5

Data Analysis and Interpretation

By *data analysis* we mean the process of systematically searching and arranging the interview transcripts, fieldnotes, and other materials that you accumulate to enable you to come up with findings. Data **interpretation** refers to developing ideas about your findings and relating them to the literature and to broader concerns and concepts. Analysis involves working with the data, organizing them, breaking them into manageable units, coding them, synthesizing them, and searching for patterns. Interpretation involves explaining and framing your ideas in relation to theory, other scholarship, and action, as well as showing why your findings are important and making them understandable. The end products of research are dissertations, books, papers, presentations, or, in the case of applied research, plans for action. Data analysis and interpretation moves you from the rambling pages of description to those products (LeCompte & Schensul, 1999).

While it is relatively easy to come up with an explanation of the difference between data analysis and data interpretation, it is much more difficult to separate the two in the process of doing qualitative research. Findings and ideas about findings emerge together. In this chapter we concentrate on analysis but we also provide advice on interpretation. In the next chapter, in which we take up writing, interpreting findings will be addressed again.

The analytic task, coming up with findings and interpreting and making sense out of the collected materials, appears monumental when one is involved in a first research project. For those who have never undertaken it, analysis looms large, something one can avoid, at first glance, by remaining in the field collecting data when that period should have ended. Anxiety mounts: "I didn't get anything good." "I've wasted my time." "This job is impossible." "My career will end with this mess of unanalyzed fieldnotes in my computer." These fears have crossed the minds of most of us the first time we faced analysis and interpretation. While it is complicated, it is also a process that can be broken down into stages. Confronted as a series of decisions and undertakings rather than as one vast interpretive effort, data analysis becomes a more manageable process.

Our purpose in this chapter is to help you learn to handle analysis and face interpretation. Some have written about these topics and we will refer you to them (Becker, 1970a; Cassell, 1978a; Lofland, 1971; Schatzman & Strauss, 1973; Spradley, 1980; Strauss, 1987; Miles & Huberman, 1994; LeCompte & Schensul, 1999), but one complaint by novices

about the qualitative research literature is that analysis and interpretation have never received enough attention. This may be because no matter how much it is discussed in the literature, people who have not had experience doing it will never feel they know how, and consistently ask for more. The information we provide in this chapter is rudimentary and practical. We want to get you started. We provide some concrete suggestions on how to proceed to make analysis and interpretation conceptually manageable as well as mechanically feasible. But if you want to learn how to do it, you have to take data and work with them, trying different approaches and styles as you go. There is no quick fix, no easy set of procedures to apply to all projects.

Before we start, we remind you of discussions in previous chapters. There are many different styles of qualitative research and there are a variety of ways of handling analysis and interpretation. It is useful to think of approaches to analysis as falling into two modes. In one approach, analysis and interpretation are concurrent with data collection and are more or less completed by the time the data are gathered. This approach is more commonly practiced by experienced fieldworkers. If you know what you are doing it is most efficient and effective. The other mode involves collecting the data before doing the analysis and interpretation. Because reflecting about what you are finding and making design decisions while in the field is part of every qualitative study, researchers only approach this mode, never following it in its pure form.

In our judgment, the beginning researcher should borrow strategies from the analysis-in-the-field mode, but leave the more formal analysis and interpretation until most of the data are in. Problems of establishing rapport and getting on in the field are complicated and too consuming for beginners to enable them to actively pursue analysis. There is just too much to juggle at one time. In addition, new researchers often do not have the theoretical and substantive background to plug into issues and themes when they first arrive on the scene. To do ongoing analysis and interpretation, one must have an eye for the conceptual and substantive issues that are displayed—something someone new to the field is not as likely to have as an old-timer.

While we recommend delaying attempts at full-fledged, ongoing analysis and interpretation, some analysis must take place during data collection. You need to decide on a focus, for example. This is based on thinking and making judgments about your data—analysis. Without it, the data collection has no direction; thus the data you collect may not be substantial enough to accomplish analysis later. Although you always collect more data than you need or can ever use, a focus will keep the task manageable. After you complete a study or two, you can begin more formal analytic procedures earlier, employing them in the field.

Analysis and Interpretation in the Field

The following are suggestions to help you make analysis and interpretation an ongoing part of data collection and to leave you in good stead to complete the process after you leave the field:

1. *Force yourself to make decisions that narrow the study.* As we said earlier, in most studies data collection is like a funnel. At first, you collect data widely, pursuing different

subjects, exploring physical and social spaces to get a broad understanding of the parameters of the setting, subjects, and issues in which you are interested. After you have developed a research focus, based both on what is feasible to do and what is of interest to you, narrow the scope of data collecting. Do this after three or four visits or some initial interviews. The kinds of decisions you might make are: "I will focus on one third-grade class in this school." "I will explore more deeply women's memories of puberty." "My major concern will be how the children experience the program." "I will interview women who teach in large high schools." "My major focus will be on communication between teachers and students."

Enjoy the initial freedom of exploration, but force yourself to make decisions early. Choices are difficult, since everything is exciting and the world you study seems boundless. You must discipline yourself not to pursue everything and to put some limits on your physical mobility, or else you are likely to wind up with data too diffuse and inappropriate for what you decide to do. The more data you have on a given topic, setting, or subjects, the easier it will be to think deeply about it, and the more productive you are likely to be when you attempt the final analysis.

2. *Force yourself to make decisions concerning the type of study you want to accomplish.* In Chapters 1 and 2, we discussed various types of qualitative studies: organizational case studies, observational studies, life histories, and so on. Some accomplished researchers belong to research traditions that favor one of these types over the others and they automatically pursue data directed at producing one of the types. Other experienced researchers are more eclectic but, nevertheless, make conscious decisions about what type of study they want to pursue. As a novice, you might not be associated with a particular tradition or may not have the knowledge to collect particular types of data. You should try to make clear in your own mind, for example, whether you want to do a full description of a setting or whether you are interested in generating a theory about a particular aspect of it. Are you interested in the minute details of interaction or are you concerned with more general social processes? While we recommend that you attempt to decide what type of study to pursue, we recognize that it may be difficult to accomplish in advance. While you can distinguish the different types, you may not feel that you have enough command over your project to do more than merely survive. Try to guide your work with some kind of model, but do not worry if you cannot.

3. *Develop analytic questions.* In our discussion of design, we mentioned that some researchers bring general questions to a study. These are important because they give focus to data collection and help organize it as you proceed. The questions you formulate are closely linked to the type of study you attempt. We suggest that shortly after you enter the field, you assess which of the questions you brought with you are relevant and which should be reformulated to direct your work.

When we began a study of a job-training program for the hard-core unemployed, we brought to the study the question: "What factors in the program effectively bring about changes in the trainees to heighten their employability?" After initial observations it became clear that the people in the program were not necessarily "hard-core unemployed," and that most of what went on in the program was unrelated to preparation for work. The first question was abandoned for: "How does this program continue when what goes on in it is so foreign to its official goals?" (Bogdan, 1971).

Examples of other organizing questions include one that a researcher asked after she started to spend time in a kindergarten class: "What do these children do in school each day?" In a study we did in an intensive care ward for infants in a teaching hospital, we started our fieldwork with no particular focus in mind, but soon organized our work around the question: "What is the nature of communication between parents and medical professionals on the unit?" Later that question was divided into three questions: "Who talks to parents about their children? What do they say? What do parents hear?"

Sometimes people who are new to qualitative research ask questions that cannot be answered very well by this approach. These questions are often a by product of early training in the quantitative tradition and are directed at finding the "cause" or rate of a particular phenomenon. One researcher, for example, who had years of experience as a nurse, was starting to do observations and interviews with recent heart attack victims who were enrolled in a patient-education program designed to reduce the risk of future heart problems. She was interested in the patients' compliance to the rules laid out for them in the training sessions. While the general interest in the program's relation to patient behavior was easily explored in a qualitative mode, she was misguided in stating two further questions: "Who was more compliant, men or women?" and "What were the differences in the rates of compliance?" Questions developed to guide a qualitative study need to be more open-ended and concerned with process and meaning rather than cause and effect.

In a study of a program in which instructional technologists encouraged teachers to use media more effectively, the question was: "What happened when media specialists attempted to get teachers to behave differently toward media?" In an interview study of people labeled "retarded," we asked: "How do people labeled retarded come to think about themselves?"

Qualitative researchers often make a distinction between substantive theoretical questions and formal theoretical questions. The questions we just listed are substantive; that is, they are focused on the particular setting or subjects you are studying. To change a substantive question to a formal theoretical question, change the wording; in most cases this can be accomplished by simply omitting phrases or adjectives (Glaser & Strauss, 1967, p. 80). "How does this program continue when what goes on in it is so foreign to its official goals?" becomes "How do programs that engage in activities so foreign to their stated goals continue to operate?" "What is the nature of communication between parents and medical professionals on the unit?" becomes "What is the nature of communication between parents and professionals?" "What happened when media specialists attempted to get teachers to behave differently toward media?" becomes "What happens when outside specialists attempt to change teachers' behavior?"

In research where you observe in a variety of settings and in studies in which you are employing theoretical sampling, the substantive questions will naturally change to theoretical questions. If you do a great deal of analysis in the field and develop these questions and answers as you move from site to site, you are generating what has been called *formal grounded theory* (Glaser & Strauss, 1967). As we have suggested, this sophisticated analysis while in the field is difficult for the beginner to accomplish. Most beginners will carry out a study within one setting or cohort of subjects. We suggest that you keep your questions at a substantive level for the purposes of guiding your data collection, but speculate in observer's comments and memos about the relation between substantive theory and formal theory. In the formal analysis, after you have completed data collection, you can speculate

further. When writing up your findings you might, depending on your audience, attempt to link your substantive findings to formal theoretical issues, that is, reflect on what bearing your findings have on human behavior in general.

