

Yanto Chandra · Liang Shang

Qualitative Research Using R: A Systematic Approach

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Foreword

Years ago, I was facing a problem that has haunted qualitative researchers forever: How do you imbue inductive research with “qualitative rigor” and still hold on to its marvelous power for generating revelatory insights? I was frustrated in my attempts to publish qualitative research, because reviewers just didn’t seem to “get” what I was trying to do. So, I puzzled over whether it might be possible to develop a systematic approach to doing qualitative research in a way that could convince reviewers, editors, and interested readers that my conclusions were not only insightful but plausible, defensible, and rooted in convincing data. Of course, I wanted to keep and even enhance qualitative research’s great historical seductions: discovering new concepts, revealing deep structures and processes, fostering new ways of seeing, etc.

I also wanted to develop some way to counter the (then often accurate) perception that qualitative research was overly impressionistic and founded on slim evidence. In addition, I wanted to give voice to the people actually experiencing a phenomenon, rather than furthering the fiction that the researcher has some sort of theoretical omniscience. In my view, people doing things in organizations are usually knowledgeable (I know because I once was one of those people doing consequential things in a prominent organization). They generally have a good sense of what they are trying to do, how they are trying to do it, and why they are trying to do it – and they usually can explain it to intellectual eggheads in understandable terms. Perhaps most important of all, I wanted to be able to generate grounded theoretical explanations of their experience – explanations that were predicated on demonstrable data-to-theory connections, so that I could “prove” to skeptical gatekeepers that I knew what I was talking about. Big dreams with big hopes.

To accomplish these kinds of ambitious aims, we scholars are all looking for ways to convince readers of the value of our work, either with compelling data or persuasive rhetoric (or preferably both). My question was: Could I develop an approach that would not only guide my research but also convince readers that my findings were credible and rooted in verifiable evidence? On some practical level, I also wanted to avoid the dreaded RWS (Rejection with Scorn) that frequently came with editor exhortations to show the evidence for your assertions and to better demonstrate your data-to-theory connections.

My approach to fulfilling these grand ambitions and to addressing the perennial concerns of reviewers and editors has been to present both a first-order account (adequate at the level of meaning of the informants) and a second-order account (adequate at the level of meaning of the researchers and theorists). In my way of doing, this process generates a “data structure” that shows all the requisite data-to-theory connections, serves as a basis for writing the findings narrative, and provides the foundation for a grounded process model.

In the early days, I did all the manipulation and analysis of my textual data manually, with lots of index cards, color-coded “Post-It” notes, and myriad category organizing systems. I frequently commandeered conference rooms for days so I could lay everything out on a giant table and stand on that table to get a grand view of a complex and messy data universe. It was tedious in the extreme, but it also was a necessary avenue to revelation. Some years later, when qualitative data analysis programs like NVivo, ATLAS.ti, and MaxQDA came along, the tasks of pattern establishment and similarity/difference analysis could be streamlined by remanding the job to software. My thanks to all those mavens who made research life a lot less wearying.

Now, along come a couple of latter-day saviors, Yanto Chandra and Liang Shang, to make the qualitative analytical world so much easier to navigate for the well-intended, if overwhelmed, qualitative researcher. They have enhanced the approach I have been continuously developing for many years by bringing modern technology to bear on the data processing and evidence-generating aspects of the approach and, consequently, have freed up more brain space for the distinctively human talents for creativity and insight.

This book constitutes a valuable treatise for integrating my approach to qualitative research with computer-assisted qualitative data analysis software and the RQDA, which runs inside the (free!) R computing platform. It provides hold-you-by-the hand, step-by-step instructions and screen displays so that you can become your own qualitative research maven. Even if you have somehow forgotten how to count – not to worry – Chandra and Shang can even take care of that little problem for you. Their synthesis brings a systematic qualitative approach into the twenty-first century.

Robert and Judith Auritt Klein Professor of Management
Smeal College of Business at Penn State University,
University Park, PA, USA
25 May 2018

Dennis Gioia

Endorsements

Qualitative Research Using R: A Systematic Approach guides aspiring researchers through the process of conducting a qualitative study with the assistance of the R programming language. It is the only textbook that offers “click-by-click” instruction in how to use RQDA software to carry out analysis. This book will undoubtedly serve as a useful resource for those interested in learning more about R as applied to qualitative or mixed methods data analysis. Helpful as well is the six-step procedure for carrying out a grounded theory-type study (the “Gioia approach”) with the support of RQDA software, making it a comprehensive resource for those interested in innovative qualitative methods and uses of CAQDAS tools.

