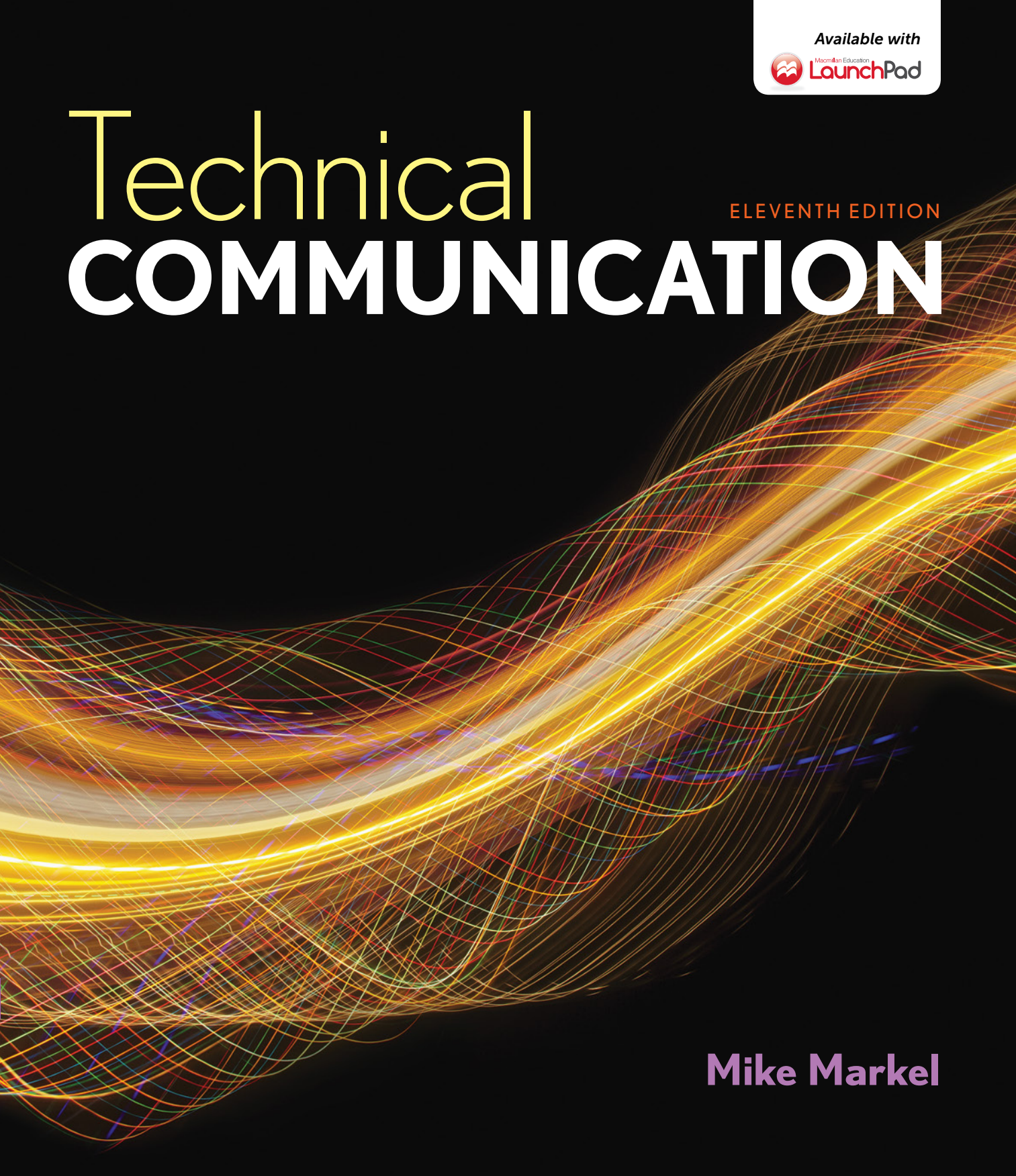
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COMMUNICATION
Mike Markel

More ways to learn with LaunchPad for *Technical Communication*

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Macmillan Education LaunchPad **Where Students Learn**

Technical Communication includes cross-references to LaunchPad, an online course space that provides document analysis activities, cases, tutorials, quizzes that provide immediate feedback, and more. If your book did not come packaged with an access code, you can purchase access to LaunchPad for *Technical Communication* at macmillanhighered.com/techcomm11e.

In LaunchPad, you'll find:

- analysis activities based on multimodal sample documents, including video instructions and interactive visual reports
- downloadable versions of helpful forms discussed in the text
- LearningCurve: adaptive, game-like practice that will help you focus on the topics where you need the most help
- real-world case scenarios built around common workplace documents
- a test bank with quizzes and additional cases and exercises for every chapter
- tutorials on digital composition, tech tips, and documentation
- video-based modules on team writing
- two full-length e-books: *Document-Based Cases for Technical Communication*, Second Edition, by Roger Munger, and *Team Writing* by Joanna Wolfe

For a complete list of LaunchPad contents, see the next two pages.

Inside the LaunchPad for *Technical Communication*

LaunchPad materials are identified throughout the text with the icon.
To access the book's LaunchPad, go to
macmillanhighered.com/launchpad/techcomm11e

CASES

Document-based cases, previously included at the end of each chapter, are now presented online, where you can familiarize yourself with each scenario, download and work with related documents, and access assignment questions in a single space.

CASE 1: Using the Measures of Excellence in Evaluating a Résumé
CASE 2: The Ethics of Requiring Students To Subsidize a Plagiarism-Detection Service
CASE 3: Understanding Why Revision Software Cannot Revise and Edit Your Document
CASE 4: Accommodating a Team Member's Scheduling Problems
CASE 5: Focusing on an Audience's Needs and Interests
CASE 6: Revising a Questionnaire
CASE 7: Organizing a Document for Clarity—and Diplomacy
CASE 8: Analyzing the Persuasiveness of a Website
CASE 9: Emphasizing Important Information in a Technical Description
CASE 10: Revising a Document for Nonnative Speakers and for Translation
CASE 11: Designing a Flyer
CASE 12: Creating Appropriate Graphics To Accompany a Report
CASE 13: Revising a Document for a New Audience
CASE 14: Setting Up and Maintaining a Professional Microblog Account
CASE 15: Identifying the Best-of-the-Best Job-Search Sites
CASE 16: Revising a Brief Proposal
CASE 17: Writing a Directive About Using Agendas for Meetings
CASE 18: Analyzing Decision Matrices
CASE 19: Introducing the Scientific Method Through a Lab Report
CASE 20: Choosing a Medium for Presenting Instructions
CASE 21: Understanding the Claim-and-Support Structure for Presentation Graphics

DOWNLOADABLE FORMS

Download and work with a variety of helpful forms discussed throughout the text.

Work-Schedule Form (Chapter 4)
Team-Member Evaluation Form (Chapter 4)
Self-Evaluation Form (Chapter 4)
Audience Profile Sheet (Chapter 5)
Oral Presentation Evaluation Form (Chapter 21)

LEARNINGCURVE

Master the material covered in the first ten chapters of the text as well as key skills for multilingual writers with LearningCurve, a fun adaptive quizzing program that meets you where you are and gives you the extra support you need when you need it.

Understanding the Technical Communication Environment (Covering Part 1: Chapters 1–4)
Analyzing Your Audience and Purpose (Covering Chapter 5)
Researching Your Subject (Covering Chapter 6)
Organizing and Emphasizing Information (Covering Chapters 7 and 9)
Communicating Persuasively (Covering Chapter 8)
Writing Correct and Effective Sentences (Covering Chapter 10)
Articles and Nouns for Multilingual Writers (Covering Appendix Part D: Guidelines for Multilingual Writers)
Prepositions for Multilingual Writers (Covering Appendix Part D: Guidelines for Multilingual Writers)
Sentence Structure for Multilingual Writers (Covering Appendix Part D: Guidelines for Multilingual Writers)
Verbs for Multilingual Writers (Covering Appendix Part D: Guidelines for Multilingual Writers)

DOCUMENT ANALYSIS ACTIVITIES

Explore real multimedia documents that harness digital technologies in exciting new ways, and respond to prompts that will help you analyze them.

