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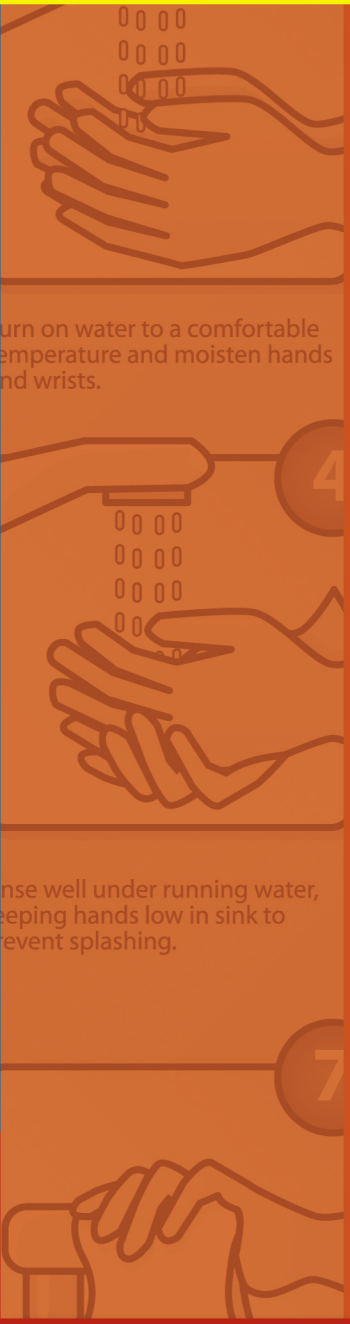

Technical Report Writing Today

TENTH EDITION

Daniel G. Riordan

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These new boxes highlight areas in which the important topics of ethics and globalization are especially relevant.

Worksheets

The worksheets help students organize their thoughts, prepare for assignments, and evaluate both their own work and the work of others. By breaking down a project into its elements, each worksheet ensures that students will complete the project successfully.

Technical Report Writing Today

TENTH EDITION

Technical Report Writing Today

Daniel G. Riordan
Emeritus Professor of English
University of Wisconsin–Stout

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Daniel G. Riordan

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For Mary, with love

Brief Contents

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Preface

This edition of *Technical Report Writing Today* continues my love affair with teaching technical communication. My key idea is accessibility. I want the book to make accessible both the act of writing and current changes in the ways professionals must communicate. The changes and additions that I have introduced into this edition reflect that goal.

Before I detail those for you, let me tell you a bit about my teaching and, thus, my suggestions for using this book, whether you are a student or instructor. When I first began to teach in the 1970s, I lectured and showed examples. Students took notes and handed in papers that I graded and returned. In other words, I did what everyone did.

But as the years passed, I came to believe that I needed to alter the way I approached writing, and confidence about writing. I turned my classes into labs. Rather than lecture, I assigned chapters, and then worked on creating papers in class. I used fewer and fewer exercises and instead assigned the particular paper on day one and told students to begin to work on it. I circulated. I commented. I taught students to ask, "How do I handle this?" And when they finished the paper, they handed it in to me and then also handed in a "Learning Report." Those learning reports became the key to my teaching. My goal was to create ongoing self-reflection so that the course became, so to speak, one big assignment in developing awareness of how each individual wrote and in creating confidence that the student could handle any new situation. In other words I tried to set students on the trail to expertise, which grows by practice and reflection. I think my way worked. I encourage you to try it. I think that this edition provides a way to do that.

Organization

This text is organized so that instructors have maximum flexibility in creating a course based on it.

1. As has been true since I started writing this text, I have chapters on theory in the first half of the book, and applications in the second half. I have included both professional and student examples in order to illustrate the variety of ways in which a paper can be created so that it makes its topic accessible to its audience.
2. I have maintained the way in which most chapters are organized, drawing attention to the professional process of considering audience, organization, usual form, and visual aids—the four essentials in professional writing.
3. I have deleted and added material to keep the topics up to date, changing some chapters; I will detail that for you later.