In addition to formulating questions, we find it useful to compose statements that capture the project's intent. The statements should be simple and limited to a sentence or two. Pretend an intelligent lay person who knows nothing of your interest or your field of study asks you, "What are you trying to find out in your research?" Examples of clarifying statements include: "I am trying to understand communication between staff and patients on a hospital ward." "I am trying to understand the changing ways young women think about their bodies as they progress from junior high school through college." You should work on being clear enough in your own mind to give a satisfactory answer that neither confuses nor bores the questioner. Work on such a statement; if you can come up with one, you are on your way to clarifying your own purposes—a key to analysis and interpretation.

4. *Plan data-collection sessions in light of what you find in previous observations.* Regularly review your fieldnotes and plan to pursue specific leads in your next data-collection session. Ask yourself, "What is it that I do not yet know?" To answer this question, you will have to think about what you know already and what shape your study is taking. Decide if you want to spend more time in one place than another, arrange to see a specific activity, or plan to interview a particular subject with specific questions in mind. For example, in the neonatal study, after it was decided that the focus would be on communication between staff and parents, the researchers went out of their way to be at meetings where staff were discussing children with their parents. In conversations with parents, questions regarding what they knew and how they got to know it were raised.

While we suggest that you plan observation sessions to build on previous ones, these plans may fall through. You may go out into the setting only to find that it is impossible to do what you had hoped. While there is no way you can control what your subjects do in the field, the plans can help you focus and strengthen your project regardless of your ability to implement them.

5. *Write many "observer's comments" about ideas you generate.* Fieldnotes are supposed to contain observer's comments. As we discussed in Chapter 4, observer's comments are sections of the fieldnotes in which the researcher records his or her own thoughts and feelings. On first projects researchers usually do not spend enough time speculating. Rather than allowing the recording of detailed description to dominate your activities to the exclusion of formulating hunches, record important insights that come to you during data collection before you lose them. Whenever you feel strongly about an event witnessed or a dialogue engaged in, note the images that come to mind. When something occurs that reminds you of incidents in other settings, record these mental connections (this is particularly important in moving from substantive theory to formal theory). When words, events, or circumstances recur, mention it in observer's comments and speculate about meanings. If you think you have a breakthrough in understanding something that was previously obscure to you, record and elaborate on it. If you notice that certain subjects have things in common, point it out in observer's comments. The idea is to stimulate critical thinking about what you see and to become more than a recording machine. Try to relate what you are observing to ideas and findings in the literature. Observer's comments can be a first

step to interpreting your findings. Figure 5.1 contains examples of observer's comments from the mainstreaming study that were helpful in analysis.

6. *Write memos to yourself about what you are learning.* After you have been in the field five or six times, force yourself to read over your data and write a one- or two-page summary of what you think is emerging. Develop links in that summary between observer's comments. Continue this practice of memo writing or summarizing regularly.

FIGURE 5.1 ***Examples of Observers Comments***

The following are some examples of observer's comments taken from a study of the inclusion of children with disabilities into public school classrooms. If your notes have such paragraphs in abundance, final analysis will be easier.

O. C.: The principal of Fairview Elementary School refers to having regular (non-special education) teachers coming into this class for autistic children to teach music as "mainstreaming." I have never heard anyone at the university refer to mainstreaming in this way. It is as if the teacher is being mainstreamed into the class.

O. C.: Ben Shotland often has negative things to say about the district's efforts to mainstream, yet he does so well in his class with the children labeled "handicapped." He is up for tenure and may be feeling that pressure. He seems to be anti-administration, and what he says about mainstreaming may be a manifestation of his general dissatisfaction with the teachers' position in the school or with the administration.

O. C.: I found it unusual that the teacher said that the child going down the hall in the wheelchair was not disabled. What she meant was that the child was not receiving any special services and had not had an IEP written up on her. According to the administration, the child isn't disabled, but according to anyone who would see the child, you would think of her as disabled. I'll have to pursue the different perceptions of disability. Some kids appear to have nothing wrong with them; yet they are listed on the rolls as having disabilities. I'll have to pursue this further.

O. C.: This is the third time I've heard from different sources that the scheduling of mainstreamed children is done so that certain teachers do not have children with disabilities in their classes. How does this come about? How are they thought of by other teachers? It seems as if the school is divided between pro-mainstreaming and anti-mainstreaming forces.

O. C.: Mrs. May has little good to say about the workshop she attended to prepare her for taking children with disabilities into her class. Her emphasis on "What should I do?" rather than what is the nature of the children's problems seems to be an orientation shared by Mr. Reese, Mrs. Jones, and Sally Bartlett. Lowell Sharp and Minguel seem much more interested in the causes of the problem. It's interesting that those who are concerned with the here and now have never mentioned job mobility. The others are all taking university courses and talk about changing their fields. I wonder if my perceptions are true and if they are, what it all means.

These memos can provide a time to reflect on issues raised in the setting and how they relate to larger theoretical, methodological, and substantive issues.

The memo shown in Figure 5.2 was written after six observations at a mainstreaming program for "neurologically impaired" and "learning disabled" adolescents located in an urban high school. The form and content of such a memo can vary a great deal and we include this one only to show you an example of the many possibilities. Memos often make sense only to the people who are intimately involved in the research, thus parts of this memo may not be clear or may not have the significance they do to the author. As we discussed in Chapter 4, memos also contain material on fieldwork technique and research strategies. We include such an example in Figure 5.3. Additionally, memo writing may help you work through discouragement in the midst of a project, chart your own developing sophistication, and document the researcher's reflexivity. Figure 5.4 reflects such a memo written during the course of a student's doctoral research.

As your research proceeds, your memos may become more conceptual. Some may be devoted to just one idea. Others may be more speculative "think pieces" linking your findings to other situations and data. You should not labor over these memos as you might when writing a formal paper. Use a free style, informal language, and let the ideas flow. You will have plenty of time to ponder over what you say when you get to the more formal analysis after you have completed data collection.

7. *Try out ideas and themes on subjects.* In Chapter 3 on fieldwork, we discussed key informants, subjects who are unusually perceptive and articulate. They can be used as resources in preliminary analysis. During preliminary observations in a study of inclusion, for example, you may notice teachers lining up for or against it. You might bring this up to a key informant by saying, "I've noticed that you can group teachers according to their pro and con stance on mainstreaming." See how the idea strikes the teacher. He or she may agree or disagree and explain why the way you are thinking is right or wrong. In the study of residents and interns on the infants' intensive care unit in a teaching hospital, we shared the scheme we developed to account for house staff's unofficial classification scheme of parents of the infants with selected informants. They pointed to "types" of parents we had not mentioned, as well as to the fact that we had been too categorical in making distinctions between parents and that a continuum better portrayed their thoughts about parents.

While you can use subjects for a resource, it is important not to defer to them completely. They have a stake in seeing things in a particular way that might interfere with their abilities to help clarify and analyze. One perceptive doctor in the teaching hospital study, for example, denied that making judgments about which infants were "nonviable" was problematic. He took the position that the specific nature of the criteria minimized individual judgment. Our fieldnotes were filled with references to the problematic nature of such decisions. His refusal to talk about this area did not mean that it was unimportant to explore; it just meant that he was not a good person to help us figure out that issue.

As we mentioned in the last chapter, it may be unwise to reveal how much you are learning to certain subjects because they may withdraw. Be selective in choosing helpers. While not everyone should be asked, and while not all you hear may be helpful, key informants, under the appropriate circumstances, can help advance your analysis, especially to fill in the holes of description.

FIGURE 5.2 ***Fieldnote Memo***

A number of themes, ideas, and areas for further investigation have emerged already. I will list them.

1. Students' use of the class and their label in negotiating a place in the school. Some kids at some times do not want to be associated with the program because they say they are ashamed to be in special education. Phil and Pam want the door closed when they are in the room, but they talk about negotiating with teachers whose classes they are taking in ways that indicate that being associated with the program lets them get certain advantages. It provides them with the opportunity to withdraw from certain activities. Phil's remark during the discussion about the military draft was that if they wanted to draft him he would tell them he was handicapped but he would not tell a girl he wanted to take out. That gets at some of the selective use of "disability." Alfred's discussion about how the kids in the program would be thought of as having an inferior brain but now they are thought of as having something particularly wrong with them is related to this. I'll have to look out for material on how kids use the labels and the class and when they choose to identify with them and when not.
2. Teachers' use of the concept of mainstreaming. When I first started this study I thought that regular class teachers would or would not want to be involved with disabled children on the basis of their feelings and experiences with "labeled" kids. While this seems to be true in some cases, a lot of the disposition to the program seems unrelated to the particulars about it or the population served. Some teachers feel that the administration is in general not supportive and they approach what they consider "additional" problems with the disposition that "I have enough." When I say "the administration," I mean the central office, those whom they see as determining the outcome of the contract bargaining. Others concentrate on the principal and feel that he works hard to make things work for them so if he wants them to get involved in a new effort, they will. This needs a lot of working out but it may be fruitful to pursue looking at what one's position is on mainstreaming and how it is talked about as being a manifestation of conflict and competing interests in the school. Also, this reminds me of how particular teachers think of the various special education classes. Marge was telling me that she likes kids with learning disabilities because they aren't troublemakers like those in the resource room who have emotional disturbances.
3. Categories of kids with disabilities. In a very short time I have gotten a lot of stuff on how the teacher perceives the various categories. I just mentioned Marge's comment but teachers who head up the programs have their own way of classifying the kids. Mr. O'Rourke, in describing "his kids," said that there were three kids that really didn't belong in the program. Two were there because parents had forced them in (one is "too smart" for the program—the other is "too slow") and the other was there because he knew the kid from last year and there was nothing else for him. Then there are kids who never come. There are twelve kids on the books. If three don't belong and three aren't regularly in attendance, that leaves six. Raises questions concerning counting who the program serves. Then there are kids who are referred to as "really having problems." Kids that are going to "make it." Kids that they are "worried about." Kids that "won't be here after the end of the year or after they turn sixteen." "Nice kid" and "off-the-wall" are also terms that I am hearing. I'll have to be more systematic in getting at this and how the regular class teachers classify the students as compared to the special education students. There is some indication that this may be different. Also how the psychologist classifies the kids compared to the teachers should be interesting to look at.
4. The relationship of the program to the structure and milieu of the school. I have already got a number of items in my notes referring to college and the academic press of the school.

