CHAPTER

28 Coding and Analysis Strategies 🔓

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Abstract

This chapter provides an overview of selected qualitative data analytic strategies with a particular focus on codes and coding. Preparatory strategies for a qualitative research study and data management are first outlined. Six coding methods are then profiled using comparable interview data: process coding, in vivo coding, descriptive coding, values coding, dramaturgical coding, and versus coding. Strategies for constructing themes and assertions from the data follow. Analytic memo writing is woven throughout the preceding as a method for generating additional analytic insight. Next, display and arts-based strategies are provided, followed by recommended qualitative data analytic software programs and a discussion on verifying the researcher's analytic findings.

Keywords: analysis, analytic memo, analytic strategies, assertions, codes, coding, data analysis, interpretation, qualitative data analysis, qualitative research analysis, analytic memo, analytic strategies, assertions, codes, coding, data analysis, interpretation, qualitative data analysis, qualitative research

Subject: Research Methods in Psychology, Psychology

Series: Oxford Library of Psychology

Coding and Analysis Strategies

Anthropologist Clifford Geertz (1983) charmingly mused, "Life is just a bowl of strategies" (p. 25). *Strategy*, as I use it here, refers to a carefully considered plan or method to achieve a particular goal. The goal in this case is to develop a write-up of your analytic work with the qualitative data you have been given and collected as part of a study. The plans and methods you might employ to achieve that goal are what this article profiles.

Some may perceive *strategy* as an inappropriate if not colonizing word, suggesting formulaic or regimented approaches to inquiry. I assure you that that is not my intent. My use of strategy is actually dramaturgical in nature: strategies are actions that characters in plays take to overcome obstacles to achieve their objectives. Actors portraying these characters rely on action verbs to generate belief within themselves and to motivate them as they interpret the lines and move appropriately on stage. So what I offer is a qualitative researcher's array of actions from which to draw to overcome the obstacles to thinking to achieve an analysis of your data. But unlike the pre-scripted text of a play in which the obstacles, strategies, and outcomes have been predetermined by the playwright, your work must be improvisational—acting, reacting, and interacting with data on a moment-by-moment basis to determine what obstacles stand in your way, and thus what strategies you should take to reach your goals.

Another intriguing quote to keep in mind comes from research methodologist Robert E. Stake (1995) who posits, "Good research is not about good methods as much as it is about good thinking" (p. 19). In other

words, strategies can take you only so far. You can have a box full of tools, but if you do not know how to use them well or use them creatively, the collection seems rather purposeless. One of the best ways we learn is by *doing*. So pick up one or more of these strategies (in the form of verbs) and take analytic action with your

data. Also keep in mind that these are discussed in the order in ↳ which they may typically occur, although humans think cyclically, iteratively, and reverberatively, and each particular research project has its own unique contexts and needs. So be prepared for your mind to jump purposefully and/or idiosyncratically from one strategy to another throughout the study.

QDA (Qualitative Data Analysis) Strategy: To Foresee

To foresee in QDA is to reflect beforehand on what forms of data you will most likely need and collect, which thus informs what types of data analytic strategies you anticipate using.

Analysis, in a way, begins even before you collect data. As you design your research study in your mind and on a word processor page, one strategy is to consider what types of data you may need to help inform and answer your central and related research questions. Interview transcripts, participant observation field notes, documents, artifacts, photographs, video recordings, and so on are not only forms of data but foundations for how you may plan to analyze them. A participant interview, for example, suggests that you will transcribe all or relevant portions of the recording, and use both the transcription and the recording itself as sources for data analysis. Any analytic memos (discussed later) or journal entries you make about your impressions of the interview also become data to analyze. Even the computing software you plan to employ will be relevant to data analysis as it may help or hinder your efforts.

As your research design formulates, compose one to two paragraphs that outline how your QDA may proceed. This will necessitate that you have some background knowledge of the vast array of methods available to you. Thus surveying the literature is vital preparatory work.

QDA Strategy: To Survey

To survey in QDA is to look for and consider the applicability of the QDA literature in your field that may provide useful guidance for your forthcoming data analytic work.

General sources in QDA will provide a good starting point for acquainting you with the data analytic strategies available for the variety of genres in qualitative inquiry (e.g., ethnography, phenomenology, case study, arts-based research, mixed methods). One of the most accessible is Graham R. Gibbs' (2007) *Analysing Qualitative Data*, and one of the most richly detailed is Frederick J. Wertz et al.'s (2011) *Five Ways of Doing Qualitative Analysis*. The author's core texts for this article came from *The Coding Manual for Qualitative Researchers* (Saldaña, 2009, 2013) and *Fundamentals of Qualitative Research* (Saldaña, 2011).

If your study's methodology or approach is grounded theory, for example, then a survey of methods works by such authors as Barney G. Glaser, Anselm L. Strauss, Juliet Corbin and, in particular, the prolific Kathy Charmaz (2006) may be expected. But there has been a recent outpouring of additional book publications in grounded theory by Birks & Mills (2011), Bryant & Charmaz (2007), Stern & Porr (2011), plus the legacy of thousands of articles and chapters across many disciplines that have addressed grounded theory in their studies.

Particular fields such as education, psychology, social work, health care, and others also have their own QDA methods literature in the form of texts and journals, plus international conferences and workshops for members of the profession. Most important is to have had some university coursework and/or mentorship in qualitative research to suitably prepare you for the intricacies of QDA. Also acknowledge that the emergent nature of qualitative inquiry may require you to adopt different analytic strategies from what you originally planned.

QDA Strategy: To Collect

To collect in QDA is to receive the data given to you by participants and those data you actively gather to inform your study.

QDA is concurrent with data collection and management. As interviews are transcribed, field notes are fleshed out, and documents are filed, the researcher uses the opportunity to carefully read the corpus and make preliminary notations directly on the data documents by highlighting, bolding, italicizing, or noting in some way any particularly interesting or salient portions. As these data are initially reviewed, the researcher also composes supplemental analytic memos that include first impressions, reminders for follow-up, preliminary connections, and other thinking matters about the phenomena at work.

Some of the most common fieldwork tools you might use to collect data are notepads, pens and pencils, file folders for documents, a laptop or desktop with word processing software (Microsoft Word and Excel are most useful) and internet access, a digital camera, and a voice recorder. Some fieldworkers may even employ a digital video camera to record social action, as long as participant permissions have been secured. But everything originates from the researcher himself or herself. Your senses are immersed in the cultural milieu you study, taking ↳ in and holding on to relevant details or "significant trivia," as I call them. You become a human camera, zooming out to capture the broad landscape of your field site one day, then zooming in on a particularly interesting individual or phenomenon the next. Your analysis is only as good as the data you collect.

Fieldwork can be an overwhelming experience because so many details of social life are happening in front of you. Take a holistic approach to your entree, but as you become more familiar with the setting and participants, actively focus on things that relate to your research topic and questions. Of course, keep yourself open to the intriguing, surprising, and disturbing (Sunstein & Chiseri-Strater, 2012, p. 115), for these facets enrich your study by making you aware of the unexpected.

QDA Strategy: To Feel

To feel in QDA is to gain deep emotional insight into the social worlds you study and what it means to be human.

Virtually everything we do has an accompanying emotion(s), and feelings are both reactions and stimuli for action. Others' emotions clue you to their motives, attitudes, values, beliefs, worldviews, identities, and other subjective perceptions and interpretations. Acknowledge that emotional detachment is not possible in field research. Attunement to the emotional experiences of your participants plus sympathetic and empathetic responses to the actions around you are necessary in qualitative endeavors. Your own emotional responses during fieldwork are also data because they document the tacit and visceral. It is important during such analytic reflection to assess why your emotional reactions were as they were. But it is equally important not to let emotions alone steer the course of your study. A proper balance must be found between feelings and facts.

QDA Strategy: To Organize

To organize in QDA is to maintain an orderly repository of data for easy access and analysis.

Even in the smallest of qualitative studies, a large amount of data will be collected across time. Prepare both a hard drive and hard copy folders for digital data and paperwork, and back up all materials for security from loss. I recommend that each data "chunk" (e.g., one interview transcript, one document, one day's worth of field notes) get its own file, with subfolders specifying the data forms and research study logistics (e.g., interviews, field notes, documents, Institutional Review Board correspondence, calendar).

For small-scale qualitative studies, I have found it quite useful to maintain one large master file with all participant and field site data copied and combined with the literature review and accompanying researcher analytic memos. This master file is used to cut and paste related passages together, deleting what seems unnecessary as the study proceeds, and eventually transforming the document into the final report itself.

Cosmetic devices such as font style, font size, rich text (italicizing, bolding, underlining, etc.), and color can help you distinguish between different data forms and highlight significant passages. For example, descriptive, narrative passages of field notes are logged in regular font. **"Quotations, things spoken by participants, are logged in bold font."** *Observer's comments, such as the researcher's subjective impressions or analytic jottings, are set in italics.*

QDA Strategy: To Jot

To jot in QDA is to write occasional, brief notes about your thinking or reminders for follow up.

A jot is a phrase or brief sentence that will literally fit on a standard size "sticky note." As data are brought and documented together, take some initial time to review their contents and to jot some notes about preliminary patterns, participant quotes that seem quite vivid, anomalies in the data, and so forth.

As you work on a project, keep something to write with or to voice record with you at all times to capture your fleeting thoughts. You will most likely find yourself thinking about your research when you're not working exclusively on the project, and a "mental jot" may occur to you as you ruminate on logistical or analytic matters. Get the thought documented in some way for later retrieval and elaboration as an analytic memo.