4. I have kept exercises in all the chapters, retained all the Planning and Evaluating Worksheets, and all the assignments. A key assignment that I have in every chapter is the requirement to write a Learning Report. If you have not used that strategy, I introduce it in Chapter 5. I hope you will review it and use it.
5. I have seen a number of syllabuses that instructors have created in order to use the text. I am amazed at the creativity I find. You can work through the book chapter by chapter or skip around, often combining a theory and practice chapter as you assign a particular paper.

Special Pedagogical Aids and High-Interest Features

Learning reports. As I have detailed above, I have continued the use of "Learning Reports," self-reflections on what the student did and learned while creating the assigned paper. My final exam is that students write a paper explaining what they learned in the class and what they will take forward into new communication situations.

Grants for non-profit organizations. Because I am especially interested that my writing classes not be simply "figure out what he wants and hand that in" (which actually is pretty good reading of audience), I have added a new section on writing grants for non-profit organizations. I urge you to use this material as a way to have your students perform community service and also to write for an audience who will make an action decision on the writing, an action that the writers want to occur in their favor.

Social media. This revision includes sections spread throughout the text on social media. While personal use of social media—texting, tweeting, facebooking—are now common in student life, the professional use of the same applications is not understood. Just because you can post quick notes about what you are doing tonight does not mean that students will know how to handle those applications when they arrive in the work force. I have consulted a number of people who manage social media outlets in order to provide your students with clear advice on what proper usage is for companies they might work for.

Slide presentations. I have also changed the focus of the oral presentation chapter, focusing on slide presentations. My change is simple: stop using text, start using visuals. Speak to the visual, don't read the text to the audience. Communication regularly includes orally presenting the material, so skill in doing so is an important professional necessity.

Technical communication style. Every time I talk to professional managers, they tell me not to worry about the forms or genres—they can teach those. They want clear writing. I have trimmed the style chapter so that it focuses on fewer issues, just the most essential ones, and I have added discussions of pronoun usage and comma splices in the Handbook. I have also added a long list of sentences I revised as I wrote this manuscript. I want students to see that revision occurs as one writes, not just later when searching for errors. I hope that you will return often to student sentence awareness, helping them learn for themselves how to craft their sentences. The need for clarity is especially important in e-mail where vague, loose sentences create the need for a lot of back and forth until clarity is achieved.

Old favorites retained. Other pedagogical features have remained the same. The exercises, assignments, and worksheets are all there. I especially like the worksheets because they give the students the expectations before they begin to create the project.

Class as a lab. While I do not have sections on "Class as a Lab" in the text, I urge you to consider this approach. Assign a number of tasks at the beginning of the class time, then circulate to discuss issues with students or groups of students. The class is a lot noisier but the results in student confidence are impressive.

New to This Edition

In keeping with my goals of creating an accessible, up-to-date text, I have made numerous changes. I have added a number of new sections, and, regrettably due to lack of space, deleted some old sections. Here they are in priority order.

Chapter 14. I have added a new section on Writing Grants for Non-Profit Organizations. My reviewers suggested this section, and I am delighted to add it. This section is a dramatic refocusing of the old "External Proposals" section. Non-profit organizations write grants regularly. Many of our students will be involved in such writing either because they work for a non-profit, or because as a community member they join a board that requires such work in order to facilitate the daily running of the organization. In addition this topic allows students a wonderful opportunity for a community service project. Whether you are in a major urban or a rural area, you will be able to find a non-profit organization that will be delighted to have your students help them with this important task. Creating a grant proposal will also place your students into the world where their writing "counts," not for a grade but to make a difference in other people's lives. I have had the good fortune to find grant writers who were willing to share their successful professional examples, which

demonstrate that successful papers take many forms, not just a "text book formula" form to achieve their goals.

