

GLOBAL
EDITION



Technical Communication Strategies for Today

SECOND EDITION

Richard Johnson-Sheehan



ALWAYS LEARNING

PEARSON

Brief Contents

Preface 15

Part 1 Elements of Technical Communication

- 1 Communicating in the Technical Workplace 21
- 2 Readers and Contexts of Use 39
- 3 Working in Teams 64
- 4 Ethics in the Technical Workplace 88

Part 2 Genres of Technical Communication

- 5 Letters, Memos, and E-Mails 111
- 6 Technical Descriptions and Specifications 148
- 7 Instructions and Documentation 179
- 8 Proposals 218
- 9 Activity Reports 258
- 10 Analytical Reports 280
- 11 Starting Your Career 324

Part 3 Researching, Designing, Presenting

- 12 Researching and Research Methods 362
- 13 Designing Documents and Interfaces 387
- 14 Creating and Using Graphics 417
- 15 Preparing and Giving Presentations 441

Appendixes

- A Grammar and Punctuation Guide 479
- B Documentation Guide 497

References 513

Credits 515

Index 517

Sample Documents *Inside Back Cover*



Technical Communication Strategies for Today

SECOND EDITION

GLOBAL EDITION

Richard Johnson-Sheehan
Purdue University

PEARSON

Boston Columbus Indianapolis New York San Francisco Hoboken
Amsterdam Cape Town Dubai London Madrid Milan Munich Paris Montreal Toronto
Delhi Mexico City São Paulo Sydney Hong Kong Seoul Singapore Taipei Tokyo

Senior Editor: Brad Potthoff
Editorial Assistant: Amanda Norelli
Senior Supplements Editor: Donna Campion
Executive Digital Producer: Stefanie Snajder
Digital Editor: Sara Gordus
**Executive Marketing Manager: Roxanne
McCarley**
Production Manager: Denise Phillip Grant
**Project Coordination, Text Design,
and Electronic Page Makeup: Cenveo®
Publisher Services**
Cover Design Manager: Heather Scott

Cover Designer: Lumina Datamatics Ltd.
Cover Art: Image: © Shutterstock/Rawpixel
Text Permissions: Aptara
Photo Researcher: Integra
**Senior Manufacturing Buyer, Global Edition:
Trudy Kimber**
**Head of Learning Asset Acquisition, Global
Edition: Laura Dent**
**Acquisitions Editor, Global Edition: Karthik
Subramanian**
Project Editor, Global Edition: Aaditya Bugga

Credits and acknowledgments borrowed from other sources and reproduced, with permission, in this textbook appear on the appropriate page within text and on pages 513 to 514 and 515 to 516.

Pearson Education Limited

Edinburgh Gate
Harlow
Essex CM20 2JE
England

and Associated Companies throughout the world

Visit us on the World Wide Web at:
www.pearsonglobaleditions.com

© Pearson Education Limited, 2015

The right of Richard Johnson-Sheehan to be identified as the author of this work has been asserted by him in accordance with the Copyright, Designs and Patents Act 1988.

*Authorized adaptation from the United States edition, entitled *Technical Communication Strategies for Today*, 2nd edition, ISBN 978-0-321-90797-4, by Richard Johnson-Sheehan, published by Pearson Education © 2015.*

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without either the prior written permission of the publisher or a license permitting restricted copying in the United Kingdom issued by the Copyright Licensing Agency Ltd, Saffron House, 6–10 Kirby Street, London EC1N 8TS.

All trademarks used herein are the property of their respective owners. The use of any trademark in this text does not vest in the author or publisher any trademark ownership rights in such trademarks, nor does the use of such trademarks imply any affiliation with or endorsement of this book by such owners.

ISBN 10: 1-292-08040-X

ISBN 13: 978-1-292-08040-6

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

10 9 8 7 6 5 4 3 2 1

19 18 17 16 15

Typeset in 9 Else NPL Std by Cenveo® Publisher Services.

Printed in Great Britain by CPI Group (UK) Ltd, Croydon, CRO 4YY

Contents

Preface 15

What's New in the Second Edition?	15
Guiding Themes	15
Computers as Thinking Tools	16
Genres as Pathways for Interpretation and Expression	16
Visual-Spatial Reading, Thinking, and Composing	16
The International, Cross-Cultural Workplace	17
The Activity of Technical Communication	17
Supplements to the Book	18
Acknowledgments	18

Part 1: Elements of Technical Communication

CHAPTER

1

Communicating in the Technical Workplace 21

Developing a Workplace Writing Process	22
Genres and the Technical Writing Process	24
Stage 1: Planning and Researching	25
Stage 2: Organizing and Drafting	27
Stage 3: Improving the Style	29
Stage 4: Designing	29
Stage 5: Revising and Editing	29
What Is Technical Communication?	30
Technical Communication Is Interactive and Adaptable	31
Technical Communication Is Reader Centered	32
Technical Communication Relies on Teamwork	32
Technical Communication Is Visual	33
Technical Communication Has Ethical, Legal, and Political Dimensions	33
Technical Communication Is International and Cross-Cultural	35
How Important Is Technical Communication?	35
Chapter Review	36
Exercises and Projects	37

