INTRODUCTION

I've frequently been asked what research is most needed in our field. . . . I usually respond that our greatest needs are reliable and thorough reviews of research . . . and an authoritative introduction to methods of research in technical communication. (p. 19)

Perhaps one indication of this need is MacNealy's finding (1992) that the highest percentage of research-based articles in a single volume of STC annual conference Proceedings over a 20-year period was a disappointing 10%. But why is this important?

Spyridakis (1992) provides a useful definition of research:

Research is a systematic approach to provide answers to questions, answers that may be abstract and general, as is often the case in basic research, or concrete and specific, as is often the case in applied research. (p. 607)

Thus, MacNealy's findings mean that the wisdom of technical communicators captured in the STC annual conference Proceedings was not clearly developed in any systematic way. In brief, her analysis suggests that technical communicators rely primarily on anecdotes and intuition to answer workplace questions. Reliance on such unsystematic approaches is costly: technical communicators are continually reinventing the wheel and are often viewed as workers of "magic" rather than as professionals relying on a foundation of evidence-based knowledge.

Because mastering qualitative methods like case studies is often incorrectly assumed to require little expertise, my goal here is to provide a foundation for collecting information using qualitative methods, especially (though not exclusively) targeted for those within industry. First, however, I need to establish a definition of qualitative research methods.

What are qualitative research methods?
The simplest way to define qualitative research is to note that the results are primarily expressed with words (as opposed to quantitative research in which results are primarily expressed with numbers). For example, Wixon, Pietras, Huntwork, and Muzzey describe their applied research involving product development at Digital Equipment Corporation by noting that only qualitative research allowed them to discover "exactly what users and customers want and do" (1996, p. 61). Thus, their qualitative research provided them with verbal or visual descriptions of their customers' wants and needs.

In contrast, the same group of researchers describe their use of quantitative methods to provide measures of importance (that is, numbers) for each user need and product feature (1996, p. 65).

Some authors equate qualitative research with naturalistic inquiry or ethnography. In contrast to naturalistic inquiry, qualitative research is not always carried out through observation in the natural environment—in other words, you might develop a verbal/visual description of your audience's needs and wants through telephone interviews. In contrast to ethnography, qualitative research does not always provide a holistic account of a whole workplace...
group or scene—in other words, you might develop a verbal/visual description of your audience’s needs and wants about only the camera function of your ultrasound product.

The main point here is that there is evidence that our profession is not necessarily well prepared to carry out research projects using qualitative methods. For example, Locker contends that an analysis of articles in early issues of the *Journal of business communication*...

...fail[s] to identify one case study, ethnography, discourse analysis, history, or any other qualitative research article based on empirical data—that is, workplace or classroom data rather than anecdotes or one’s own thoughts. (1998, p. 37)

As another example, in MacNealy’s study analyzing research articles in STC annual conference Proceedings from 1972 through 1991, she notes that case study research (which often uses qualitative methods)

...is not well understood by technical communicators. Entries in the...proceedings are frequently labeled “case study” by their authors, but on close examination, the entries turn out to be either retrospective reports on how something was done, or descriptions of how things are usually done, at the place where the author works. ...While a report on how something was done could be based on research, all too often it is not. The difference is methodology. (1992, p. 539)

One of the things that this led MacNealy to do was to write specifically about how to conduct quality case studies (1997, 1998). My goal here is broader—to provide information about the fundamentals of collecting information in any type of qualitative research study. That is, in any systematic attempt to answer workplace questions in the form of verbal/visual descriptions.

What will you learn about qualitative methods here?

Methods for doing qualitative research are well developed within the social sciences. The most obvious advantage of learning about methods commonly accepted within social science is that technical communicators will then be able to provide systematic descriptions of the qualities or characteristics of the audiences of our work.

One of the less often acknowledged advantages of learning about methods commonly accepted within social science is that technical communicators will then share a vocabulary (if not a world-view) with many of our colleagues in the workplace. For instance, almost every undergraduate business major in the U.S. is exposed to methods for conducting qualitative research in marketing coursework. Marketing majors usually become more sophisticated in the use of research methods in upper-level undergraduate marketing coursework. Undergraduate information system majors, as well as computer science and engineering undergraduates, are increasingly exposed to some of these methods in coursework related to computer-human interaction, interface design, or even human factors engineering.

Thus, social science resources offer technical communicators much insight into answering questions in the workplace systematically. To that end, the remainder of this discussion covers two areas:

1. Fundamental issues (for example, formulating research questions, and addressing quality and practicality in workplace research)

2. Collecting qualitative information (involving observation, artifacts, and interviews, as well as determining the specifics of an information collection plan)

Although of equal importance, the topic of analyzing information after it is collected is not covered here. Readers should be aware that my choice to separate the topics of collecting and analyzing information in qualitative research is somewhat controversial because some argue that the collection and interpretation of qualitative information are indistinguishable. While collection and interpretation are clearly iterative within a single qualitative study, I see great value in focusing on each aspect of the research process to enhance the quality of research in workplace settings. In fact, precisely because of the importance of both aspects of the research process, collecting and analyzing information should occupy separate and equally detailed analyses.