Chapter 11. There is an entirely new section on Social Media. Since the last edition of this book, communication has been dramatically changed by social media—Facebook, Twitter, and many other applications. This edition provides you with a way to include social media in your class and teaching strategy. With the aid of several people who "do" social media for a living, I have provided discussions of the way in which these media are used professionally. Students need to understand the model that is developing for social media use—at the time of this writing an interaction between websites, Facebook sites, Twitter sites and YouTube. I have included a number of examples that show how these sites interact with one another. Creating assignments for social media usage is difficult. You have to have students create and use the media, but you also have to evaluate it. I have tried to give you enough information so that you can confidently wade into this new stream in our teaching. One engineering manager that I interviewed before beginning the revision told me that he was hoping to hire "someone young" in the near future who could take up the task of creating and using social media for his company. He felt that he and his colleagues were both too busy and a bit "out of it" to take up the task. I hope that you can prepare your students for the opportunities that exist in this new field.

Chapter 10. A third area in which I have updated and refocused material is a new section regarding e-mail. People don't write memos any more. They send e-mails with attachments. All professionals I know are inundated with e-mail (so much so that in my last position I took to sending paper mail to people I wanted a response from). The new focus suggests ways to use the elements of the message (e.g., subject line) to create accessible messages.

Chapter 16. As almost all speeches from committee meetings to keynote addresses use PowerPoint (which has become a generic term for any digital slide presentation regardless of the application used to create it), a new section revolving around slide presentations has been added. You have heard, no doubt, "Death by PowerPoint," the cliché that indicates the ubiquity and dullness of PowerPoint presentations. I have focused on the rising call for less text and more visuals. The text is for the speaker to deliver, the visual is for the audience to consider as the points are made. I urge you to require your student presenters to use this strategy. Not only will it make the reports you have to listen to more pleasant, you will be preparing them to be a welcome breath of fresh air in the presentation world that they will enter after their university work.

Chapter 4. Yet another topic that I am happy to refocus is the various places in which I discuss technical communication style, in Chapter 4. Every time

I interview professional managers about what they need in a new hire, they emphasize clear writing. While clear writing includes many topics, I have chosen to focus on creating sentences. I have deleted some of the advice so that Chapter 4 is more succinct focusing on important issues—I believe that skill in using active voice and parallelism are the two most important issues for any professional writer to possess.

Appendix A. New sections on Pronouns, Comma Splices, and Revised Sentences have been incorporated. Many writers, young and old, can't "see" the mistakes they make, so I have introduced new features in Appendix A: text boxes on recognizing misuse of pronouns and recognizing comma splices, and lengthy set of rewritten sentences. Pronouns are a bugaboo for many writers ("they," "I," "you" and "we" are used, as you know, interchangeably by many writers for whom the interchanging is invisible). I hope that my sections help you make students aware of the issues that attend these problems. I know that they were supposed to learn all this somewhere else, long ago. But if they didn't, there they are in your class. I hope that you find a way to use the strategies I present. The revised sentences are ones that I rewrote as I composed the manuscript. I want students to see that revision is an ongoing practice, not just something you do at the end looking for obvious grammar mistakes. Most of my revised sentences are more concise and clearer. I urge you to make your students collect their own samples of sentence revision, maybe even hand them in regularly or make them somehow part of a class Facebook site.

Some Other Topics Have Been Revised

Chapter 5—Researching. Completely updated to include new examples of online searching and current rules for MLA (7th ed.) and APA (6th ed.) citations.

Chapter 13—Professional feasibility examples. Such examples are difficult to find. My local engineering firm, Cedar Corp., was generous enough to supply me with short ones that they used in a recent project.

Chapter 12—Extended explanation of executive summary. This section of reports has become a major necessity in a world awash in information. It is what people read. The new section focuses attention on creating executive summaries that convey quickly and clearly the contents of the attached report.

Other additions in the text. New examples have been added in many chapters, including new professional résumés (Chapter 17) and new IMRD examples (Chapter 10).

The Expansion of Globalization sections have been revised to include comments from European students and professional writers.

All web citations in the Works Cited sections in all chapters have been updated.

To make room for the new sections I reluctantly concluded to leave some old friends behind.

Some Sections That Have Been Removed

Old Chapter 8 (Summarizing) and 9 (Defining) are gone. In new Chapter 12 I focus on executive summaries, which is a skill graduates often will need. I have included operational definitions in Chapter 10 with Informal Reports.

The Letters chapter (old Chapter 19) is gone. I merged the section dealing with the elements of a letter into the chapter on Job Application materials (new Chapter 17).