Readers and Contexts of Use 39

Profiling Your Readers	40
Identifying Your Readers	42
Profiling Your Readers' Needs, Values, and Attitudes	43
Profiling Contexts of Use	45
Identifying the Context of Use	46
Using Profiles to Your Own Advantage	46
International and Cross-Cultural Communication	52
Differences in Content	52
Differences in Organization	53
Differences in Style	54
Differences in Design	55
Listen and Learn: The Key to International and Cross-Cultural Communication	56
At Work: What Are Some Strategies for Communicating with People from Another Culture?	57
Chapter Review	58
Exercises and Projects	58
Case Study: Installing a Medical Waste Incinerator	60

Working in Teams 64

The Stages of Teaming	65
Forming: Strategic Planning	65
Step 1: Define the Project Mission and Objectives	66
Step 2: Identify Project Outcomes	67
Step 3: Define Team Member Responsibilities	67
Step 4: Create a Project Calendar	68
Step 5: Write Out a Work Plan	68
Step 6: Agree on How Conflicts Will Be Resolved	69
Storming: Managing Conflict	74
Running Effective Meetings	74
Mediating Conflicts	76
Firing a Team Member	78
Norming: Determining Team Roles	78
Revising Objectives and Outcomes	78
Help: Virtual Teaming	79
Identifying Team Roles	81
Using Groupware to Facilitate Work	82
Performing: Improving Quality	83

The Keys to Teaming	83
Chapter Review	85
Exercises and Projects	85
Case Study: Not a Sunny Day	87

CHAPTER 4 | **Ethics in the Technical Workplace** 88

What Are Ethics?	89
Where Do Ethics Come From?	92
Personal Ethics	93
Social Ethics	93
Conservation Ethics	96
Resolving Ethical Dilemmas	97
Help: Stopping Cyberbullying and Computer Harassment	98
Confronting an Ethical Dilemma	100
Resolving an Ethical Dilemma	101
When You Disagree with the Company	102
Ethics in the Technical Workplace	105
Copyright Law	105
Trademarks	105
At Work: Why Should Technical Professionals Learn	
About Ethics?	106
Patents	106
Privacy	107
Information Sharing	107
Proprietary Information	107
Libel and Slander	108
Fraud	108
Chapter Review	108
Exercises and Projects	109
Case Study: This Company Is Bugging Me	110

Part 2: Genres of Technical Communication

CHAPTER 5 | **Letters, Memos, and E-Mails** 111

Features of Letters, Memos, and E-Mails	112
Planning and Researching	118
Determining the Rhetorical Situation	118

Organizing and Drafting	120
Introduction with a Purpose and a Main Point	120
Body That Provides Need-to-Know Information	123
Conclusion That Restates the Main Point	124
Types of Letters, Memos, and E-Mails	124
Inquiries	125
Responses	125
Claims or Complaints	125
Adjustments	128
Refusals	128
Using Style and Design	131
Strategies for Developing an Appropriate Style	131
Designing and Formatting Letters, Envelopes, and Memos	134
Using E-Mail Internationally	137
Microgenre: Texting at Work	140
Chapter Review	142
Exercises and Projects	142
Case Study: The Nastygram	146

CHAPTER

6

Technical Descriptions and Specifications **148**

Planning and Researching	149
Planning	149
Quick Start: Technical Descriptions and Specifications	150
Researching	155
Partitioning the Subject	155
At Work: How Does Computer-Aided Drafting (CAD) Help Write Descriptions?	156
Organizing and Drafting	160
Specific and Precise Title	160
Introduction with an Overall Description	160
Description by Features, Functions, or Stages	161
Description by Senses, Similes, Analogies, and Metaphors	162
Conclusion	164
Help: Using Digital Photography in Descriptions	164
Using Style and Design	166
Plain, Simple Style	166
Page Layout That Fits	166
Graphics That Illustrate	166
Microgenre: Technical Definitions	169
Chapter Review	173

Exercises and Projects	173
Case Study: In the Vapor	177

CHAPTER

7

Instructions and Documentation 179

Planning and Researching	180
Quick Start: Instructions and Documentation	181
Planning	182
Researching	191
Planning for Cross-Cultural Readers and Contexts	192
Verbal Considerations	193
Design Considerations	193
Organizing and Drafting	194
Specific and Precise Title	194
Introduction	194
List of Parts, Tools, and Conditions Required	195
Sequentially Ordered Steps	196
Safety Information	202
Conclusion That Signals Completion of Task	205
Using Style and Design	205
Help: On-Screen Documentation	207
Plain Style with a Touch of Emotion	208
Functional, Attractive Page Layout	209
Graphics That Reinforce Written Text	210
User-Testing Your Documentation	212
Microgenre: Emergency Instructions	212
Chapter Review	214
Exercises and Projects	215
Case Study: The Flame	217