Interactive Graphic: Tom Giratikanon and David Schutz, *How Hard the Wind Will Hit Your Area, and When* (Chapter 12)

Online Portfolio: Blane C. Holden's Online Portfolio (Chapter 15)

Proposal Delivered as a Prezi Presentation: Andrew Washuta, *Marketing Proposal Presentation* (Chapter 16)

Report Presented as a Website: United States Geological Survey, *High Plains Water-Level Monitoring Study* (Chapter 17)

Informational Report Presented Through an Interactive Graphic: Matthew C. Hansen et al., University of Maryland, Google, USGS, and NASA, *"Global Forest Change" Interactive Map* (Chapter 17)

Recommendations Presented in an Audio Podcast: Centers for Disease Control, *Influenza 2010–2011, ACIP Vaccination Recommendations* (Chapter 18)

Mechanism Description Using Interactive Graphics: Hybridcenter.org and Union of Concerned Scientists, *Hybrids Under the Hood (Part 2)* (Chapter 20)

Process Description Using Video Animation: North Carolina Department of Transportation (NCDOT), *Diverging Diamond Interchange Visualization* (Chapter 20)

Instructions Using Video Demonstration: PartSelect, *Dryer Repair—Replacing the High Limit Thermostat* (Chapter 20)

Instructions Using Video Screen Capture: TechSmith, Jing Learning Center: *Capture a Video* (Chapter 20)

Instructions Using a Combination of Video Demonstration and Screen Capture: Texas Tech University Multiple Literacy Lab (MuLL), *Recording Audio in the Field Using an iTalk* (Chapter 20)

Definition Using Video Animation: ABC News, *What Is the Cloud?* (Chapter 20)

TEAM WRITING MODULES

These modules, built around five short videos of real team interactions, focus on the role of written communication in teamwork. They'll teach you how to use written documentation to manage a team by producing task schedules, minutes, charters, and other materials and also provide models for working on large collaborative documents.

Methods of Collaboration in Team 1

Responses and Outcomes for Team 1

Methods of Collaboration in Team 2

Creating Meeting Minutes for Team 3

Considering a Team Charter for Team 5

Creating a Task Schedule for Team 2

Conflict Management in Team 4

Responses and Outcomes for Team 4

Conflict Management in Team 5

Responses and Outcomes for Team 5

Responses and Outcomes for Team 3

Competitive versus Considerate Conversation in Teams 1 and 3

Self-Promoting versus Self-Deprecating Speech in Teams 3 and 4

TUTORIALS

Engaging tutorials show you helpful tools and tips for creating your projects along with guidance on how to best use them, as well as the documentation process for citing the sources you use in MLA and APA style.

DIGITAL WRITING TUTORIALS

Cross-Platform Word Processing with CloudOn, Quip, and More (Chapter 3)

Tracking Sources with Evernote and Zotero (Chapter 6)

Photo Editing Basics with GIMP (Chapter 12)

Building Your Professional Brand with LinkedIn, Twitter, and More (Chapter 15)

Creating Presentations with PowerPoint and Prezi (Chapter 21)

Audio Recording and Editing with Audacity (Chapter 21)

DIGITAL TIPS TUTORIALS

Creating Outlines (Chapter 3)

Creating Styles and Templates (Chapter 3)

Scheduling Meetings Online (Chapter 4)

Reviewing Collaborative Documents (Chapter 4)

Incorporating Tracked Changes (Chapter 4)

Conducting Online Meetings (Chapter 4)

Using Wikis for Collaborative Work (Chapter 4)

Using Collaborative Software (Chapter 4)

Proofreading for Format Consistency (Chapter 11)

DOCUMENTATION TUTORIALS

How To Cite a Database in APA Style (Appendix B: Documenting Sources)

How To Cite a Website in APA Style (Appendix B: Documenting Sources)

How To Cite an Article in MLA Style (Appendix B: Documenting Sources)

How To Cite a Book in MLA Style (Appendix B: Documenting Sources)

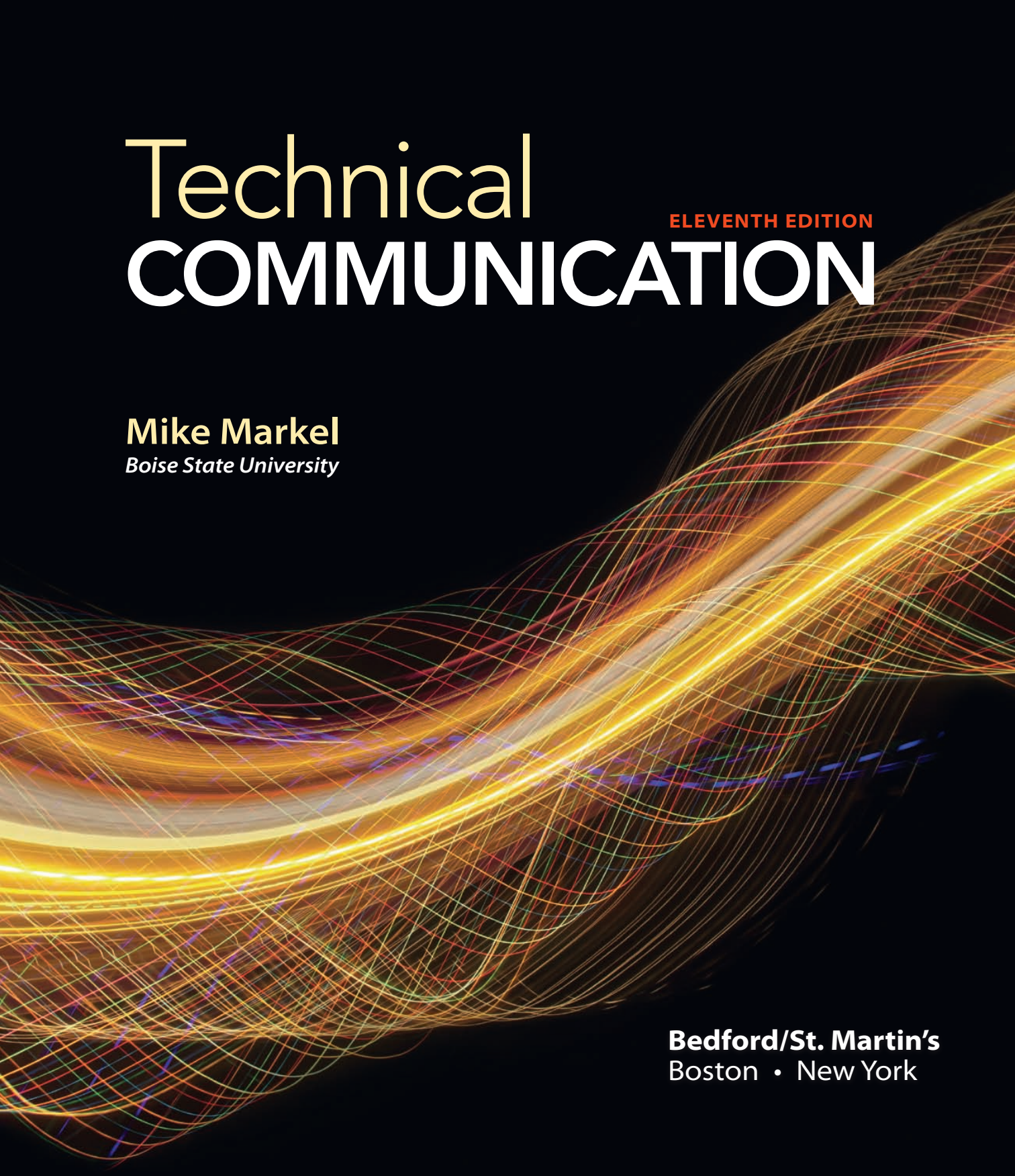
How To Cite a Database in MLA Style (Appendix B: Documenting Sources)