Ancillaries

Save time and streamline your course preparation with the Instructor's Resource Manual, available upon request from the publisher. This useful guide for instructors includes a wealth of resources such as sample syllabi, chapter notes, teaching suggestions, assessment sheets, and sample documents. Instructors will also have access to a downloadable version of the Instructor's Resource Manual, as well as chapter-specific PowerPoint lecture slides, on the protected instructor's companion website.

The student companion website is a rich study tool that includes such resources as chapter overviews, student samples, relevant web links, and a step-by-step guide to developing a website.

To access these ancillaries or to learn more, go to www.cengagebrain.com.

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If the book has brilliances, most of the credit goes to my collaborators who have shared so much with me. The errors are mine, for which I take full responsibility.

Dan Riordan
Menomonie, Wisconsin

SECTION

1

Technical Communication Basics

CHAPTER 1

Definition of Technical Communication

CHAPTER CONTENTS

CHAPTER 1 IN A NUTSHELL

Here are the basics for getting started in technical communication:

Focus on your audience. Your audience needs to get work done. You help them. To help them, you must stay aware that your goal is to enable them to act.

Think of audiences as members of your community who expect that whatever happens will happen in a certain way and will include certain factors—your message is expected to include certain sections covering specific topics. When you act as members of the community expect other members to act, your message will be accepted more easily.

Use design strategies. Presenting your message effectively helps your audience grasp your message.

- Use the top-down strategy (tell them what you will say, then say it).
- Use headings (like headlines in newspapers).
- Provide navigation to guide users to the content they need.
- Use chunks (short paragraphs).
- Establish a consistent visual logic through your formatting choices.
- Use a plain, unambiguous style that lets readers easily grasp details and relationships.

These strategies are your repertoire. Master them.

Assume responsibility. Because readers act after they read your document, you must present a trustworthy message. In other words, readers are not just receptacles for you to pour knowledge into by a clever and consistent presentation. They are stakeholders who themselves must act responsibly, based on your writing. Responsible treatment of stakeholders means that, among other things, you will use language and visuals with precision and hold yourself responsible for how well your audience understands your message.

Think globally. Much technical communication is distributed to audiences around the world. To communicate effectively, you must learn to *localize*. *Radical localization* requires a significant commitment to take into account the audience's broad-based cultural beliefs, while *general localization* involves tailoring the details of your document to locally expected methods of description—for instance, designating the date as day/month/year, or weights in kilograms.

Welcome! Technical communication is a large and important field of study and professional activity. Universities worldwide offer courses and programs in technical communication. Professionals either are technical communicators or produce technical communication documents as part of their jobs. The goal of this book is to make you an effective, confident technical communicator. This chapter introduces you to the basic concepts you need to know in order to communicate effectively. All the rest of the ideas in the book are based on three concepts: technical communication is audience-centered, presentational, and responsible.

This chapter introduces the field with two major sections: A General Definition of Technical Communication and Major Traits of Technical Communication.

A General Definition of Technical Communication

What Is Technical Communication?

Technical communication is "writing that aims to get work done, to change people by changing the way they do things" (Killingsworth and Gilbertson, *Signs* 232). Authors use this kind of writing "to empower readers by preparing them for and moving them toward effective action" (Killingsworth and Gilbertson, *Signs* 222). This is a brief definition; later in this chapter, you will learn more about the implications of empowering readers.

What Counts as Technical Communication?

Technical communication is an extremely broad field. It encompasses a wide range of skills and writing types. The Society for Technical Communication, an international professional organization, says that technical communication is any item of communication that includes one or more of these characteristics (STC, "Defining"):

- Communicating *about technical or specialized topics,* such as computer applications, medical procedures, or environmental regulations.
- Communicating *by using technology,* such as Web pages, help files, or social media sites.
- Providing *instructions about how to do something,* regardless of how technical the task is or even if technology is used to create or distribute that communication.

STC offers a certification to become a professional technical communicator. In such a capacity, a communicator is able to do all of the following:

- **User, Task, and Experience Analysis**—Define the users of the information and analyze the tasks that the information must support.