QDA Strategy: To Prioritize

To prioritize in QDA is to determine which data are most significant in your corpus and which tasks are most necessary.

During fieldwork, massive amounts of data in various forms may be collected, and your mind can get easily overwhelmed from the magnitude of the quantity, its richness, and its management. Decisions will need to be made about the most pertinent of them because they help answer your research questions or emerge as salient pieces of evidence. As a sweeping generalization, approximately one half to two thirds of what you collect may become unnecessary as you proceed toward the more formal stages of QDA.

p. 584 To prioritize in QDA is to also determine what matters most in your assembly of codes, categories, ↳ themes, assertions, and concepts. Return back to your research purpose and questions to keep you framed for what the focus should be.

QDA Strategy: To Analyze

To analyze in QDA is to observe and discern patterns within data and to construct meanings that seem to capture their essences and essentials.

Just as there are a variety of genres, elements, and styles of qualitative research, so too are there a variety of methods available for QDA. Analytic choices are most often based on what methods will harmonize with your genre selection and conceptual framework, what will generate the most sufficient answers to your research questions, and what will best represent and present the project's findings.

Analysis can range from the factual to the conceptual to the interpretive. Analysis can also range from a straightforward descriptive account to an emergently constructed grounded theory to an evocatively composed short story. A qualitative research project's outcomes may range from rigorously achieved, insightful answers to open-ended, evocative questions; from rich descriptive detail to a bullet-pointed list of themes; and from third-person, objective reportage to first-person, emotion-laden poetry. Just as there are multiple destinations in qualitative research, there are multiple pathways and journeys along the way.

Analysis is accelerated as you take cognitive ownership of your data. By reading and rereading the corpus, you gain intimate familiarity with its contents and begin to notice significant details as well as make new insights about their meanings. Patterns, categories, and their interrelationships become more evident the more you know the subtleties of the database.

Since qualitative research's design, fieldwork, and data collection are most often provisional, emergent, and evolutionary processes, you reflect on and analyze the data *as* you gather them and proceed through the project. If preplanned methods are not working, you change them to secure the data you need. There is generally a post-fieldwork period when continued reflection and more systematic data analysis occur, concurrent with or followed by additional data collection, if needed, and the more formal write-up of the study, which is in itself an analytic act. Through field note writing, interview transcribing, analytic memo writing, and other documentation processes, you gain cognitive ownership of your data; and the intuitive, tacit, synthesizing capabilities of your brain begin sensing patterns, making connections, and seeing the bigger picture. The purpose and outcome of data analysis is to reveal to others through fresh insights what we have observed and discovered about the human condition. And fortunately, there are heuristics for reorganizing and reflecting on your qualitative data to help you achieve that goal.

QDA Strategy: To Pattern

To pattern in QDA is to detect similarities within and regularities among the data you have collected.

The natural world is filled with patterns because we, as humans, have constructed them as such. Stars in the night sky are not just a random assembly; our ancestors pieced them together to form constellations like the Big Dipper. A collection of flowers growing wild in a field has a pattern, as does an individual flower's patterns of leaves and petals. Look at the physical objects humans have created and notice how pattern oriented we are in our construction, organization, and decoration. Look around you in your environment and notice how many patterns are evident on your clothing, in a room, and on most objects themselves. Even our sometimes mundane daily and long-term human actions are reproduced patterns in the form of roles, relationships, rules, routines, and rituals.

This human propensity for pattern making follows us into QDA. From the vast array of interview transcripts, field notes, documents, and other forms of data, there is this instinctive, hardwired need to bring order to the collection—not just to reorganize it but to look for and construct patterns out of it. The discernment of patterns is one of the first steps in the data analytic process, and the methods described next are recommended ways to construct them.

QDA Strategy: To Code

To code in QDA is to assign a truncated, symbolic meaning to each datum for purposes of qualitative analysis.

Coding is a heuristic—a method of discovery—to the meanings of individual sections of data. These codes function as a way of patterning, classifying, and later reorganizing them into emergent categories for further analysis. Different types of codes exist for different types of research genres and qualitative data analytic approaches, but this article will focus on only a few selected methods. First, a definition of a code:

> A code in qualitative data analysis is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data. The data can consist of interview transcripts, participant observation fieldnotes, journals, documents, literature, artifacts, photographs, ↳ video, websites, e-mail correspondence, and so on. The portion of data to be coded can... range in magnitude from a single word to a full sentence to an entire page of text to a stream of moving images.... Just as a title represents and captures a book or film or poem's primary content and essence, so does a code represent and capture a datum's primary content and essence.
>
> [Saldaña, 2009, p. 3]

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One helpful pre-coding task is to divide long selections of field note or interview transcript data into shorter *stanzas*. Stanza division "chunks" the corpus into more manageable paragraph-like units for coding assignments and analysis. The transcript sample that follows illustrates one possible way of inserting line breaks in-between self-standing passages of interview text for easier readability.

Process Coding

As a first coding example, the following interview excerpt about an employed, single, lower-middle-class adult male's spending habits during the difficult economic times in the U.S. during 2008–2012 is coded in the right-hand margin in capital letters. The superscript numbers match the datum unit with its corresponding code. This particular method is called process coding, which uses gerunds ("-ing" words) exclusively to represent action suggested by the data. Processes can consist of observable human actions (e.g., BUYING BARGAINS), mental processes (e.g., THINKING TWICE), and more conceptual ideas (e.g., APPRECIATING WHAT YOU'VE GOT). Notice that the interviewer's (I) portions are not coded, just the participant's (P). A code is applied each time the subtopic of the interview shifts—even within a stanza—and the same codes can (and should) be used more than once if the subtopics are similar. The central research question driving this qualitative study is, "In what ways are middle-class Americans influenced and affected by the current [2008–2012] economic recession?"

P: [1] When I go to the grocery store, I can't believe how much the price of meat has skyrocketed. The other day I was at the meat section, and there was a horde of people clustered around the chicken. It was because the store was offering two-for-one. Buy one package of chicken, get the second one free. Now *that* was a bargain. And I got some.

1 BUYING BARGAINS

I: What other consumer habits of yours have been changed by the economy?

P: Sometimes it's the little things. [2] Like, at work, do I really want to pay $1.50 for one bottle of Diet Coke from a vending machine? I can practically get a two-liter bottle for that same price at the grocery store. So I [3] think twice before I put my dollar and coins in a machine. [4] I've been going to all-you-can-eat places a lot lately, because it's both cheap and filling. I go to Peter Piper's or Sweet Tomatoes or Golden Corral or some cheap Chinese buffet and I stock up on lunch so I can skip dinner. Or I skip lunch so I can stock up on dinner. With Sweet Tomatoes I get those coupons for a few bucks off for lunch, so that really helps.

2 QUESTIONING A PURCHASE

3 THINKING TWICE

4 STOCKING UP

I: What about purchases of non-food items? How have your spending habits changed these days?

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P: [5] I still have my bad habits I refuse to give up: books and cigarettes, it's always gonna be that. [6] I look at clothes some, but when I see ↳ the prices I think I don't really need them, what I've got is fine. [7] I've got my cats to take care of, so they get priority with special foods, meds, vets. [8] I don't go to movies anymore. I rent DVDs from Netflix or Redbox or watch movies ALTERNATIVES online—so much cheaper than paying over ten or twelve bucks for a movie ticket. [9] In a way, I've always lived kind of cheap. I'm not a big spender, really, so I haven't changed my habits all that much, but [10] I do notice I'm not putting as much into savings as I used to, so that's a sign that I'm spending more because the price of stuff has gone up. [11] I heard that peanut butter's gonna go up because of some bad crop, so that's another ding in my wallet.

5 REFUSING SACRIFICE

6 THINKING TWICE

7 PRIORITIZING

8 FINDING

9 LIVING CHEAPLY

10 NOTICING CHANGES

11 STAYING INFORMED

I: You said you have cats to take care of.

P: Yeah, three of them.

I: What about their expenses?

P: [12] Man, they are *so* high maintenance. All three are on some of type of meds of one kind or another. One's diabetic so he has to have insulin shots twice a day, another's got some kind of thyroid condition so he gets ear gel twice a day, and the third one gets his ear gel for urinary infections on an as-needed basis. Two of them need special food, there's lots of trips to the vet's for check-ups. [13] I just had to have dental work recently, almost $1,000 to fix up my teeth because I hadn't been taking care of them as good as I should have. And that was just round one, there's two more procedures I have to go through, and that'll be another couple of thousand. [14] And my dental insurance is just worthless on this so I have to pick up the tab myself.

12 MAINTAINING HEALTH

13 MAINTAINING HEALTH

14 PICKING UP THE TAB

I: Sounds like it's just one thing after another.

> **P:** Yeah, yeah, and it all adds up.[15] I'm surprised I've made it this far. I'm not as bad off as others are, so I thank God for that. But, man— scary times.

p. 586 Different researchers analyzing this same piece of data may develop completely different codes, depending on their lenses and filters. The previous codes are only one person's interpretation of what is happening in the data, not the definitive list. The process codes have transformed the raw data units into new representations for analysis. A listing of them applied to this interview transcript, in the order they appear, reads:

BUYING BARGAINS

QUESTIONING A PURCHASE

p. 587 ↳ THINKING TWICE

STOCKING UP

REFUSING SACRIFICE

THINKING TWICE

PRIORITIZING

FINDING ALTERNATIVES

LIVING CHEAPLY

NOTICING CHANGES

STAYING INFORMED

MAINTAINING HEALTH

MAINTAINING HEALTH

PICKING UP THE TAB

APPRECIATING WHAT YOU'VE GOT

Coding the data is the first step in this particular approach to QDA, and categorization is just one of the next possible steps.