FIGURE 5.2 Continued

Two people have described the school as consisting of two types of kids: very high achievers and very low achievers. I am told that the high achievers are the kids of professional families living in the area immediately around the school, while the low achievers are mainly the inner-city kids, many of whom are on welfare. This is an interesting perception. There must be a lot of students here who don't fit those two categories. I wonder how this perception of who the students are affects what teachers do, if it does affect them. Where do the kids in the L. D. program fit? I am also told and have observed that, while there isn't hostility between blacks and whites, friendship patterns are pretty much along racial lines. White kids eat together in the cafeteria. Black and white kids mix, it seems, when the blacks are of professional backgrounds and the whites are too. The children in the L. D. program are rich and poor, black and white. It is important to explore how racial and economic status patterns in the school at large are reflected in the program for kids with learning disabilities.

FIGURE 5.3 ***A Methodological Memo***

Memo

The Interviewer as Chameleon

Date: March 31, 1981

Teachers are so different from one another! Even though I hear so many common perspectives among them, I am always surprised, spending the amount of time that I do at Vista City, at how different these teachers are. Interviewing these teachers and establishing rapport with them means that the researcher really has to be like a chameleon during the interviews. On the one hand you don't want to pretend things that you don't feel, but on the other hand, in this quest to understand this other person's point of view, I find myself interacting and behaving differently in each interview. When I compare my interviews with Brigit and Bill yesterday, I almost see myself as two different people. With Brigit, I would ask her a question and she would give me a long answer. I would shake my head, say "uh-huh," and be very interested in her comments. The interview wasn't formal, but it was task-centered and straightforward.

My interview with Bill was much more casual. He swore when he talked and really observed no protocol at all. I found myself picking up his tone when he spoke. He continually said things like, "fuck this," and "fuck that." I sort of fit in with his mode, as I had with Brigit's mode, and said that something was "shitty." I don't think Bill had as much at stake in the interview as Brigit did, and that might account for some of the difference in his tone.

I take from this that the interviewer acts like a chameleon in an interview. I need to adapt (somewhat) to the different styles of the people that I'm interviewing in order to have a good interview. I think this strategy actually enables me to ask more challenging kinds of questions. If you adapt to their style, they can see you as a friend, and you can challenge some of the things they say. They seem to be willing to answer these challenges as one person to another, rather than as an insider to the outsider. Of course, you have to be careful with this too. If you try to be what you are not, people will see you as a phony. That's why it's more of a stretch than a contortion, I think.

FIGURE 5.4 ***Memo***

Interpretive Rules and the Education of First Year College Women

It seems like when women first come to college they have a series of interpretive rules. That is, they make interpretations on the basis of the rules they have witnessed life with, and acted on. When they get to college, they see so many others who interpret the world so differently, who have used different rules to interpret their world. So it seems like many of these women have to confront the usefulness of their rules. Do they do it? And if so, how do they do it?

Many of the white students think that their lives reflect the norm. The students of color in my focus group teach the white students that there is variation. And they do it directly. Does this kind of teaching only happen in this kind of group or in a class, or does it happen in their social lives, too? We need to explore this. Take alcohol. So many of the white students who came from small towns had expectations that on weekends and during other social times, kids drink for fun. Some examples:

> Also like a few of us, like I have a summer home on Lake Ontario so we would go there sometimes and hang out there. So a lot of, a lot of drinking in basements in houses when parents are gone. A lot of that. Otherwise just going to the mall but then it gets too late at night and there is nothing to do. So that is what people usually did.
>
> It's just like you drive down these really dark winding roads in the boonies and then you come out to like this beach and the sand and it's the ocean. Woods surround it so it is kinda a place for us to go and hang out or whatever and we would always make a bonfire. There were kegs, you know, every high school has their parties. It was just a fun place for us all to go to hang out without having to be at someone's house to find someone whose parents were going to be there. Do you know what I mean? That was all we had to do in Mumford. You either had to drive 45 minutes or we would just, we would all take our cars and tailgate and like play our music and hang out. Obviously there is always drinking in high school, whatever.
>
> Outside of that we had, I'm like 20 minutes from the Canadian border and an hour from Montreal so on weekends we did that a lot. In Canada, the drinking age was 18 and so a lot of us would go up there.

These views suggest that their experiences are normative. This idea that there was nothing much else to do for fun in these small towns but drink was strong. Even students who described themselves as "Christians," and who were active in "Christian affiliated" clubs like "Young Life" also drank. These students' economic comfort is apparent here. They have second homes, cars, and ways to get privacy.

The Latina students ascribed alternative meanings to alcohol. In the midst of a description of the pleasures of the city, Jack said, "The drinking I just want to tell you all because, like, one of the girls from the smaller towns spoke like, 'Wow, that was the thing to do.' (For us) it was like nothing. It was like ok. Like some people smoke or drink, or whatever. That was not a big thing, you know."

Unlike the small-town students, the big city students did not read alcohol as such a signifier of independence. Perhaps this alternative reading is related to the recent research showing that alcohol is more of a rural than urban problem. I'll have to check on this. But this different reading might also be cultural; Jenna's description of her friends' alcohol use at parties placed an adult there who supervised controlled drinking:

> On the weekends we looked forward to parties. Like if somebody, if it was somebody's birthday. We would have a birthday party or something. There *was* some drinking but there was always a parent there, which was kind of odd. Usually, but my school is mostly Spanish and African-American students and we always at the Spanish parties one of the parents would have a bottle of Bacardi or

FIGURE 5.4 Continued

> something. It was always somebody's birthday and everybody would drink just a little bit but nobody would get drunk and that is basically all we did for fun.

In order to drink, Jenna's friends did not have to wait for parents to go out of town, go across the border to Canada, or take night trips through the woods to the beach.

Jenna uses the word "odd" to indicate how this situation might appear to those not from this cultural milieu. Could Jenna and Jack have been posing as cool here? I'll have to look at more of the transcripts. But they were also articulating an alternative signification to drink. Their strategy for this talk took the form of connecting with the white students to articulate differences. "We hear what drinking meant to you," they said, "and we want you to know what it meant to us." Students of color took many opportunities to "teach" white students that their experiences were not normative. What do the white students do with this "education"?

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8. *Begin exploring the literature while you are in the field.* While there is some debate about when someone doing a qualitative study should begin a review of the literature (Glaser, 1978), we believe that after you have been in the field for a while, going through the substantive literature in the area you are studying will enhance analysis. What are some of the crucial issues in the literature? What past findings have a bearing on your setting? How does your perspective differ from what you read? How does it agree? What has been neglected in the literature? In addition to reading in the substantive area of your study, just reading widely can help in analysis. We have found that it is very helpful for researchers to read qualitative studies in unrelated fields, because it makes them familiar with how others have worked with their data and it can provide models for their own work. The danger in reading literature while you are conducting your study is that you may read and find concepts, ideas, or models that are so compelling they blind you to other ways of looking at your data. Try to avoid jamming your data into preformed conceptual schemes. The reading you do should provide you with stimulation rather than be a substitute for thinking. It is perfectly honorable to do research that illustrates others' analytical schemes, but try to distance yourself enough to formulate concepts of your own or to expand the work of others.

9. *Play with metaphors, analogies, and concepts.* Nearsightedness plagues most research. We get involved collecting data in a particular place and become so captured by the particulars, the details, that we cannot make connections to other settings or to the wide experiential array we carry with us. Ask the question, "What does this remind me of?" about different aspects of the setting.

In the study of integrating students with disabilities into public schools, we mentally compared what we were seeing to what we knew of attempts at racial integration to see similarities and differences. In a more adventurous frame of mind, we unburdened ourselves of a historical time frame. In a national study that involved observing people counting the number of children with disabilities in particular Head Start programs, we wondered how people in Salem in the 1600s might have gone about taking a census of the witch population. Our subjects resorted to empirical indicators, expert judgment, and self-nomination—perhaps not very different methods from those used in Salem. Seen from this

perspective, professionals can diagnose children even when symptoms are contrived. The diagnosis becomes reified and the symptoms fall by the wayside whether one is diagnosing witches or emotional disturbance. While this may sound far out, it enlarges the way you think about your research problems.

Another way to expand interpretive horizons is to raise concrete relations and happenings observed in a particular setting to a higher level of abstraction. We have already mentioned that changing the wording of a statement is one way of doing this. Another way is to make up short phrases to capture the spirit of the generalization you are developing. In observations we did of a training program for the hard-core unemployed, for example, we noticed that the trainees with the most skills, the most talent, and the most potential to obtain jobs received the most attention from the program staff. Playing with that relationship, we developed the phrase the "teacher's pet principle" to describe the phenomena where the least needy got the most services.

On a pediatric ward in a teaching hospital, we noticed that house staff not only diagnosed the children, but sized up the parents as well. On the basis of their judgments of parents, they decided what to tell them about the condition of their children and how they would involve them in the treatment. We developed the phrase "third-party diagnosis" to capture the idea that doctors judge others besides their patients. After you come up with such a phrase, you must stipulate under what circumstances and in what other settings it is likely to occur. This process helps you think more deeply about various aspects of your setting and how it compares with other settings. It is through this process that an idea becomes a concept.

10. *Use visual devices.* A technique of analysis that has received increased attention is the use of visual devices (Strauss, 1987; Miles & Huberman, 1994). Graphics and charts such as diagrams, continua, tables, matrices, and graphs can be employed in all stages of analysis from the planning to the finished product.