- **Information Design**—Plan information deliverables to support task requirements. Specify and design the organization, presentation, distribution, and archival for each deliverable.
- **Process Management**—Plan the deliverables schedule and monitor the process of fulfillment.
- **Information Development**—Author content in conformance with the design plan, through an iterative process of creation, review, and revision.
- **Information Production**—Assemble developed content into required deliverables that conform to all design, compliance, and production guidelines. Publish, deliver, and archive (STC, "Certification").

Technical communicators apply these skill areas to deliver diverse information products, including technical reports, articles, books, periodicals, tutorials and training, training materials, brochures, posters, websites, quick start guides, context-sensitive help, organizational manuals, quick reference, reference documents, user guides, and interactive knowledge bases (based in part on STC, "General"). Further, the content they produce may be drawn upon to meet other needs of the company or organization, such as sales and marketing, product development, and regulatory compliance.

Broadly considered, technical communication is a part of almost everyone's life on a regular basis.

Who Creates Technical Communication?

Two different types of writers create technical communication—technical communication professionals and those professionals who write as part of their jobs.

Professional technical communicators are hired to write the content that companies need to explain their products or services, often to help customers and technicians interact efficiently with the product or service. For instance, technical communicators work with software engineers to understand their software and then write guides and tutorials that users need. Whatever is needed to make information available to help people with their work, technical communicators produce.

Technical communicators are also those professionals who write about issues in their specific field or workplace. Sometimes these experts write for other experts. For instance, an engineer might write a progress report explaining to a division manager the actions and issues with a current project; a dietitian could write a proposal to fund a new low-fat breakfast program at a hospital; a packaging engineer may offer a solution for an inefficient method of filling and boxing jars of perfume. Sometimes these experts write to help nonexperts with technical material. Dieticians, for instance, often write brochures or Web content explaining the components of a healthy diet to hospital patients. Engineers write reports for nontechnical users, perhaps a county board, explaining an issue that has arisen in a bridge project.

Both groups and their activities center on the basic definition of technical writing given by Killingsworth and Gilbertson. The goal is to empower readers who depend on the information for success.

How Important Is Technical Communication?

Communication duties are a critical part of most jobs. Survey after survey has revealed that every week people spend the equivalent of one or more days communicating. In one survey ("How do they"), engineers reported that they spend 34 percent of their time writing on the job. In addition they report that in their writing, they collaborate up to 30 percent of their time. E-mail takes up to 38 percent of their time. Bob Collins, a corporate manager, puts it this way: "The most critical skill required in today's business world is the ability to communicate, both verbally and in writing. Effective communication has a direct impact on one's potential within an organization." Holly Jeske, an assistant technical designer for a department store chain, says "communication is my job." Her comments demonstrate the importance and complexity of everyday, on-the-job writing:

> I have to say that I depend a lot on my computer and e-mail for communicating with our overseas offices. I send and receive a lot of e-mails daily. A huge part of my job depends on writing and communicating in that way. I don't get the chance to hop on a plane every time there is a fit issue so that I can verbally communicate with them or even call them on the phone. . . . If I were never able to communicate through writing what I want the factory to change about a garment, I probably never would be moving from my current position. Communication is my job and pretty much anyone's job, . . . e-mail is a huge part of the corporate world.

Major Traits of Technical Communication

Technical Communication Is Audience Centered

Let's return now to the implications of our brief definition of technical communication—"writing that aims to get work done" and writing "to empower readers." What do those phrases imply? Technical communicators create documents that aim to help readers act effectively in the situations in which they find themselves. Janice Redish, an expert in communication design, explains that "a document . . . works for its users" in order to help them

> Find what they need
> Understand what they find
> Use what they understand appropriately (163).

In order to create a document in which readers can find, understand, and use content appropriately, writers need to understand how writing affects readers

and the various ways in which readers approach written content. *Audience centered,* in this larger explanation, means that technical communication

- Has definite purposes
- Enables readers to act
- Enhances relationships
- Occurs within a community
- Is appropriate
- Is interactive

Technical Communication Has Definite Purposes

Technical writers enable their readers to act in three ways: by informing, by instructing, and by persuading (Killingsworth and Gilbertson, "How Can"). Most writers use technical writing to inform. To carry out job responsibilities, people must supply or receive information constantly. They need to know or explain the scheduled time for a meeting, the division's projected profits, the physical description of a new machine, the steps in a process, or the results of an experiment.

