

CHAPTER 1

Introduction, coding terminology, and the big picture

Science is organized knowledge. Wisdom is organized life.

Immanuel Kant

If, as Kant suggests, science is organized knowledge, then qualitative researchers have a special challenge because of the nebulous nature of their raw data. A great deal of knowledge and wisdom is enmeshed in the stories of elders, open-ended interviews, field observations, folk art, pictures, and artifacts collected by qualitative researchers. But how can these data be organized and analyzed to create scientifically acceptable conclusions? Coherent and well-elucidated strategies are required to produce defensible results from free-form qualitative data. The science of qualitative research depends on the intelligent organization and analysis of rich and complex qualitative data without the time-tested statistical tools that dominate the world of quantitative analysis.

The qualitative researcher discovers the quality and character of lived experiences by collecting data that are not bound by the constraints of quantitative methods. Qualitative data do not have to measure a predetermined set of variables using a large population of randomly sampled subjects. That is the good news. The bad news is that qualitative data can be overwhelming unless they are carefully organized and distilled.

Only with intelligent analysis can scientific conclusions be drawn from the volumes of data that are usually collected during the course of a qualitative research project. This book is full of techniques, technological tips, and tools to help beginning, intermediate, and advanced qualitative researchers work smarter and faster without abandoning their qualitative method of choice.

Many prominent and well-respected scholars have wrestled with the problems and opportunities inherent to qualitative research. Over time these intellectual explorations into the qualitative world have produced wide-ranging and well-documented theoretical and methodological approaches to research problems commonly encountered by qualitative researchers. The practical focus of this book is possible because it builds upon the highly valued pre-existing body of qualitative research knowledge.

Qualitative methods are diverse

Investigators may use grounded theory, ethnography, case studies, focus groups, phenomenology, or creative mixed methods to guide their research designs. Data may be gathered from interviews, observations, participant-observations, field notes, public documents, photographs, audio-visual recordings, journals, artifacts, and sensations such as smell or taste. All of these methods and data gathering practices are supported by existing literature.

The step-by-step techniques and technological guidelines in this book focus on making qualitative researchers more efficient and their projects more valued by helping them more effectively plan, organize, and control their projects. These techniques must be used in tandem with the theoretical underpinnings of qualitative research. I encourage readers of this book to refer often to research methods texts. A tiny sampling of the qualitative methods literature follows so new investigators can get an introductory grasp of qualitative fundamentals.

Grounded theorists endeavor to develop solid hypotheses from the wide-ranging data they collect. The data are often collected through interviews and/or observations. In the words of Strauss and Corbin,

In speaking about qualitative analysis, we are referring not to the quantifying of qualitative data but rather to a nonmathematical process of interpretation, carried out for the purpose of discovering concepts and relationships in raw data and then organizing these into a theoretical explanatory scheme (Strauss and Corbin, 1998, p. 11).

Case study researchers focus on a single case or multiple cases to

understand complex social phenomena. In brief, the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events—such as individual life cycles, organization and managerial processes, neighborhood change, international relations, and maturation of industries (Yin, 2003, p. 2).

Ethnographers immerse themselves in the everyday experiences of the people and objects of their study through fieldwork.

First, the ethnographer enters into a social setting and gets to know the people involved in it; usually, the setting is not previously known in an intimate way. The ethnographer participates in the daily routines of this setting, develops ongoing relations with the people of it, and observes all the while what is going on. Indeed, the term “participant observation” is often used to characterize this basic research approach. But, second, the ethnographer writes down in regular, systematic ways what she observes and learns while participating in the daily rounds of life in others. Thus the researcher creates an accumulating written record of these observations and experiences (Emerson et al., 1995, p. 1).

Qualitative researchers, particularly those involved with fieldwork, may find a significant amount of meaning in artifacts, pictures, and other non-text items. Creswell (2003, p. 189) explains that qualitative researchers may

- Have participants take photographs or videotapes
- Examine physical trace evidence (e.g., footprints in the snow)
- Collect sounds
- Examine possessions or ritual objects to elicit views during an interview
- Collect smells, tastes, or sensations through touch.

Phenomenologists are driven by the quest to discover the objective and subjective reality of the phenomena being studied without the explicit objective of developing theory.