We have found it helpful early in a research project to draw visual representations of the possible components of a study for purposes of clarifying the choices to be made. These rough sketches are very informal—more like doodling than architectural blue prints. This is what we do in participant observation studies. We start by drawing circles to designate the various categories of people we have come across in our initial visits. For example, in a study of a residential juvenile detention facility there would be circles for the inmates, the residential staff, the professional staff, the outside consultants, the administrators, the state government officials, visitors (friends and family of the inmates), and the friends and families of the staff and on and on. We might even have circles for the lawyers involved in the negotiations about sentencing and other people in the judicial system. When we discover that particular categories represented by a circle really consist of people with different perspectives—the inmate circle is composed of first-timers and repeat offenders and they have very different points of view—we draw separate circles for each or draw circles within circles. We then put arrows from the various circles pointing to the other circles. These arrows represent perspectives—the perspective of the people represented by the circle the arrow is coming from on the people the arrow is pointing to. So the inmates circle has an arrow pointing to the professional staff representing the inmates' perspectives on them and the professional staff circle has an arrow pointing to the inmates.

(This is designated by an arrow with two heads.) We attempt to cluster the categories of subjects' circles, placing together those having the most contact. We also place other shapes in our drawing, representing objects or places or processes that are significant to the various categories of people, and we use arrows to indicate their perspectives on those objects, places, or processes. Thus, in the juvenile detention study, we might have a rectangle symbolizing the high school and another symbolizing work. We try to arrange the whole thing to provide a diagram of all the components and their relationships to each other. We then look at the diagram and ask: What categories of subjects are we most interested in? What about them engages our interest? If we are interested in their relationship with others, which others? What other places and objects are meaningful to the subjects and should they be included in our study or not? We cross out circles, arrows and other symbols that we are not interested in and underline those we are.

In studies where you are interested in what happens to a person, or a relationship, organization, or some other human group over time, drawing flow diagrams can be helpful in figuring out what you are doing. Some will find such diagramming a waste of time or something they automatically do in their own heads without the aid of a pencil. For others, it is a useful way of laying out dimensions of the study and thinking through priorities and design. Use such an approach if it works for you.

Visuals vary in sophistication from rough stick figures drawn on a piece of scrap paper to very carefully drawn professional models. Some visual devices are mere scribbles in fieldnotes that express relationships or arrange insights you are gleaning. Such primitive doodling often helps you to visualize complexities that are difficult to grasp with words. They can help summarize your thinking for presenting findings to others (colleagues, dissertation committee members). Some researchers never use such devices, while others employ them often, even including formalized models in their manuscripts.

More Tips

There are three general points to make before moving on to the next section, "Analysis after Data Collection." Like some of the ideas and procedures we already described, these points carry importance for both ongoing and final analyses.

The first point, alluded to earlier, deserves further attention. *Do not be afraid to speculate.* The lack of confidence one usually feels on the first research attempt often makes one too cautious about forming ideas. Worries about getting details and facts straight can hold a researcher down. We do not suggest that the facts and the details are not important, since ideas must be grounded in the data, but they are a means to clear thinking and to generating ideas, not the end. As C. Wright Mills reminds us, "Facts discipline reason; but reason is the advance guard in any field of learning" (Mills, 1959, p. 205). Barney Glaser, a central figure in the development of qualitative analysis, tells us that good ideas contribute the most to the science of human behavior. "Findings are soon forgotten, but not ideas" (Glaser, 1978, p. 8).

Newcomers to qualitative research often feel guilty when they speculate because they have been taught not to say anything until they are sure it is true. Speculation is, however, productive for this research approach. It helps you take the chances needed to develop

ideas. You do not have to prove ideas in order to state them; they must be plausible given what you have observed. Do not put off "thinking" because all of the evidence is not in. Think with what data you have.

The second suggestion we have concerns venting (Glaser, 1978). Ideas and understanding will come to you on a regular basis as you go about your research. You are likely to become excited by this creative process. It can be exhilarating. Mulling over ideas creates energy you may want to vent. There are two ways of doing this: talking about the ideas with friends and colleagues or writing memos, observer's comments, and, later, a text. We do not want to sound antisocial when we suggest that talking things over with others may hinder analysis. We do warn you, however, that talking about your analysis can reduce the energy needed to do the hard work of putting your thinking down on paper. Said once, an idea may no longer compel you to record it; it becomes "something everybody knows," in the public domain. Data analysis must include time when you are alone with your computer. Write it down and then talk about it.

Finally, we suggest that while you review your data during the collection phase of research you jot down lots of ideas. Start a separate file on wild and crazy ideas and other speculations or write additional comments into your notes while you are reviewing them. (If you do this, make sure you indicate on the comment that it was added later and give the date. This helps you track your thinking.) If you are reviewing hard copy, make lots of comments in the margins of your fieldnotes and transcripts. Circle key words and phrases that subjects use. Underline what appear to be particularly important sections. When working from hard copy it should look used—covered with lines and notations, bent edges, and coffee stains. We suggest using a pencil so that you can erase confusing notations later.

Analysis and Interpretation after Data Collection

You have just finished typing the fieldnotes from your final observation of the study and you proceed to file them. There, facing you, is all the material you have diligently collected. An empty feeling comes over you as you ask, "Now what do I do?"

Many experienced observers know what to do; they take a break. They let the material sit, take a vacation, or do things they have neglected because they were consumed by the data collection, and then come back to it fresh and rested. There is a lot to say for not tackling analysis immediately. You can distance yourself from the details of the fieldwork and get a chance to put relationships between you and your subjects in perspective. You will get a new enthusiasm for data that may have become boring. Also, you get a chance to read and mull over other ideas. However, taking too long a break has drawbacks. It can be a stalling tactic to put off the hard work ahead. It also can cause you to lose touch with the content of your notes. The most serious drawback is that the need to return to the field to collect additional data may arise and if the break has been too long returning can be a problem. Subjects are difficult to locate or have changed positions, or the setting is not the same as when you left it.

Discussions of how long breaks should be and the advantages of putting data aside are esoteric to those who have deadlines to meet, assignments for course requirements, dates on contracts, and appointments to share findings.

Developing Coding Categories

Imagine a large gymnasium in which thousands of toys are spread out on the floor. You are given the task of sorting them into piles according to a scheme that you are to develop. You walk around the gym looking at the toys, picking them up, and examining them. There are many ways to form piles. They could be sorted according to size, color, country of origin, date manufactured, manufacturer, material they are made from, the type of play they encourage, the age group they suit, or whether they represent living things or inanimate objects.

Such an activity approaches what a qualitative researcher does to develop a coding system to organize data, although the task is more difficult, the settings are more complex, the materials to be organized are not as easily separated into units, the setting is not void of people, nor are the classification systems as self-evident or clear-cut.

As you read through your data, certain words, phrases, patterns of behavior, subjects' ways of thinking, and events repeat and stand out. Developing a coding system involves several steps: You search through your data for regularities and patterns as well as for topics your data cover, and then you write down words and phrases to represent these topics and patterns. These words and phrases are coding categories. They are a means of sorting the descriptive data you have collected (the signs under which you would pile the toys) so that the material bearing on a given topic can be physically separated from other data. Some coding categories will come to you while you are collecting data. These should be jotted down for future use. Developing a list of **coding categories** after the data have been collected and you are ready to mechanically sort them is, as we shall discuss, a crucial step in data analysis.

When we discussed the toys in the gymnasium, we mentioned some schemes that might be used in sorting. The schemes included, for example, the manufacturers and the color. The signs (or the coding categories) for manufacturers would say Mattel, Fisher Price, Creative Playthings; the signs for colors would be pink, blue, red, yellow, and multicolored. If you were in the gym and you were told what the purpose of sorting the toys was—let us say, for example, that you were told they wanted piles so they could be sent back to the manufacturer—the task of developing codes would be considerably easier (by manufacturer). Developing coding systems in qualitative research faces similar parameters. Particular research questions and concerns generate certain categories. Certain theoretical approaches and academic disciplines suggest particular coding schemes. It is far beyond the scope of this book to lay out all the coding categories and theoretical approaches that might be used to develop coding systems. What we will do is provide a list of families of codes to suggest some ways coding can be accomplished.

We have made up the families or kinds of codes we will present for the purpose of this discussion. They do not represent universally defined coding conventions. The families overlap. Do not be concerned with which family the individual codes you develop fit under. Our purpose is to help you understand what codes are and some specific ideas for coding possibilities, not to present an exhaustive scheme from which you can mechanically borrow.

Under each coding family, we will define what we mean by the type, discuss what kinds of data can be sorted by it, discuss when this family of codes is most often used, and then provide an example of a unit of data that might be appropriately coded under categories representing the family.

With certain studies you, as a researcher, may have particular concerns and may draw upon one of the types mentioned almost to the exclusion of others. In other studies, categories are mixed. Remember that any unit of data (a sentence, paragraph, etc.) may be coded with more than one coding category from more than family. The coding families presented should provide you with some tools for developing coding categories that will be helpful in sorting out your data.

Setting/Context Codes. This term refers to codes under which the most general information on the setting, topic, or subjects can be sorted. Material that allows you to place your study in a larger context is found under such codes. In most studies one code is sufficient to cover this material. Under such codes much of the descriptive literature (pamphlets, brochures, yearbooks) produced about the setting, subject, or topic can be placed, as well as local newspaper articles and other such media coverage. In addition, general statements that people make describing the subject, the setting, and how the setting fits in the community can be coded here. Also, descriptive statistics and other quantitative data that describe the setting can be coded. Particular codes in this family might be labeled: "Descriptions of Elementary Schools"; "Midcity High School." The particular coding label would depend upon your subject.

Following is an example of data that can be coded under such a category. It is a statement made by a principal, describing his school to a researcher on the first day of the project:

> Johnson High has 850 students. Some 90 percent of them go to four-year colleges. The community we serve is mostly upper-middle-class professionals. They have had good educations and that's what they want for their own children. We spend more money per pupil than any other high school in this region. We have more merit scholars than any other. As far as football, well that's another story. We've been having a tough time fielding a team. Let me give you a list of our college placements. I'll also give you a brochure describing our philosophy, goals, and programs.

