



PRACTICAL ADVICE

## Study Design in Qualitative Research—1: Developing Questions and Assessing Resource Needs

RICHARD M. FRANKEL PhD<sup>1</sup> & KELLY J. DEVERS, PhD<sup>2</sup>

*<sup>1</sup>Professor of Medicine and Community Medicine, Director, Primary Care Institute, University of Rochester School of Medicine and Dentistry, Rochester, NY 14620, USA; and <sup>2</sup>Research Fellow, Center for Organization and Delivery Studies, Agency for Healthcare Research and Quality, Rockville, MD, USA*

**ABSTRACT** *This is the second in a series of four papers on understanding and doing qualitative research [Frankel & Devers (2000) *Qualitative research: a consumer's guide*, Education for Health, 13, 113–123; Devers & Frankel (2000) *Study design in qualitative research—2: sampling and data collection strategies*, Education for Health, 13, 263–271]. Here, we focus on problems of study design, including question development, literature review, identifying a target audience and resource needs assessment. We provide a step-by-step description of major issues and choice points in the process.*

*There are three key differences between qualitative and quantitative research designs. First, the logic of qualitative research is often inductive, rather than deductive, and consists of describing people's and groups' particular situations, meanings and experiences. Second, qualitative research designs are often emergent and flexible, and the research itself is quite dynamic. Third, the qualitative research process is non-linear and non-sequential.*

*There is agreement that good qualitative studies answer clearly stated, important research questions. How qualitative research questions are formulated has implications for conducting a literature review. Some scholars believe that literature should be reviewed prior to beginning a study; others argue that this may impede the researcher from truly listening, observing and remaining open to new concepts and ideas. We offer suggestions about formulating research questions and how and when to conduct a literature review.*

*Another important issue in conducting qualitative research is determining the resources that will be needed to conduct a study. These include internal resources, such*

Author for correspondence: Richard M. Frankel, PhD, Department of Internal Medicine, Highland Hospital, 1000 South Avenue, Rochester, NY 14620, USA. Tel: (716) 341-6771. Fax: (716) 341-8305. E-mail: Richard\_Frankel@URMC.Rochester.EDU

*as research skills, and external resources, such as personnel (expertise and time), equipment, supplies and travel. A description of typical resource and management issues in conducting a qualitative research study is included.*

## **Introduction**

In our previous paper, "Qualitative research: a consumer's guide," we described four domains of qualitative research, illustrated their relevance to problems in education for health, and offered some criteria for evaluating studies using these approaches (Frankel & Devers, 2000). Here, we focus on how to design and conduct a qualitative study. We begin by describing key differences between quantitative and qualitative research study designs to illustrate their similarities and significant differences. We then move to a detailed discussion of qualitative research study design issues, including developing a research question and resource needs assessment. In a companion paper in this issue (Devers & Frankel, 2000) we discuss challenges that qualitative researchers typically face in sampling, identifying and negotiating access to sites and subjects, data collection and management. A final paper in this series, to be published later, will focus on qualitative data analysis and publication of qualitative research findings.

## **Differences between Qualitative and Quantitative Research Designs**

Qualitative and quantitative research approaches often have different goals. Not surprisingly, distinct goals require distinct research designs. For example, Charles Darwin and Harry Harlow both studied chimpanzee behavior but did so with very different goals and outcomes. Darwin's goal was to observe animals in their natural context and draw conclusions based on these naturalistic observations. Harlow's goal was to understand the effect of isolation and deprivation on young chimps. To do so he designed a way of manipulating the environment experimentally so that he could test his assumptions. Both researchers produced meaningful results by setting clear goals and using appropriate research methods.

Why use qualitative research methods? The history of biomedical research over the past century is one of dazzling success. In the US, the major causes of death at the start of the 20th century were infectious and other diseases. At the dawn of the 21st century they are personal life choices, accidents and environmental events. Public health measures and life sustaining therapies now ensure that we will live on average at least 20 years longer and enjoy a higher quality of life than a century ago. Yet, despite these achievements there remain some very puzzling, unsolved health problems. For example, despite the fact that

people are aware of the health risks of tobacco and other addictive products, the number of smokers continues to be significant, especially in the young. We know, too, that despite seeking the care of medical professionals, large numbers of patients (40–80%, depending on the studies) don't follow their advice. Finally, in this and other countries, there has been a significant rise in the use of alternative and complementary therapies, many of which are untested and some of which have been shown to be harmful. Yet, in the US, the number of visits to complementary practitioners now exceeds those to mainstream practitioners. Understanding the experiences of patients who continue to smoke, don't follow medical advice or seek untested and potentially harmful treatments requires methods of study that allow researchers to sensitively explore the context and meanings of health, illness and disease.