In phenomenological studies the investigator abstains from making suppositions, focuses on a specific topic freshly and naively, constructs a question or problem to guide the study, and derives findings that will provide the basis for further research and reflections. In phenomenological science a relationship always exists between the external perception of natural objects and internal perceptions, memories, and judgments (Moustakas, 1994, p. 47).

Qualitative research allows investigators to be dynamic and innovative. Qualitative methods evolve as new technologies and social forums emerge. For example, the Internet provides a good example of a qualitative methodology that would not have been possible in the early days of qualitative research – online research.

In technologically-mediated environments, self, other, and social structures are constituted through interaction, negotiated in concert with others. The extent to which information and communication technology (ICT) can mediate one's identity and social relations should call us to epistemological attention. Whether or not we do research of physical or online cultures, new communication technologies highlight the dialogic features of social reality, compelling scholars to reexamine traditional assumptions and previously taken-for-granted rubrics of social research (Markham, 2004, p. 794).

The literature samples above illustrate the breadth of qualitative research. Qualitative data can be derived from many sources using numerous techniques and these data may facilitate insightful discoveries, but there is a price. Qualitative research is time consuming and the data are complex. Without thoughtful organization the researcher is likely to lose momentum and intellectual perspective. Without diligent project management qualitative researchers may forget critical data, spend far too much time looking for things they lost, and may miss the most important themes that are embedded in their data.

At its core, this book is about the efficient organization and management of qualitative data using readily available tools. The researcher can more productively analyze data and write better conclusions if he or she intelligently uses the every-day technologies that have become available in the last few years. **This book will help you complete your projects on time and with less frustration by introducing you to efficient qualitative research techniques and problem solving ideas.**

This book is not the introduction of a new qualitative research method. For explanations of grounded theory, case studies, ethnography, phenomenology, focus groups, action research, online research, and other qualitative methods this book defers to the many excellent books and lectures available today. The researchers, professors, and authors who developed these leading methods of qualitative inquiry have provided us with well-developed theoretical, conceptual, and methodological directions.

The goal of this book is enhance the quality, speed, and prestige of qualitative research by providing researchers easy access to innovative tips, techniques, and technologies.

Qualitative research is not homogeneous

Qualitative researchers are diverse. They employ different epistemological assumptions, research methods, methodologies, and designs to answer their research questions, but despite their differences qualitative researchers face common challenges.

- ⇒ Qualitative researchers generate an enormous amount of relatively free-form data such as interview transcripts, field notes from direct observations, documents, records, artifacts, pictures, and other non-quantitative information.
- ⇒ Organizing cabinets full of objects and hundreds (or thousands) of pages of qualitative data is not easy, but it is vital to the successful completion of the research project. Every project will be more efficient if the data are intelligently organized.
- ⇒ The examination of large volumes of data requires an orderly system of analysis that focuses on answering the project's research question(s).

About this book's voice

This is a practical how-to book, not a book about academic paradigms. It is a book that will be used by academics, but it is assumed that even the brightest scholars get frustrated by technological problems from time to time. I don't want frustration about technology to enjoin scholars from trying more resourceful techniques.

To encourage you to relax so you can be creative and innovative, I deliberately employ a relaxed literary style. I speak to you in the first person throughout this book. Because I am working on practical issues with you at your desk, in your study, and at your computer, I use an informal "at home"

voice rather than a more formal “in the classroom” tone. Hopefully, the occasional light-hearted phrase or story will make you smile.

The terminology of qualitative coding

All major qualitative methods employ coding techniques to help organize the overwhelming amount of data that are frequently collected during qualitative research. In subsequent chapters the coding process will be explained in fine detail, but this section is presented now to clarify possible confusion about coding terms.

It is assumed that most readers of this book are at least somewhat familiar with qualitative coding concepts, and that some readers are experts in one or more method of qualitative coding. Advanced qualitative researchers understand that there are significant differences in qualitative methods. An ethnographer writing field notes and gathering objects collects a different type of data than a researcher conducting a case study. A grounded theorist is searching for a different type of conclusion than a phenomenologist.

Coding is the process of focusing a mass amount of free-form data with the goal of empirically illuminating answers to research questions. Coding moves in a stepwise fashion progressively from unsorted data to the development of more refined categories, themes, and concepts. The number of steps required to complete the coding process varies with methods and the amount of raw data, but qualitative coding commonly utilizes three or four steps.