FUNDAMENTAL ISSUES

This section introduces some background concepts related to answering questions by doing research. First, I consider how to formulate a research question arising in the context of the workplace. Second, I address the issue of what counts as good qualitative research in the workplace.

How do you get from your present situation to a researchable question?

Research begins with a question. However, not every question requires research. For example, if a new co-
worker asks you, “How do I submit my trip report?” you might provide a good answer without collecting and analyzing any information (beyond what you’ve got stored in your own head). On the other hand, let’s suppose you have often considered the current policies and procedures about submitting trip reports to be counter-productive—you suspect that these reports add little value within your organization. Let’s also suppose you have the time, authority, and desire to seek an answer to the question, “Is our current procedure for submitting trip reports adding any value within our organization?” Now you have a question that will be almost impossible to answer without collecting information and analyzing it—in short, conducting research.

Forming quality research questions requires both knowledge and practice. Poor research questions produce research results with little value. Let’s turn our attention to a hypothetical workplace scenario. The point will be to figure out how you move from your present situation (where you have many questions relating to your professional practice) to one in which you can formulate a question that can be answered through research that produces high quality results that are practical within a workplace environment.

The workplace scenario You are a senior documentation manager working for a large, multinational company within a division that custom-designs software for its subsidiary companies. You have both time and money for improving the work processes within your company. You are interested in a variety of areas; based on your experience, you have brainstormed a list of questions related to documentation. After some time passes, you decide that the four listed here are most important to you:

- Is documentation available within subsidiaries?
- What version (printed versus online) of the documentation is available? What version is used?
- Is documentation used differently by installers, account managers, and seniors/juniors? How is documentation used differently by them?
- Do references to documentation during training or support calls have any effect? When? With whom?

Focusing and refocusing your questions Despite the fact that you have narrowed your list of questions to four, you still have more questions than you can probably tackle in one research project. You spend some more time thinking about the four questions, and you even discuss some of them with your co-workers. Based on an experience while visiting one of the subsidiary companies 6 months ago, you decide that an answer to the following question would probably go farthest in helping you achieve your current goal of improving work processes involving your department:

Is documentation available within subsidiaries?

Although you have narrowed your field of interest considerably by choosing this single question, it is entirely possible that you will end up narrowing it further as you go forward with your research project. For instance, before (or after) you begin collecting data, you may decide to restate it as

What documentation is available within European subsidiaries? Where is the most recent documentation located?

Such a revision might take place because before you begin collecting information about available documentation from personnel at subsidiaries, you begin to suspect that everyone has some documentation but that the most recent documentation appears to be hoarded within the organization. Moreover, you realize that you don’t have the resources to include all subsidiaries in your study. Note that focusing your research question is crucial to the success of your project. It is important to limit your study to a sufficiently narrow question (Bauersfeld and Halgren 1996, p. 188) so that you will end up narrowing it further as you go forward with your research project. For instance, before (or after) you begin collecting data, you may decide to restate it as

In sum, you begin your research project by focusing and refocusing questions. This occurs in two steps: brainstorming questions based on your professional problem/situation and then focusing those questions down to a manageable number.

It’s important to recognize that this is an iterative process—in other words, you may find yourself brainstorming and focusing after you’ve done quite a bit of reading during your search of the literature or even after you’ve collected information. The point is to focus your question as much as is possible at this point so that you have a clear notion of the answer your question will prompt and the value of that answer for addressing your workplace challenges. If you want to learn more about different types of research questions common in qualitative research, see Maxwell (1996, pp. 52–59).

How do you guarantee that you do good research? This section discusses what constitutes good qualitative research in a workplace environment. First, I’ll take up the topic of credibility. And then, I’ll address the importance of business practicality.
When conducting research in a workplace environment, credibility is not the only factor that defines the quality of your research.

It is nearly impossible to discuss quality in research without using the terms “reliability” and “validity.” My goal here is to minimize their use. Nevertheless, you will need a basic understanding of these concepts to get the most out of the many strategies and techniques that I discuss for enhancing the credibility of qualitative research throughout the remainder of this discussion.

Kirk and Miller provide the best example I’ve seen for defining and contrasting reliability and validity in the use of a measurement instrument:

A thermometer that shows the same reading of 82 degrees Fahrenheit each time it is plunged into boiling water gives a reliable measurement. A second thermometer might give readings over a series of measurements that vary from around 100 degrees Fahrenheit. The second thermometer would be unreliable but relatively valid, whereas the first would be invalid but perfectly reliable. (1986, p. 19)

In this case, a thermometer is the instrument used to measure the phenomenon of interest (that is, temperature). But in qualitative research you usually use people (including yourself) to measure the phenomenon of interest. For instance, to answer the research question about the location of documentation from our workplace scenario, you might ask people to list the documentation in their office and send the list to you by e-mail. In this case, the availability of a specific documentation product is measured (as present or absent) by the judgments of a person; that is, the person is the measurement instrument.