Qualitative methods are needed when the questions being asked pose puzzles that are difficult, if not impossible, to address using conventional research approaches. Just as the world of the cell yielded to methods based on the introduction of the microscope, so the worlds of patients' and learners' experiences and meanings are now becoming accessible through videographic and ethnographic methods. In short, the sensitive and appropriate uses of qualitative research are providing new insights and directions about the human condition, health, and education.

There are three key differences between qualitative and quantitative research designs. First, the logic informing qualitative research designs is often inductive, which affects how specific and complete the research design and process will be. The qualitative researcher's task often consists of describing and understanding people and groups' particular situations, experiences, and meanings *before* developing and/or testing more general theories and explanations. In contrast, quantitative research employs deductive logic, often drawing heavily on existing theoretical and substantive prior knowledge to conceptualize specific situations, and to predict what will happen to particular people or groups, and why.<sup>1</sup>

Second, qualitative research designs are often emergent and flexible. Rather than thinking of a qualitative research design as a blueprint containing exact specifications or a "gold standard," a more appropriate image is of a rough sketch. Because inductive reasoning is emphasized, what researchers learn in earlier stages of the research substantially affects subsequent stages of the research process. Often, qualitative research is also quite dynamic. The researcher and research subjects, their relationship, and the research setting are all subject to development and change. Not all aspects of the design can be managed or controlled by the researcher. Although quantitative research designs are also subject to change, doing so is unusual and is typically considered undesirable.

Finally, the qualitative research process is often non-linear and non-sequential.

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<sup>1</sup> See Creswell (1994, Chapter 6) on the different uses of theory in quantitative and qualitative research.

Data collection and analysis often proceed simultaneously. In light of early findings, subsequent data collection and analysis procedures may be modified to gather more specific information, or explore new and unanticipated areas of interest. In rare cases, early findings may suggest that the original research question itself should be changed because the underlying premise is not supported or the initial question was not salient in the context studied. When changing the initial question is necessary, researchers must reanalyze the data in light of the new question and employ other techniques to address concerns about the possibility that the data and/or research question may have been altered to fit a pre-existing theory or hypothesis. This is particularly true when the study involves comparing and contrasting several cases, sometimes referred to as multiple case studies. (See Yin, 1999, p. 1216, on maintaining discovery and flexibility.)

These differences are a matter of degree, however. The extent to which a qualitative research design exhibits these “classic” characteristics depends on the particular research domain, the investigator’s theoretical perspective, and how much is already known about a topic. For example, qualitative research by a single investigator or several studies in a specific substantive area are often developmental, beginning with exploratory study and moving toward more structured research design as knowledge increases (Sofaer, 1999). The key is developing and using a research design that is appropriate for the research objective.

## **Qualitative Research Study Design**

### *Developing a Research Question*

There is agreement that good qualitative studies answer clearly stated, important research questions (Frankel & Devers, 2000). In some cases, developing a good research question at a study’s outset may be relatively straightforward. This occurs when there are well-developed theoretical and conceptual frameworks, and much is already known about the topic. The existing research literature itself may point to areas where further research is needed.

In other cases, the task of developing the primary research question(s) is more difficult or may be the major focus of the research (sometimes the task is understanding what the right question is). Many qualitative researchers pursue research in certain areas because the existing theoretical and substantive literature does not adequately capture or reflect their personal experience or those with whom they are close. For example, one of us (K.J.D.) conducted ethnographic research about how triage decisions were made in adult intensive care units (ICUs) after observing marked differences in the conduct of this process while pursuing a larger, quantitative study. Finding scant literature describing differences and why they might occur, Devers designed a qualitative study to address this gap (1994).