How To Cite a Website in MLA Style (Appendix B: Documenting Sources)

Technical COMMUNICATION

ELEVENTH EDITION

Mike Markel
Boise State University



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Preface for Instructors

TECHNICAL COMMUNICATION has always involved collaboration. A writer who needed to produce a user manual for a new software package would likely have interviewed the engineer who wrote the code. The company might also have convened a focus group to find out what users liked and didn't like about the prototype of the software. Now, however, there is more interaction than ever before between the people who produce technical documents and those who consume them. Often, that interaction goes in both directions. Using social media and new technologies, technical communicators can collaborate with their audiences at every step of the communication process. And thanks to online publishing, audience members contribute to the development of technical documents even after they have been published, by asking and answering questions, revising existing information, and contributing new information.

The types of documents that technical communicators routinely produce have changed as well. Microblog posts, contributions to discussion boards and wikis, and status updates to one's LinkedIn profile—once the raw materials of longer and more formal documents—are now routinely used to communicate important messages.

Despite these changes, the fundamentals of technical communication are at least as important as they always have been. An inaccuracy in a microblog post communicating a project update is every bit as big a problem as an inaccuracy in a traditional progress report. And even though we live and work in an era that values brevity and quick turnaround, some information can be properly communicated only through the longer, detailed documents that have always been at the center of technical communication.

I have revised this new edition of *Technical Communication* to help students learn how to communicate effectively in the fast-paced, highly collaborative world in which they will work. Employers have never valued communication skills as much as they value them today, and for good reason. Today's professionals need to communicate more frequently, more rapidly, more accurately, and with more individuals than ever before. This book will help prepare students to do so—in their courses and in their careers.

New to This Edition

The Eleventh Edition recasts the text's most enduring features in the context of today's professional environment. Chapter 1, thoroughly revised in light of the input of fellow technical-communication instructors, sets the stage for the text's new focus. Throughout, I've updated and expanded coverage of the topics and technologies most relevant to the technical communication process; in fact, I've eliminated Chapter 22, "Connecting with the Public," altogether, as its topics are now integrated into many chapters throughout the text.

The chapter about audience includes an expanded introduction that prepares students who are, for the first time, considering audiences other than their instructors. In addition, this chapter presents techniques for analyzing social-media data to better understand those audiences. The correspondence chapter now includes guidelines on how to represent one's organization on a microblog. The chapter on definitions, descriptions, and instructions covers the new role of discussion boards, wikis, and videos in disseminating information. Updated sample documents, both in the print text and online, provide opportunities for students to analyze the types of documents they'll need to produce or contribute to, such as a municipal government app that enables residents to report infrastructure problems directly from their phones, as well as an interactive map of global forest changes that allows different audiences to customize their viewing experience to obtain the precise information they need.

In keeping with its promise of serving as a model of the principles it teaches, the new edition communicates in new ways. Online resources, labeled in the text with an icon, are located in the LaunchPad, a customizable online course space including a full e-book that can be packaged with new copies of the text for free. Cases are now presented in the LaunchPad so that students can easily download and work with related documents. Tutorials introduce tools for multimodal composition, teach helpful technology tips, and offer another means of learning documentation. LearningCurve adaptive quizzing activities, covering the first ten chapters, help students master and apply concepts in a new, personalized way. LearningCurve activities for multilingual writers are also available here, as are video-based team writing modules that help students learn collaborative writing skills. Also available in the LaunchPad are two full-length e-books: *Document-Based Cases for Technical Communication,* Second Edition, by Roger Munger, and *Team Writing,* by Joanna Wolfe. Finally, instructors can access a variety of instructor resources here, including a new test bank featuring multiple-choice, true/false, and short-answer questions for each chapter.

The following table describes the updates made to each chapter in the Eleventh Edition.

CHAPTER	WHAT'S NEW
Chapter 1 Introduction to Technical Communication	• New focus on continuous collaboration between technical communicators and stakeholders • A discussion of the challenges related to producing technical communication and how to meet them • A discussion of the skills and qualities shared by successful workplace communicators • New annotated sample documents that set the stage for those that will follow throughout the text, such as a company blog post and comment thread • LearningCurve: Understanding the Technical Communication Environment, covering Chapters 1–4
Chapter 2 Understanding Ethical and Legal Considerations	• A discussion of ethical and legal issues related to social media, including guidelines for using social media ethically in the workplace • Document Analysis Activity: Presenting Guidelines for Using Social Media • LearningCurve: Understanding the Technical Communication Environment, covering Chapters 1–4
Chapter 3 Writing Technical Documents	• Advice on choosing the best digital writing tool for a project • Document Analysis Activity: Identifying the Strengths and Weaknesses of a Commercial Template • Tutorials on cross-platform word processing and on creating outlines, styles, and templates • LearningCurve: Understanding the Technical Communication Environment, covering Chapters 1–4
Chapter 4 Writing Collaboratively	• Tutorials on scheduling and conducting meetings online, reviewing collaborative documents, incorporating tracked changes, using wikis for collaborative work, and using collaborative software • LearningCurve: Understanding the Technical Communication Environment, covering Chapters 1-4
Chapter 5 Analyzing Your Audience and Purpose	• A new, more-detailed introduction to the role of audience and purpose • Advice on using social-media data in audience analysis • Case: Focusing on an Audience's Needs and Interests • LearningCurve: Analyzing Your Audience and Purpose
Chapter 6 Researching Your Subject	• Advice on using social-media data in research • A tutorial on tracking sources using online research tools • LearningCurve: Researching Your Subject
Chapter 7 Organizing Your Information	• Document Analysis Activity: Using Multiple Organizational Patterns in an Infographic • LearningCurve: Organizing and Emphasizing Information, covering Chapters 7 and 9
Chapter 8 Communicating Persuasively	• Case: Analyzing the Persuasiveness of a Website • LearningCurve: Communicating Persuasively
Chapter 9 Emphasizing Important Information	• New focus on emphasizing important information at various document levels • Case: Emphasizing Important Information in a Technical Description • LearningCurve: Organizing and Emphasizing Information, covering Chapters 7 and 9
Chapter 10 Writing Correct and Effective Sentences	• Instruction on writing grammatically correct sentences relocated from Appendix C • LearningCurve: Writing Correct and Effective Sentences