The multidisciplinary approach of this book embraces and encourages the differences between various qualitative methods, but it also recognizes core similarities. No attempt is made to blend or homogenize different qualitative methods into a single method, nor is there an attempt to resolve all of the differences in terminology.

Qualitative coding Levels 1, 2, and 3 are descriptive terms to **broadly** represent core procedures used by the major qualitative research methods. These levels of coding do not precisely correspond with any existing method, but experienced researchers should be able to see the parallels between the coding levels described in this book and the coding steps in their preferred method. I encourage you to creatively use the *concepts* presented in this book and adapt them to your research needs.

Introduction to the levels of qualitative coding

Like a gold miner, the qualitative researcher sorts through large quantities of unsorted material

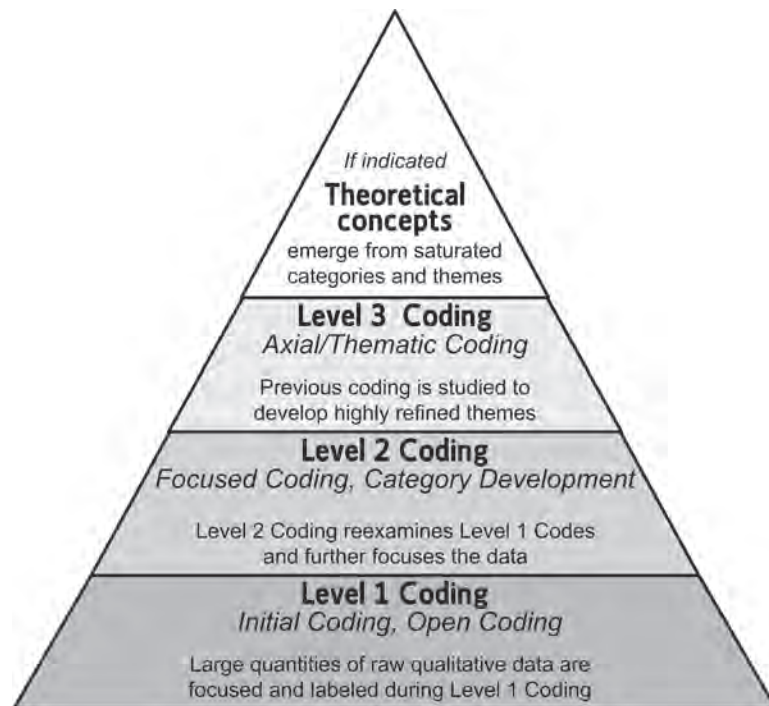
Like a miner panning for gold from streambed gravel, the qualitative researcher sifts through large amounts of data. The miner sees no gold when she first looks at a gold-bearing streambed, just a lot of rock, gravel, and sand. To find the gold the miner must systematically sift through piles of unsorted material to isolate the precious metal.

Like the miner, the qualitative researcher must progressively sort through mass quantities of freeform data to find answers to research questions. The miner intelligently digs into carefully selected sites hoping to unearth nuggets

hidden in unconsolidated gravel. The qualitative researcher focuses on data elements most likely to yield answers.

Qualitative Coding Terms

Generalized for descriptive purpose



This illustration is best viewed from the bottom up as the data are progressively refined to arrive at categories, themes, and theories. The generalizations in this illustration are meant to broadly describe stages of the coding process while recognizing and upholding the vibrant differences between various qualitative methods.

Level 1 Coding

The experienced gold-panner goes through several steps to isolate the precious nuggets of gold. First, large amounts of material that are obviously not gold-bearing are discarded with the shovel before the material ever makes it to the gold pan. Likewise, the first phase of qualitative coding (Level 1) is intended to significantly reduce the qualitative data to allow a more manageable focus. This first stage of coding is commonly called initial coding or open coding. A large nugget may be discovered at this early stage, but the real answers are expected to emerge in later in the process.

Level 2 Coding

Once the streambed materials make it to the gold pan the miner's second step is to wash the lighter sand and gravel out of the pan (gold is heavy). The vast majority of material in the pan will be removed at this time.

Level 2 coding by the qualitative researcher starts with Level 1 codes. Level 1 coding identified the data most likely to help answer research questions; the goal during Level 2 coding is to further refine the data. This step narrows the focus to a relatively few Level 2 codes. Level 2 coding is commonly called focused coding or category development.