Writers instruct when they give readers directions for using equipment and for performing duties. Writing enables consumers to use their new purchase, whether it is a garden tool or a laptop computer. Writing tells medical personnel exactly what to do when a patient has a heart attack.

Finally, with cogent reasons writers persuade readers to follow a particular course of action. One writer, for example, persuades readers to accept site A, not site B, for a factory. Another writer describes a bottleneck problem in a production process in order to persuade readers to implement a particular solution.

Technical Communication Enables Readers to Act

According to Killingsworth and Gilbertson, it is helpful to view technical writing as "writing that authors use to empower readers by preparing them for and moving them toward effective action" (*Signs* 221–222). "Effective action" means that readers act in a way that satisfies their needs. Their needs include anything that they must know or do to carry out a practical activity. This key aspect of technical writing underlies all the advice in this book.

Figure 1.1 (p. 7) illustrates this concept in a common situation. The reader has a need to fulfill a task that she must do. She must assemble a workstation. A writer, as part of his job, wrote the instructions for assembling the workstation. The reader uses the instructions to achieve effective action—she successfully assembles the workstation. This situation is a model, or paradigm, for all technical writing. In all kinds of situations—from announcing a college computer lab's open hours to detailing the environmental impact of a proposed shopping mall—technical writers produce documents that enable effective action. The writing enables the reader to act, to satisfy a need in a situation.

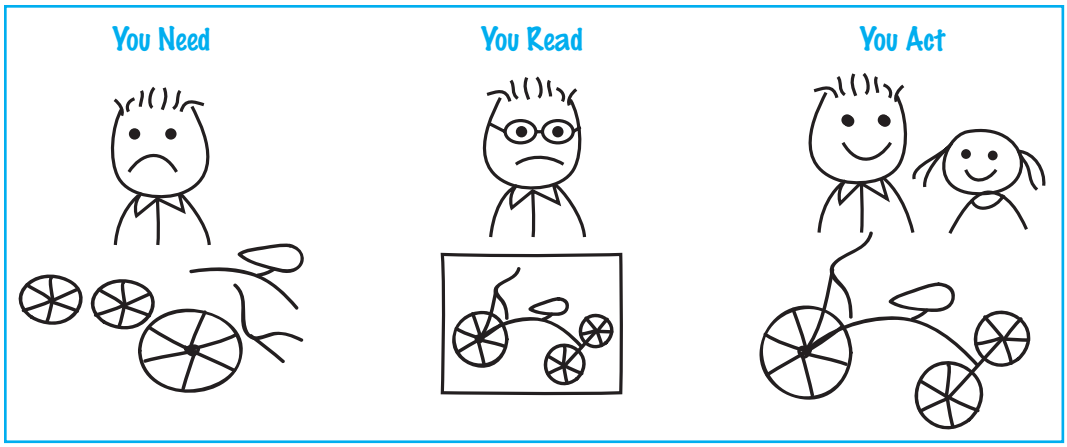

Figure 1.1 Writing Makes Action Possible

Technical Communication Enhances Relationships

The starting point for creators of documents is the realization that their documents enhance relationships (Schriver, "Foreword"). Audiences don't exist in a vacuum. They exist in situations. Those situations mean that they have relationships with many people. Writing, and all communication, enhances those relationships. Audiences read because documents help them relate to someone else.

This may strike you as a strange way to think about writing. Many beginners tend to see the goals of writing as "being clear" or "having correct spelling and grammar," both of which are fine and necessary goals. But the modern conception of writing asks you to consider the issues related to those goals later. First, you need to understand the relationship issue. Let's take a personal example. Suppose a father has to assemble a tricycle for a birthday present. To assemble it, he first opens the box it came in, reads the instructions included, collects the correct tools, and then puts the parts together. Perhaps he visits the manufacturer's website to view an assembly tutorial. He is able to assemble the trike because you produced clear instructional content, identifying the parts and presenting the steps so that at the end the father has completed a functional toy ready for a child to ride.