CHAPTER	WHAT'S NEW
Chapter 11 Designing Print and Online Documents	• Advice on designing documents for mobile screens • A tutorial on proofreading for format consistency
Chapter 12 Creating Graphics	• A discussion of infographics • Document Analysis Activity: Interactive Graphic • Tutorial on editing photos
Chapter 13 Reviewing, Evaluating, and Testing Documents and Websites	• Case: Setting Up and Maintaining a Professional Microblog Account
Chapter 14 Writing Correspondence	• Guidelines for representing your organization on a microblog
Chapter 15 Writing Job-Application Materials	• Advice on establishing your professional brand • Guidelines on creating and using a LinkedIn profile • Tutorial on building a professional brand online • Document Analysis Activity: Blane C. Holden's Online Portfolio • Case: Identifying the Best-of-the-Best Job-Search Sites
Chapter 16 Writing Proposals	• Sample internal proposal: Tablet Study at Rawlings Regional Medical Center • Document Analysis Activity: Marketing Proposal Presentation
Chapter 17 Writing Informational Reports	• Sample progress report: Tablet Study at Rawlings Regional Medical Center • Document Analysis Activity: High Plains Water-Level Monitoring Study • Document Analysis Activity: "Global Forest Change" Interactive Map
Chapter 18 Writing Recommendation Reports	• Sample recommendation report: Tablet Study at Rawlings Regional Medical Center • Document Analysis Activity: Influenza 2010–2011: ACIP Vaccination Recommendations
Chapter 19 Writing Lab Reports	• Relocated from Chapter 18 to enable the three chapters using the sample report suite (Tablet Study at Rawlings Regional Medical Center) to appear consecutively
Chapter 20 Writing Definitions, Descriptions, and Instructions	• Discussion on the role of social media in the dissemination of instructional information • Guidelines for designing instructional videos • Document Analysis Activity: Presenting Clear Instructions • Document Analysis Activity: Mechanism Description Using Interactive Graphics • Document Analysis Activity: Process Description Using Video Animation • Document Analysis Activity: Instructions Using Video Demonstration • Document Analysis Activity: Instructions Using Video Screen Capture • Document Analysis Activity: Instructions Using a Combination of Video Demonstration and Screen Capture • Document Analysis Activity: Definition Using Video Animation • Case: Choosing a Medium for Presenting Instructions
Chapter 21 Making Oral Presentations	• A discussion on creating presentation materials using Prezi • Tutorials on creating presentation slides and on recording and editing audio for recorded presentations and other projects

Get the Most out of *Technical Communication*, Eleventh Edition

The Eleventh Edition of *Technical Communication* lives not only in print but online, where you and your students will find an array of engaging resources to enhance your course. Bedford/St. Martin's offers resources and format choices that help you and your students get even more out of your book and course. To learn more about or to order any of the following products, contact your Macmillan sales representative, email sales support (Sales_Support@macmillanusa.com), or visit the website at macmillanhighered.com/techcomm11e.

LaunchPad for *Technical Communication*: Where Students Learn

LaunchPad provides engaging content and new ways to get the most out of your course. Get an **interactive e-book** combined with **unique, book-specific materials** in a fully customizable course space; then mix our resources with yours.

- **Prebuilt units**—tutorials, quizzes, and more—**are easy to adapt and assign**. Add your own materials and mix them with our high-quality multimedia content and ready-made assessment options, such as **LearningCurve** adaptive quizzing.
- LaunchPad also includes access to a **gradebook** that provides a clear window on the performance of your whole class and individual students, overall and on individual assignments.
- A **streamlined interface** helps students focus on what's due, and social-commenting tools let them **engage**, make connections, and learn from each other. Use LaunchPad on its own or integrate it with your school's learning management system so that your class is always on the same page.

LaunchPad for *Technical Communication*, Eleventh Edition, includes the following book-specific media materials:

- **Cases** Previously located at the end of each chapter, these document-based cases now live online, making it easy for students to familiarize themselves with the case scenarios, download and work with related documents, and complete their assignments.
- **Document Analysis Activities** The online equivalent of the Document Analysis Activities (formerly Interactive Sample Documents) included in the print book, these models introduce students to the kinds of multimedia documents that can exist only online—such as a recommendation report presented as a podcast and a definition delivered via video and animation. Each model is accompanied by a set of assessment questions to guide students in their analysis.
- **Downloadable Forms** Students can download and work with a variety of forms discussed throughout the text, including an audience profile sheet, a team-member evaluation form, and an oral presentation evaluation form.

- **LearningCurve** LearningCurve is an adaptive, game-like quizzing program that helps students master comprehension and application of the course material. Six LearningCurve activities cover material from the first ten chapters of the text (the first four chapters are covered in the activity "Understanding the Technical Communication Environment," and Chapters 7 and 9 are covered in the activity "Organizing and Emphasizing Information"), as well as key topics for multilingual writers.
- **Team Writing Assignment Modules** Based on *Team Writing* by Joanna Wolfe, these modules focus on the role of written communication in teamwork. The modules are built around five short videos of real team interactions. They teach students how to use written documentation to manage a team by producing task schedules, minutes, charters, and other materials and also provide models for working on large collaborative documents.
- **Test Bank** Instructors using LaunchPad have access to a robust test bank which offers multiple-choice, true/false, and short-answer questions for each chapter.
- **Tutorials** Engaging tutorials present digital tips and introduce students to helpful multimodal composition tools, such as Prezi and Audacity, providing guidance on how to best use them for projects. Documentation tutorials provide a fun new way for students to learn citation.
- **Full-Length e-Books** The LaunchPad includes access to two e-books: *Document-Based Cases for Technical Communication*, Second Edition, by Roger Munger, and *Team Writing*, by Joanna Wolfe.

For a complete list of LaunchPad content, see the inside front cover of this book.

To get the most out of your course, order LaunchPad for *Technical Communication* packaged with the print book **at no additional charge**. (LaunchPad for *Technical Communication* can also be purchased on its own.) An activation code is required. To order LaunchPad for *Technical Communication* with the print book, use ISBN 978-1-319-00982-3.

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Select Value Packages

Add more value to your text by packaging one of the following resources with *Technical Communication*, Eleventh Edition. To learn more about package options for any of the products below, contact your Macmillan sales representative or visit macmillanhighered.com/catalog/techcomm11e.

***Document-Based Cases for Technical Communication*, Second Edition,** by Roger Munger, Boise State University, offers realistic writing tasks based on seven context-rich scenarios, with more than 50 examples of documents that students are likely to encounter in the workplace. To order the textbook packaged with *Document-Based Cases for Technical Communication* for free, use ISBN 978-1-319-00980-9.

Team Writing by Joanna Wolfe, University of Louisville, is a print supplement with online videos that provides guidelines and examples of collaborating to manage written projects by documenting tasks, deadlines, and team goals. Two- to five-minute videos corresponding with the chapters in *Team Writing* give students the opportunity to analyze team interactions and learn about communication styles. Practical troubleshooting tips show students how best to handle various types of conflicts within peer groups. To order the textbook packaged with *Team Writing*, use ISBN 978-1-319-00981-6.

Instructor Resources

You have a lot to do in your course. Bedford/St. Martin's wants to make it easy for you to find the support you need—and to get it quickly.

Computerized Test Bank for Technical Communication, Eleventh Edition, is a new test bank that combines—and builds upon—existing assessment resources, including the self-assessment quizzes previously available on *TechComm Web* and reading quizzes. The test bank offers a convenient way to provide additional assessment to students. Instructors using LaunchPad will find the test bank material available in the "Resources" section, where they can add the items they wish to their units for the course. The test bank files are also available to download from the Bedford/St. Martin's online catalog macmillanhighered.com/catalog/techcomm11e.

Instructor's Resource Manual for Technical Communication, Eleventh Edition, is available in the "Resources" section of LaunchPad and as a PDF file that can be downloaded from the Bedford/St. Martin's online catalog macmillanhighered.com/catalog/techcomm11e. In addition to sample syllabi, chapter summaries, and suggested teaching approaches, the *Instructor's Resource Manual* includes suggested responses to every Document Analysis Activity, exercise, and case in the book. The manual also includes a unique series of teaching topics.

Additional Cases and Exercises for every chapter are available in the LaunchPad, and you can choose which ones you assign to students. Suggested responses to each case and exercise are also available.

Presentation Slides are available to download and adapt for each chapter.

Acknowledgments

All of the examples in this book—from single sentences to complete documents—are real. Some were written by my students at Boise State University. Some were written by engineers, scientists, health-care providers, and businesspeople, with whom I have worked as a consultant for more than 35 years. Because much of the information in these documents is proprietary, I have silently changed brand names and other identifying information. I thank the dozens of individuals—students and professionals alike—who have graciously allowed me to reprint their writing. They have been my best teachers.