On the surface, using people as measurement instruments makes the application of concepts like validity and reliability a little more difficult to grasp in qualitative research. I use “validity” in the same sense as Maxwell, who explains

I use validity in a fairly straightforward, commonsense way to refer to the correctness or credibility of a description, conclusion, explanation, interpretation, or other sort of account. . . . the idea of objective truth isn’t essential to a theory of validity that does what most researchers want it to do, which is to give them some grounds for distinguishing accounts that are credible from those that are not. Nor are you required to attain some ultimate truth in order for your study to be useful and believable. (1996, p. 87)

As an example, you could implement many techniques for improving the reliability and validity, and hence the credibility, of your results in our workplace scenario. For example, you would be more certain that your information (that is, the list of documentation products) is valid (that is, credible) if you developed your lists by both asking people to send you a list and conducting an unannounced visit at their worksite to corroborate that list.

Similarly, you could be more certain that your lists would be the same even when developed by someone other than yourself at another point in time if you spelled out precisely what counts as a documentation product. For instance, I might include only “official” documentation on my list. Conversely, you might include official and unofficial (that is, self-produced) documentation on your list. Thus, if we clearly define what counts as documentation before we collect our information, we will end up with more reliable (that is, credible) information.

I will present many techniques for increasing research credibility as I discuss specific methods for collecting qualitative information. For now, it’s important that you see why you should implement such techniques when you do qualitative research in technical communication—because these techniques will result in more credible answers to the professional problems you’re trying to solve with your research.

When conducting research in a workplace environment, credibility is not the only factor that defines the quality of your research. As Cooper and Emory put it, “Some tradeoff is usually needed between the ideal research project and the budget” (1995, p. 156). As one example, Graf (1996) describes a research project whose goal was to answer the question: What can Dun & Bradstreet Software Services do to make the notebook PC-based workstation used by marketing representatives, technical product representatives, junior/senior sales personnel, and managers more acceptable to all these users? Graf states:

. . . We decided to study users in their world. I proposed a study in which I and a team representative would accompany users on actual sales calls. This was rejected by the sales manager as being too intrusive to the sales process. We settled on a plan to interview satisfied and dissatisfied primary users at their site and watch how they interacted with the system. I felt that a field study was essential to obtain a thorough understanding of the realities of sales and the benefits of mobile computing. (p. 116)

In this case, the researcher had to temper his desire for the most credible results with the practicality of intervening in a sales call.

In sum, how good your qualitative research will be is determined by your ability to focus your project so that you
Because you want the most credible answer to your question, focus your literature search on sources that contain results from empirical research.

collect information of the greatest credibility that is practical within your business environment.

COLLECTING QUALITATIVE INFORMATION

No matter what your research question is, you’ll need to collect some information to get a quality answer (that’s basically the definition of “research” question). The total possible number of methods for collecting qualitative information in technical communication comprise four basic types:

- Literature search
- Observation
- Artifact search
- Interviews

I will focus on each method’s general character rather than specific techniques. My goal is to present the basic principles of collecting information with any of these general methods so that you are more likely to get quality results from the use of any specific techniques.

Your situation can be described by one of these three possibilities:

- Someone has asked the same (or a similar) research question, found an answer, and made it public.
- Someone has asked the same research question, found an answer, but didn’t make it public.
- No one ever asked this research question, or no one has found an answer.

You’ll have to conduct a literature search of existing research before you’ll know which of these possibilities describes your current situation. A literature search serves two purposes. Your first goal will be to determine whether your research question has already been answered. If it has, your research will begin and end with your review of existing research. If your question hasn’t been answered, your literature search will serve a secondary purpose—to provide you with ideas about how to collect and analyze information that will help you develop your own answer.

What do you need to know about collecting information in a literature search?

Your first step in a research project is to conduct a literature search. (In this usage, “literature” refers to all publicly available sources of existing research.) Because you want the most credible answer to your question, focus your literature search on sources that contain results from empirical research. Remember that other kinds of publications may look more attractive to you because of their clear applicability and conciseness, but empirically based research publications are far more likely to provide you with answers to questions that meet quality standards for research. Krull (1997) provides a description of the myriad of journals that publish research relevant to technical communication.

The first point I want to make about collecting information in a literature search relates to your choice of tools for conducting a literature search. Unfortunately, there is no single authoritative database that abstracts or indexes all the relevant, high-quality research publications for those of us interested in technical communication. The best tool for your project will probably be one of the electronic subscription services that provide a searchable database of research publications from the Web (for example, UnCover at http://uncweb.carl.org/ or FirstSearch at http://www.oclc.org/oclc/menu/fs.htm). Of course, even if you locate titles and abstracts, you will still need copies of the actual publication. Fortunately, services such as UnCover are beginning to deliver articles by fax or even electronic files to your desktop for a fee.