Level 3 Coding

When the miner makes it to the third step she will see only a small amount of heavy black sand concentrate (mostly magnetite) at the bottom of her pan. She will look through the concentrate to occasionally find an obvious nugget, but she will not stop there. She will gently swirl the water to carefully remove the black sand, leaving only the heaviest material. Sometimes she will pick large gold flecks from the pan with a magnifying glass and tweezers.

Level 3 coding involves a very fine focus using the progressive convergence of ideas from Level 2 as the basis of inquiry. Themes are refined during Level 3 coding as ideas approach a critical density. Level 3 codes are generally refined enough to be used in reports and publications. Level 3 coding is commonly called axial coding or thematic coding.

Theoretical Development

Even though our miner was hard working, had a PhD in geology, and she used a systematic process to sift out precious gold she didn't find it necessary to develop a theory about the origin of gold deposits. She was happy to experience the phenomenon of finding gold; she did it well, and she grew rich.

Our miner's colleague, also with a PhD in geology, had a different philosophical orientation. He was less interested in experiencing the phenomenon of mining gold and more interested in developing a theory about the origin of gold deposits. Like this geologist, many qualitative researchers are interested in creating theories from the data they analyze. A final level of coding-related activity is necessary to ground qualitative theories in data that was originally unconsolidated.

Although not used by all qualitative methods, theoretical development reexamines previously discovered categories and themes, to explore, delineate, and develop themes that are so focused that they emerge as theories. Broadly applied, this process is called theoretical sampling, selective coding, theoretical saturation, and theoretical sorting.

The qualitative researcher does not discard material like the miner

The analogy between a miner panning gold and a qualitative researcher falls short in a couple of instructive areas. Unlike the miner who dumps most of the materials that are dug from the ground, the qualitative researcher preserves all valuable raw materials in their pre-coding state. Rather than throw out the unused data, the qualitative researcher tags, labels, and copies the most valuable data, but otherwise leaves the data intact.

In this book, techniques for storing large amounts of coded data in *Access* or *Excel* teach the qualitative researcher how to organize and store data for easy retrieval. By preserving the original data, while storing only selected data

Choose the method that works best for your project

The terminology:
Level 1
Level 2
Level 3
Level 4
(theoretical concepts)

snippets, the researcher can reexamine the data in situ if that is necessary to reevaluate and validate emerging themes.

As mentioned earlier this book endorses the use of the many fine qualitative research methods books that guide students and researchers through research problems on a level that is beyond the scope of this book. This book focuses on organizational and technological tips that are intended to support, rather than replace, existing research methods. Existing qualitative research methods frame the theoretical and methodological aspects of the research project; this book is a supplemental toolkit.

The coding terms used in this book are presented to make this book terminology-neutral for all qualitative researchers, regardless of their preferred research method. The terms (Levels 1, 2, and 3) are not intended to replace the terms commonly used by established methods.

Throughout the book I refer to Level 4 coding as “theoretical concept development”. This was done to provide a mental end game for the many qualitative researchers who are interested in developing theory.

I know that many other qualitative researchers are more interested in the exploration of phenomena than the development of theory. My apologies to all of you who fit into this category. Please substitute “Level 4” for “theoretical concept” as you progress through the iterative stages of data exploration.

The big picture – how this book can help you



Piles and files of data can quickly lead to chaos if they are not intelligently managed. Disorganization gobbles time and degrades quality. Your research will produce better results if you carefully plan, organize, and control the project and its data.

Step 1: Invest planning and organizing time now to save a lot more time later

Any sizeable qualitative research project generates reams of field notes, interview transcripts loaded with important quotations, and/or other text-based information. Qualitative projects might also involve artwork, artifacts, and other physical items.

All of these data that are critical to your success may be in computer files, on paper documents, in file cabinets, boxes, drawers, garages, and on the floor. This book helps you to develop your own system of organization. You are in charge of this process, so your files, papers, and objects will be stored in a system that works for your brain using the techniques that help you develop personalized data storage needs and opportunities. In the following chapters you will learn tips about the organization of data.

Step 2: Use available technology to improve coding and data analysis

Once your data have been efficiently stored you will need to analyze them to glean the answers to your research questions. This is when you will start to *really* appreciate the time and thought you put into your organizational system.