The material given to the researcher would also be coded under the setting/context code.

Definition of the Situation Codes. Under this type of code your aim is to place units of data that tell you how the subjects define the setting or particular topics. You are interested in their world view and how they see themselves in relation to the setting or your topic. What do they hope to accomplish? How do they define what they do? What is important to them? Do they have a particular orientation that affects how they define participation (religious, political, social class, feminist, right-to-life)? You may be looking at various participants: students, pupils, and administrators, as well as parents. You might have a coding category for each type of participant. There may be other distinctions between participants that could be the basis of coding categories. Some "Definition of the Situation" codes in a study of women's perceptions of their own elementary school experiences included "Feminist Awareness," "Image of Present Self," and "Influences on Interpreting Past" (Biklen, 1973).

An example of data that fit in this family is the following statement made be a teacher, which was coded under "teachers' views on their work":

> For me, teaching is my life. I don't separate the two. When I take a shower, I think, "What if I present the material this way, rather than the way I did it last summer?" Sometimes I spend

> twenty minutes in the shower without realizing it. My husband thinks I'm crazy but he's that way too. We're not big on parties or on vacations; work is really the substance of our lives.

Perspectives Held by Subjects. This family includes codes oriented toward ways of thinking all or some subjects share that are not as general as their overall definition of the situation but indicate orientations toward particular aspects of a setting. They include shared rules and norms as well as some general points of view. Often perspectives are captured in particular phrases subjects use. In the study of the intensive care unit of the teaching hospital, the following two phrases were often used. They capture shared understandings and become codes for sorting data. "You can never tell" (referred to not being able to predict what will happen to the patient). "Be honest but not cruel" (referred to understanding that you should inform parents but not in words that might upset them).

The following is a unit of data taken from the study that was coded under "You can never really tell."

> I was with Carol, an intern. She was working on "the Hopkins baby," trying to start an I.V. Joan, a nurse, came in and said to me, "If you want to see what this is all about, come out here." I followed her into the hall and there were three of the nurses standing by the nursing station, standing over a little girl who was toddling around. Next to her was a woman I supposed was her mother. She had on a nice print dress. The little girl was dressed in stretch pants and matching top. Joan said to me in a low voice, "She's doing fine. In for a check-up. She was no bigger than the Hopkins baby when she first came in. We didn't think she would make it. Look at her—see, you can never tell with these kids."

Subjects' Ways of Thinking about People and Objects. This family of codes gets at the subjects' understandings of each other, of outsiders, and of the objects that make up their world. Teachers, for example, have definitions about the nature of the students they teach. There are types of students in teachers' eyes. In a kindergarten study, a researcher found that teachers saw children as being either "immature" or "ready for school." In addition, children were categorized according to how they were dressed and the teacher's assessment of the child's home environment. "Teachers' view of students" was a coding category in that study. In our study of the intensive care unit for infants in a teaching hospital, we found that professional staff categorized babies according to an elaborate scheme, with certain classifications relevant for certain stages in an infant's passage through the unit. Some of the categories referred to were: "feeders and growers," "nonviable," "very sick babies," "good babies," "chronics," "nipplers," and "pit stops." In the same setting, parents were seen as being "good parents," "not-so-good parents," or "trouble-makers." "Patients as seen by professional staff" and "parents as seen by professional staff" were coding categories in that study. Not only are people subject to classification; in one study of school janitors, different types of trash were made note of and classified.

The following is an excerpt from a study of an urban high school that contains material coded under a "subject's ways of thinking about people and objects"; in this case, "teachers' definitions of each other":

> Jody began talking about the other teachers in the school. She said, "You know the teachers here are O.K. I can't think of one that I wouldn't want to talk to. Of course there are differences. You've got the type that complains all the time—they think the kids are going to hell if

> they're doing fine. The kids aren't lousy. They usually won't do anything to help a kid that's not with it—here there is a group like that. They hang around together—all men—really conservative. Then there are the pluggers. They don't get discouraged and are willing to give it the extra mile...."

Process Codes. *Process codes* are words and phrases that facilitate categorizing sequences of events, changes over time, or passages from one type or kind of status to another. In order to use a process code, the researcher must view a person, group, organization, or activity over time and perceive change occurring in a sequence of at least two parts. Typical process codes point to time periods, stages, phases, passages, steps, careers, and chronology. In addition, key points in a sequence (e.g., turning points, benchmarks, transitions) could be included in the family of process codes (see Roth, 1963).

Process coding schemes are commonly used in ordering life histories. The coding categories are the periods in the life of the subject that appear to separate important segments. A life history of a person that emphasizes her education might include coding categories like: (1) early life, (2) moving to New Jersey, (3) the first day of school, (4) Mrs. Nelson, (5) elementary school after Mrs. Nelson, (6) the first weeks of Jr. High, (7) becoming a teenager, and (8) beyond Jr. High School. Notice that the codes suggested here reflect how the subject orders the sequence of her life. The codes do not reflect uniform lengths of time or other researcher-imposed periods. In developing life-history coding systems, the subject's classification scheme usually dictates the codes.

Process coding schemes are also commonly used to organize data in organizational case studies. Here, the change in the organization over time is the focus of interest. Similarly, studies of planned social intervention can be coded by a chronological coding scheme. Chronological coding is the mainstay of history.

While in some studies process coding categories dominate, in others they are merely one of a number of approaches used. In the study of a classroom, for example, the following headings suggest coding categories that might be used in addition to codes from other families: "stages in the career of a teacher," "the school year," "the school week," "steps of acceptance into an adolescent peer group," and "the process of dropping out of school."

An example of a unit of data that might be coded under the process heading "stages in the career of a teacher" follows:

> I've been here for five years now. While I don't feel I'm an old-timer like Marge and Sue, I'm not naive either. When I see those teachers coming in, I say to myself, "You'll learn. I did!"

Activity Codes. Codes that are directed at regularly occurring kinds of behavior are what we call *activity codes.* These behaviors can be relatively informal and lead to codes such as a "student smoking," "joking," or "showing films," or regularly occurring behaviors that are a formal part of a setting, such as "morning exercises in school," "lunch," "attendance," "student visits to the principal's office," "class trips," and "special education case conference." Units of data that might be coded under such headings are fairly obvious. The following is one such unit taken from a study of a special education program in an elementary school. It concerns a meeting about the placement of a child in a class for children with emotional disturbances.

> Although the meeting was supposed to start at 11, no one was in the room when I arrived at 11:05. (O.C.: This is the third such meeting I have attended and the others started ten minutes late with half the participants present.) The first person to arrive was Dr. Brown.

Event Codes. These kinds of codes are directed at units of data that are related to specific activities that occur in the setting or in the lives of the subjects you are interviewing. Event codes point to particular happenings that occur infrequently or only once. For example, in a study one of the authors did, which involved interviewing women about their experiences in elementary school, the onset of menstruation was an event mentioned by all the women (Biklen, 1973). The event became a coding category. In the course of participant observation studies, events that become coding categories are those that call forth a good deal of attention and discussion by subjects. Events that occurred prior to your research may be frequent topics. In some participant observation studies the following events became coding categories: "the firing of a teacher," "a teacher strike," "the riot," and "a school pageant."

An example of a unit of data coded under the event code, "the riot," is cited next. It is taken from a conversation with a teacher.

> The day we had the trouble there were more police cars than you've ever seen. Most of the kids didn't know what had happened. Sergeant Brown wasn't messing around. Things had gone too far. The school still hasn't gotten over it.

Strategy Codes. Strategies refer to the tactics, methods, techniques, maneuvers, ploys, and other conscious ways people accomplish various things. Teachers, for example, employ strategies to control students' behaviors, to teach reading, to get through the year, to get out of hall duty, or to get the classes they want. Students employ them to pass tests, to meet friends, or to negotiate conflicting demands. Principals use them to get rid of teachers, to open new positions, or to reduce absenteeism. The following is a quotation that might be coded under the strategy code "techniques to control class":

> Mrs. Drake walked into the class. No one was in his or her seat. They were all standing about talking, some loudly. Jamie had his radio on. Mrs. Drake said, in a speaking tone of voice but one which indicated she was annoyed, "Let us begin." She waited a second; nothing happened. Then she leaned over to Jason and said something that I couldn't hear. He then said, in a loud singing voice, "Announcement! Announcement! I'm going to make an announcement!" Everyone stopped talking and looked at Jason. He said, "The class has commenced. Cool it." Everyone sat down. Leon said out loud, "Jason, my man, you should be drawing a salary." Mrs. Drake said, with a smile, "Haven't you heard?"

It is important not to impute motives to people's behavior or, if you do, to realize that you are. If you perceive behaviors as strategies and tactics, make sure to distinguish between your judgment and theirs.

Relationship and Social Structure Codes. Regular patterns of behavior among people not officially defined by the organizational chart are what we group under "relationships." Units of data that direct you to cliques, friendships, romances, coalitions, enemies, and mentors/students are what we mean by relationship codes. More formally defined relations,

what social scientists refer to as *social roles, role sets,* and *positions,* represent another part of this coding family. The total description of relations in a setting refers to "social structure." Coding in this domain leads to developing a description of social structure.

The following unit of data is related to relationships and might be coded under a relationship/social structure code like "student friendships":

> The class came in from home room. A group of four boys—Tim, Harry, Peter, and Brian—stood by the door, half sitting on desk tops, talking. They did the same thing yesterday. Mary and Sue came in together and sat next to each other as did Beth and Allison. (O.C.: The boys seem to hang out in groups. Girls, on the other hand, seem to pair off. I'll have to check this out. Some kids have nothing to do with each other, while others are together regularly...)

Narrative Codes. Narrative codes describe the structure of talk itself. When informants tell you their stories, they offer an account of their lives framed in a particular way. If it is in narrative form, what is the structure of the narrative? Where does the story start, what story does it tell, and where does it conclude? The structures informants choose to organize their stories may tell you something about their beliefs. Also, when informants structure their stories, where are the contradictions? Often, informants want to communicate two ideas at once, or they are conflicted over their talk, pulled in multiple directions, or they may not have the language to articulate a particular position.

