Vignettes** – stories authored by qualitative researchers in the field – provide real-world examples of how the tools have been used in a variety of contexts. As noted earlier, **reflexive practice activities** are incorporated throughout each chapter to encourage you to apply what you are reading to a study of your own design. We conclude each chapter with **suggestions for further reading** as well as **chapter discussion questions**.

What this book cannot do is provide you with step-by-step guidance for learning particular tools. It is not a 'how to' manual, because the tools change too quickly for such instructions to remain accurate for long. We do, however, have a **companion website** for the book, where we provide extended coverage of the topics introduced in each chapter. Each chapter's **web resources** direct you to our companion website.

Visit Web Resource 1.3 for a link to Jane Hart's Best of Breed Tools.

Visit Web Resource 1.4 for a link to Bamboo Digital Research Tools (DiRT).

The companion website is designed to extend what is discussed in the book, while also providing additional examples and ideas for further consideration. Finally, we have strived to introduce not only proprietary, commercial tools but also freely available tools.

Overview of the Chapters

As a qualitative researcher, *you* are the instrument, and at the centre of the research process. Chapter 2 examines how the choices and decisions you will

make, consciously and unconsciously, will impact all aspects of your study, making reflexive practice critical. Reflexive practice is very much linked to ethical practice. From online journals (blogs) to audio and video recorders to cloud-based note-taking systems, there are a variety of digital tools that you can use to keep a reflective journal. Each of these tools comes with affordances and constraints, as well as ethical questions. We introduce some of these ethical dilemmas in Chapter 2 as well.

Chapter 3 explores how digital tools can support what we see as *creative conversations* between collaborators. Digital tools can support networking, meeting, resource sharing and collaborative writing. New tools can present ethical dilemmas such as the security of data stored in the cloud and how to properly credit collaborators for their contributions to a project.

Literature reviews for qualitative research studies, discussed in Chapter 4, involve understanding the current state of the field in order to join the scholarly conversation. Locating, organizing, reading, analysing and synthesizing the literature can be supported by a variety of tools beyond the database searches most researchers are familiar with. Search alerts and social bookmarking tools can make the process of locating sources more systematic and transparent. Citation management tools function as comprehensive document management systems for electronic resources. Mobile computing devices combined with e-reader applications are making 'going paperless' for academic reading a possibility.

Generating data, discussed in Chapter 5, is a central aspect of the research process. Historically, there has been a greater focus on collecting researcher-generated data, such as interview and focus group data. Digital tools now afford researchers opportunities to collect other forms of data, including naturally occurring data, such as everyday conversations. Field notes can be synchronized with mapping tools. Recording audio and video data can now be done with mobile devices and new tools such as Smartpens. Online communities provide an additional site for qualitative exploration, but entering these sites in an ethical manner requires careful forethought. Digital tools also support innovative methods such as walk-alongs, soundscapes and photovoice studies.

Transcribing recordings into written texts is typically a central part of the qualitative research process, and the first layer of analysis. Chapter 6 introduces several ways of transcribing that can be supported by transcription software or voice recognition software. With Transana, multiple transcripts can be used to represent different layers of the audio and video data. It is also possible for researchers to bypass the transcription process entirely by directly coding audio and video files.

Chapter 7 discusses how effective use of computer-assisted qualitative data analysis software (CAQDAS) packages entails selecting the features that will best support your analytic approach. A software package can serve as the organizational container for your study, as well as allowing you to annotate, link, search, code and visualize your data. Understanding the affordances and constraints of the software packages can help you decide when and how to use them in your work.