During the data analysis process you identify the most important snippets of your data as you code your text-based data. Different qualitative research methods have different approaches to data coding, but the basic principles are the same – the researcher must separate the wheat from the chaff. The most important information and physical objects must be identified, described, and labeled for future reference.

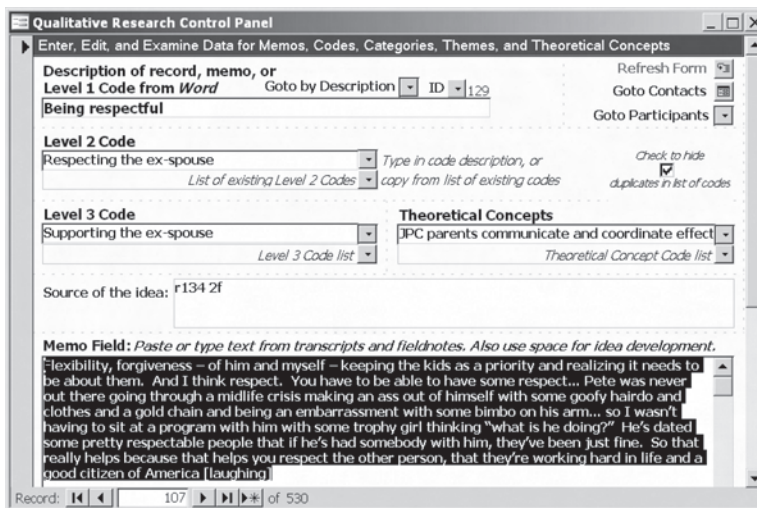
The first coding pass through your text data is a relatively fast-moving process. In the past many researchers printed their raw data and physically coded the transcripts and field notes. This book explains how to complete your initial/open coding *much* more efficiently in your word processor.

133.		What are the factors that allowed joint custody to work for you?
134.	<i>Being flexible</i> <i>Being forgiving</i> Being respectful	<i>Flexibility, forgiveness – of him and myself – keeping the kids as a priority and realizing it needs to be about them. And I think respect. You have to be able to have some respect...Pete was never out there going through a midlife crisis making an ass out of himself with some goofy hairdo and clothes and a gold chain and being an embarrassment with some bimbo on his arm...so I wasn't having to sit at a program with him with some trophy girl thinking "what is he doing?" He's dated some pretty respectable people that if he's had somebody with him, they've been just fine. So that really helps because that helps you respect the other person, that they're working hard in life and a good citizen of America [laughing]</i>

Original transcript/field note/object description data are retained in the right column; Level 1 codes and memos relating to the raw data are identified in the left columns of a specially formatted *Word* document.

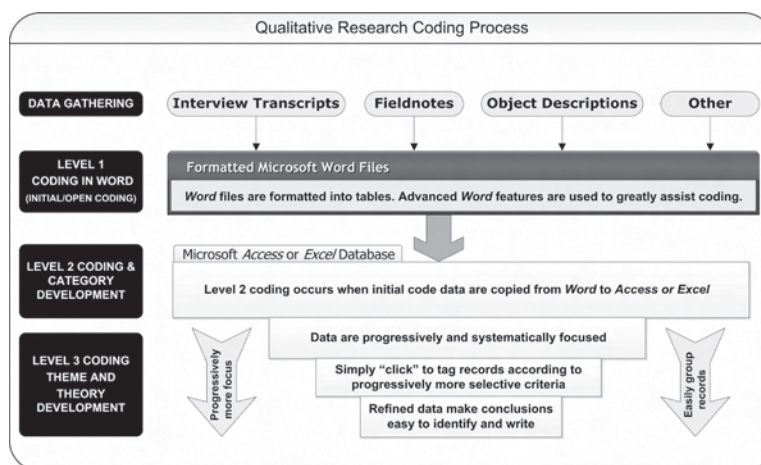
Coding and theory development can move quickly but it should not be rushed. The mechanical procedure of coding is relatively easy because of the power of *Word*, *Excel*, and *Access*.

The illustration below shows a typical *Access* database record that has gone through the complete coding process. (If you choose to use *Excel* instead of *Access* for your advanced coding the data will be the same but the interface will be different.)



Each database record stores all code descriptions and selected text from the transcripts/field notes that correspond to the codes.