The second point is that the best technique I know of for completing your literature search efficiently is to write your research question on a small index card or a sticky note, and keep it in your pocket or, most preferably, next to the computer screen while you’re listing sources during your search. Every time you locate a source that sparks your interest, look at your research question and ask yourself how this source might help you answer that question. If you’re like most busy folks, you can’t really afford to look at every source that seems interesting. You need to limit yourself to those sources that look interesting and are clearly relevant to answering your research question.

In addition, having a copy of your research question on a small piece of paper nearby should help you focus on taking notes related specifically to your current project. Every time you locate a piece of information in a source that captures your interest, look at your research question and ask yourself how it will help you answer that question. Keeping accurate and complete bibliographic information and other notes about the literature you’re using is essential so that you can then share your experience in a professional publication or provide a way for others in your workgroup to retrace your steps.

If you want more specific advice about conducting a literature search, both Zimmerman and Muraski (1995, pp. 41–66) and Porter and Coggins (1995, pp. 119–136) provide detailed discussions of the use of electronic resources in
literature searches related to technical communication issues. If you can’t locate the answer to your research question in the existing literature, then you’ll have to construct your own answer by gathering information (called “primary data”) through observation, artifacts, or interviews. Qualitative researchers sometimes call these collection methods “the big three” (Cassell and Symon 1994, p. 10).

**How do you collect information through observation?**

Observation can be a very powerful way of collecting information that will answer research questions arising in workplace contexts. For instance, in a book titled *Field methods casebook for software design*, the editors of the collection write,

> We hear a lot these days about the need to succeed in an increasingly competitive global market, and the need to enhance the productivity of our workers. We might add to these concerns a desire to empower workers and to create pleasure in work. To help us achieve these goals in system design, we need to know as much as possible about the people and the contexts for which we are designing. We need to ground our designs in workplace realities, and discover better design in the limitations or unmet needs experienced by the user in the user’s world. Product development processes built on field research can help us achieve these goals. (Wixon and Ramey 1996, p. xxxix).

For our purposes, I’ll define observation as the act of collecting information by watching and listening (and, for that matter, smelling, tasting, or touching). An example of how observation has been used by technical communicators to find answers to a professional problem is offered by Dray and Mrazek (1996) when they describe Hewlett-Packard’s efforts to understand the global family computer market. As these authors explain, teams of observers representing marketing, engineering, and human factors visited families in their homes to observe family members use their computer. (They also collected information using interviews and surveys, and by collecting artifacts.)

There are several areas for you to consider while planning to collect primary data through observation. If you are interested specifically in conducting site visits, Hackos and Redish (1998) is a comprehensive resource. The steps for gathering qualitative information through observation listed here are adapted from Lindlof (1995).

**Step 1: Negotiate access to the site** You will need to negotiate access to a workplace site through the gatekeeper and also with the prospective participants of your observation. A thorough discussion of strategies for negotiating access is well beyond the scope of this discussion. In brief, you will have to persuade them that they have something to gain from your research activities. This will often involve ethical and legal considerations, which are briefly covered a little later in this section.

**Step 2: Familiarize yourself with the observation site**

Choosing where and when you will observe your research participants is an important consideration. For example, Brown (1996) describes some of the challenges involved in observing technicians using ultrasound equipment in their workplaces outside the U.S.:

- Their work hours can differ from those in the U.S. This is important to know when planning site visits to avoid waiting long hours before users begin their work.
- We lost information during translation because the interpreters did not understand our goals. Next time we are going to take a written script of our goals and what we would like users to do, and give it to the interpreters and the users.
- At some sites the examination rooms were too small for more than one observer, or for setting up a tripod for the video camera.
- Voltages and access to electrical outlets are often unknown, so it is safer to use batteries for the video camera. (1996, p. 165)

The potential for such difficulties is why Lindlof recommends “casing the scene” of an observation site before your official observation (1995, p. 82). You must be as prepared as possible for the realities of the observation experience to get the most from your information collection activity.

**Step 3: Conduct the observation** Steyaert and Bouwen (1994) describe a study in which they wanted to learn how organizations implement innovation. The researchers used multiple methods, including observation of 18 project meetings within a manufacturing company. In this study, a single observer attended all meetings as a silent participant. Steyaert and Bouwen provide illuminating evidence of the iterative nature of data collection and analysis in qualitative research:

> We would call the period after the participation in the meeting more important than the participation itself. On

Use of a coding form can help ensure that the observer records information he or she might otherwise have missed.
returning to the research team, the first thing the researcher did was check his notes, completing and rewriting them. Second, the researcher discussed with colleagues what he had been up to. Asking the very general question of what had happened there, in the context of the research question. This discussion of first impressions and ideas already constitutes an initial interpretation of the data. (1994, p. 135)

After the next project meeting, the observer would again join his research team for a “debriefing” and preliminary analysis.