QDA Strategy: To Categorize

To categorize in QDA is to cluster similar or comparable codes into groups for pattern construction and further analysis.

Humans categorize things in innumerable ways. Think of an average apartment or house's layout. The rooms of a dwelling have been constructed or categorized by their builders and occupants according to function. A kitchen is designated as an area to store and prepare food and the cooking and dining materials such as pots, pans, and utensils. A bedroom is designated for sleeping, a closet for clothing storage, a bathroom for bodily functions and hygiene, and so on. Each room is like a *category* in which related and relevant *patterns of human action* occur. Of course, there are exceptions now and then, such as eating breakfast in bed rather than in a dining area or living in a small studio apartment in which most possessions are contained within one large room (but nonetheless are most often organized and clustered into subcategories according to function and optimal use of space).

The point here is that the patterns of social action we designate into particular categories during QDA are not perfectly bounded. Category construction is our best attempt to cluster the most seemingly alike things into the most seemingly appropriate groups. Categorizing is reorganizing and reordering the vast array of

data from a study because it is from these smaller, larger, and meaning-rich units that we can better grasp the particular features of each one and the categories' possible interrelationships with one another.

One analytic strategy with a list of codes is to classify them into similar clusters. Obviously, the same codes share the same category, but it is also possible that a single code can merit its own group if you feel it is unique enough. After the codes have been classified, a category label is applied to each grouping. Sometimes a code can also double as a category name if you feel it best summarizes the totality of the cluster. Like coding, categorizing is an interpretive act, for there can be different ways of separating and collecting codes that seem to belong together. The cut-and-paste functions of a word processor are most useful for exploring which codes share something in common.

Below is my categorization of the fifteen codes generated from the interview transcript presented earlier. Like the gerunds for process codes, the categories have also been labeled as "-ing" words to connote action. And there was no particular reason why fifteen codes resulted in three categories—there could have been less or even more, but this is how the array came together after my reflections on which codes seemed to belong together. The category labels are ways of answering "why" they belong together. For at-a-glance differentiation, I place codes in CAPITAL LETTERS and categories in upper and lower case **Bold Font**:

> **Category 1: Thinking Strategically**
>
> > CODES:
> >
> > STAYING INFORMED
> >
> > NOTICING CHANGES
> >
> > QUESTIONING A PURCHASE
> >
> > THINKING TWICE
> >
> > THINKING TWICE
>
> **Category 2: Spending Strategically**
>
> > CODES:
> >
> > PICKING UP THE TAB
> >
> > BUYING BARGAINS
> >
> > STOCKING UP
>
> **Category 3: Living Strategically**
>
> > CODES:
> >
> > MAINTAINING HEALTH
> >
> > MAINTAINING HEALTH
> >
> > REFUSING SACRIFICE
> >
> > PRIORITIZING
> >
> > FINDING ALTERNATIVES
> >
> > LIVING CHEAPLY
> >
> > APPRECIATING WHAT YOU'VE GOT

Notice that the three category labels share a common word: "strategically." Where did this word come from? It came from analytic reflection ↳ on the original data, the codes, and the process of categorizing the codes and generating their category labels. It was the analyst's choice based on the interpretation of what primary action was happening. Your categories generated from your coded data do not need to share a common word or phrase, but I find that this technique, when appropriate, helps build a sense of unity to the initial analytic scheme.

The three categories—**Thinking Strategically**, **Spending Strategically**, and **Living Strategically**—are then reflected upon for how they might interact and interplay. This is where the next major facet of data analysis, analytic memos, enters the scheme. But a necessary section on the basic principles of interrelationship and analytic reasoning must precede that discussion.

QDA Strategy: To Interrelate

To interrelate in QDA is to propose connections within, between, and among the constituent elements of analyzed data.

One task of QDA is to explore the ways our patterns and categories interact and interplay. I use these terms to suggest the qualitative equivalent of statistical correlation, but interaction and interplay are much more than a simple relationship. They imply *interrelationship.* Interaction refers to reverberative connections—for example, how one or more categories might influence and affect the others, how categories operate concurrently, or whether there is some kind of "domino" effect to them. Interplay refers to the structural and processual nature of categories—for example, whether some type of sequential order, hierarchy, or taxonomy exists; whether any overlaps occur; whether there is superordinate and subordinate arrangement; and what types of organizational frameworks or networks might exist among them. The positivist construct of "cause and effect" becomes *influences and affects* in QDA.

There can even be patterns of patterns and categories of categories if your mind thinks conceptually and abstractly enough. Our minds can intricately connect multiple phenomena but only if the data and their analyses support the constructions. We can speculate about interaction and interplay all we want, but it is only through a more systematic investigation of the data—in other words, good thinking—that we can plausibly establish any possible interrelationships.

QDA Strategy: To Reason

To reason in QDA is to think in ways that lead to causal probabilities, summative findings, and evaluative conclusions.

Unlike quantitative research, with its statistical formulas and established hypothesis-testing protocols, qualitative research has no standardized methods of data analysis. Rest assured, there are recommended guidelines from the field's scholars and a legacy of analytic strategies from which to draw. But the primary heuristics (or methods of discovery) you apply during a study are *deductive*, *inductive*, *abductive*, and *retroductive* reasoning. Deduction is what we generally draw and conclude from established facts and evidence. Induction is what we experientially explore and infer to be transferable from the particular to the general, based on an examination of the evidence and an accumulation of knowledge. Abduction is surmising from the evidence that which is most likely, those explanatory hunches based on clues. "Whereas deductive inferences are certain (so long as their premises are true) and inductive inferences are probable, abductive inferences are merely plausible" (Shank, 2008, p. 1). Retroduction is historic reconstruction, working backwards to figure out how the current conditions came to exist.

It is not always necessary to know the names of these four ways of reasoning as you proceed through analysis. In fact, you will more than likely reverberate quickly from one to another depending on the task at hand. But what is important to remember about reasoning is:

- to base your conclusions primarily on the participants' experiences, not just your own

- not to take the obvious for granted, as sometimes the expected won't always happen. Your hunches can be quite right and, at other times, quite wrong

- to examine the evidence carefully and make reasonable inferences

- to logically yet imaginatively think about what is going on and how it all comes together.

Futurists and inventors propose three questions when they think about creating new visions for the world: What is possible (induction)? What is plausible (abduction)? What is preferable (deduction)? These same

three questions might be posed as you proceed through QDA and particularly through analytic memo writing, which is retroductive reflection on your analytic work thus far. ↳

QDA Strategy: To Memo

To memo in QDA is to reflect in writing on the nuances, inferences, meanings, and transfer of coded and categorized data plus your analytic processes.

Like field note writing, perspectives vary among practitioners as to the methods for documenting the researcher's analytic insights and subjective experiences. Some advise that such reflections should be included in field notes as relevant to the data. Others advise that a separate researcher's journal should be maintained for recording these impressions. And still others advise that these thoughts be documented as separate analytic memos. I prescribe the latter as a method because it is generated by and directly connected to the data themselves.

An analytic memo is a "think piece" of reflexive free writing, a narrative that sets in words your interpretations of the data. Coding and categorizing are heuristics to detect some of the possible patterns and interrelationships at work within the corpus, and an analytic memo further articulates your deductive, inductive, abductive, and retroductive thinking processes on what things may mean. Though the metaphor is a bit flawed and limiting, think of codes and their consequent categories as separate jigsaw puzzle pieces, and their integration into an analytic memo as the trial assembly of the complete picture.

What follows is an example of an analytic memo based on the earlier process coded and categorized interview transcript. It is not intended as the final write-up for a publication but as an open-ended reflection on the phenomena and processes suggested by the data and their analysis thus far. As the study proceeds, however, initial and substantive analytic memos can be revisited and revised for eventual integration into the final report. Note how the memo is dated and given a title for future and further categorization, how participant quotes are occasionally included for evidentiary support, and how the category names are bolded and the codes kept in capital letters to show how they integrate or weave into the thinking:

> March 18, 2012
>
> EMERGENT CATEGORIES: A STRATEGIC AMALGAM
>
> There's a popular saying now: "Smart is the new rich." This participant is **Thinking Strategically** about his spending through such tactics as THINKING TWICE and QUESTIONING A PURCHASE before he decides to invest in a product. There's a heightened awareness of both immediate trends and forthcoming economic bad news that positively affects his **Spending Strategically**. However, he seems unaware that there are even more ways of LIVING CHEAPLY by FINDING ALTERNATIVES. He dines at all-you-can-eat restaurants as a way of STOCKING UP on meals, but doesn't state that he could bring lunch from home to work, possibly saving even more money. One of his "bad habits" is cigarettes, which he refuses to give up; but he doesn't seem to realize that by quitting smoking he could save even more money, not to mention possible health care costs. He balks at the idea of paying $1.50 for a soft drink, but doesn't mind paying $6.00–$7.00 for a pack of cigarettes. Penny-wise and pound-foolish. Addictions skew priorities. **Living Strategically**, for this participant during "scary times," appears to be a combination of PRIORITIZING those things which cannot be helped, such as pet care and personal dental care; REFUSING SACRIFICE for maintaining personal creature-comforts; and FINDING ALTERNATIVES to high costs and excessive spending. **Living Strategically** is an amalgam of thinking and action-oriented strategies.