The Eleventh Edition of *Technical Communication* has benefited greatly from the perceptive observations and helpful suggestions of my fellow instructors throughout the country. I thank Rebecca Agosta, Rowan-Cabarrus Community College; James Anderson, University of Arkansas; Gabriella Bedetti, Eastern Kentucky University; Teriann Blaisdell, University of Texas at Arlington; Osen Bowser, Central Piedmont Community College; Lee Brasseur, Illinois State University; Steven Cohen, University of Maryland; Armondo Collins, Rowan-Cabarrus Community College; Dan Colson, Emporia State University; Tracy Dalton, Missouri State University; Jan Ellsworth, University of Arkansas at Little Rock; Joe Erickson, Angelo State University; Cynthia Faircloth-Smith, Southwestern Community College; Mary Faure, The Ohio State University; Brian Fehler, Tarleton State University; Samantha Gendler, University of Maryland, College Park; Ian Granville, University of Florida; Julia Hardie, Louisiana Tech University; Jennifer Hewerdine, Southern Illinois University; Catherine Howard, University of Houston–Downtown; Bobby Kuechenmeister, University of Toledo; Amber Lancaster, University of Maryland–University College; Zretta Lewis, Texas A&M International University; Chadwick Lyles, Louisiana Tech University; Bruce Magee, Louisiana Tech University; Jodie Marion, Mt. Hood Community College; Tanya McInnis, Bowie State University; David Merchant, Louisiana Tech University; Josie Mills, Arapahoe Community College; Melissa Mohlere, Rowan-Cabarrus Community College; Michele Mosco, Arizona State University; Vicki Moulson, College of the Albemarle; Richard Ogle, University of Houston–Downtown; Amy Patterson, Moraine Park Technical College; Lori Pennington, Boise State University; Kristin Pickering, Tennessee Technological University; Cassie Plott, Rowan-Cabarrus Community College; Justin Rademaekers, Purdue University; Lisa Ragsdale, College of Humanities and Social Sciences; Sumita Roy, Southern University; Dr. Laurie Rozakis, Farmingdale State College; Michelle Schafer, University of Florida; Charles Sides, Fitchburg State University; Krista Soria, University of Alaska Anchorage; James Tichgelaar, The Ohio State University; Nicole Wilson, Bowie State University; and several anonymous reviewers.

I would like to acknowledge the contributions of one of my colleagues from Boise State University, Russell Willerton. Russell developed two of the

new LearningCurve activities and contributed substantially to the new test bank and to various instructor resources. I greatly appreciate his expertise and hard work. I also wish to thank Elaine Silverstein, who developed the text's other four LearningCurve activities with great patience, wisdom, and care.

I have been fortunate, too, to work with a terrific team at Bedford/St. Martin's, led by Regina Tavani, an editor of great intelligence, judgment, and energy. Regina has helped me improve the text in many big and small ways. I also want to express my appreciation to Joan Feinberg, Denise Wydra, Karen Henry, Leasa Burton, and Molly Parke for assembling the first-class team that has worked so hard on this edition, including Andrea Cava, Brenna Cleeland, Anna Palchik, Carrie Thompson, Sarah and Pablo D'Stair, Quica Ostrander, and Sally Lifland. For me, Bedford/St. Martin's continues to exemplify the highest standards of professionalism in publishing. The people there have been endlessly encouraging and helpful. I hope they realize the value of their contributions to this book.

My greatest debt is, as always, to my wife, Rita, who, over the course of many years and eleven editions, has helped me say what I mean.

A Final Word

I am more aware than ever before of how much I learn from my students, my fellow instructors, and my colleagues in industry and academia. If you have comments or suggestions for making this a better book, please send an email to techcomm@macmillan.com. I hope to hear from you.

Mike Markel

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Introduction for Writers

THE ELEVENTH EDITION of *Technical Communication* is organized into five parts, highlighting the importance of the writing process in technical communication and giving equal weight to the development of text and graphics in documents and websites.

PART	COVERAGE
Part 1 Understanding the Technical Communication Environment	Provides a basic understanding of important topics in technical communication, including ethical and legal considerations, the role of the writing process in planning and developing technical documents, and the practice of collaborating on documents.
Part 2 Planning the Document	Focuses on rhetorical concerns, such as considering audience and purpose, gathering information through primary and secondary research, and planning the organization of documents.
Part 3 Developing and Testing the Verbal and Visual Information	Describes communicating persuasively; writing coherent documents; writing effective sentences; designing documents and websites; creating graphics; and reviewing, evaluating, and testing documents and websites.
Part 4 Learning Important Applications	Covers a wide range of types of technical communication: letters, memos, emails, and microblogs; job-application materials, including print and electronic résumés; proposals; informational reports, such as progress and status reports, incident reports, and meeting minutes; recommendation reports; lab reports; definitions, descriptions, and instructions; oral presentations; and applications used in communicating with the public, including newsletters, brochures, white papers, podcasts, discussion boards, blogs, and wikis.
Appendix Reference Handbook	Offers additional help with skimming sources and taking notes; documenting sources using the APA, IEEE, and MLA styles; and editing and proofreading documents. Also provides advice to multilingual writers on cultural, stylistic, and sentence-level communication issues.

Technical Communication offers a wealth of support to help you complete your technical communication projects:

Annotated Examples make it easier for you to learn from the many model documents, illustrations, and screen shots throughout the text.

FIGURE 8.10 Crafting a Professional Image in a Brochure

A brochure is a brief document used to provide information or to promote something. Brochures can describe, for example, products produced by a small manufacturer of roofing materials, services offered by a new sports-medicine clinic, benefits of joining a particular professional organization or community group, or techniques for choosing healthy foods and reducing calories.

Source: STOPfakes.gov, 2013: www.stopfakes.gov/sites/default/files/990-389_ITA_Stopfakes_brochure_508.pdf.

Guidelines boxes throughout the book summarize crucial information and provide strategies related to key topics.

GUIDELINES Designing Easy-To-Read Text

Follow these three suggestions to make the text on your sites easy to read.

- **Keep the text short.** Poor screen resolution makes reading long stretches of text difficult. In general, pages should contain no more than two or three screens of information.
- **Chunk information.** When you write for the screen, chunk information to make it easier to understand. Use frequent headings, brief paragraphs, and lists.
- **Make the text as simple as possible.** Use common words and short sentences to make the information as simple as the subject allows.

Ethics Notes in every chapter remind you to think about the ethical implications of your writing and oral presentations.

ETHICS NOTE

ACKNOWLEDGING REVIEWERS RESPONSIBLY

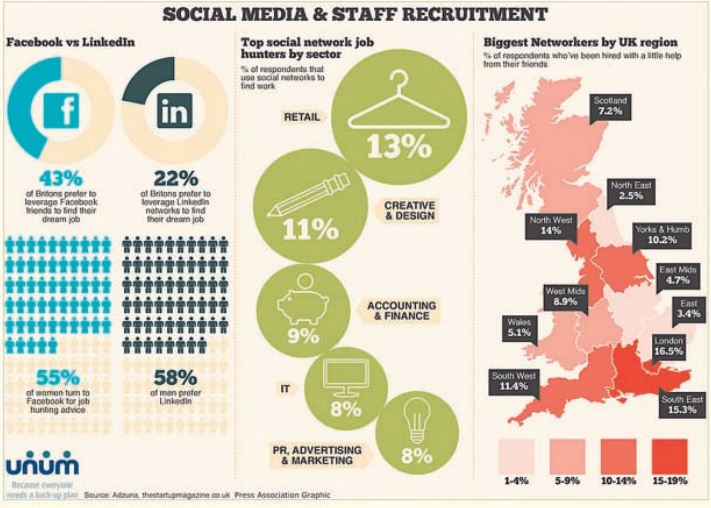
When you write on the job, take advantage of the expertise of others. It is completely ethical to ask subject-matter experts and people who are similar to the intended audience of your document to critique a draft of it. If your reviewer offers detailed comments and suggestions on the draft or sends you a multipage review—and you use some or many of the ideas—you are ethically bound to acknowledge that person's contributions. This acknowledgment can take the form of a one- or two-sentence statement of appreciation in the introduction of the document or in a transmittal letter. Or you could write a letter or memo of appreciation to the reviewer; he or she can then file it and use it for a future performance evaluation.