Depending on the level of focus in your research question, you may want to use a “coding form” to record data during an observation. Silverman (1993, pp. 40–41) provides an example of a coding form used in a study involving patient visits to a pediatric cardiology unit. That form included 21 items for the observer to report on, including observations of the physical environment. Use of a coding form can help ensure that the observer records information he or she might otherwise have missed. The use of such a form obviously enhances the credibility of the information you collect from an observation. However, as Silverman says, while “this ‘grid’ is very helpful in organising the data analysis, it also deflects attention away from uncategorised activities” (1993, p. 39). Silverman also explains that his form was developed only after he and his co-researcher made more than 10 visits to the kinds of clinics they would be observing in their study.

Observation usually means “observation of human participants.” Therefore, you must consider how best to protect those participants’ rights and still get quality answers to your research questions. The problem, of course, is that when people know they are being observed, they may alter their behavior. Many researchers call this phenomenon “reactivity.” On the other hand, clandestine observation is usually considered unethical. All research methods involve ethical and legal decisions on your part. Certainly one of the most important of these concerns the use of human participants.

The most influential document covering the use of humans in research is The Belmont report (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research 1976). There are three basic principles set forth in that document:

1. Respect for persons—allowing the participant to choose what will or will not happen
2. Beneficence—avoiding unnecessary physical, psychological, or social harm and protecting the participant’s privacy, dignity, and feelings of personal worth
3. Justice—not discriminating against the sick, poor, institutionalized, and so forth

The primary means for protecting human participants is through the careful planning of the study and the use of an informed consent form.

The Department of Psychology at the University of Calgary provides a Web-accessible handbook for constructing informed consent forms, along with samples (1998). If you want to learn more about this topic, visit the Web site of the Office of Human Subjects Research at the U.S. National Institutes of Health at http://helix.nih.gov:8001/ohsr/, where you will find an online training course, as well as other relevant materials.

How do you collect information through an artifact search?
Because research questions in our field revolve around communication, existing communication artifacts are often an excellent source of data for constructing answers. Butler and Tahir note that sample application files and hardcopy printouts are particularly useful as they try to answer questions about the kind of work their users do (1996, p. 253). Their analysis of such artifacts provided them with a source of questions for interviews conducted at a later time with some users.

I’ll define a workplace artifact as a physical specimen created within the normal course of activities in the workplace environment. Common examples include the following types of specimens:

- Texts (for example, memos/letters, e-mail, policies and procedures manuals, documentation manuals, performance appraisals, sales reports, brochures, annual reports, design specifications, employment application forms, and so forth)
- Visuals (for example, organizational charts, logos, photographs, screen captures, drawings, and so forth)
- Audio- or videotapes (for example, training films, voice mail messages, help line conversations, and so forth)

Because many technical communicators are unaccustomed to thinking about such communication artifacts as “data,” it may be instructive to think of the way artifacts are used by researchers like archeologists who want to study civiliza-
Step 1: Obtain permission to access artifacts  There are two steps to collecting information via artifacts in the workplace.

**What an organization produces and how it certifies certain kinds of activities, (e.g., a license or a deed), categorizes events or people (e.g., a membership list), codifies procedures and policies (e.g., rules for using equipment), instructs a readership (e.g., an operating manual), explains past or future actions (e.g., memoranda), and tracks its own activities (e.g., minutes of meetings).** (Lindlof 1995, p. 208)

There are two steps to collecting information via artifacts in the workplace:

**Step 1: Obtain permission to access artifacts**  There are obviously ethical and legal aspects involved in obtaining permission to use artifacts from the workplace. Unlike the archeologist studying an ancient civilization, technical communication researchers are usually dealing with artifacts whose creators or owners are still around. Thus, you must consider how best to protect those people’s rights and still get quality answers to your research questions from their artifacts. As you conduct research within the workplace, you will no doubt become privy to information that is governed by intellectual property law. You will want to ensure that you protect your own legal rights and those of your employer or client. In fact, you’ll probably need to assure your employer or client of your willingness to do so (with a nondisclosure agreement) before you will be given access to the information you want.

If you want to learn more about intellectual property law, Intellectual Property Worldwide maintains a Web site with many types of information and links at http://www.ipww.com/. If you’re interested only in copyright, use the Copyright Management Center’s site at http://www.iupui.edu/it/copyinfo/.

Note that the support of senior management is crucial in gaining access to workplace artifacts. Although certain types of documents related to strategic planning and performance appraisals were considered “sensitive” by the management at a major retail company, Steyaert and Bouwen were given permission to read all that they wanted in some research they conducted in 1988; however, they were not allowed to make copies of these sensitive types of documents (1994, pp. 154–155).

**Step 2: Collect information from artifacts**  Ideally, you’ll be given permission to take exact copies of artifacts with you for later analysis. However, if you are allowed only on-site access to artifacts and you have a fairly focused research question, you’ll probably want to use a form for collecting information rather than simply taking notes. This form can be similar to the coding form used to assist you in collecting information during an observation. Similarly, it will be useful to record contextual information about the artifact on your form that might not be evident from the artifact itself (for example, the artifact’s creator, date of creation, number of review cycles resulting in this version of the artifact, technology used to create the artifact, and so forth).