There are several recommended topics for analytic memo writing throughout the qualitative study. Memos are opportunities to reflect on and write about:

- how you personally relate to the participants and/or the phenomenon

- your study's research questions

- your code choices and their operational definitions

- the emergent patterns, categories, themes, assertions, and concepts

- the possible networks (links, connections, overlaps, flows) among the codes, patterns, categories, themes, assertions, and concepts

- an emergent or related existent theory

- any problems with the study

- any personal or ethical dilemmas with the study

- future directions for the study

- the analytic memos generated thus far [labeled "metamemos"]

- the final report for the study [adapted from Saldaña, 2013, p. 49]

Since writing *is* analysis, analytic memos expand on the inferential meanings of the truncated codes and categories as a transitional stage into a more coherent narrative with hopefully rich social insight.

QDA Strategy: To Code—A Different Way

The first example of coding illustrated process coding, a way of exploring general social action among humans. But sometimes a researcher works with an individual case study whose language is unique, or with someone the researcher wishes to honor by maintaining the authenticity of his or her speech in the analysis. These reasons suggest that a more participant-centered form of coding may be more appropriate.

In Vivo Coding

A second frequently applied method of coding is called in vivo coding. The root meaning of "in vivo" is "in that which is alive" and refers to a code based on the actual language used by the participant (Strauss, 1987). What words or phrases in the data record you select as codes are those that seem to stand out as significant or summative of what is being said.

Using the same transcript of the male participant living in difficult economic times, in vivo codes are listed in the right-hand column. I recommend that in vivo codes be placed in quotation marks as a way of designating that the code is extracted directly from the data record. Note that instead of fifteen codes generated from process coding, the total number of in vivo codes is thirty. This is not to suggest that there should be specific numbers or ranges of codes used for particular methods. In vivo codes, though, tend to be applied more frequently to data. Again, the interviewer's questions and prompts are not coded, just the participant's responses:

P: When I go to the grocery store, I can't believe how much the price of meat has[1] skyrocketed. The other day I was at the meat section, and there was a[2] horde of people clustered around the chicken. It was because the store was offering[3] two-for-one. Buy one package of chicken, get the second one[4] free. Now *that* was a[5] bargain. And I got some.

I: What other consumer habits of yours have been changed by the economy?
P: Sometimes it's[6] the little things. Like, at work, do I really want to pay $1.50 for one bottle of Diet Coke from a vending machine? I can practically get a two-liter bottle for that same price at the grocery store. So I[7] think twice before I put my dollar and coins in a machine. I've been going to[8] all-you-can-eat places a lot lately, because it's both[9] cheap and filling. I go to Peter Piper's or Sweet Tomatoes or Golden Corral or some[10] cheap Chinese buffet and I[11] stock up on lunch so I can skip dinner. Or I[12] skip lunch so I can stock up on dinner. With Sweet Tomatoes I get those[13] coupons for a few bucks off for lunch, so that really helps.

I: What about purchases of non-food items? How have your spending habits changed these days?

P: I still have my[14] bad habits I refuse to give up: books and cigarettes, it's always gonna be that. I look at clothes some, but when I see the prices I think I[15] don't really need them, what I've got is fine. I've got my cats to ↳ take care of, so they get[16] priority with special foods, meds, vets. I don't go to movies anymore. I rent DVDs from Netflix or Redbox or watch movies online—so much[17] cheaper than paying over ten or twelve bucks for a movie ticket. In a way, I've always[18] lived kind of cheap. I'm[19] not a big spender, really, so I[20] haven't changed my habits all that much, but I do notice I'm[21] not putting as much into savings as I used to, so that's a sign that I'm[22] spending more because the price of stuff has gone up. I heard that peanut butter's gonna go up because of some bad crop so that's[23] another ding in my wallet.

I: You said you have cats to take care of.

P: Yeah, three of them.

I: What about their expenses?

---

1. "SKYROCKETED"
2. "HORDE"
3. "TWO-FOR-ONE"
4. "FREE"
5. "BARGAIN"
6. "THE LITTLE THINGS"
7. "THINK TWICE"
8. "ALL-YOU-CAN-EAT"
9. "CHEAP AND FILLING"
10. "CHEAP"
11. "STOCK UP"
12. "SKIP"
13. "COUPONS"
14. "BAD HABITS"
15. "DON'T REALLY NEED"
16. "PRIORITY"
17. "CHEAPER"
18. "LIVED KIND OF CHEAP"
19. "NOT A BIG SPENDER"
20. "HAVEN'T CHANGED MY HABITS"
21. "NOT PUTTING AS MUCH INTO SAVINGS"
22. "SPENDING MORE"
23. "ANOTHER DING IN MY WALLET"

P: Man, they are *so*[24] high maintenance. All three are on some of type of meds of one kind or another. One's diabetic so he has to have insulin shots twice a day, another's got some kind of thyroid condition so he gets ear gel twice a day, and the third one gets his ear gel for urinary infections on an as-needed basis. Two of them need special food, there's lots of trips to the vet's for check-ups. I just had to have dental work recently, almost $1,000 to fix up my teeth because I hadn't been taking care of them as good as I should have. And that was just round one, there's two more procedures I have to go through, and that'll be another[25] couple of thousand. And my dental[26] insurance is just worthless on this so I have to[27] pick up the tab myself.

[24] "HIGH MAINTENANCE"

[25] "COUPLE OF THOUSAND"

[26] "INSURANCE IS JUST WORTHLESS"

[27] "PICK UP THE TAB"

I: Sounds like it's just one thing after another.

P: Yeah, yeah, and[28] it all adds up. I'm surprised I've made it this far. I'm[29] not as bad off as others are, so I thank God for that. But, man—[30] scary times.

[28] "IT ALL ADDS UP"

[29] "NOT AS BAD OFF"

[30] "SCARY TIMES"

The thirty in vivo codes are then extracted from the transcript and listed in the order they appear to prepare them for analytic action and reflection:

"SKYROCKETED"

"HORDE"

"TWO-FOR-ONE"

"FREE"

"BARGAIN"

"THE LITTLE THINGS"

"THINK TWICE"

p. 592   ↳ "ALL-YOU-CAN-EAT"

"CHEAP AND FILLING"

"CHEAP"

"STOCK UP"

"SKIP"

"COUPONS"

"BAD HABITS"

"DON'T REALLY NEED"

"PRIORITY"

"CHEAPER"

"LIVED KIND OF CHEAP"

"NOT A BIG SPENDER"

"HAVEN'T CHANGED MY HABITS"

"NOT PUTTING AS MUCH INTO SAVINGS"

"SPENDING MORE"

"ANOTHER DING IN MY WALLET"

"HIGH MAINTENANCE"

"COUPLE OF THOUSAND"

"INSURANCE IS JUST WORTHLESS"

"PICK UP THE TAB"

"IT ALL ADDS UP"

"NOT AS BAD OFF"

"SCARY TIMES"

Even though no systematic reorganization or categorization has been conducted with the codes thus far, an analytic memo of first impressions can still be composed:

> March 19, 2012
>
> CODE CHOICES: THE EVERYDAY LANGUAGE OF ECONOMICS
>
> After eyeballing the in vivo codes list, I noticed that variants of "CHEAP" appear most often. I recall a running joke between me and a friend of mine when we were shopping for sales. We'd say, "We're not 'cheap,' we're *frugal*." There's no formal economic or business language is this transcript—no terms such as "recession" or "downsizing"—just the everyday language of one person trying to cope during "SCARY TIMES" with "ANOTHER DING IN MY WALLET." The participant notes that he's always "LIVED KIND OF CHEAP" and is "NOT A BIG SPENDER" and, due to his employment, "NOT AS BAD OFF" as others in the country. Yet even with his middle class status, he's still feeling the monetary pinch, dining at inexpensive "ALL-YOU-CAN-EAT" restaurants and worried about the rising price of peanut butter, observing that he's "NOT PUTTING AS MUCH INTO SAVINGS" as he used to. Of all the codes, "ANOTHER DING IN MY WALLET" stands out to me, particularly because on the audio recording he sounded bitter and frustrated. It seems that he's so concerned about "THE LITTLE THINGS" because of high veterinary and dental charges. The only way to cope with a "COUPLE OF THOUSAND" dollars worth of medical expenses is to find ways of trimming the excess in everyday facets of living: "IT ALL ADDS UP."

Like process coding, in vivo codes could be clustered into similar categories, but another simple data analytic strategy is also possible.

QDA Strategy: To Outline

To outline in QDA is to hierarchically, processually, and/or temporally assemble such things as codes, categories, themes, assertions, and concepts into a coherent, text-based display.

Traditional outlining formats and content provide not only templates for writing a report but templates for analytic organization. This principle can be found in several CAQDAS (Computer Assisted Qualitative Data Analysis Software) programs through their use of such functions as "hierarchies," "trees," and "nodes," for example. Basic outlining is simply a way of arranging primary, secondary, and sub-secondary items into a patterned display. For example, an organized listing of things in a home might consist of:

    I. Kitchen

        A. Large appliances

            1. Refrigerator

            2. Stove-top oven

    3. Microwave oven

  B. Small appliances

    1. Toaster

    2. Coffee maker

    3. Can opener

II. Dining room

  A. Furniture

    1. Table

    2. Chairs

III. Etc.

In QDA, outlining may include descriptive nouns or topics but, depending on the study, it may also involve processes or phenomena in extended passages, such as in vivo codes or themes.