DOCUMENT ANALYSIS ACTIVITY

Using Multiple Organizational Patterns in an Infographic

This infographic about how job seekers in England use social media presents three sets of data, each of which uses a different organizational pattern. The questions below ask you to think about the organizational patterns.

1. On the left, Facebook and LinkedIn are compared in two pairs of graphics. Is the comparison in each pair clear and easy to understand? Would other types of graphics be easier to understand?
2. In the middle section of the infographic, which organizational pattern is being used? How effective is it in helping readers understand the information?
3. What are the two organizational patterns being used to communicate the data in the map of England?



Used by permission of Unum Ltd. *Source:* Unum, 2013: http://blog.unum.co.uk/news-and-views/3-staff-recruitment-problems-that-social-media-solves.

Document Analysis Activities (formerly Interactive Sample Documents), located both in print and online, allow you to apply what you have just read as you analyze a real business or technical document.

TECH TIP

How To Use the Styles Group

As you draft your document, you can use the **Styles** group to apply styles to elements such as headings, lists, and body text. Using styles helps to ensure consistency and makes it easy to automatically change every instance of a style in your document when you revise.

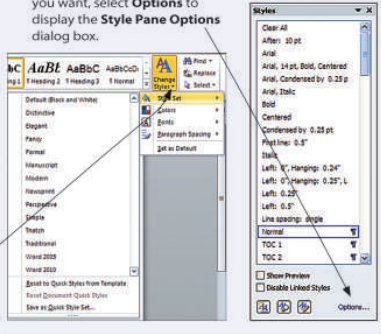
1. To apply a style, select the text you want to format, then select a style from the **Quick Styles** gallery in the **Styles** group on the **Home** tab.

If you do not see the style you want in the gallery, you can access additional styles by using the up and down arrows.

You can also apply a **Quick Style Set** to your entire document by selecting the **Change Styles** icon.

2. Another way to apply a style is to select the **Styles** dialog box launcher and then select the style you wish to use.

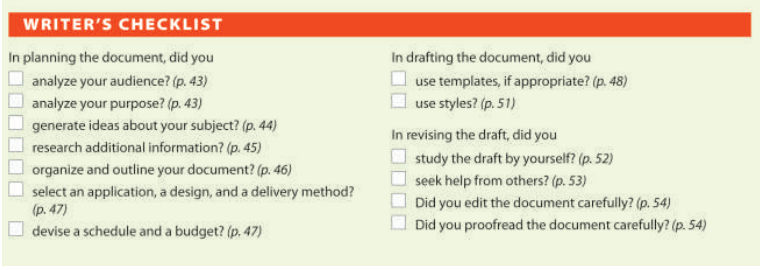
If you do not see the style options you want, select **Options** to display the **Style Pane Options** dialog box.



KEYWORDS: styles, quick style, quick styles gallery, change styles, apply a style, apply a different style, styles dialog box launcher, style pane options

Tech Tips for using basic software tools give you step-by-step, illustrated instructions on topics such as tracking changes, creating graphics, and modifying templates. Keywords in each Tech Tip help you use the Help menu in your word-processing software to find additional information.

Writer's Checklists summarize important concepts and act as handy reminders as you draft and revise your work.



WRITER'S CHECKLIST

In planning the document, did you

- ☐ analyze your audience? *(p. 43)*
- ☐ analyze your purpose? *(p. 43)*
- ☐ generate ideas about your subject? *(p. 44)*
- ☐ research additional information? *(p. 45)*
- ☐ organize and outline your document? *(p. 46)*
- ☐ select an application, a design, and a delivery method? *(p. 47)*
- ☐ devise a schedule and a budget? *(p. 47)*

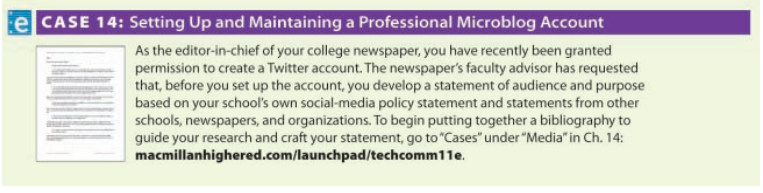
In drafting the document, did you

- ☐ use templates, if appropriate? *(p. 48)*
- ☐ use styles? *(p. 51)*

In revising the draft, did you

- ☐ study the draft by yourself? *(p. 52)*
- ☐ seek help from others? *(p. 53)*
- ☐ Did you edit the document carefully? *(p. 54)*
- ☐ Did you proofread the document carefully? *(p. 54)*

Cases in every chapter present real-world writing scenarios built around common workplace documents that you can critique, download, and revise.



CASE 14: Setting Up and Maintaining a Professional Microblog Account

As the editor-in-chief of your college newspaper, you have recently been granted permission to create a Twitter account. The newspaper's faculty advisor has requested that, before you set up the account, you develop a statement of audience and purpose based on your school's own social-media policy statement and statements from other schools, newspapers, and organizations. To begin putting together a bibliography to guide your research and craft your statement, go to "Cases" under "Media" in Ch. 14: **macmillanhighered.com/launchpad/techcomm11e**.

For quick reference, many of these features are indexed on the last book page and inside back cover of this book.

Brief Contents

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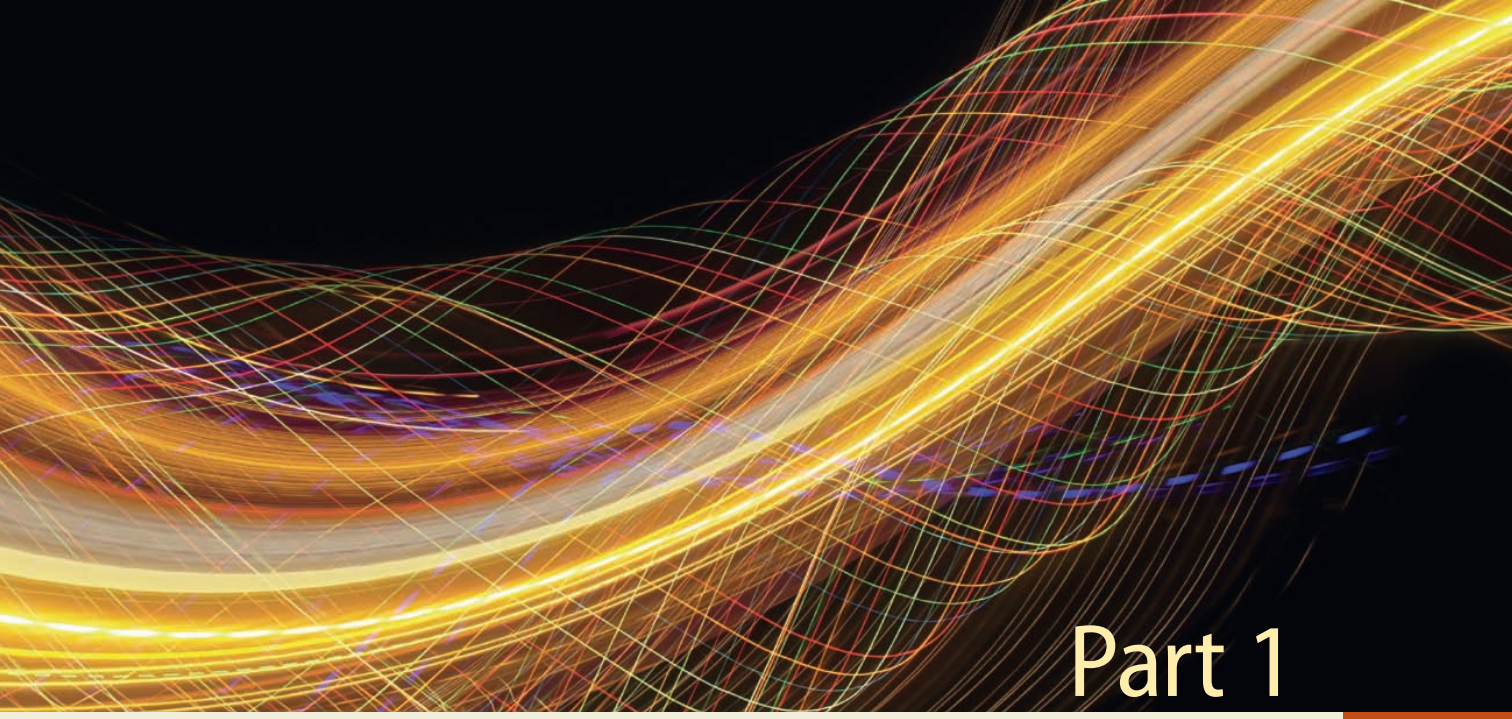
Contents