If you think about the example for a moment, you can see that the father is using your instructions to enhance his relationship with his child. His goal in this situation is not just to turn a pile of parts into a working machine. It is to give a present to another person, someone with whom he has an ongoing relationship. This present will enhance that relationship, and the content you produced is a helpful factor to that end.

Now let's take a business example. Your department is in the process of upgrading its computer network. Your job is to investigate various vendors

and models in order to suggest which brand to buy. When you finish your investigation and produce a report, the equipment is purchased and the network upgraded. Here, too, if you think about it, the report is about enhancing relationships. The goal is not just to get the cheapest, best equipment, but to facilitate the effectiveness of the work flow between people. If the system is effective, the people can interact more easily with one another, thus enhancing their relationships. Your report is not just about selecting a supplier; ultimately, it is about the relationships people have with one another in the department.

In both examples, you can see the same dynamic at work. Documents enhance relationships. Documents function to make the interaction of people better, more effective, more comfortable. Documents then empower people in a rather unexpected way—not only is the tricycle assembled, the child rides it, and the gift is exciting. Not only is the network upgraded efficiently, the office workers can cooperate in effective, satisfactory ways as they exchange and analyze their data.

Technical Communication Occurs Within a Community

Action occurs within a *community,* a loosely or closely connected group of people with a common interest. The key point for a writer to remember is that belonging to a community affects the way a person acts and expects other members to act (Allen; Selzer). Think about it this way: When people join a community, they learn how to act. For instance, at a new job people watch to see how everyone dresses and then dress similarly. If a man shows up at work on his first day in a three-piece suit and everyone else is in sport shirts and jeans, he will quickly change his clothing choices. But more than clothing choices, people learn how to communicate. In high school that might mean picking and using certain slang phrases, but on the job it means understanding how to present your material so that readers get the information that they need in the form that they expect it. This concept means that readers expect writing—all communication, actually—to flow in a certain way, taking into account various factors that range from how a document should look to what tone it projects. Effective writers use these factors, or *community values,* to produce effective documents.

If you conduct research into customer satisfaction to present to the sales force, they expect to know the method and results of your research. However, if you come to the meeting to report and you sing your report as if you were in a 1950s musical, you would not be presenting it in the form they expect. If you arrived with a perfectly formatted presentation, just like everyone else presents, and filled the entire report with lengthy details of all the personal concerns that made it hard for you to get the report finished, you would not be presenting the information that the sales managers wanted. The result very likely would be that no one would remember the contents of your report, only

Figure 1.2 Writing Occurs Within a Community

that you were off base; you were not following the community's values. If you sang your reports three times over a few months, you would likely be fired (Figure 1.2).

One researcher (Schriver, *Dynamics*) found that one group failed to produce an effective brochure that delivered an antidrug message because the visual aid used in the brochure offended the teens' sense of what was the correct way to send the message. Rather than focus on the message, the teens focused on the image and, interestingly, on the writer. Their conclusion was that, like the singer in previous the example, the writer was off base and thus had little or no credibility. Other brochures on the same topic were rejected again and again because the writer had failed to find the "community connection" with the teenage audience (171–185).

In other words, community values affect the way you write. The writing you do is deeply affected by your awareness of what members of your community need and expect. They need certain facts; they expect a certain format. They cannot know how to act on the facts you discover until you give the facts to them in the e-mail. Technical communication is based on this sense of community. "We write in order to help someone else act" (Killingsworth and Gilbertson, *Signs* 6).

Technical Communication Is Appropriate

Because communication takes place within a community, it must be *appropriate,* which can have two meanings in communication: the material needed in the situation is present (Schriver, "Foreword"), or the material is socially acceptable (Sless).

The first meaning implies that the wording must be more than clear and well structured. Suppose, for instance, that a reader consults a user manual to discover how to connect a videogame system to a wireless home network. If that topic is not covered in the manual, or if the manual explains networking