Trena M. Paulus, Professor of Education, University of Georgia, USA

Chandra and Shang have written a timely book that expands the methodological toolkit for qualitative research. This book takes the reader step by step through a computerized process for conducting qualitative research that is detailed, easy to follow and full of examples. Based on open-source software sensitive to the various paradigms underlying qualitative research, Chandra and Shang have made the process accessible to all qualitative researchers.

Trish Ruebottom, Professor, Goodman School of Business, Brock University, USA

Qualitative Research Using R: A Systematic Approach is a timely book which offers qualitative scholars a much-needed, easy-to-understand, and step-by-step introduction to RQDA, an open-source CAQDAS software for analyzing qualitative data. Rigorous and practical, the book by Yanto Chandra and Liang Shang is indispensable for any qualitative researcher who wants to acquaint themselves with the technicalities of RQDA and who wants to learn how RQDA can be used to perform state-of-the-art research that is equally transparent, trustworthy, and rigorous.

Pascal Dey, Professor, Grenoble Ecole de Management, France

For researchers who are looking for a DIY manual for structuring research, this book is a gateway into an exciting world of narrative research, all that an aspiring Ph.D. researcher needs in order to design and carry out a winning research design centering on narrative analysis.

Scott Victor Valentine, Professor and Associate Dean of Sustainability and Urban Planning, RMIT University, Australia

In their book, Chandra and Shang give a step-by-step tutorial for using R for qualitative data analysis. The key feature of this book is the way the authors demonstrate the use of R software using relevant examples. This book paves way for students and researchers to use this open-source, free software for qualitative research purposes. It literally brings cost-effective qualitative data analysis “to the masses.”

Dr. Lakshmi B. Nair, Faculty of Social and Behavioural Sciences, Utrecht University, Netherlands

Preface

This book represents an evolution of over 15 years of labor, learning, and self-reinvention since the first author started tinkering with different technologies of rationality to enhance qualitative and quantitative research. This is the first author's response to having worked for multinational firms and, today, as an academic, author, and journal gatekeeper. Together with Shang Liang, my collaborator in the past few years, we have engaged in daily battles with gatekeepers in top-tier journals and understand the challenges of *persuading* others that the conclusion from our research is plausible, defensible, trustworthy, and transparent. How can we achieve this tall order using a research that primarily relies on textual data with no *p*-values or *r*-squares to “prove” our findings are sound? As scholars, how can we convince readers that we did observe concept A or event B or process C in the data and that our decisions in making sense of and giving sense to the data have evidentiary basis? How can gatekeepers be assured that we have met ape-like men in the forest of Sumatra by just saying “I saw them, I was there!”?

The short answer to these big questions is to *systematize* how qualitative research is designed, executed, written, and communicated to all stakeholders and to provide a trail of *evidence* to let others see how a conclusion is reached. Adopting a *systematic* approach to conducting qualitative research does not mean embracing naive empiricist-positivist research, as some might believe. In fact, we can be systematic and also creative, imaginative, and improvisational to attain the highest possible quality of qualitative research. Using a systematic approach is *creativity with fences*. It's about *responsible scholarship* in which we demonstrate – with evidence – how we start from an idea to reach a plausible and defensible conclusion while telling an interesting story.

That said, being unsystematic in doing qualitative research does not automatically qualify as high-quality interpretivist research. The work of a qualitative scholar resembles that of a lawyer. Like a lawyer, we may not know the actual or empirical truth of a case under investigation or even whether this truth exists or not, but we can, like lawyers, provide solid, verifiable, and convincing evidence, evidence that we have systematically collected, analyzed, and presented to support a plausible and defensible conclusion. The rest is up to the jury to decide.

Is it desirable to have a *consensus* for the qualitative research enterprise? Is it possible to achieve such consensus? This book is not an appropriate channel to debate consensus in qualitative research. We do agree, however, that there are *conventions* or *dominant* approaches to performing qualitative research. Like product battles in the commercial marketplace, there are battles of ideas in the academic marketplace, and the “winners” consequently promote the *dominant designs* or *paradigms* that influence the users. To date (as will be discussed in Chap. 1), we are witnessing the rise of three major paradigms in qualitative research – that of Gioia, Yin-Eisenhardt, and Langley. These scholars are key opinion leaders who are shaping the qualitative methods landscape. As discussed in this book, each approach is unique and has distinctive strengths and purposes. Although some qualitative scholars advocate methodological pluralism and reject the need for consensus as to what qualifies as good qualitative research, we fear that the pluralists themselves are creating another paradigm – a non-paradigmatic approach. If “a way of seeing is a way of not seeing,” then plausibly, “a way of not seeing is a way of seeing” is also true. So, let’s be honest and admit that we, as scholars, belong to and anchor our work to a paradigm, even if we deny it.