**How can you collect information with interviews?**  Interviewing is perhaps the most common method for collecting information in the workplace. One example of the use of interviews in collecting workplace information is given by Bausfeld and Halgren, who interviewed software users to learn about their daily tasks and frustrations (1997, p. 180).

I will define interviewing as a conversation between two or more people for the purposes of eliciting information. “It is talk that is organized so as to give one person (the interviewer) greater control over the other (the respondent)” (Denzin 1978, p. 113). Thus, interviews can be conducted face-to-face or by telephone or e-mail. Despite the fact that respondents can be allowed considerable latitude in what they contribute, the researcher dynamically controls the flow of the conversation in an interview. Six types of information are best collected with interviews:

- Facts (for example, biographical information about the respondent, descriptions of events)
- Beliefs about facts (for example, attitudes about events, beliefs about a product)
- Feelings and motives (for example, description of feelings during an event, statements about motive during an action)
- Standards of action (for example, prescription for how to act during an event)
- Present or past behavior (for example, description of actions during an event)
- Conscious reasons (for example, explanations for a prescription or an action) (Sellitz, Jahoda, Deutsch, and Cook 1964)

The steps for collecting qualitative information through interviews that are listed here have been adapted from King (1994).

**Step 1: Develop the interview guide**  The interview guide serves as the interviewer’s blueprint for completing his
A great many issues are involved in constructing a good interview guide and in using the best wording for your questions and prompts.

or her conversation with a research participant just as the coding form does for completing an observation of a research participant. The topics included on your interview guide will be determined by your research question. For example, in a study of general practitioner (GP) referrals in England, King and Bailey (1992) had two research questions:

1. What factors influence GPs when they are making decisions about referring patients to specialists?
2. How do individual GPs differ in their referral decision-making styles?

The interview guide in that study relied on three sources for developing questions: (a) a search of the existing literature, (b) reflection on personal experience working in the area, and (c) impressions from preliminary conversations with some GPs (King 1994, p. 19).

It’s important to note that the interview guide is a living document that may need to be altered as your interviews proceed. The point is that the guide ensures that there is some comparability between the data collected during interviews conducted by various interviewers with different participants at different times. However, the degree of comparability can vary widely.

For an unstructured interview, your interview guide may simply list topics for your use during an interview. Such a guide provides you with some sense of when you have collected all the information you need but does not dictate the exact wording or even the order and arrangement of questions. In contrast, the most structured interview guide (associated with something often called the “respondent interview”) “resembles the traditional survey in its standardized protocol, high content comparability, and relatively large samples of interviewees” (Lindlof 1995, p. 171).

A great many issues are involved in constructing a good interview guide and in using the best wording for your questions and prompts. Cooper and Emory provide authoritative advice on constructing questions (1995, pp. 302–317).

You will also need to decide how you will capture a record of the qualitative information given to you by the interviewee. As MacNealy notes, “a tape recorder (which you have tested in advance) is the most reliable source of data collection, since you can’t possibly record every word [of an interview] by hand” (1998, p. 205). However, using an audio- or video-recorder is not without problems. For instance, Zimmerman and Muraski note that the presence of recording equipment during an interview may affect the interviewee’s behavior and that the time involved in transcribing a recording is likely to be two to four times as long as the interview itself (1995, p. 97).

When you interview people, you should use an informed consent form. You will need to explain how you will protect the respondents’ rights, including their anonymity. Once again, researchers should use this opportunity to explain their own obligations or those of the participant regarding any proprietary or sensitive information that is revealed during data collection.

Step 3: Starting and ending the interview Researchers usually recommend that you begin and end an interview with questions that the interviewee will find easy to answer. For instance, you might begin with requests for factual or descriptive information like “How long have you worked at Company ABC?” and end with an invitation like “Is there anything you would like to say about X that we haven’t covered in our interview?”

IMPLEMENTING YOUR QUALITATIVE RESEARCH PROJECT Now that I’ve discussed the fundamental steps involved in collecting qualitative information using observation, artifacts, and interviews, it’s time to address how you choose a method for constructing an answer to the question that drives your research, how you choose examples to study, how you guarantee the quality of the data you collect, and how you obtain management support for your research.

How do you decide how, who, what, and how much to study? Deciding the specifics of your research plan is obviously of critical importance (for example, which of the three general collection methods is right for answering your question? Who will provide the information you need? Where should you go to collect information?). To understand how to answer such questions, let’s return to our hypothetical workplace scenario. The following steps for determining the specifics of your information collection plan are adapted from Burgoyne (1994).

Step 1: Focus on the research question Our research question is

Step 2: Plan the qualitative interview You’ll need to think through where and when to conduct your interviews. It would be prudent to “case the scene” of a planned interview just as you would when conducting an observation.
Step 2: Determine results required for a useful response to the question. To answer this question you might use a simple frequency count of the documentation products available to determine which are widely available and which are rarely available. You might also decide you need to know certain characteristics of the available documentation (for example, whether it is the most recent available, whether it is officially produced, and so forth). In addition, you might use a description of the locations of the most recent versus older versions of the documentation products to learn whether there is a pattern to their location.