Part 1

Understanding the Technical Communication Environment

1 Introduction to Technical Communication

THIS TEXTBOOK EXPLORES how people in the working world find, create, and deliver technical information. Even if you do not plan on becoming a *technical communicator* (a person whose main job is to produce documents such as manuals, reports, and websites), you will often find yourself writing documents on your own, participating in teams that write them, and contributing technical information for others who read and write them. The purpose of *Technical Communication* is to help you learn the skills you need to communicate more effectively and more efficiently in your professional life.

People in the working world communicate technical information for a number of purposes, many of which fall into one of two categories:

- **To help others learn about a subject, carry out a task, or make a decision.** For instance, the president of a manufacturing company might write an article in the company newsletter to explain to employees why management decided to phase out production of one of the company's products. Administrators with the Social Security Administration might hire a media-production company to make a video that explains to citizens how to sign up for Social Security benefits. The board of directors of a community-service organization might produce a grant proposal to submit to a philanthropic organization in hopes of being awarded a grant.
- **To reinforce or change attitudes and motivate readers to take action.** A wind-energy company might create a website with videos and text intended to show that building windmills off the coast of a tourist destination would have many benefits and few risks. A property owners' association might create a website to make the opposite argument: that the windmills would have few benefits but many risks. In each of these two cases, the purpose of communicating the information is to persuade people to accept a point of view and encourage them to act—perhaps to contact their elected representatives and present their views about this public-policy issue.

Notice that when you communicate in the workplace, you always have a clear *purpose*—what you want to achieve—and an *audience*—one or more people who are going to read the document, attend the oral presentation, visit the website, or view the video you produce.

What Is Technical Communication?

Technical information is frequently communicated through documents, such as proposals, emails, reports, podcasts, computer help files, blogs, and wikis. Although these documents are a key component of technical communication, so too is the *process*: writing and reading tweets and text messages, for example, or participating in videoconference exchanges with colleagues. Technical communication encompasses a set of *activities* that people do to discover, shape, and transmit information.

Technical communication begins with *listening*, *speaking*, and *reading*. For instance, an executive reads an article about a new kind of computer security

threat. She doesn't understand all the details of the threat, but she concludes that it could hurt her company's IT infrastructure. She sets up a meeting with her IT supervisor to talk about it, to see whether he knows about it and thinks it could be a problem. It turns out that he is aware of the issue and has been doing some research about it. The executive asks him to keep going, discuss it with his IT colleagues, and contact her next week.

A week goes by, and the IT supervisor gets back to the executive. He tells her that his research suggests the threat is real and serious. She asks him to write a recommendation report discussing the nature and scope of the threat and presenting a strategy for combatting it.

How does the IT supervisor begin to write that report? He starts by speaking with his colleagues in the company and outside of it, and then reading discussion boards, blogs, and trade magazines online. Next, he devises a plan to have various people in IT draft sections of the report, and he creates a schedule for posting their drafts to the company's online writing space, Google Drive, so that all the team members can read and comment on the report as it develops. Ten days later, after he and his team have revised, edited, and proofread the report, he sends it to the executive.

But that's not the end of the story. The executive reads the report and agrees with the team's findings: the company needs to make some changes to the IT infrastructure and invest in some new software to combat this serious security threat. She decides to meet with her own colleagues to see if they agree with her. She points them to the report on the company network and sets up a meeting for later that week.

In short, when you produce technical communication you use the four basic communication skills—listening, speaking, reading, and writing—to analyze a problem, find and evaluate evidence, and draw conclusions. These are the same skills and processes you use when you write in college, and the principles you have studied in your earlier writing courses apply to technical communication. The biggest difference between technical communication and the other kinds of writing you have done is that technical communication has a somewhat different focus on *audience* and *purpose*.

In most of your previous academic writing, your audience has been your instructor, and your purpose has been to show your instructor that you have mastered some body of information or skill. Typically, you have not tried to create new knowledge or motivate the reader to take a particular action—except to give you an "A" for that assignment.

By contrast, in technical communication, your audience will likely include peers and supervisors in your company, as well as people outside your company. Your purpose will likely be to reinforce or change their attitudes toward the subject you are writing about, to motivate them to take particular actions, or to help them carry out their own work-related tasks.

For example, suppose you are a public-health scientist working for a federal agency. You and your colleagues just completed a study showing that, for most adults, moderate exercise provides as much health benefit as strenuous

exercise. After participating in numerous meetings with your colleagues and after drafting, critiquing, and revising many drafts, you produce four different documents:

- a journal article for other scientists
- a press release to distribute to popular print and online publications
- a blog post and podcast for your agency's website

In each of these documents, you present the key information in a different way to meet the needs of a particular audience.

The Challenges of Producing Technical Communication

Most people in the working world don't look forward to producing technical communication. Why? Because it's hard to do.

For instance, your supervisor has finally approved your request to buy a scanning-electron microscope (SEM) for your department and given you a budget for buying it. It would be nice if all you had to do now was list the important features you need in an SEM, read a couple of articles about SEMs, check off the ones that have those features, and then buy the best one that fits your budget.

Unfortunately, life is not that simple, and neither is technical communication. If it were, this book would be about a dozen pages long.

Technical communication is challenging, and not primarily because SEMs are complex devices, although they are. Technical communication is challenging because people are complicated, and collaborating with people is at the heart of the process.

As soon as you have decided you need an SEM that can detect signals for secondary electrons, for instance, someone on your team argues that you also need to detect signals for back-scattered electrons and characteristic X-rays. Someone else on the team disagrees, arguing that an SEM that detects those additional signals costs an additional $15,000, putting it beyond your budget, and that on those rare occasions when you need those functions you can send the samples out for analysis. Another team member asks if you're aware that, next year, SEM manufacturers are expected to release products with improved signal-detection functions. She thinks, therefore, that the team might want to wait until those new models are released. You realize that with the complications your colleagues have presented, you won't be purchasing an SEM any time soon. You do more research, keeping their concerns in mind.