As authors, we consciously choose to take a *position* in the current paradigmatic and consensus debate (a debate about the importance of having a dominant approach or a set of procedures to execute it) in the qualitative research enterprise. In our research, we tend to work with in-depth interview data and other forms of textual data (e.g., profiles of social innovators/entrepreneurs from public sources, Facebook and Twitter posts, news articles), and we often have a large amount of data, ranging from dozens to tens of thousands. We do not always have access to data on the performance or outcomes of the phenomena we are studying (e.g., high- vs. low-performing cases). We cannot always access longitudinal data from the case sites we work with. Although we can study the social reality like the critical realists do (e.g., “map *events* and go backwards to infer multiple paths of causality”) or like the empiricist-positivists do (e.g., “verify and confirm patterns in cases using qualitative and quantitative data”), we found that the questions we have asked and types of data we have worked with so far tend to lend ourselves to the interpretivist-constructivist approach. Thus, consciously or unconsciously, we have aligned ourselves with the *Gioia approach* – an approach that some scholars thought to be too rigid and positivistic.

Based on our experience, the Gioia approach is a powerful methodology to conduct high-quality interpretivist-constructivist qualitative research. But we also understand that the Gioia approach needs enhancement using technologies of rationality to demonstrate its systematic and evidentiary bases with a strong dose of creative flavor. As users, learners, and hobbyists of open-source (free) computing platforms such as R, we found that the Gioia approach can be fruitfully fused with R. The fusion leads to a new era for executing the Gioia approach and opens new pathways for researchers with no programming background as well as savvy R users to perform qualitative research in a new way assisted by a powerful software package in R called RQDA.

Hong Kong SAR, China

Yanto Chandra
Liang Shang

About This Book

In the language of qualitative scholarship, RQDA – R package for Qualitative Data Analysis – belongs to the computer-assisted qualitative data analysis software (CAQDAS). The growing interest in CAQDAS-based qualitative research is well reflected in the increasing number of books that address this topic. Examples include *technical-oriented* CAQDAS software textbooks such as those focusing on NVivo (Bazeley 2007; Richards 2014) and ATLAS.ti software (Frieze 2011; Woolf and Silver 2017). The number of *general* qualitative research methods books (e.g., Maxwell 2013; Tracy 2012; Savin-Baden and Howell 2012) has also grown in recent years. What is missing, and what qualitative scholars most urgently need, is a book or manual that *integrates the methodological and technical content* for CAQDAS-based qualitative research. The world of R contains numerous books on R programming, and they all focus on the quantitative applications of R, but not one concentrates on qualitative research.

This book is the first that integrates CAQDAS, particularly RQDA and the Gioia approach, to offer step-by-step instructions on how to conduct qualitative research. Our book begins with a discussion on the rise of the Gioia approach as an important paradigm in social science qualitative research – in addition to the Yin-Eisenhardt and Langley approaches – and demonstrates how the Gioia approach can be operationalized and enhanced using an R package called RQDA. It provides a *methodological and technical* review of RQDA as a new CAQDAS tool. Using samples of textual data, we demonstrate the execution of the R-based Gioia approach, from selecting a research question to developing a data structure and grounded process model. Various techniques are covered, including a general *overview* of R programming language; the *installation* of R, RStudio, and RQDA; *data preparation, data coding techniques, data attributes, and “memo-ing” in RQDA*; *code abstraction and code plotting* in RQDA; and *grounded theory development* as the final output in qualitative research.

Our book is aimed at helping researchers – as well as undergraduate, Master, and Ph.D. to postdoctoral students – to *publish* their work in scholarly journals. Publishing in scholarly journals is a *tough “game”* in a researcher’s life. This game is even tougher because of the relatively lower rate of acceptance of qualitative

papers in top social science journals. Our logic in this book goes like this: if one has learnt the highest standard of qualitative scholarship (that we hope we have imparted to readers through this book), it will be relatively easier to apply it in the contexts that do not subject a research to double-blind, multiple-round review processes such as those in the industry, NGO, or policy-making fields. We believe that our book helps professionalize the qualitative craftsmanship in these non-scholarly settings.