Two examples of data show these issues. Both transcripts are part of a project to study college women's ideas about gender. The interview part of the study explored the perspectives of juniors and seniors who were in nine majors including bio-chemistry, the major of the informant in both of these sections. The transcripts illustrate a narrative form and a contradiction.

Excerpt 1:

Jennifer: Can you talk about growing up in DC?

Kiesha: Well, well, it's somewhat culturally diverse. But the area that I grew up in was predominately like black or whatever. But like, like as far as going to school and things like that, the schools that I attended, they were also predominately black. The area was kind of rough that I grew up in.

Jennifer: What do you mean by rough?

Kiesha: Um, like, just like a drug neighborhood. It's like in the housing projects or whatever. And when I go home on break, everyone's always so proud of me because, you know, I went off to school, and I didn't like, you know. . . I was always a determined person. I never had thoughts of just like staying home when I graduated [from high school] and not doing anything with myself. So, I knew what I wanted to do from like, the get go.

Jennifer: Where do you think that came from?

Kiesha: Well, my parents, they never, um my dad, he never even graduated from middle school, and my mom, she didn't finish high school because she had me. And it was just like, I saw both my parents struggling. And it was just like, I want it better for myself. And that's the only reason. I've always loved school. I wanted a career, you know? And I had a lot of really good teachers in high school that really pushed me, you know? They were there for me, like, you know, all the way.

Excerpt 2:

Jennifer: Okay. You said that you're one of the few minorities in your classes. What is that like?

Kiesha: Well, I'm used to it. I don't have a problem with it. But, I'm not going to go ahead and say that, but I think that a lot of my professors expect more of me and from me just because as a female and minority, we're underrepresented in my major.

Jennifer: Mmm-hmm.

Kiesha: So, it's like, I know my advisor wants me to do well. And the same thing with a lot of my professors that I have, you know, close contact with. Like, my organic lab class, I'm the only black person in that class, in the lab class. So I mean, it doesn't put a strain on me, like sometimes, sometimes, like a lot of people in my lab class, they look at me like, "She doesn't know what she's doing." But I'm always the first person out of class and I always do well, so! And it's like, this one girl that's my lab partner, well, we're supposed to be lab partners, but I don't really work with her, because she's always the last one to leave. And, I'm the first one to leave. You know?

Jennifer: Mmm-hmm.

Kiesha: And I usually get higher scores than her on my lab report. And she's like, "How did you get that?" Like, she questions it in a way like, "You're not supposed to get that." You know what I'm saying?

Jennifer: Yeah. So if I'm hearing you correctly, you're saying that you get more positive feedback from the professors than you do from your peers in class?

Kiesha: Mmm-hmm. And like, like, I was telling you about my physics lab class. I'm also the only black person in there. And I don't have a problem with that class as far as the people. One of the boys in my lab group comes over every weekend so I can help him with physics and lab. He's real cool. He doesn't look at it like, a lot of people don't look at it as, like, a black-white issue. I think they tend to notice you more just because there are so little of, there are so few of us in the class. But, it's not an issue really. I'm used to it.

There is much to analyze about how Kiesha tells her story, about the narrative form her story takes. Some questions we ask about these stories include:

1. How does Kiesha construct the narrative of her life? We noticed a familiarity in this story because we have heard it before. Against all expectations, Kiesha was able to live, so far, a version of the American dream, pulling herself up by her bootstraps, out of the projects and into a lucrative professional field, with some help from good teachers. Kiesha believes in the importance of individual effort even as she is aware of racism in the society.
2. Where do you notice contradictions in Kiesha's talk? Contradictions are usually a fertile field for analysis because they suggest some struggle. In Kiesha's talk about her experiences as the only African American student in some of her science classes, she both describes what it is like to stick out, and insists that this is not really an issue. What does Kiesha confront here?

Methods Codes. This coding family isolates material pertinent to research procedures, problems, joys, dilemmas, and the like. For most studies one code, "methods," will suffice. Some researchers, however, turn their research into a study of methodology, focusing, that

is, on how to conduct research rather than on a substantive or theoretical topic in the setting (Johnson, 1975). In that case, all coding categories relate to methods. The various chapter headings and sections of this book could be codes in such a study. In fact, this book is a product of our own research experiences, and in preparing it, we have read over data that we and our students have collected. So, in one way, the divisions in this book are a coding system with which we have organized our data. As we suggested earlier, in any given study, more than one coding family is used. People who do methodological studies may use "process codes" to organize their data; the sequence of research activities are the codes (design, choosing a site, establishing rapport, analysis).

Usually observer's comments form the bulk of the units of data that are coded under "methods." The following is an example of an observer's comment from a study of a preschool program that might be coded with this label:

> (O.C.: I feel so odd in this setting with all these three- and four- year-olds. I have no formal responsibilities, which makes me feel awkward. Yesterday, when we went on a trip to the museum, I tried to be like one of the children. I lined up, etc. This didn't work. I felt particularly uncomfortable when my little partner in line refused to hold my hand when I offered it. All the other partners were holding hands.)

Preassigned Coding Systems

As we discuss in Chapter 2 on design and evaluation research, researchers are sometimes employed by others to explore particular problems or aspects of a setting or a subject. In that case, the coding categories may be more or less assigned. In a study we conducted of including youngsters with disabilities, we developed a list of topics (Figure 5.5) about which those doing the research were expected to collect data. These later became the coding categories. Many evaluation research coding schemes are affected by and (at times) are a direct reflection of the agreement between the researcher's sponsors and the people conducting the research. Then the codes derive from the agreement.

Influences on Coding and Analysis

We have suggested categories for coding to give you ideas of what to look for when you code. These suggestions only offer hints for where to look. They do not, however, imply that analysis and interpretation rises only from the data and not from the perspectives the researcher holds. Social values and ways of making sense of the world can influence which processes, activities, events, and perspectives researchers consider important enough to code.

Different theoretical perspectives that researchers hold shape how they approach, consider, and make sense out of the data. Feminism, for example, considered as a loose set of social values, has changed how we consider gender as a category of analysis. Smith (1987) has argued that feminism has not only affected scruples and sensitivity in interviewing, as we suggested in Chapter 4, but more importantly, it has affected analysis and interpretation, that is, what sense researchers make of the data.

Also, when we do interpretation we are usually part of a dialogue about the topic we consider. Therefore, we may analyze and code against another way of considering our topic to which we object. One of the authors did a study of the perspectives of female elementary

FIGURE 5.5 ***Observation Guide for Inclusion Case Studies***

The following are general areas in which you should collect data with some specific topics listed under each general area. We are interested in information in the area only if (and in ways that) it relates to mainstreaming and children with disabilities. For example, if the school has a reputation for being innovative in general, we are interested because it might tell us about the disposition of staff toward change.

Description of the School (To Provide a Few Pages, Context Statement)

- Physical
- Historical
- Student population
- Neighborhood
- Teachers
- Special distinctions
- Reputation
- Well-known graduates or people affiliated with school
- Location

The Class or Program

- Location in school
- Its history—how and when it got started with children with disabilities (e.g., placement procedure, how child is assigned, teacher involvement, parent choice)
- Physical description of class use of space (e.g., learning centers, separate cubicles, etc.) adaptation of class space and equipment for handicapped child, things on walls, seating arrangements/location of teacher's desk, condition)
- Organization—including authority (decision making), dispersion of resource people, etc.
- Grade
- Inservice program and opportunities

The Teacher and/or Other Personnel

- Style
- Physical description
- History as teacher
- Perspective on what he or she is doing, especially how he or she tries to integrate children with disabilities
- Perspective on including, children with disabilities, the administration, parents, etc. What affects successful inclusion?
- How he or she came to see things as he or she does
- Typical day
- Relationship to typical children and children with disabilities
- Additional personnel in classroom (aides, student teachers)
- Resource personnel relating to classroom (their role, perspective)
- Use of "special" teachers—art, music, gym—how they relate, perspective, importance to inclusive program
- Relation to other regular teacher peers (how viewed, team, support)
- Whom teacher perceives as supportive

(continued)

FIGURE 5.5 Continued

Children Defined as Disabled

- How what they do is the same or different from what typical kids do
- Peer relations—what are they (sociometrics); how teachers affect
- Typical day
- Physical description
- Clinical description (severity of disability, independence)
- School and family history
- How they are treated and thought about by others in the class
- Physical location—where seated, etc., in relation to teacher, other kids
- Words others use to describe them
- How teacher defines child's progress (same/different from others), balance of social vs. academic goals
- IEP (see Curriculum)
- Amount and nature of contact with teacher (compare with typical)

Typical Children

- Physical description
- Academic description
- Dress
- Background
- How they get along with each other and the teacher

Curriculum

- Content (materials used, any adaptive equipment, individualized?)
- Process (whole group, small groups, individualized, one-to-one, integrated, or disabled served separately)
- Amount of time spent with disabled vs. typical
- IEP (is there one, who wrote it, is it implemented, is it appropriate)

Parents

- Nature and amount of teacher contact with parents
- Parents asked about placement of child in mainstreamed program?
- Parent input into classroom and child's program
- Parent participation in IEP of disabled child
- Parent perspective on inclusion and success of program

Principal and Other Supportive and Administrative Personnel

- Their part in and relationship to the program (including initiation, placement of child, parent contact, etc.)
- Their definition of the class and the program including if and why it is a success
- Description of things done or not done in support of the class or program (including materials, personnel resources, positive public relations, development of inservice opportunities)

This figure was compiled by Robert Bogdan and Ellen Barnes. Funds for this research were provided through a grant from the National Institute of Education.

school teachers on their work. Her analysis was conducted against the backdrop of a sociological literature that dismissed the work women did as teachers because, measured against men, women did not appear to show commitment to their work (Biklen, 1995). So analysis is shaped both by the researcher's perspectives and theoretical positions and by the dialogue about the subject that one cannot help but enter.