When relatively less is known about a topic, change is rapid, or discovering new theoretical or substantive knowledge is emphasized, the qualitative re-

searcher may begin with a more exploratory research question and refine it through a series of studies. For example, although the term “managed care” is frequently used, researchers often find it difficult to define. Qualitative approaches can be used to describe key dimensions of managed care or how it affects specific aspects of health care (e.g. doctor–patient relationship) (see e.g. Waitzkin & Fishman, 1997) so that a more complete understanding and definition can be developed.

### *Conducting a Literature Review*

How qualitative research questions are formulated has implications for conducting a literature review. Some believe that a thorough literature review should be conducted at the beginning of the research process, as is often done in quantitative studies (Creswell, 1994; Miles & Huberman, 1994; Yin, 1994, 1999). These authors argue that researchers must describe their project in terms that are familiar to key groups (e.g. peers, funders) and that reading the existing literature can save time and help strengthen the study design.

Others believe the existing literature should be reviewed only after the research is underway so researchers have an opportunity to gain some understanding of the phenomena of interest from the research participants’ perspectives (Crabtree & Miller, 1999). Reviewing the published literature earlier may impede the researcher from truly listening, observing, and remaining open to new concepts and ideas. Also, it is often unclear what literature should be reviewed, particularly if a primary research goal is discovering new theories or substantive knowledge. Most researchers rely on relatively obvious sources of literature (e.g. their own disciplinary literature, literature on that specific topic), which may narrow the scope of the question to be investigated.<sup>2</sup>

Consider the following case study as illustrative. In the course of discussions with a large “group model” HMO that was beginning to implement a new team model for delivering primary care to adults, the following problem was identified. Regional medical group leaders were the primary designers of the new team model, but local sites that differed considerably in demographics, size, and “personality” were implementing the model. Since the topic was in an area of particular interest to one of us (K.J.D.), preliminary discussions were held with senior leadership in the organization who were very interested in understanding how local facilities were customizing the model and how the implementation process could be improved. They agreed to collaborate in a qualitative research study.

A key step in conducting any literature review is determining where to search and how (e.g. what databases, what terms or key words to use) because these choices significantly impact the literature located.<sup>3</sup> In this case, a preliminary

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<sup>2</sup> Another important and related issue is how the literature is used in proposals and in completed research. Creswell (1994, Chapter 2) delineates three different uses for literature reviews in qualitative studies.

<sup>3</sup> See Creswell (1994), Rundall (1996), and Light & Pillemer (1984) for useful suggestions on conducting literature reviews.

**Table 1.** A sample of potential literature review topics on teams in health care

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- *What is a health care team?* Preliminary examination shows that there are different definitions of teams.
  - *What is the structure and composition of the teams?* There is a great deal of variation in team structure and composition. A distinction often made in the literature is whether the team is comprised of professionals of one type (intra-professional) or different types of professionals (inter-professional or multidisciplinary).
  - *What are the roles of specific team members?* What are different team members supposed to do and how are people supposed to work together? Are there “team leaders?” If so, what authority and responsibility do they have?
  - *What portion of the patient population is the team serving and/or what is the population’s demographic and clinical profile?* Are teams serving adults different from those serving children? Is the team treating: (a) homogenous or heterogeneous patient populations, or (b) patients with single conditions, multiple conditions, or anyone showing up in a primary care clinic?
  - *What is the purpose of the team?* What is the team’s primary goal? How do teams balance multiple and competing goals, if they have them?
  - *What are the settings in which teams function?* Teams exist in many different health care settings, for example, inpatient, outpatient, and long-term care. Is the setting in which teams practice important? If so, why?
  - *What is the impact of teams on outcomes of interest?* This includes classic outcomes such as quality (including access and satisfaction), utilization, and costs.
  - *Who is the team accountable to and for what?* This begins to get at the wider structure in which teams exist, the purpose of teams, and financial and non-financial incentives during team performance.
  - *What education and/or training would help health care professionals work most effectively in teams?*
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review of published journal articles using several common online databases (e.g. MEDLINE, HealthStar, Social Science Citation Index) showed a great deal of related literature. The challenge was then deciding which literature was most useful for this particular study. Initially, the terms “primary care” and “teams” were used. Later, it was discovered that the terms multidisciplinary or interdisciplinary teams were frequently used in health care, revealing a potential theoretical and conceptual distinction about the composition and functioning of health care teams (Young, 1998). Table 1 provides a sampling of other topics and issues discovered through the literature review and the questions they raised or that remain unanswered as the study proceeded. Several aspects of the table are noteworthy.