The complexity of what we learn in the field can be overwhelming, and outlining is a way of organizing and ordering that complexity so that it does not become complicated. The cut-and-paste and tab functions of a word processor page enable you to arrange and rearrange the salient items from your preliminary ↳ coded analytic work into a more streamlined flow. By no means do I suggest that the intricate messiness of life can always be organized into neatly formatted arrangements, but outlining is an analytic act that stimulates deep reflection on both the interconnectedness and interrelationships of what we study. As an example, here are the thirty in vivo codes generated from the initial transcript analysis, arranged in such a way as to construct five major categories:

I. "SCARY TIMES"

  A. "SKYROCKETED"

  B. "HORDE"

II. "PRIORITY"

  A. "HIGH MAINTENANCE"

  B. "THINK TWICE"

    1. "DON'T REALLY NEED"

    2. "SKIP"

III. "ANOTHER DING IN MY WALLET"

  A. "PICK UP THE TAB"

    1. "INSURANCE IS JUST WORTHLESS"

  B. "SPENDING MORE"

    1. "COUPLE OF THOUSAND"

    2. "NOT PUTTING AS MUCH INTO SAVINGS"

  C. "IT ALL ADDS UP"

IV. "THE LITTLE THINGS"

  A. "BARGAIN"

    1. "COUPONS"

       2. "FREE"

    B. "STOCK UP"

       1. "TWO-FOR-ONE"

       2. "ALL-YOU-CAN-EAT"

 V. "LIVED KIND OF CHEAP"

    A. "CHEAP"

       1. "CHEAPER"

       2. "CHEAP AND FILLING"

    B. "HAVEN'T CHANGED MY HABITS"

       1. "BAD HABITS"

       2. "NOT A BIG SPENDER"

    C. "NOT AS BAD OFF"

Now that the codes have been rearranged into an outline format, an analytic memo is composed to expand on the rationale and constructed meanings in progress:

> March 19, 2012
>
> NETWORKS: EMERGENT CATEGORIES The five major categories I constructed from the in vivo codes are: "SCARY TIMES," "PRIORTY," "ANOTHER DING IN MY WALLET," "THE LITTLE THINGS," and "LIVED KIND OF CHEAP." One of the things that hit me today was that the reason he may be pinching pennies on smaller purchases is that he cannot *control* the larger ones he has to deal with. Perhaps the only way we can cope with or seem to have some sense of agency over major expenses is to cut back on the smaller ones that we *can* control. $1,000 for a dental bill? Skip lunch for a few days a week. Insulin medication to buy for a pet? Don't buy a soft drink from a vending machine. Using this reasoning, let me try to interrelate and weave the categories together as they relate to this particular participant: During these scary economic times, he prioritizes his spending because there seems to be just one ding after another to his wallet. A general lifestyle of living cheaply and keeping an eye out for how to save money on the little things compensates for those major expenses beyond his control.

QDA Strategy: To Code—In Even More Ways

The process and in vivo coding examples thus far have demonstrated only two specific methods of thirty-two documented approaches (Saldaña, 2013). Which one(s) you choose for your analysis depends on such factors as your conceptual framework, the genre of qualitative research for your project, the types of data you collect, and so on. The following sections present a few other approaches available for coding qualitative data that you may find useful as starting points.

Descriptive Coding

Descriptive codes are primarily nouns that simply summarize the topic of a datum. This coding approach is particularly useful when you have different types of data gathered for one study, such as interview

transcripts, field notes, documents, and visual materials such as photographs. Descriptive ↳ codes not only help categorize but also index the data corpus' basic contents for further analytic work. An example of an interview portion coded descriptively, taken from the participant living in tough economic times, follows to illustrate how the same data can be coded in multiple ways:

> **P:** [1] When I go to the grocery store, I can't believe how much the price of meat has skyrocketed. [2] The other day I was at the meat section, and there was a horde of people clustered around the chicken. It was because the store was offering two-for-one. Buy one package of chicken, get the second one free. Now *that* was a bargain. And I got some.

1	MEAT PRICES
2	GROCERY STORE SALE

> **I:** What other consumer habits of yours have been changed by the economy?

> **P:** [3] Sometimes it's the little things. Like, at work, do I really want to pay $1.50 for one bottle of Diet Coke from a vending machine? I can practically get a two-liter bottle for that same price at the grocery store. [4] So I think twice before I put my dollar and coins in a machine.

3	SOFT DRINK PRICES
4	CONSUMER DECISION MAKING

For initial analysis, descriptive codes are clustered into similar categories to detect such patterns as frequency (i.e., categories with the largest number of codes), interrelationship (i.e., categories that seem to connect in some way), and initial work for grounded theory development.

Values Coding

Values coding identifies the values, attitudes, and beliefs of a participant, as shared by the individual and/or interpreted by the analyst. This coding method infers the "heart and mind" of an individual or group's worldview as to what is important, perceived as true, maintained as opinion, and felt strongly. The three constructs are coded separately but are part of a complex interconnected system.

Briefly, a value (V) is what we attribute as important, be it a person, thing, or idea. An attitude (A) is the evaluative way we think and feel about ourselves, others, things, or ideas. A belief (B) is what we think and feel as true or necessary, formed from our "personal knowledge, experiences, opinions, prejudices, morals, and other interpretive perceptions of the social world" (Saldaña, 2009, pp. 89–90). Values coding explores intrapersonal, interpersonal, and cultural constructs or *ethos*. It is an admittedly slippery task to code this way, for it is sometimes difficult to discern what is a value, attitude, or belief because they are intricately interrelated. But the depth you can potentially obtain is rich. An example of values coding follows:

> **P:** [1] In a way, I've always lived kind of cheap. [2] I'm not a big spender, really, so I haven't changed my habits all that much, [3] but I do notice I'm not putting as much into savings as I used to, [4] so that's a sign that I'm spending more because the price of stuff has gone up. [5] I heard that peanut butter's gonna go up because of some bad crop, [6] so that's another ding in my wallet.

1	B: LIVING CHEAPLY
2	V: FRUGAL
3	B: LESS SAVINGS
4	B: "SPENDING MORE"
5	B: RISING PRICES
6	A: ECONOMIC BITTERNESS

For analysis, categorize the codes for each of the three different constructs together (i.e., all values in one group, attitudes in a second group, and beliefs in a third group). Analytic memo writing about the patterns and possible interrelationships may reveal a more detailed and intricate worldview of the participant.

Dramaturgical Coding

Dramaturgical coding perceives life as performance and its participants as characters in a social drama. Codes are assigned to the data (i.e., a "play script") that analyze the characters in action, reaction, and interaction. Dramaturgical coding of participants examines their *objectives* (OBJ) or wants, needs, and motives; the *conflicts* (CON) or obstacles they face as they try to achieve their objectives; the *tactics* (TAC) or strategies they employ to reach their objectives; their *attitudes* (ATT) toward others and their given circumstances; the particular *emotions* (EMO) they experience throughout; and their *subtexts* (SUB) or underlying and unspoken thoughts. The following is an example of dramaturgically coded data:

P: [1] I've been going to all-you-can-eat places a lot lately, because it's both cheap and filling. I go to Peter Piper's or Sweet Tomatoes or Golden Corral or some cheap Chinese buffet and[2] stock up on lunch so I can skip dinner. Or I skip lunch so I can stock up on dinner.[3] With Sweet Tomatoes I get those coupons for a few bucks off for lunch, so that really helps.

[1] OBJ: SAVING MEAL MONEY

[2] TAC: SKIPPING MEALS

[3] TAC: COUPONS

I: What about purchases of non-food items? How have your spending habits changed these days?

P: [4] I still have my bad habits[5] I refuse to give up: books and cigarettes, it's always gonna be that.[6] I look at clothes some, but when I see the prices I think I don't really need them, what I've got is fine.[7] I've got my cats to take care of, so they get priority with special foods, meds, vets.

[4] CON: "BAD HABITS"

[5] SUB: RESISTANCE

[6] ATT: SELF-COMPROMISING

[7] OBJ: PET CARE

Not included in this particular interview excerpt are the emotions the participant may have experienced or talked about. His later line, "that's another ding in my wallet," would have been coded EMO: BITTER. A reader may not have inferred that specific emotion from seeing the line in print. But the interviewer, present during the event and listening carefully to the audio recording during transcription, noted that feeling in his tone of voice.

For analysis, group similar codes together (e.g., all objectives in one group, all conflicts in another group, all tactics in a third group), or string together chains of how participants deal with their circumstances to overcome their obstacles through tactics (e.g., OBJ: SAVING MEAL MONEY > TAC: SKIPPING MEALS). Explore how the individuals or groups manage problem solving in their daily lives. Dramaturgical coding is particularly useful as preliminary work for narrative inquiry story development or arts–based research representations such as performance ethnography.

Versus Coding

Versus coding identifies the conflicts, struggles, and power issues observed in social action, reaction, and interaction as an X VS. Y code, such as: MEN VS. WOMEN, CONSERVATIVES VS. LIBERALS, FAITH VS. LOGIC, and so on. Conflicts are rarely this dichotomous. They are typically nuanced and much more complex. But humans tend to perceive these struggles with an US VS. THEM mindset. The codes can range from the observable to the conceptual and can be applied to data that show humans in tension with others, themselves, or ideologies.

What follows are examples of versus codes applied to the case study participant's descriptions of his major
medical expenses: ↳

> **I:** You said you have cats to take care of.

> **P:** Yeah, three of them.

> **I:** What about their expenses?