The place of theory in the qualitative study is often difficult for novice researchers to locate. Some people do qualitative research guided by particular theories about, say, power or gender or conflict. These theories are influential before the data are collected, and researchers working in this mode frame their project in the light of these views. Other people doing qualitative research, are situated within particular paradigms, but do not name them, sometimes because they are not aware of them. Bosk's (1979) study of surgeons is situated within functionalist sociology, although this is never discussed or mentioned in the book. Still others do qualitative projects, not clear at the beginning about what larger understandings either shape how they do their work or are significant for their data. They turn to particular theories that emerged during data collection. One reason that it is difficult for students to learn from reading published studies when an author's theoretical views "kicked in" is because we are encouraged to write in a way that makes it seem as if the data and the theory are wedded in a seamless relationship. In what follows we look at two examples of how different projects connected with theory in their analysis.

Example 1: Lesley Bogad was interested in media literacy. She calls herself a feminist, and wanted to study media literacy among adolescent girls. Her theoretical connections to feminism affected her early in the research in several ways. First, she was interested in questions of gender. Second, she felt that media had a significant influence on how girls construct gender. As she interviewed her informants, she saw that her assumptions about media literacy had been wrong. She had been defining media literacy too narrowly to reflect actual talk about different media forms. She found that media literacy involved more than talk about media themselves. She found that any definition of media literacy had to also include "literacies" about ideology, power, and social differentiation. These findings led her to believe that cultural studies, which emphasized these features, would best frame her research.

Example 2: Eckert (1989) was trained as a linguist and taught anthropology when she did her study of how adolescents take on particular social identities. She believed, before she began her study, that socioeconomic class was central to the process of identity formation, and that particular institutions reproduced people's class positions: "Schooling around the world is designed to perpetuate cultural and social systems through the preparation of young people for roles in those systems" (Eckert, 1989, p. 7). What she did not know was how class worked in social identity formation among high school students. Her research led her to argue that when students were in the working class, their family and neighborhood arrangements and participation led them to form groups with people of mixed ages, and segregated them from adults. She described the process by which an overwhelming number of working class youth become labeled as "burnouts." Middle-class students, on the other hand, tended to form same-age groups, also because of family arrangements, and were accustomed to having cooperative relationships with adults. These students tended to be labeled "jocks," and they were seen as the good kids. Each of these categories of students used the space of the school differently, and related to other students and adults differently. These two categories became very influential even when students did not fit either one specifically.

Each of these two projects engages theory at different moments in their projects. More accurately, each encounters theory in more and less complex ways at different times over the course of the project. At the same time, however, both researchers are surprised by their findings and learn from their informants about how they make sense of their worlds. Being theoretically engaged does not mean that gathering data is simply a process of filling in the blanks. Theory helps us to work through the contradictions we learn about. And contradictions take us deeper into the important parts of our data and expand theory.

The Mechanics of Working with Data

How do you physically handle your data after you have collected it? Remember, by "data" we mean the pages and files of descriptive materials collected in the process of doing fieldwork (interview transcripts, fieldnotes, newspaper articles, official data, subjects' written memoranda, etc.). Your own memos, think pieces, observer's comments, diagrams, and the insights you have gained and recorded should be handled in the same manner. By the mechanical handling of data, we mean the actual methods of physically sorting the material into piles, folders, or computer files in order to facilitate access to your notes. You organize them so as to be able to read and retrieve data as you figure out what there is to learn and what you will write. Techniques of mechanically working with data are invaluable because they give direction to your post-fieldwork efforts, thus making manageable a potentially confusing time. Having a scheme is crucial; the particular scheme you choose is not.

There are many different computer programs available for analyzing qualitative data and better software is being designed as we write. (See for example, HyperResearch, Nudist, Ethnograph, HylperQual, and Qualpro. For comprehensive reviews of specific programs and more details about their use see Richards & Richards, 1994; Tesch, 1990; and Weitzmann & Miles, 1994). Some researchers working on small individual projects still prefer to do analysis without using one of the specially designed computer programs. We will describe the basic approach to mechanically sort the material. What we say should be applicable no matter whether you use a computer for analysis or not, and should be easily adapted for the particular computer program you use if you decide to go that way. There are many variations on this approach and exactly how you proceed depends on how detailed your analysis is, your personal preference, resources available to you (secretarial help, money, computer, time), the amount of data you have, as well as your goals.

We should mention that some researchers do little in the way of mechanically working with their data. They *eyeball* it, which means they look over the data and write from it from memory. This technique can be effective if there is a small amount of data and if you have limited goals, or if you are a genius, but even then we do not recommend this approach to you. It is difficult, if not impossible, to think deeply about your data unless you have the data sorted and in front of you.

We assume you have followed the suggestions in our discussion of fieldnotes, so your notes and transcripts have wide margins and the text is broken into many paragraphs.

The first step involves a relatively simple house-cleaning task: going through all the files and getting them in order. Most people like their files arranged chronologically. Similarly, the pages are usually numbered in chronological order according to when the data

were collected, but if you have different types of data (from interviews, fieldnotes, official documents), you may want to order them in such a way as to keep similar kinds of material together. It does not make much difference. Your purpose is to facilitate locating data you may want. The important thing is to have a filing scheme that is not confusing. It is a good idea to make a clean copy of all your data before you analyze it to save. If you change the order of the data or otherwise alter it, you can always refer back to the stored original. In addition, the stored original can serve as a backup. Store it in a safe place.

After the data are ordered, take long, undisturbed periods and carefully read your data at least twice. We recommend undisturbed time because if your concentration is continually broken by other tasks, you are not as likely to get a sense of the totality of your data. Pay particular attention to observer comments and memos. While you are reading you should begin developing a preliminary list of possible coding categories. Keep a pad of paper beside you or a separate file you can access easily and as possible codes come to you jot them down. You should also write down notes to yourself which might include lists of ideas and diagrams that sketch out relationships you notice (Miles & Huberman, 1994).

In developing codes, look out for words and phrases subjects use that are unfamiliar to you or are used in ways to which you are unaccustomed. This special vocabulary may signify aspects of the setting important to explore. If the phrases will not make coding categories in themselves, take specific words and try to fit them together under some generic code. (For a good discussion of one way to do this, see Spradley, 1980.)

After generating preliminary coding categories, try to assign them (as abbreviations) to the units of data. Modify them and then read through your data once again, trying to assign the coding category abbreviations to units of data as you do so. If you are using a computer program specifically designed for qualitative analysis study the manual to learn how to assign codes to data. By "units of data" we mean pieces of your fieldnotes, transcripts, or documents that fall under the particular topic represented by the coding category. Units of data are usually paragraphs in the fieldnotes and interview transcripts, but sometimes they can be sentences or a sequence of paragraphs. Your first attempt to assign the coding categories to the data is really a test to discover the usefulness of the categories you have created. The coding categories can be modified, new categories can be developed, and old ones discarded during this test. It is important to realize that you are not attempting to come up with the right coding system, or even the best. What is right or best differs according to your aims. You might look at the data again after you complete more research projects and code them differently.

Try to develop a coding system with a limited number of codes, say thirty to fifty. The codes should encompass topics for which you have most substantiation as well as topics you want to explore. Play with different coding possibilities. After you have drawn up a new list, test them again. Speculate about what the new scheme suggests for writing possibilities. You might even try to outline a paper with the coding categories as topics or sections and see if they work for you.

You may experience indecision at this point. The data you have might be thin around your interests. Reformulate in light of what you have. You may come up with a list of codes that is extremely long. Try to cut that down. If you have over fifty major categories, they probably overlap. While it is difficult to throw away data or categories, analysis is a

process of data reduction. Decisions to limit codes are imperative. And at some point—preferably about now in the analytic process—your codes should become fixed.

Codes categorize information at different levels. Major codes are more general and sweeping, incorporating a wide range of activities, attitudes, and behaviors. Subcodes break these major codes into smaller categories. In a study of career women's experiences of work and family life when they had children after thirty, the major code, "child care," also included five subcodes: history of, finances, negotiation of, preferences, and responsibility for. A study of the culture of gender and teaching included a major code of "collegial relations." The subcodes for this category, support, conflict, and transition—further classified teachers' relationships with each other. To develop subcodes, first settle on the major codes and then read through the material included within each code. If the code consists of data that would break down further for convenient handling, develop subcodes to take your analysis further (see Strauss & Corbin, 1990).

After you have developed your coding categories, make a list and assign each one an abbreviation or a number. Some people put the list in alphabetical order-related categories before abbreviating or numbering. This can be helpful because it facilitates memorizing the coding system. (See Figure 5.6, the coding system used in a study of a training program

FIGURE 5.6 ***Codes Used in a Study of a "Hard-Core Unemployed" Training Program***

1. Trainees' attendance
2. The training center (physical aspects, reputation, other programs)
3. Companies participating in the program
4. Staff definition of their involvement
5. Trainees as seen by the staff
6. Trainees as seen by company personnel managers
7. Jobs as seen by trainees
8. Trainees' perspectives on training, work
9. Trainees' views of staff
10. Trainees' views of other trainees and of self
11. Recruitment of trainees (how and why they are in the program)
12. Trainees' backgrounds
13. "Holdovers"
14. Trip to factories
15. The program's success (measuring success, how success is seen by various people)
16. Method (getting in, etc.)
17. "Hard core"
18. Joking
19. Follow-up
20. Relationships between trainees
21. "Lying"
22. "Dropouts"
23. Counseling
24. Referral meetings
25. Boredom
26. "Killing time"
27. Poverty programs
28. "On-the-job training"
29. History of the program
30. Trainees' troubles
31. Hustling
32. "The cost of working"
33. Children
34. Neighborhood living conditions
35. Big business involvement
36. "Counseling "
37. State employment service
38. Time (trainees definition of)
39. Rapping
40. Money
41. The director
42. The stolen television
43. The Chamber of Commerce
44. Training activities

for the hard-core unemployed.) Now go through all the data and mark each unit (paragraph, sentence, etc.) with the appropriate coding category. This involves scrutinizing sentences carefully and judging what codes the material pertains to. It involves making decisions concerning when one unit of data ends and another begins. Often units of data will overlap and particular units of data will fit in more than one category. Thus many, if not most, units of data will have more than one coding abbreviation or number next to them. When you assign abbreviations or numbers, be sure to indicate exactly what sentences are encompassed by the code. We have included an example of coded hard copy fieldnotes (Figure 5.7) that indicates one method of doing this.