This book takes you through the creation of your *Access* or your *Excel* database in great detail. **I assume that you know nothing about databases**, so don't be scared by the word "database". Full *Excel* instructions are provided in Chapter 8.

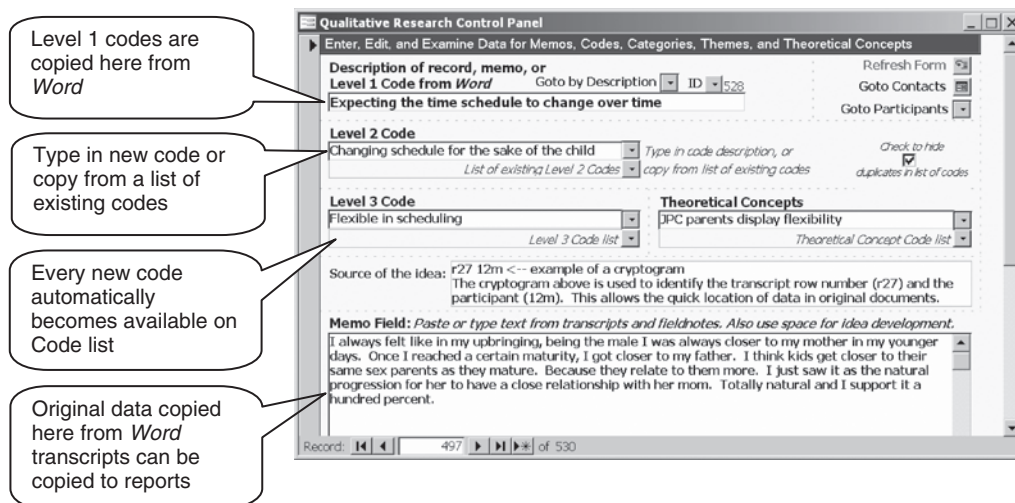


Intelligent use of *Word*, *Access*, and *Excel* can save the qualitative researcher an enormous amount of time and effort.

Step 3: Your data are at your fingertips when you write your results, conclusions and recommendations

At last, when it is time to write the final report, your most important data are at your fingertips and organized at all code levels. Writing the final report with data organized this well is enjoyable and efficient.

You will be able to paste your most important data (quotations, memos, object descriptions, and/or field notes) into your final report directly from *Access* or *Excel*. There is no need to leaf through individual word processing or paper files.



Each Level 1 code record is associated with progressively more refined categories, themes, and theoretical concepts as the researcher proceeds through the coding levels.

When you write your report:

1. The results and conclusion sections gain a natural outline. Your most refined Level 3 codes and theoretical concepts serve as section headings. Level 3 codes almost always contribute data directly to the final report. This is a quick and efficient process.
2. With only a click or two of your mouse you can view all data that are associated with any given code, category, theme or concept, thus allowing a single-screen review all of the data (quotations, field note comments, etc.) associated with any code.
3. You will have all of the most important text data (quotations, field notes, object descriptions, etc.) at your fingertips. Quickly query and scroll through your choices, then copy and paste the most relevant data directly to your report

Level 1 Code	Coordinating parenting behaviors
Text Data from transcript / Word	one of the reasons it has continued to work because when one person is willing - myself - and he may say this about me, I don't know this is just how I feel - has been willing to say ok we've got to be on one page - so we'll let it be your page. Cause I think it is important that parents whether they are together or divorced be pretty much on the same page.
Level 1 Code	Coordinating parenting behaviors
Text Data from transcript / Word	the kids understand that both parents are on board all of the time and that they come first, and that other adult issues that we have going on come second.
Level 1 Code	Coordinating parenting behaviors
Text Data from transcript / Word	Recognize that discipline, parenting is going to be shared, and you may by virtue of the divorce and joint custody not have a monolithic approach to parenting. Even if you discuss it with that person, it may not be monolithic in how it's approached. She may, by the virtue of the way she parents, who she is, and I may by virtue of who I am, may approach one particular context in a different way.

Data can be sorted and viewed in many convenient ways at any coding level using Access queries or Excel sorting. This illustration shows three quotations (of many) associated with the Level 1 code "Coordinating parenting behaviors". Data needed for a report/publication can be quickly reviewed, and then copied to the report.

from Access or Excel. There is no need to revisit the raw data files unless you want to reexamine the context of the data. It is amazing how fast report writing can be.