> **P:** [1] Man, they are *so* high maintenance. All three are on some of type of meds of one kind or another. One's diabetic so he has to have insulin shots twice a day, another's got some kind of thyroid condition so he gets ear gel twice a day, and the third one gets his ear gel for urinary infections on an as-needed basis. Two of them need special food, there's lots of trips to the vet's for check-ups. [2] I just had to have dental work recently, almost $1,000 to fix up my teeth because I hadn't been taking care of them as good as I should have. And that was just round one, there's two more procedures I have to go through, and that'll be another couple of thousand. [3] And my dental insurance is just worthless on this so I have to pick up the tab myself.

[1] PET CARE COSTS VS. HUMAN LIVING EXPENSES

[2] HEALTH CARE COSTS VS. PERSONAL RESPONSIBILITY

[3] INSURANCE COMPANY VS. CONSUMER COSTS

As an initial analytic tactic, group the versus codes into one of three categories: the *Stakeholders*, their *Perceptions and/or Actions*, and the *Issues* at stake. Examine how the three interrelate and identify the central ideological conflict at work as an **X vs. Y** category. Analytic memos and the final write-up can detail the nuances of the issues.

Remember that what has been profiled in this section is a broad brushstroke description of just a few basic coding processes, several of which can be compatibly "mixed and matched" within a single analysis (see Saldaña's [2013] *The Coding Manual for Qualitative Researchers* for a complete discussion). Certainly with additional data, more in-depth analysis can occur, but coding is only one approach to extracting and constructing preliminary meanings from the data corpus. What now follows are additional methods for qualitative analysis.

QDA Strategy: To Theme

To theme in QDA is to construct summative, phenomenological meanings from data through extended passages of text.

Unlike codes, which are most often single words or short phrases that symbolically represent a datum, themes are extended phrases or sentences that summarize the manifest (apparent) and latent (underlying) meanings of data (Auerbach & Silverstein, 2003; Boyatzis, 1998). Themes, intended to represent the essences and essentials of humans' lived experiences, can also be categorized or listed in superordinate and subordinate outline formats as an analytic tactic.

Below is the interview transcript example used in the coding sections above. (Hopefully you are not too fatigued at this point with the transcript, but it's important to know how inquiry with the same data set can be approached in several different ways.) During the investigation of the ways middle-class Americans are influenced and affected by the current (2008–2012) economic recession, the researcher noticed that participants' stories exhibited facets of what he labeled "economic intelligence" or EI (based on the formerly developed theories of Howard Gardner's multiple intelligences and Daniel Goleman's emotional intelligence). Notice how themeing interprets what is happening through the use of two distinct phrases—ECONOMIC INTELLIGENCE IS (i.e., manifest or apparent meanings) and ECONOMIC INTELLIGENCE MEANS

(i.e., latent or underlying meanings): ↵

P: When I go to the grocery store, I can't believe how much the price of meat has skyrocketed. [1] The other day I was at the meat section, and there was a horde of people clustered around the chicken. It was because the store was offering two-for-one. Buy one package of chicken, get the second one free. Now *that* was a bargain. And I got some.

I: What other consumer habits of yours have been changed by the economy?

P: [2] Sometimes it's the little things. Like, at work, do I really want to pay $1.50 for one bottle of Diet Coke from a vending machine? I can practically get a two-liter bottle for that same price at the grocery store. So I think twice before I put my dollar and coins in a machine. [3] I've been going to all-you-can-eat places a lot lately, because it's both cheap and filling. I go to Peter Piper's or Sweet Tomatoes or Golden Corral or some cheap Chinese buffet and [4] I stock up on lunch so I can skip dinner. Or I skip lunch so I can stock up on dinner. [5] With Sweet Tomatoes I get those coupons for a few bucks off for lunch, so that really helps.

I: What about purchases of non-food items? How have your spending habits changed these days?

P: [6] I still have my bad habits I refuse to give up: books and cigarettes, it's always gonna be that. [7] I look at clothes some, but when I see the prices I think I don't really need them, what I've got is fine. [8] I've got my cats to take care of, so they get priority with special foods, meds, vets. [9] I don't go to movies anymore. I rent DVDs from Netflix or Redbox or watch movies online—so much cheaper than paying over ten or twelve bucks for a movie ticket. [10] In a way, I've always lived kind of cheap. I'm not a big spender, really, so I haven't changed my habits all that much, but [11] I do notice I'm not putting as much into savings as I used to, so that's a sign that I'm spending more because the price of stuff has gone up. I heard that peanut butter's gonna go up because of some bad crop, so that's another ding in my wallet.

I: You said you have cats to take care of.

P: Yeah, three of them.

I: What about their expenses?

P: [12] Man, they are *so* high maintenance. All three are on some of type of meds of one kind or another. One's diabetic so he has to have insulin shots twice a day, another's got some kind of thyroid condition so he gets ear gel twice a day, and the third one gets his ear gel for urinary infections on an as-needed basis. Two of them need special food, there's lots of trips to the vet's for check-ups. [13] I just had to have dental work recently, almost $1,000 to fix up my teeth because I hadn't been taking care of them as good as I should have. And that was just round one, there's two more procedures I have to go through, and that'll be another couple of thousand. And my dental insurance is just worthless on this so I have to pick up the tab myself.

[12] EI MEANS YOU CANNOT CONTROL EVERYTHING

[13] EI IS TAKING CARE OF ONE'S OWN HEALTH

I: Sounds like it's just one thing after another.

P: Yeah, yeah, and it all adds up. [14] I'm surprised I've made it this far. I'm not as bad off as others are, so I thank God for that. But, man— scary times.

[14] EI MEANS KNOWING YOUR LUCK

Unlike the fifteen process codes and thirty in vivo codes in the previous examples, there are now fourteen themes to work with. In the order they appear, they are:

EI IS TAKING ADVANTAGE OF UNEXPECTED OPPORTUNITY

EI MEANS THINKING BEFORE YOU ACT

EI IS BUYING CHEAP

EI MEANS SACRIFICE

EI IS SAVING A FEW DOLLARS NOW AND THEN

EI MEANS KNOWING YOUR FLAWS

EI MEANS THINKING BEFORE YOU ACT

EI IS SETTING PRIORITIES

EI IS FINDING CHEAPER FORMS OF ENTERTAINMENT

EI MEANS LIVING AN INEXPENSIVE LIFESTYLE

EI IS NOTICING PERSONAL AND NATIONAL ECONOMIC TRENDS

EI MEANS YOU CANNOT CONTROL EVERYTHING

EI IS TAKING CARE OF ONE'S OWN HEALTH

EI MEANS KNOWING YOUR LUCK

There are several ways to categorize the themes as preparation for analytic memo writing. The first is to arrange them in outline format with superordinate and subordinate levels, based on how the themes seem to take organizational shape and structure. Simply cutting and pasting the themes in multiple arrangements on a word processor page eventually develops a sense of order to them. For example:

I . EI MEANS LIVING AN INEXPENSIVE LIFESTYLE

  A. EI IS SETTING PRIORITIES

  B. EI MEANS THINKING BEFORE YOU ACT

  C. EI IS BUYING CHEAP

  D. EI IS FINDING CHEAPER FORMS OF ENTERTAINMENT

  E. EI IS SAVING A FEW DOLLARS NOW AND THEN

F. EI IS TAKING CARE OF ONE'S OWN HEALTH

G. EI IS TAKING ADVANTAGE OF UNEXPECTED OPPORTUNITY

II . **EI MEANS YOU CANNOT CONTROL EVERYTHING** ↳

A. EI MEANS SACRIFICE

B. EI MEANS KNOWING YOUR FLAWS

C. EI MEANS KNOWING YOUR LUCK

D. EI IS NOTICING PERSONAL AND NATIONAL ECONOMIC TRENDS

E. EI MEANS THINKING BEFORE YOU ACT

A second approach is to categorize the themes into similar clusters and to develop different category labels or *theoretical constructs.* A theoretical construct is an abstraction that transforms the central phenomenon's themes into broader applications but can still use "is" and "means" as prompts to capture the bigger picture at work:

Theoretical Construct 1: EI Means Knowing the Unfortunate Present

Supporting Themes:

EI MEANS YOU CANNOT CONTROL EVERYTHING

EI IS SETTING PRIORITIES

EI MEANS KNOWING YOUR FLAWS

EI MEANS SACRIFICE

Theoretical Construct 2: EI is Cultivating a Small Fortune

Supporting Themes:

EI MEANS LIVING AN INEXPENSIVE LIFESTYLE

EI MEANS THINKING BEFORE YOU ACT

EI IS BUYING CHEAP

EI IS FINDING CHEAPER FORMS OF ENTERTAINMENT

EI IS SAVING A FEW DOLLARS NOW AND THEN

Theoretical Construct 3: EI Means a Fortunate Future

Supporting Themes:

EI IS NOTICING PERSONAL AND NATIONAL ECONOMIC TRENDS

EI MEANS THINKING BEFORE YOU ACT

EI IS TAKING ADVANTAGE OF UNEXPECTED OPPORTUNITY

EI IS TAKING CARE OF ONE'S OWN HEALTH

EI MEANS KNOWING YOUR LUCK

What follows is an analytic memo generated from the cut-and-paste arrangement of themes into an outline and into theoretical constructs:

March 19, 2012

EMERGENT THEMES: FORTUNE/FORTUNATELY/UNFORTUNATELY

> I first reorganized the themes by listing them in two groups: "is" and "means." The "is" statements seemed to contain positive actions and constructive strategies for economic intelligence. The "means" statements held primarily a sense of caution and restriction with a touch of negativity thrown in. The first outline with two major themes, LIVING AN INEXPENSIVE LIFESTYLE and YOU CANNOT CONTROL EVERYTHING also had this same tone. This reminded me of the old children's picture book, *Fortunately/Unfortunately*, and the themes of "fortune" as a motif for the three theoretical constructs came to mind. **Knowing the Unfortunate Present** means knowing what's (most) important and what's (mostly) uncontrollable in one's personal economic life. **Cultivating a Small Fortune** consists of those small money-saving actions that, over time, become part of one's lifestyle. **A Fortunate Future** consists of heightened awareness of trends and opportunities at micro and macro levels, with the understanding that health matters can idiosyncratically affect one's fortune. These three constructs comprise this particular individual's EI—economic intelligence.