First, the table is organized primarily around the most general, *substantive* topic of interest (teams). While various disciplinary theories will be drawn upon to inform the study (e.g. sociological theories of medical professions, psychological research on group formation and functioning), they are not the primary conceptual framework used for organizing the literature and thinking about this applied research question. Even within this applied framework, however, there is a great deal of complexity and many fundamental issues that are unresolved (for example, how do we define a health care team? Are teams that focus on a single population or disease, or treat patients in the inpatient or other settings, similar to or different from teams treating a broader population in the outpatient setting?).

Second, literature on group model HMOs is included. The history and current status of the organization may substantially affect the implementation process. Finally, the table includes literature on adult primary care teams in other countries, as well as literature on teams from other industries in the US. Some may view such literature as irrelevant because the context (e.g. historical, cultural) or nature of the work (for example, are manufacturing or management teams “like” primary care teams?) is so different that meaningful comparisons cannot be made. However, comparing and contrasting this diverse literature with the literature about US health care teams may provide additional insights. In particular, it may help identify critical aspects of the context to explain how teams are being implemented and are functioning.

### *Defining the Primary Research Audience*

Another set of critical issues affecting the formulation of the research question is the primary audience(s) for the research, the goal of the research, and what role, if any, research “subjects” have in shaping the research question. The goal of much research is contributing to an existing body of knowledge as defined by a given discipline or field. As such, the primary audience for the results is often other researchers. “Subjects” typically have relatively little input in shaping research questions. Some researchers are rethinking this classic research approach and its underlying philosophical beliefs and values, and have developed different research models (sometimes referred to as participatory action research). These issues may be more salient in some domains of qualitative research (e.g. ethnography/fieldwork) because the researcher has to negotiate access to, and roles in, research settings and may spend long periods of time with “subjects.” While it is not possible here to discuss participatory action research in detail, the main point is that it challenges researchers to explicitly consider the values informing their research, how research questions are formulated, and whether and how researchers should involve and interact with “subjects.”<sup>4</sup>

### *Determining the Resources Required*

If a qualitative research design is a sketch to be filled in as the research proceeds, the resources needed for the project are the researcher’s critical raw materials. A strategy researchers can use for thinking systematically about and realistically determining the kind of research project that can be conducted, given the available resources (or conversely, the resources required for conducting a given research project), is considering *what kinds of* and whose resources are available or required.

General types of resources required include personnel (expertise and time), equipment, supplies, and travel. In some cases, costs for patient care and alterations or renovations (e.g. installing a one-way mirror for observing clinicians interacting with patients) may be needed.<sup>5</sup> Morse (1994) provides useful

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<sup>4</sup> Readers with further interest in these models and their implications for research design should see Patton (1997) and Thesen & Kuzel (1999) on utilization-focused evaluation research.

<sup>5</sup> This classification of resources is taken from the *Application for public health service grants (PHS 398)* (US Department of Health and Human Services, 1998).

guidelines for writing successful proposals to funding agencies, including estimating the resources required. Even if you don't intend to apply for grant support, you may find it useful to examine the budget sheets and instructions from various funding agencies.

In addition to identifying key resources, researchers should also assess the resources required from different groups of people, including the researcher or research teams, the "subjects," and other stakeholders, such as funders. These three "stakeholder" groups may have different interests and concerns, and their intersections may significantly shape the research design. There are a number of "typical" resource issues in designing a qualitative research project. Qualitative research may seem relatively "easy" because it builds on skills used in our daily lives (e.g. asking, watching, and listening). Done well, however, this type of research requires complex and sometimes subtle skills that often take years to learn. To develop these skills, novice researchers might consider "starting small." This includes developing expertise in particular qualitative research methods through reading, course work, and, most importantly, hands-on experience. There are several ways you can gain hands-on experience including:

- practicing qualitative skills in other settings (e.g. interview friends or relatives, observe an activity unfamiliar to you and try capturing on paper what you heard and observed);
- collaborating formally or informally with a more experienced qualitative researcher (e.g. occasional conversations about a research project, in person or via phone or e-mail);
- reviewing and analyzing other qualitative researchers' notes, interview transcripts, and/or videotapes; and
- conducting an exploratory or pilot study (e.g. interviewing several health professionals about their experiences working on teams).