We strongly encourage academic readers to start reading from the “author’s reflection” above and then read the philosophical treatment on qualitative research (Chap. 1) and onwards. Because some of the chapters (e.g., Chap. 1) might sound a little too philosophical or “dry” for nonacademic readers, simply scan that chapter and quickly move to the core of the book via Chap. 3 and onwards. For experienced qualitative scholars who primarily use a “manual” approach in analyzing qualitative data, the best part to start is the coding process using RQDA (Chap. 8) right through to Chap. 11.

Overview of Chapters

In Chap. 1, we discuss the landscape of the qualitative research enterprise and articulate the important terminologies (linguistic devices) commonly used in qualitative research. We then discuss five different characteristics and “must-have” elements in qualitative research. Finally, we discuss three main paradigms in qualitative research, particularly the interpretivist-constructivist Gioia, the empiricist-positivist Yin-Eisenhardt, and the critical realist Langley approaches to qualitative research.

In Chap. 2, we discuss the advantages and caveats in using computers to assist with qualitative research (CAQDAS) and how the use of computers can increase transparency, trustworthiness, and rigor of qualitative research as opposed to manual analysis. We then review major CAQDAS tools along their technical specification, capabilities, and methodological strengths and how they fared with RQDA, the *R package for Qualitative Data Analysis*, software of our interest. We briefly discuss one of the most important functions for CAQDAS – *data coding, retrieval, and sharing* and leveraging actual examples of published research to demonstrate examples of data coding.

In Chap. 3, we present a six-step process to conduct CAQDAS-based qualitative research, from articulating the research question and conducting an initial literature review to discussing sampling approaches, crafting an interview protocol, performing data collection, and doing data analysis including creating a data structure and grounded theory development. These procedures should not be seen as a *formula* but rather as a guidance and inspiration for qualitative research. Essentially, all research follows more or less the steps described above. To illustrate the use of this approach, we review a study by the first author (Chandra 2017) on how a handful of ex-terrorists escape their brotherhood of extremists to pursue fast-food restaurant work – work integrated within mainstream society – and then transition into social entrepreneurship running such fast-food enterprises that employ others with similar backgrounds.

Chapter 4 reviews R programming language as a statistical computing platform and introduces RQDA as an extension (or package) of R geared for qualitative research. We discuss the merits of R and RQDA as open-source tools to support qualitative research. We also provide some examples of how to use *syntax* (a string

of commands to instruct the software to execute certain tasks) to operate R and RQDA. We describe the RQDA console and the various functions available in RQDA for new project creation, data import, data export, etc.

In Chap. 5, we discuss the technical details for installing RQDA using R syntax in different operating systems, from Windows and Mac to Linux. We also demonstrate RQDA installation without using R syntax.

In Chap. 6, we demonstrate the techniques for data preparation in qualitative research. We show how to convert qualitative data into a format that is supported by RQDA, and techniques to combine several textual data files (e.g., interview transcripts or news articles) into a case file, and other data preparation tricks. Using a small qualitative study designed for illustrative purposes (the profiles of strategies and outcomes of social innovation drawn from a large social innovation database), we show how to conduct sampling and data preparation in a systematic manner.

In Chap. 7, we demonstrate the techniques to start and launch RQDA in an easy manner. We also show how to create a new project and manage a qualitative research project using RQDA. Lastly, we show how to import qualitative data files into RQDA.

In Chap. 8, we discuss and differentiate the *inductive* coding process in qualitative research and how to do inductive coding in RQDA. Using our sample project “*Social Innovation Strategies and Impacts in the Healthcare Sector*” as an illustration, we demonstrate ways to conduct data coding to create first-order codes/concepts as the first step in the Gioia approach.

In Chap. 9, we discuss various techniques to manage (textual) data files by assigning different attributes, creating memos, or aggregating files into larger case files to support qualitative data analysis in RQDA.

In Chap. 10, we demonstrate the techniques to abstract or aggregate first-order codes or concepts to the second-order themes in RQDA, to plot the codes in a two-dimensional network format, and to export the plotted codes in an HTML file for sharing with research collaborators and journal gatekeepers.

In Chap. 11, we show how to transform the coded data into a “data structure.” Data structure is an aggregation from first-order codes (codes that capture meanings at the informant’s level) to second-order themes (an abstraction of two or more first-order codes) and finally to aggregate theoretical dimensions (theoretical concepts that link data and theory) and how to reconstruct the static movie (data structure) into a *grounded process model* (a motion picture) – the key goal of qualitative research.

Chapter 12 offers our reflection on the advantages and shortfalls of the RQDA-based Gioia approach for qualitative research. We suggest future avenues to improve qualitative research using RQDA, to extend the use of R to support qualitative research and to conduct mixed-method research using R.

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