Again, keep in mind that the examples above for coding and themeing were from one small interview transcript excerpt. The number of codes and their categorization would obviously increase, given a longer interview and/or multiple interviews to analyze. But the same basic principles apply: codes and themes relegated into patterned and categorized forms are heuristics—stimuli for good thinking through the analytic memo-writing process on how everything plausibly interrelates. Methodologists vary in the number of recommended final categories that result from analysis, ranging anywhere from three to seven, with traditional grounded theorists prescribing one central or core category from coded work.

QDA Strategy: To Assert

To assert in QDA is to put forward statements that summarize particular fieldwork and analytic observations that the researcher believes credibly represent and transcend the experiences.

Educational anthropologist Frederick Erickson (1986) wrote a significant and influential chapter on qualitative methods that outlined heuristics for *assertion development.* Assertions are declarative statements of summative synthesis, supported by confirming evidence from the data, and revised ↳ when disconfirming evidence or discrepant cases require modification of the assertions. These summative statements are generated from an interpretive review of the data corpus and then supported and illustrated through narrative vignettes—reconstructed stories from field notes, interview transcripts, or other data sources that provide a vivid profile as part of the evidentiary warrant.

Coding or themeing data can certainly precede assertion development as a way of gaining intimate familiarity with the data, but Erickson's methods are a more admittedly intuitive yet systematic heuristic for analysis. Erickson promotes *analytic induction* and exploration of and inferences about the data, based on an examination of the evidence and an accumulation of knowledge. The goal is not to look for "proof" to support the assertions but plausibility of inference-laden observations about the local and particular social world under investigation.

Assertion development is the writing of general statements, plus subordinate yet related ones called *subassertions*, and a major statement called a *key assertion* that represents the totality of the data. One also looks for *key linkages* between them, meaning that the key assertion links to its related assertions, which then link to their respective subassertions. Subassertions can include particulars about any discrepant related cases or specify components of their parent assertions.

Excerpts from the interview transcript of our case study will be used to illustrate assertion development at work. By now, you should be quite familiar with the contents, so I will proceed directly to the analytic example. First, there is a series of thematically related statements the participant makes:

- "Buy one package of chicken, get the second one free. Now *that* was a bargain. And I got some."

- "With Sweet Tomatoes I get those coupons for a few bucks off for lunch, so that really helps."

- "I don't go to movies anymore. I rent DVDs from Netflix or Redbox or watch movies online—so much cheaper than paying over ten or twelve bucks for a movie ticket."

Assertions can be categorized into *low-level* and *high-level inferences.* Low-level inferences address and summarize "what is happening" within the particulars of the case or field site—the "micro." High-level inferences extend beyond the particulars to speculate on "what it means" in the more general social scheme of things—the "meso" or "macro." A reasonable low-level assertion about the three statements above collectively might read: *The participant finds several small ways to save money during a difficult economic period.* A high-level inference that transcends the case to the macro level might read: *Selected businesses provide alternatives and opportunities to buy products and services at reduced rates during a recession to maintain consumer spending.*

Assertions are *instantiated* (i.e., supported) by concrete instances of action or participant testimony, whose patterns lead to more general description outside the specific field site. The author's interpretive commentary can be interspersed throughout the report, but the assertions should be supported with the *evidentiary warrant.* A few assertions and subassertions based on the case interview transcript might read (and notice how high-level assertions serve as the paragraphs' topic sentences):

> Selected businesses provide alternatives and opportunities to buy products and services at reduced rates during a recession to maintain consumer spending. Restaurants, for example, need to find ways during difficult economic periods when potential customers may be opting to eat inexpensively at home rather than spending more money by dining out. Special offers can motivate cash-strapped clientele to patronize restaurants more frequently. An adult male dealing with such major expenses as underinsured dental care offers: "With Sweet Tomatoes I get those coupons for a few bucks off for lunch, so that really helps." The film and video industries also seem to be suffering from a double-whammy during the current recession: less consumer spending on higher-priced entertainment, resulting in a reduced rate of movie theatre attendance (currently 39 percent of the American population, according to CNN); coupled with a media technology and business revolution that provides consumers less costly alternatives through video rentals and internet viewing: "I don't go to movies anymore. I rent DVDs from Netflix or Redbox or watch movies online—so much cheaper than paying over ten or twelve bucks for a movie ticket."

"Particularizability"—the search for specific and unique dimensions of action at a site and/or the specific and unique perspectives of an individual participant—is not intended to filter out trivial excess but to magnify the salient characteristics of local meaning. Although generalizable knowledge serves little purpose in qualitative inquiry since each naturalistic setting will contain its own unique set of social and cultural conditions, there will be some aspects of social action that are plausibly universal or "generic" across settings and perhaps even across ↳ time. To work toward this, Erickson advocates that the interpretive researcher look for "concrete universals" by studying actions at a particular site in detail, then comparing those to other sites that have also been studied in detail. The exhibit or display of these generalizable features is to provide a *synoptic* representation, or a view of the whole. What the researcher attempts to uncover is what is both particular and general at the site of interest, preferably from the perspective of the participants. It is from the detailed analysis of actions at a specific site that these universals can be concretely discerned, rather than abstractly constructed as in grounded theory.

In sum, assertion development is a qualitative data analytic strategy that relies on the researcher's intense review of interview transcripts, field notes, documents, and other data to inductively formulate composite statements that credibly summarize and interpret participant actions and meanings, and their possible representation of and transfer into broader social contexts and issues.

QDA Strategy: To Display

To display in QDA is to visually present the processes and dynamics of human or conceptual action represented in the data.

Qualitative researchers use not only language but illustrations to both analyze and display the phenomena and processes at work in the data. Tables, charts, matrices, flow diagrams, and other models help both you and your readers cognitively and conceptually grasp the essence and essentials of your findings. As you have seen thus far, even simple outlining of codes, categories, and themes is one visual tactic for organizing the scope of the data. Rich text, font, and format features such as italicizing, bolding, capitalizing, indenting, and bullet pointing provide simple emphasis to selected words and phrases within the longer narrative.

"Think display" was a phrase coined by methodologists Miles and Huberman (1994) to encourage the researcher to think visually as data were collected and analyzed. The magnitude of text can be essentialized into graphics for "at-a-glance" review. Bins in various shapes and lines of various thicknesses, along with arrows suggesting pathways and direction, render the study as a portrait of action. Bins can include the names of codes, categories, concepts, processes, key participants, and/or groups.

As a simple example, Figure 28.1 illustrates the three categories' interrelationship derived from process coding. It displays what could be the apex of this interaction, LIVING STRATEGICALLY, and its connections to THINKING STRATEGICALLY, which influences and affects SPENDING STRATEGICALLY.

Figure 28.2 represents a slightly more complex (if not playful) model, based on the five major in vivo codes/categories generated from analysis. The graphic is used as a way of initially exploring the interrelationship and flow from one category to another. The use of different font styles, font sizes, and line and arrow thicknesses are intended to suggest the visual qualities of the participant's language and his dilemmas—a way of heightening in vivo coding even further.

Accompanying graphics are not always necessary for a qualitative report. They can be very helpful for the researcher during the analytic stage as a heuristic for exploring how major ideas interrelate, but illustrations are generally included in published work when they will help supplement and clarify complex processes for readers. Photographs of the field setting or the participants (and only with their written permission) also provide evidentiary reality to the write-up and help your readers get a sense of being there.

QDA Strategy: To Narrate

To narrate in QDA is to create an evocative literary representation and presentation of the data in the form of creative nonfiction.

All research reports are stories of one kind or another. But there is yet another approach to QDA that intentionally documents the research experience *as* story, in its traditional literary sense. Narrative inquiry plots and story lines the participant's experiences into what might be initially perceived as a fictional short story or novel. But the story is carefully crafted and creatively written to provide readers with an almost omniscient perspective about the participants' worldview. The transformation of the corpus from database to creative nonfiction ranges from systematic transcript analysis to open ended literary composition. The

p. 602   narrative, though, should ↳ be solidly grounded in and emerge from the data as a plausible rendering of social life.