The good news is that there are ways to think about these kinds of complications, to think *through* them, that will help you communicate better. No matter what document you produce or contribute to, you need to begin by considering three sets of factors:

- **Audience-related factors.** Does your audience know enough about your subject to understand a detailed discussion, or do you need to limit the

scope, the amount of technical detail, or the type of graphics you use? Does your audience already have certain attitudes or expectations about your subject that you wish to reinforce or change? Will the ways in which your audience uses your document, or the physical environment in which they use it, affect how you write? Does your audience speak English well, or should you present the information in several languages? Does your audience share your cultural assumptions about such matters as the need to spell out details or how to organize the document, or do you need to adjust your writing style to match a different set of assumptions? Does your audience include people with disabilities (of vision, hearing, movement, or cognitive ability) who have needs you want to meet?

- **Purpose-related factors.** Before you can write, you need to determine your purpose: what do you want your audience to *know* or *believe* or *do* after having read your document? Although much technical communication is intended to help people perform tasks, such as installing a portable hard drive for a computer, many organizations large and small devote significant communication resources to *branding*: creating an image that helps customers distinguish the company from competitors. Most companies now employ community specialists to coordinate the organization's day-to-day online presence and its social-media campaigns. These specialists publicize new products and initiatives and respond to new developments and incidents. They also oversee all of the organization's documents—from tweets to blog posts to Facebook fan pages and company-sponsored discussion boards.
- **Document-related factors.** Does your budget limit the number of people you can enlist to help you or limit the size or shape of the document? Does your schedule limit how much information you can include in the document? Does your subject dictate what kind of document (such as a report or a blog post) you choose to write? Does the application call for a particular writing style or level of formality? (For the sake of convenience, I will use the word *document* throughout this book to refer to all forms of technical communication, from written documents to oral presentations and online forms, such as podcasts and wikis.)

Because all these factors interact in complicated ways, every technical document you create involves a compromise. If you are writing a set of instructions for installing a water heater and you want those instructions to be easily understood by people who speak only Spanish, you will need more time and a bigger budget to have the document translated, and it will be longer and thus a little bit harder to use, for both English and Spanish speakers. You might need to save money by using smaller type, smaller pages, and cheaper paper, and you might not be able to afford to print it in full color. In technical communication, you do the best you can with your resources of time, information, and money. The more carefully you think through your options, the better able you will be to use your resources wisely and make a document that will get the job done.

Characteristics of a Technical Document

Almost every technical document that gets the job done has six major characteristics:

- **It addresses particular readers.** Knowing who the readers are, what they understand about the subject, how well they speak English, and how they will use the document will help you decide what kind of document to write, how to structure it, how much detail to include, and what sentence style and vocabulary to use.
- **It helps readers solve problems.** For instance, you might produce a video that explains to your company's employees how to select their employee benefits, or a document spelling out the company's policy on using social media in the workplace.
- **It reflects the organization's goals and culture.** For example, a state government department that oversees vocational-education programs submits an annual report to the state legislature in an effort to secure continued funding, as well as a lot of technical information to the public in an effort to educate its audience. And technical documents also reflect the organization's culture. For example, many organizations encourage their employees to blog about their areas of expertise to create a positive image of the organization.
- **It is produced collaboratively.** No one person has all the information, skills, or time to create a large document. You will work with subject-matter experts—the various technical professionals—to create a better document than you could have made working alone. You will routinely post questions to networks of friends and associates—both inside and outside your own organization—to get answers to technical questions.
- **It uses design to increase readability.** Technical communicators use design features—such as typography, spacing, and color—to make a document attractive so that it creates a positive impression, helps readers navigate the document, and helps readers understand it.
- **It consists of words or images or both.** Images—both static and moving—can make a document more interesting and appealing to readers and help the writer communicate and reinforce difficult concepts, communicate instructions and descriptions of objects and processes, communicate large amounts of quantifiable data, and communicate with nonnative speakers.

Measures of Excellence in Technical Documents

Eight characteristics distinguish excellent technical documents:

- **Honesty.** The most important measure of excellence in a technical document is honesty. You need to tell the truth and not mislead the

reader, not only because it is the right thing to do but also because readers can get hurt if you are dishonest. Finally, if you are dishonest, you and your organization could face serious legal charges. If a court finds that your document's failure to provide honest, appropriate information caused a substantial injury or loss, your organization might have to pay millions of dollars.

- **Clarity.** Your goal is to produce a document that conveys a single meaning the reader can understand easily. An unclear technical document can be dangerous. A carelessly drafted building code, for example, could tempt contractors to use inferior materials or techniques. In addition, an unclear technical document is expensive. Handling a telephone call to a customer-support center costs $5–10 for a simple question but about $20–45 for a more complicated problem—and about a third of the calls are the more expensive kind (Carlaw, 2010). Clear technical communication in the product's documentation (its user instructions) can greatly reduce the number and length of such calls.
- **Accuracy.** A slight inaccuracy can confuse and annoy your readers; a major inaccuracy can be dangerous and expensive. In another sense, accuracy is a question of ethics. Technical documents must be as objective and unbiased as you can make them. If readers suspect that you are slanting information—by overstating or omitting facts—they will doubt the validity of the entire document.
- **Comprehensiveness.** A good technical document provides all the information readers need. It describes the background so that readers unfamiliar with the subject can understand it. It contains sufficient detail so that readers can follow the discussion and carry out any required tasks. It refers to supporting materials clearly or includes them as attachments. A comprehensive document provides readers with a complete, self-contained discussion that enables them to use the information safely, effectively, and efficiently.
- **Accessibility.** Most technical documents are made up of small, independent sections. Because few people will read a document from the beginning to the end, your job is to make its various parts accessible. That is, readers should not be forced to flip through the pages or click links unnecessarily to find the appropriate section.
- **Conciseness.** A document must be concise enough to be useful to a busy reader. You can shorten most writing by 10 to 20 percent simply by eliminating unnecessary phrases, choosing shorter words, and using economical grammatical forms. Your job is to figure out how to convey a lot of information economically.
- **Professional appearance.** You start to communicate before anyone reads the first word of the document. If the document looks neat and professional, readers will form a positive impression of it and of you. Your

document should adhere to the format standards of your organization or your professional field, and it should be well designed. For example, a letter should follow one of the traditional letter formats and have generous margins.

- **Correctness.** A correct document is one that adheres to the conventions of grammar, punctuation, spelling, mechanics, and usage. Sometimes, incorrect writing can confuse readers or even make your writing inaccurate. The more typical problem, however, is that incorrect writing makes you look unprofessional. If your writing is full of errors, readers will wonder if you were also careless in gathering, analyzing, and presenting the technical information. If readers doubt your professionalism, they will be less likely to accept your conclusions or follow your recommendations.

Skills and Qualities Shared by Successful Workplace Communicators

People who are good at communicating in the workplace share a number of skills and qualities. Four of them relate to the skills you have been honing in school and in college:

- **Ability to perform research.** Successful communicators know how to perform primary research (discovering new information through experiments, observations, interviews, surveys, and calculations) and secondary research (finding existing information by reading what others have written or said). Successful communicators seek out information from people who *use* the products and services, not just from the manufacturers. Therefore, although successful communicators would visit the Toyota website to learn about the technical specifications of a Prius if they wanted to find out what it is like to drive, own, or repair a Prius, they would be sure to search the Internet for information from experts not associated with Toyota, as well as *user-generated content*: information from owners, presented in forums such as discussion boards and blogs.
- **Ability to analyze information.** Successful communicators know how to identify the best information—most accurate, relevant, recent, and unbiased—and then figure out how it helps in understanding a problem and ways to solve it. Successful communicators know how to sift through mountains of data, identifying relationships between apparently unrelated facts. They know how to evaluate a situation, look at it from other people's perspectives, and zero in on the most important issues.
- **Ability to solve problems.** Successful communicators know how to break big problems into smaller ones, figure out what isn't working right, and identify and assess options for solving the problems. They know how to compare and contrast the available options to achieve the clearest, most objective understanding of the situation.