Step 3: Determine what data is needed and from whom. You require two verbal lists to get the responses you need to answer your question: (a) available documentation products and (b) locations of documentation products. The information you need is available at each of your corporation’s subsidiary sites.

Step 4: Specify the practical steps to get and record this data. Let’s consider how each of the three major methods for collecting qualitative information might apply in this situation. First, observation would certainly be useful in developing your lists. You might visit each European subsidiary and search for documentation products at that site or note which documentation products are being used by whom during your observation. Second, artifacts might be useful in developing your lists, especially if you find that some self-produced documentation has been created by workers at that site. Third, interviews would be useful in developing your lists as you could ask workers at the subsidiaries what documentation is available to them and where. Thus, all three methods seem likely candidates for applicable research methods.

The applicability of multiple collection methods is often the case in qualitative research projects. However, one of the areas in which you will definitely have to balance research credibility with business practicality will be in choosing the methods and examples for your study. Miles and Huberman state the researcher’s problem very clearly:

Knowing, then, that one cannot study everyone everywhere doing everything, even within a single case, how does one limit the parameters of a study? (1984, p. 36)

Thus, in our workplace scenario, you will have to decide whether the cost of observation is warranted or whether you can get information of high enough quality through telephone interviews. One of the ways in which you can manipulate the cost of your research study is through your decisions about choosing examples to study. In other words, in our scenario you would need to determine the costs versus benefits of visiting all subsidiaries. I’ll take up the question of choosing examples (or samples) to study in the following section.

How do you choose examples to study? Forster provides some insight into how a researcher decides what people or data to use as examples for a research project:

The choice of documents was determined by the research questions we were trying to answer. For example, had we wanted to look at stress at work, it would have been appropriate to access as much documentation as possible on absenteeism and even employee medical records. In this particular study, we needed to access company documentation which would cast light on a variety of organizational planning issues: commitment to [Human Resource Management] training, succession planning, career development policies, company culture(s), people management, and the management of employee job moves. (1994, pp. 154–155)

Obviously, your choice of examples to collect is driven by your research question. But let’s suppose you locate a total of 40 different artifacts that fall into the category described by Forster in the example above. You now need to decide which of these 40 you will collect for analysis. With so many artifacts available, you could implement random probability sampling—say you think you’ll have time and money enough to analyze 5 of these documents—then you (randomly) assign numbers to each of the 40 documents and then pick every 8th one for collection (that is, documents numbered 8, 16, 24, 32, and 40).

There are certainly many other possibilities in such a scenario. Because this discussion focuses on doing qualitative research, where the number of participants or artifacts to be studied is often small, I’ll concentrate on a number of strategies for choosing examples in such situations.

Strategy 1. Ensure that your examples represent the variety found in the whole population of interest. Lindlof explains that in this technique, “cases are usually selected serially, with each adding a different, contrasting element to the overall
sample” (1995, p. 126). To illustrate, in our workplace scenario you might use this strategy when choosing interview participants from the population of all workers in your company’s European subsidiaries. You might improve the quality of your research by choosing (a) both male and female workers, (b) both technology novices and experts, and (c) workers from the range of job descriptions that use your products.

Clearly, the success of this technique lies in your ability to identify the relevant variations of participants or artifacts with regard to the question driving your research.

Strategy 2. Ensure that your examples represent the typical participant, artifact, or situation in the whole population of interest (Typical Case Sampling) “A typical case can be thought of in a number of ways: as the most frequent case, as the average of a distribution range, or as the composite ideal of a phenomenon (albeit not ideal in the sense of ‘best’)” (Lindlof 1995, p. 129). This strategy might be used for choosing participants for observation in our workplace scenario. For instance, if you know that workers in a single job description make up the vast majority of your products’ users, then you improve the quality of the information you collect by choosing to observe workers with that job description.

Strategy 3. Ensure that your examples represent the most critical population of interest (Critical Case Sampling) On the other hand, if in our workplace scenario you know that a small but important subset of your products’ users make purchasing decisions, then you improve the quality of your collected information by choosing to observe workers from this other job description. This example demonstrates the use of “a case that exemplifies a theoretical or practical problem” (Lindlof 1995, p. 130). In other words, you focus your information collection activities on examples that serve as the most critical test for your product and its documentation.

All of the strategies outlined here constitute an attempt to make systematic and rational choices about the examples used in collecting qualitative information to enhance the value of your research efforts.

How do you guarantee the credibility of collected qualitative data?

In addition to strategies for choosing examples for study, there are a number of additional techniques that can be used to plan collection activities to obtain the most credible information possible. For instance, to combat a common complaint about interviews and observation (that is, that different researchers get different information, hence different results), many researchers recommend use of an interview guide or coding form, as I have noted earlier.

This section lists other techniques for enhancing the credibility of your collected information.

Collection Technique 1. Use more than one method for collecting information and more than one strategy for choosing examples for study (Triangulation) One common technique for improving the credibility of qualitative research is called triangulation, the collection of information from more than one method or source of information. Sometimes this technique is phrased so that it also specifically includes Strategy 1 (maximum variation sampling) (for example, Denzin 1970); in other words, choosing a set of participants that represent the diversity of the population of interest can be categorized as a type of triangulation.