Figure 28.1
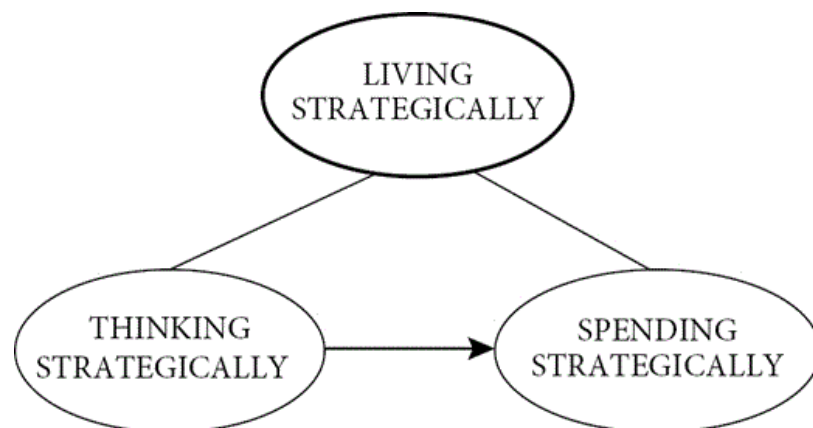
A simple illustration of category interrelationship.

Figure 28.2

An illustration with rich text and artistic features.

The following is a narrative vignette based on interview transcript selections from the participant living through tough economic times:

> Jack stood in front of the soft drink vending machine at work and looked almost worriedly at the selections. With both hands in his pants pockets, his fingers jingled the few coins he had inside them as he contemplated whether he could afford the purchase. One dollar and fifty cents for a twenty-ounce bottle of Diet Coke. One dollar and fifty cents. "I can practically get a two-liter bottle for that same price at the grocery store," he thought. Then Jack remembered the upcoming dental surgery he needed—that would cost one thousand dollars—and the bottle of insulin and syringes he needed to buy for his diabetic, "high maintenance" cat—about one hundred and twenty dollars. He sighed, took his hands out of his pockets, and walked away from the vending machine. He was skipping lunch that day anyway so he could stock up on dinner later at the cheap-but-filling-all-you-can-eat Chinese buffet. He could get his Diet Coke there.

Narrative inquiry representations, like literature, vary in tone, style, and point of view. The common goal, however, is to create an evocative portrait of participants through the aesthetic power of literary form. A story does not always have to have a moral explicitly stated by its author. The reader reflects on personal meanings derived from the piece and how the specific tale relates to one's self and the social world.

QDA Strategy: To Poeticize

To poeticize in QDA is to create an evocative literary representation and presentation of the data in the form of poetry.

One form for analyzing or documenting analytic findings is to strategically truncate interview transcripts, field notes, and other pertinent data into poetic structures. Like coding, poetic constructions capture the essence and essentials of data in a creative, evocative way. The elegance of the format attests to the power of carefully chosen language to represent and convey complex human experience.

In vivo codes (codes based on the actual words used by participants themselves) can provide imagery, symbols, and metaphors for rich category, theme, concept, and assertion development, plus evocative content for arts-based interpretations of the data. Poetic inquiry takes note of what words and phrases seem to stand out from the data corpus as rich material for reinterpretation. Using some of the participant's own language from the interview transcript illustrated above, a poetic reconstruction or "found poetry" might read:

> **Scary Times**
> Scary times…
> spending more
> (another ding in my wallet)
> a couple of thousand
> (another ding in my wallet)
> insurance is just worthless
> (another ding in my wallet)
> pick up the tab

> (another ding in my wallet)
> not putting as much into savings
> (another ding in my wallet)
> It all adds up.
> Think twice:
> don't really need
> skip
> Think twice, think cheap:
> coupons
> bargains
> two-for-one
> free
> ↳ Think twice, think cheaper:
> stock up
> all-you-can-eat
> (cheap—and filling)
> It all adds up.

Anna Deavere Smith, a verbatim theatre performer, attests that people speak in forms of "organic poetry" in everyday life. Thus in vivo codes can provide core material for poetic representation and presentation of lived experiences, potentially transforming the routine and mundane into the epic. Some researchers also find the genre of poetry to be the most effective way to compose original work that reflects their own fieldwork experiences and autoethnographic stories.

QDA Strategy: To Compute

To compute in QDA is to employ specialized software programs for qualitative data management and analysis.

CAQDAS is an acronym for Computer Assisted Qualitative Data Analysis Software. There are diverse opinions among practitioners in the field about the utility of such specialized programs for qualitative data management and analysis. The software, unlike statistical computation, does not actually analyze data for you at higher conceptual levels. CAQDAS software packages serve primarily as a repository for your data (both textual and visual) that enable you to code them, and they can perform such functions as calculate the number of times a particular word or phrase appears in the data corpus (a particularly useful function for content analysis) and can display selected facets after coding, such as possible interrelationships. Certainly, basic word-processing software such as Microsoft Word, Excel, and Access provide utilities that can store and, with some pre-formatting and strategic entry, organize qualitative data to enable the researcher's analytic review. The following internet addresses are listed to help in exploriong these CAQDAS packages and obtaining demonstration/trial software and tutorials:

- AnSWR: www.cdc.gov/hiv/topics/surveillance/resources/software/answr

- ATLAS.ti: www.atlasti.com

- Coding Analysis Toolkit (CAT): cat.ucsur.pitt.edu/

- Dedoose: www.dedoose.com

- HyperRESEARCH: www.researchware.com

- MAXQDA: www.maxqda.com

- NVivo: www.qsrinternational.com

- QDA Miner: www.provalisresearch.com

- Qualrus: www.qualrus.com

- Transana (for audio and video data materials): www.transana.org

- Weft QDA: www.pressure.to/qda/

Some qualitative researchers attest that the software is indispensable for qualitative data management, especially for large-scale studies. Others feel that the learning curve of CAQDAS is too lengthy to be of pragmatic value, especially for small-scale studies. From my own experience, if you have an aptitude for picking up quickly on the scripts of software programs, explore one or more of the packages listed. If you are a novice to qualitative research, though, I recommend working manually or "by hand" for your first project so you can focus exclusively on the data and not on the software.

QDA Strategy: To Verify

To verify in QDA is to administer an audit of "quality control" to your analysis.

After your data analysis and the development of key findings, you may be thinking to yourself, "Did I get it right?" "Did I learn anything new?" Reliability and validity are terms and constructs of the positivist quantitative paradigm that refer to the replicability and accuracy of measures. But in the qualitative paradigm, other constructs are more appropriate.

Credibility and *trustworthiness* (Lincoln & Guba, 1985) are two factors to consider when collecting and analyzing the data and presenting your findings. In our qualitative research projects, we need to present a convincing story to our audiences that we "got it right" methodologically. In other words, the amount of time we spent in the field, the number of participants we interviewed, the analytic methods we used, the thinking processes evident to reach our conclusions, and so on should be "just right" to persuade the reader that we have conducted our jobs soundly. But remember that we can never conclusively "prove" something; we can only, at best, convincingly suggest. Research is an act of persuasion.

Credibility in a qualitative research report can be established through several ways. First, citing the key writers of related works in your literature review is a must. Seasoned researchers will sometimes assess whether a novice has "done her homework" by reviewing the bibliography or references. You need not list everything that seminal writers have published about a topic, but their names should appear at least once as
p. 604 evidence that you know the field's key figures and their work. ↳

Credibility can also be established by specifying the particular data analytic methods you employed (e.g., "Interview transcripts were taken through two cycles of process coding, resulting in five primary categories"), through corroboration of data analysis with the participants themselves (e.g., "I asked my participants to read and respond to a draft of this report for their confirmation of accuracy and recommendations for revision") or through your description of how data and findings were substantiated (e.g., "Data sources included interview transcripts, participant observation field notes, and participant response journals to gather multiple perspectives about the phenomenon").

Creativity scholar Sir Ken Robinson is attributed with offering this cautionary advice about making a convincing argument: "Without data, you're just another person with an opinion." Thus researchers can also support their findings with relevant, specific evidence by quoting participants directly and/or including field note excerpts from the data corpus. These serve both as illustrative examples for readers and to present more credible testimony of what happened in the field.

Trustworthiness, or providing credibility to the writing, is when we inform the reader of our research processes. Some make the case by stating the duration of fieldwork (e.g., "Seventy-five clock hours were spent in the field"; "The study extended over a twenty-month period"). Others put forth the amounts of data they gathered (e.g., "Twenty-seven individuals were interviewed"; "My field notes totaled approximately 250 pages"). Sometimes trustworthiness is established when we are up front or confessional with the analytic or ethical dilemmas we encountered (e.g., "It was difficult to watch the participant's teaching effectiveness erode during fieldwork"; "Analysis was stalled until I recoded the entire data corpus with a new perspective.").

The bottom line is that credibility and trustworthiness are matters of researcher *honesty* and *integrity*. Anyone can write that he worked ethically, rigorously, and reflexively, but only the writer will ever know the truth. There is no shame if something goes wrong with your research. In fact, it is more than likely the rule,

not the exception. Work and write transparently to achieve credibility and trustworthiness with your readers.

Conclusion

The length of this article does not enable me to expand on other qualitative data analytic strategies, such as to conceptualize, abstract, theorize, and write. Yet there are even more subtle thinking strategies to employ throughout the research enterprise, such as to synthesize, problematize, persevere, imagine, and create. Each researcher has his or her own ways of working, and deep reflection (another strategy) on your own methodology and methods as a qualitative inquirer throughout fieldwork and writing provides you with metacognitive awareness of data analytic processes and possibilities.

Data analysis is one of the most elusive processes in qualitative research, perhaps because it is a backstage, behind-the-scenes, in-your-head enterprise. It is not that there are no models to follow. It is just that each project is contextual and case specific. The unique data you collect from your unique research design must be approached with your unique analytic signature. It truly is a learning-by-doing process, so accept that and leave yourself open to discovery and insight as you carefully scrutinize the data corpus for patterns, categories, themes, concepts, assertions, and possibly new theories through strategic analysis.

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