Microsoft Windows[®] and Microsoft Office[®] are helpful but not essential

Most of the ideas presented in this book can be developed and accomplished without any particular brand of hardware or software. For example, the formatting of interview transcripts to improve the effectiveness of coding can be accomplished in *WordPerfect*[®] or other full-featured word processing programs. *Word* is not required to get the job done. However, all of the examples are presented using *Word* commands and feature names.

Likewise, other database and spreadsheet programs can be used to execute the concepts described in this book. Determined and experienced software users will be able to adapt the ideas presented in this book to their research projects despite the lack of exact step-by-step instructions.

Virtually all of the commands illustrated in the book can be executed with any version of Microsoft[®] Office (*Office*). The examples in this book use the exact commands of *Office* 2003 and the Windows[®] XP operating system. These commands may be similar in other versions, but the reader should be aware of possible differences between versions.

You don't have to be a technology wizard

The tips in this book vary in their degree of technical difficulty. It is assumed that the vast majority of readers of the book are interested in getting the job done with a bare minimum of technical aggressiveness. For that reason detailed mission-critical commands are explicitly included in the body of the text. If you are a more advanced user you may be able to skip many of these detailed instructions.

If you are a raw beginner with the Microsoft *Office* programs, the Appendix introduces Microsoft *Office* Basics.

Refer to the Appendix for Microsoft Office basics

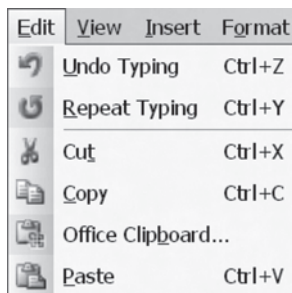
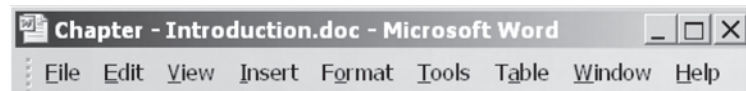
Microsoft Office basics are in the Appendix

Go to the Appendix to get basic help with fundamental Microsoft *Office* issues. The Appendix introduces *Word* basics, *Excel* basics, and *Outlook* basics.

Even though this book is written for non-aggressive computer users, a basic level of computer skill is assumed. This book is **not** a basic reference for Windows, *Word*, *Excel*, or *Access*. It is strongly recommended that early-stage readers purchase supplemental basic reference books, as needed, to augment this book.

Main Menu

The presentation of software commands



Second Level Menu

Keyboard shortcuts

The *main menus* in Microsoft programs are quite uniform in their structure. After being selected (clicked on) the menu commands drop down below the main menu item displaying a new list of second level choices.

The picture to the left shows *second level menu commands* such as “Undo Typing” and “Repeat Typing”. Clickable menu command sequences are always shown in the same way in this book.

Main menu command ► Second level command.

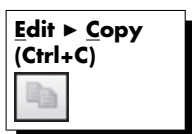
For example, to copy selected data in an *Office* program you first click on “Edit” from the main menu, and then you click on the second level menu command “Copy”. This command sequence is summarized as Edit ► Copy.


An often overlooked feature of Microsoft *Office* programs is their use of *keyboard shortcuts*. **These shortcuts save a lot of time when commands are repeated frequently.** Keyboard shortcuts require you press two or more keys simultaneously. The shortcut keys are joined together by the plus sign (+).

To continue the example above, the keyboard shortcut for copying selected text requires you to press the “Ctrl” and the “C” keys simultaneously. This is shown as Ctrl+C. When a menu command is illustrated that also has a

helpful keyboard shortcut, the shortcut is shown in parentheses immediately after the menu command. The command for copying text to the clipboard is shown as Edit ► Copy (Ctrl+C). Sometimes, for frequently used commands only the keyboard shortcut is shown.

A third way to execute many often-repeated commands is to click on *toolbar* buttons. Many commands can be activated by clicking on the small button icons that were designed by Microsoft to represent the action to be performed.



The toolbar icon that executes the Edit ► Copy command is . When an important command is used in this book that has menu selections, keyboard shortcuts, and toolbar icons all three methods of executing the command are often shown.

All three command techniques do exactly the same thing. Use the method that works best for you.