When researchers work with hard copy they usually mark the original copy of notes with the coding categories, reproduce it on a copier, and then put the original away to serve as the unadulterated master copy.

When you use one of the qualitative data analysis programs, with the help of the program, you designate the boundaries or units of data and attach code symbols (abbreviations or numbers) to them. After you have placed the code symbols in their appropriate places in your text files, the computer will extract every word segment to which the same code was assigned. So, for example, if one of the codes in a study of a third-grade class is, "student friendship," every piece of data you have assigned that code will be extracted from the data with a command. You can review the extracted data on the screen or have them printed. When the data are extracted, the program will automatically indicate on each segment where it came from (the page and line in the text file). You can make a new file containing all the data coded a particular way and then work within that file doing sub-coding and other finer analysis.

Units of data can be assigned multiple codes, and coding segments can overlap each other. Segments of text can be simultaneously sorted into several different categories. Programs also count how many times each code occurred in the data files. These software programs eliminate the need for multiple paper copies or piles of special cards and folders filled with cut-up notes. If you prefer working on hard copy you can have all or any part of your data printed at any time. Data are easily re-coded so you can develop coding systems during analysis and change them as you proceed. New codes are easily added. Professors who teach qualitative research should be able to help you locate and choose a program. It is common for university computer centers to have this information; some even have qualitative analysis software packages available on networks.

In large projects, computers help researchers have easier access to their data. Computer software for qualitative data analysis enables the researcher to code easily the same segment of data in multiple ways, to compare data that have been coded differently but might be related to a similar theme or analytical frame, and to use different approaches for the same data. The box on page 177 gives some Websites for qualitative software, so you can compare the possibilities. These programs also show the frequency of codes. The box starting on page 179 extracts a sample of the codes that were used in the study, *Vocabularies of Gender.* Using Filemaker Pro, the researchers developed a template to code the interview and focus group transcripts from this two-year, team-researched project. Focus group transcripts and interview data were typed in Word format (though it could have been Wordperfect), coded by hand (since it was a team project, all transcripts had to be coded by two team members), and then entered through a simple block-and-copy process). The researcher then

FIGURE 5.7 ***Hand-Coded Fieldnotes***

Fieldnotes

Vista City Elementary School Teachers'

Lounge

Date: February 3, 1981

teachers' work

Then I went down to the teachers' lounge to see if anybody might happen to be there. I was in luck. Jill Martin sat at the first table, correcting papers; Kathy Thomas was also there walking around and smoking. I said, "Hi Jill, hi Kathy. Okay if I join you?" "Sure," Jill said. "You and your husband have been to China, right?" I said, "Yes Why?" Jill then turned to Kathy and said, "Have you studied China yet? Sari has slides that she can show." Kathy said to me that she was going to study world communities, even though "they" had taken them out of the sixth-grade social studies curriculum "Now can you tell me who 'they' are?" I asked her. She said, "You know, 'them':'they'."

authority

autonomy

Both Jill and Kathy were upset at how they had mandated what the teachers could teach in their rooms. "They" turned out to be the central office who had communicated the state's revised sixth-grade social studies curriculum. The state has "taken out all the things that we think are important" from the curriculum and has substituted the theme of "economic geography" for the sixth-graders to study.

doing your own thing

Both Jill and Kathy think that "sixth-graders can't comprehend economic geography well," and think world communities of Africa and Asia are more important. They said they planned to teach what they wanted to anyway. Kathy said, "They'll come around one of these days." "Oh, Kathy, are you a rebel?" I asked. "No," she replied, "I'm just doing my own thing."

parents

After we chatted for a little while, Jill turned to me: "You're interested in what concerns us. I guess one thing is parents." She proceeded to describe a parent conference she had participated in yesterday afternoon with a child's parents and a child's psychiatrist. She said, "What really upsets me is how much responsibility they placed on me to change the child's behavior." They seemed to give lip service, she reported, to have "controls" come from the child when they said, "It's so difficult for parents to see that kids need to take responsibility for their actions."

parents

marked the boxes next to the codes for each coding category. In Find Mode, the researcher then checks the boxes next to the codes he or she wants to see, and the data are produced in the space. For example, when checking both "professors" and "gender," there were 12 examples of data that were coded for both a gender issue where the topic related to professors. We also noticed that when we asked students what it was like to be a female on the campus, or when they noticed gender, they responded by counting the numbers of men or women in their department. We developed the code, "enumeration," to refer to this process. When we mark an X next to the enumeration code, we retrieve 41 instances of responses coded in this

way in relation to questions about gender. The box starting on page 183 shows 3 examples of data coded as enumeration.

Websites for Qualitative Data Analysis Software

http://www.jiscmail.ac.uk/lists/qual-software.html;_qual-software
This Website sends you to the CAQDAS Project, the Computer Assisted Qualitative Data Analysis Software Project. It is an e-mail discussion group for those interested in talking about qualitative data analysis software for computers. If you need advice, or want to make suggestions, this is a site to do it. You can learn about a variety of software and listen to or participate in discussions about their benefits or weaknesses at this site.

http://www.qsrinternational.com
http://www.qsr.com.au
These two websites take you to the QSR group that designed and developed different versions of NUDIST (including the two current versions, N4 Classic and N5), and NVIVO. These qualitative software packages all help with computer assisted analysis, but go at it in different ways. The major difference between the two NUDIST packages and NVIVO seems to be the form and structure of the process. NUDIST organizes data analysis around the coding that is structured around "trees" and "nodes." NVIVO is a more flexible coding system that is not quite as structured. Both allow the researcher to do qualitative "hypothesis testing." You may download demo models of these programs to see which you like. They are also available on a CD.

http://www.qualisresearch.com/ethnograph_software
Ethnograph was one of the original qualitative software programs. It refers to itself as "text based qualitative data analysis software." Like other programs now available, *Ethnograph* provides a way for researchers to import their data from their word processing programs, and do coding onscreen. You may code fieldnotes, interview transcripts, or documents. Unlike some other programs, it only works with data, not photographs.

http://www.ualberta.ca/~jrnorris/qda.html
This Website offers a list of software options for different qualitative data analysis programs. You can scroll down the list and double-click the possibilities. You will be taken either to the Website for each of the products, or to a discussion of each of them. The products include data analysis software, software for dictating fieldnotes, and qualitative content analysis software.

http://www.researchware.com/
The Website for hyperRESEARCH, another qualitative software package, describes the product, and offers links to a demo download site, and to an online help station. HyperRESEARCH 2.0 is another package that lets the researcher code data, examine the data in a coding category, and explore how different coding categories look together. unlike Ethnograph, HyperRESEARCH is not usable only with text-based data. You can also work with photographs and videos. This is another of the early qualitative software programs that still exist.

http://www.atlasti.de.atlasneu.html
Atlas.ti is another competitive qualitative software package that describes itself as useful for a variety of approaches to qualitative analysis including a hermeneutic or interpretive approach. It may be used with texts, photographs, audio, and video data. It uses the vocabulary of "creative," "unstructured," and "systemic" to describe its approach.

(continued)

Continued

http://www.scolari.co.uk
Scolari is the part of SAGE publishing that handles all of their software publishing. SAGE seems to distribute most of the qualitative software programs, so the Scolari Website is a good one to see prices, products, and the different programs that are available from them.

http://www.socresonline.org.uk/3/3/4.html
The online journal, *Sociological Research Online*, published an article in 1998, Linda Barry, in "Choosing Qualitative Data Analysis Software: Atlas.ti and Nudist Compared," reviews the CAQDAS (Computer Assisted Qualitative Data Analysis Software) literature and offers a framework to help novice qualitative software users decide between these two tools. Barry compares the tools for doing simple and complex projects. You might find the bibliography especially helpful.

We have outlined only the basic functions that computers can perform. There are more elaborate programs researchers use to examine the relationships between codes and develop more analytic abstractions as well as to formulate propositions and assertions. Some track the chain of reasoning of the researcher. Some claim to build and test theory. Some of this high tech software is controversial, with critics claiming that the programs are more sophisticated than the data and therefore subject to misuse and the creation of data analysis illusions. Novices beware! Explore these when you are more experienced and less likely to be taken in by their elegance.

Those who do not use computer software to help with analysis use a variation of the cut-up-and-put-in-folders approach. It was the way all data were handled before the age of good computer software. It is very similar to what the computer does but you have to do it all by hand and it is considerably slower and much more prone to error. It involves taking scissors and cutting up the notes so that the units of data can be placed in manila folders that have each been labeled with one code. In using this approach you would go through all the coded notes and place a code next to each coded unit of data that corresponds to the number of the page it is on so as to have a record of where it came from. Because some of the data units would be coded for more than one category, multiple copies of the notes were needed.

The technical advantages of using the computer are obvious when comparing what the computer can do with all the busywork that needs to be done using the cut-and-put-in-the-folder method. While this is true there are still mixed opinions on whether novice qualitative researchers should use the specially designed computer software programs. Some who have tried swear by them; others swear at them. The arguments about their use center around whether the time you spend learning how to do it is equal to the time you save. (There are other arguments; see Pfaffenberger, 1988; and Clark, 1987). If you are familiar with computers, are adept at learning how to use new programs, and the proper software is available, use a program to help you sort and retrieve on your first project. If your first project is major, for example a dissertation in which you expect to have hundreds of pages of notes and transcripts, use a program for the various mechanical aspects of data analysis.