Triangulation is exemplified when Rantzer describes the “Delta Method,” in which interviews and observation (or more than one interviewer for the same participant). For instance, in a Hewlett-Packard study, the researchers used a minimum of three observers for each visit to a family home. The information noted by more than one researcher had greater credibility than that noted by a single observer.

Collection Technique 3. Ask some of your participants to assess the quality of your collected information.

One common technique for improving the credibility of qualitative research is called triangulation, the collection of information from more than one method or source of information.
The bottom line is that the more real you make your pilot test, the more likely that you won’t be unpleasantly surprised during your actual research activities.

**Pilot Studies**

Katz reports her attempts to control the quality of her collected information in a study by soliciting feedback from the same participants she had observed and interviewed (1998, p. 109). While information from so-called member checks is obviously valuable, that information must be carefully interpreted because your participants’ opinions about what is going on may or may not be more credible than your own (Lindlof 1995, p. 94). In other words, member checks provide an additional but not infallible source of information.

**Collection Technique 4. Do a practice run using your methods with real people (Pilot Studies)**

Pilot studies are an important technique for planning to collect credible information during qualitative research. For instance, Johnson and Briggs describe the importance of a pilot study when using verbal protocols (a combination of interviews and observations) to ensure that asking participants to verbalize while doing a task is a realistic expectation and that the participants’ performance of the task is not seriously influenced by the requirement that they verbalize their thinking (1994, p. 64). The single most important thing you can do to ensure that your tools and materials will allow you to get the best possible qualitative information is to perform a pilot study. In other words, get all your things together and actually go through the whole procedure you plan to use to collect information.

Obviously it’s most helpful if you perform your pilot with representative participants, but even if you can’t do that, you should find someone to act like a participant for you. For example, Brown notes that a pilot test was conducted with internal marketing people who previously held the same job as the target users; in this case, one of the benefits of doing the pilot study was the collection of information about how different the mental models of the marketing people were compared with the actual users (1996, p. 168). The bottom line is that the more real you make your pilot test, the more likely that you won’t be unpleasantly surprised during your actual research activities.

For detailed and practical help in preparing your information collection plan, use Hackos and Redish’s template for conducting a site visit to support interface design activities (1998, pp. 447–454).

**How do you guarantee the business practicality of your information collection plan?**

All research costs money (whether from labor, materials, delays in time to market, and so forth). And techniques for improving credibility will almost certainly add to the cost of research. Thus, your information collection plan needs management support.

Wixon, Pietras, Huntwork, and Muzzey provide a compelling example of the net financial gain realized when they spent some money to visit their customers to collect information while designing a product:

> A relatively small investment in customer visits led to a change in direction that not only saved resources, but increased the product’s chance of success. As the development supervisor said: “Without this process we would have spent 18 months and 2 million dollars producing a noncompetitive product.” (1996, p. 86)

The basic tool for determining business practicality of any project, including a research project, is the financial business case. Schmidt provides this definition:

> A business case is a tool that supports planning and decision-making—including decisions about whether to buy, which vendor to choose, and when to implement. Business cases are generally designed to answer the question: What will be the financial consequences if we choose X or do Y? A good business case shows expected cash flow consequences of the decision, over time, and it includes the rationale for quantifying benefits and costs. Critical success factors and significant risks will be discussed, if relevant. The case also describes the overall impact of your proposal in terms that every financially astute manager looks for: discounted cash flow, payback period, and internal rate of return. (1997, p. 1)

Your business case must show that your information collection plan will have desirable consequences in at least one of three financial areas over the next few months/years:

- Reducing costs
- Increasing returns
- Accelerating returns

If you do not yet know how to develop and present a business case, you need to learn. A great starting point is The Business Case Web Site at http://www.solutionmatrix.com/index.html, which includes a number of free white papers on developing business cases.

In sum, there are a number of techniques for building an information collection plan that will enhance the credibility of your activities. However, if you cannot build a business case for carrying out your plan, you cannot expect management to support that plan no matter how credible the end product. On the
Your business case must show that your information collection plan will have desirable consequences in at least one of three financial areas over the next few months/years.

The material presented here has been designed to help you begin to boost your confidence in your ability to stand “toe-to-toe” with your co-workers, bosses, and clients when providing answers to the technical communication problems they face. In other words, you should feel slightly (though perhaps not significantly) more confident at this point. Mastering qualitative research methods will take much time and effort. Now at least you have begun the journey, and you should find other material much more accessible, whether it appears in classrooms, lunchrooms, research journals, or conference presentations, or on discussion lists.

Let me end by noting that research is not something you can learn simply by reading; it is something you learn primarily by doing. So get going. And let me know where you find yourself along the way.

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REFERENCES


Forster, N. 1994. “The analysis of company documentation.” In Qualitative methods in organizational research: A practical guide,