If you are technically aggressive



While most of the readers of this book are not assumed to be technically aggressive, I know that some readers are advanced. I fondly refer to these people as propellerheads. Some propellerheads will want to extend the ideas in this book through form customization, macros, and VBA programming.

When I include technically advanced material I will mark it with a propellerhead icon. The propellerhead symbol is included primarily as an anti-frustration device for non-propellerheads.

If you are feeling overwhelmed by software commands I recommend that you skip propellerhead material. Those of you who are not technically aggressive will be able to fully utilize the topics in the book without using advanced material.

All good qualitative researchers need to be thinkers



Pay particular attention to sections of the book that are marked by a big exclamation point. Skipping these sections could cause you to miss out on important topics that may be foundational to your understating of critical tasks and procedures.



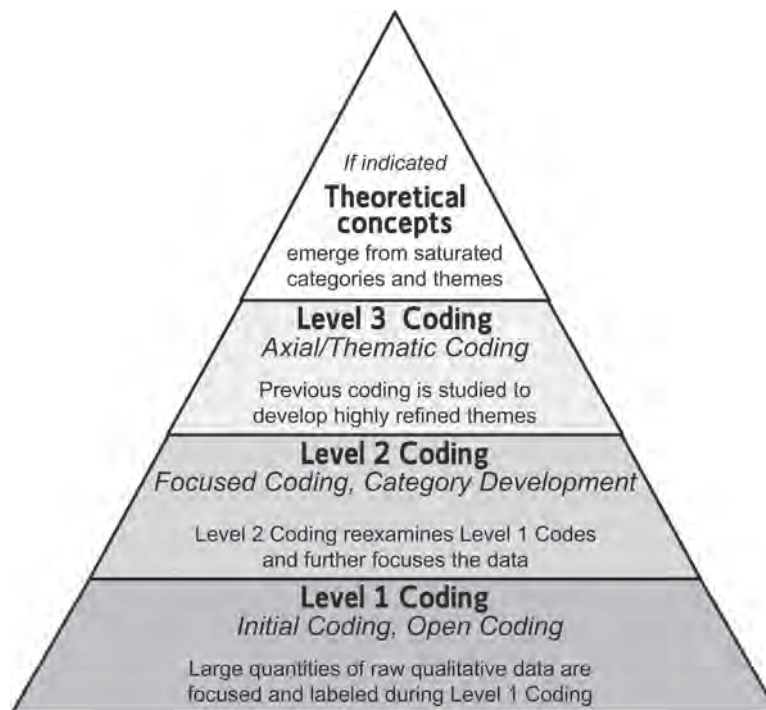
Qualitative researchers do not rely on numbers and statistical programs to generate results, but they must think creatively and in depth. During your research process there will be times when you need to let ideas develop and resonate. This book is intended to be as a catalyst for cogitation, but you are the one who does the thinking for your project.

Topics that require deeper thought are marked with the brainstorm icon. When you get to these sections you may want to take a walk, chat with a colleague, or do whatever you do to get into a good mental zone. It is fun to be a thinker; so, go ahead and have some fun!

Chapter summary

Even though their specific research methods may be different, all qualitative researchers face similar research challenges. All research projects must be planned, organized, and the data must be intelligently analyzed. The techniques in this book are not meant to supplant other research methods; they apply to researchers using grounded theory, ethnography, case studies, phenomenology, focus groups, action research, and/or creative mixed methods.

Qualitative researchers collect relatively free-form data through interviews, field notes, direct observations, public documents, records, artifacts, and pictures. These data are stored in cabinets full of objects and on hundreds (or thousands) of pages of text on a computer's hard drive. It is not easy to organize these data, but orderliness is vital to the successful completion of the research project.



Data are coded to arrive at categories, themes, and theories.

After transcribing text data, including field notes, recordings from interviews, public documents, and descriptions of physical objects, the data are formatted for coding in Microsoft *Word*. Level 1 coding takes place in *Word*. Level 2, 3, and 4 coding is done in either *Access* or *Excel*. These successive levels of coding provide researchers with documented and well-organized answers to research questions. The coding results can be efficiently integrated into the final report.

After coding is completed, the conclusions of the study are apparent and the data are well organized. The final report can be written efficiently using the refined codes and the easily accessible primary data.