Hiring a methodological consultant to work with you at key points throughout the project may also be useful.

Researchers and funders must develop realistic estimates of the amount of time required for completing qualitative studies. Qualitative data collection, management and analyses are unfamiliar processes for many, so it's important to identify and consider all the steps involved and the time and resources required. For example, Miles & Huberman (1994) estimate that it takes 4–6 hours to transcribe a 1-hour interview.<sup>6</sup> For some types of microinteractional analysis, it may be more like 1–2 hours per minute of conversation. Traveling to sites or subjects or living "in the field" may also add considerable time and expense to a study. Traveling to different clinics in a large, metropolitan area with heavy traffic, or in dispersed rural areas, can also add significant time to the data collection process.

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<sup>6</sup> Miles & Huberman (1994), Morgan (1998) and Kvale (1996) provide additional valuable advice about the time required to plan and conduct qualitative research projects.

The conditions under which qualitative research is often conducted (e.g. conditions of rapid change when little is understood about a topic) may also lead funders and “subjects” to expect unrealistically quick results. While there are ways to streamline data collection and analysis to produce timely qualitative research results (e.g. develop a report template, design interviews and coding schemes with a report format in mind), there is a danger that researchers will simply confirm existing views on the subject. If a study is being designed and conducted under tight time constraints, researchers should articulate the potential dangers of drawing conclusions prematurely and employ strategies to minimize biases.<sup>7</sup>

Third, it is important to carefully consider the resource demands made on research subjects, particularly their time. Any resources required from participants may affect their willingness to participate in the study and lead to selection biases. While some subjects may have lots of time and enjoy participation, others may have little time and experience participation as a burden.

In some cases (e.g. participatory research or utilization focused evaluation), subjects themselves may provide “in-kind” contributions (e.g. use of a computer, help copying key background documents) or monetary resources (e.g. providing meals for focus group participants). When these types of support from subjects are involved, it is essential that the researcher understand the expectations of his/her research subjects. In all cultures there are norms of reciprocity, which may implicitly affect the perspective and expectations of research participants. Therefore, researchers should explicitly discuss the degree and types of input participants will have on the research question, how and when findings will be communicated, and the types, content, and audience for published papers. While there are no formulas for such discussions, common sense suggests the need to respect subjects’ positions and concerns while remaining clear that the value of the results rests on their credibility. More specific conversations about the implications of different funding sources for research, questions those different sources may raise, and ways of addressing those questions may be areas for further dialogue.

Finally, qualitative researchers are increasingly using various kinds of equipment to conduct their work, including audiotape recorders, tape-transcribers, video cameras, photocopiers and/or scanners, and laptop computers. There also is a wide range of software to support the management and analysis of qualitative data (Weitzman, 1999). Each of these pieces of equipment may also require special supplies (e.g. tapes, disks, cables). Resource issues to consider when deciding whether to utilize equipment are the potential biases introduced by the presence of the equipment itself, the time required to learn and operate it, and cost. Careful initial consideration of the question one is asking and the nature of the evidence one will use to present the analysis will help ensure a smooth and efficient flow during the process.

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<sup>7</sup> See Miles & Huberman (1994, p. 85), on pre-structured case studies for an example.

## Conclusion

Like any endeavor that involves dealing with the hearts, lives and minds of other human beings, qualitative health and educational research requires the utmost in professionalism, respect and integrity. There is no place for slipshod methods, shortcuts or compromising of research subjects. Rigorous attention must be paid to each step of the design and implementation of research and checks and balances to ensure the accuracy of claims must be built in. We have touched on some of the more common challenges and issues that qualitative researchers face in setting questions, reviewing the literature, and deciding upon the resources needed for conducting high quality research. Reading and engaging in dialog with others is important but it is no substitute for immersing oneself in the act of doing research.

It is said that to be a good clinician one must have a healthy dose of guilt, an obsession with details, and a drive to serve others. That covenant is equally relevant to our work, and no less daunting. The ultimate goal of qualitative health and educational research is understanding the human experience of giving and receiving health care, and of learning, and to use that knowledge as scientists and citizens to improve our mutual lot. We invite you to discover the excitement and rewards of qualitative research by trying it out for yourself.

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