CHAPTER

8

Proposals 218

Planning and Researching	219
Planning	219
Quick Start: Proposals	220
Researching	225
Organizing and Drafting	226
Writing the Introduction	226
Describing the Current Situation	228
Describing the Project Plan	229
Describing Qualifications	236
Concluding with Costs and Benefits	236

Using Style and Design	239
A Balance of Plain and Persuasive Styles	239
An Attractive, Functional Design	242
Microgenre: The Elevator Pitch	244
Chapter Review	246
Exercises and Projects	247
Case Study: The Mole	257

CHAPTER

9

Activity Reports 258

Types of Activity Reports	259
Progress Reports	259
Briefings and White Papers	259
Quick Start: Activity Reports	260
Incident Reports	262
Laboratory Reports	262
Planning and Researching	266
Analyzing the Rhetorical Situation	269
Organizing and Drafting	271
Writing the Introduction	271
Writing the Body	271
Writing the Conclusion	272
Using Style and Design	274
Using a Plain Style	274
Using Design and Graphics	274
Microgenre: The Status Report	275
Chapter Review	277
Exercises and Projects	277
Case Study: Bad Chemistry	279

CHAPTER

10

Analytical Reports 280

Types of Analytical Reports	281
Quick Start: Analytical Report	282
Planning and Researching	283
Planning	283
Researching	288
Organizing and Drafting	293
Writing the Introduction	293
At Work: What Is the Most Efficient Way to Write a Report?	294
Describing Your Methodology	295
Summarizing the Results of the Study	295

Discussing Your Results	296
Stating Your Overall Conclusions and Recommendations	296
Help: Using Google Drive to Collaborate with International Teams	309
Drafting Front Matter and Back Matter	310
Developing Front Matter	310
Developing Back Matter	314
Using Style and Design	314
Using Plain Style in a Persuasive Way	314
A Straightforward Design	315
Microgenre: The Poster Presentation	319
Chapter Review	320
Exercises and Projects	321
Case Study: The X-File	323

CHAPTER
11

Starting Your Career 324

Setting Goals, Making a Plan	325
Setting Goals	325
Using a Variety of Job-Seeking Paths	325
Quick Start: Career Materials	326
Preparing a Résumé	330
Types of Résumés	330
Chronological Résumé	330
At Work: How Has the Internet Changed the Job Search Process?	336
Functional Résumé	339
Designing the Résumé	339
Writing Effective Application Letters	341
Content and Organization	341
Help: Designing a Scannable/Searchable Résumé	343
Style	345
Revising and Proofreading the Résumé and Letter	349
Creating a Professional Portfolio	349
Collecting Materials	350
Organizing Your Portfolio	351
Assembling the Portfolio in a Binder	351
Creating an Electronic Portfolio	352
Interviewing Strategies	353
Preparing for the Interview	353
At the Interview	354
Writing Thank You Letters and/or E-Mails	355

Microgenre: The Bio	357
Chapter Review	358
Exercises and Projects	359
Case Study: The Lie	361

Part 3: Researching, Designing, Presenting

CHAPTER 12 | Researching and Research Methods 362

Beginning Your Research	364
Defining Your Research Subject	365
Narrowing Your Research Subject	366
Formulating a Research Question and Hypothesis	366
Developing a Research Methodology	367
Mapping Out a Methodology	367
Describing Your Methodology	367
Using and Revising Your Methodology	368
Triangulating Materials	369
Using Electronic Sources	370
Using Print Sources	371
Using Empirical Sources	373
Managing Information and Taking Notes	376
Managing Information	376
Careful Note Taking	376
Documenting Sources	380
Avoiding Plagiarism	382
Chapter Review	384
Exercises and Projects	384
Case Study: The Patchwriter	386

CHAPTER 13 | Designing Documents and Interfaces 387

Five Principles of Design	388
Design Principle 1: Balance	388
Weighting a Page or Screen	389
Using Grids to Balance a Page Layout	392

Design Principle 2: Alignment	396
Design Principle 3: Grouping	397
Using Headings	398
Using Borders and Rules	401
Design Principle 4: Consistency	402
Choosing Typefaces	402
Labeling Graphics	404
Creating Sequential and Nonsequential Lists	404
Inserting Headers and Footers	406
Design Principle 5: Contrast	406
Cross-Cultural Design	408
Chapter Review	410
Exercises and Projects	411
Case Study: Scorpions Invade	413

CHAPTER
14

Creating and Using Graphics 417

Guidelines for Using Graphics	418
Guideline One: A Graphic Should Tell a Simple Story	419
Guideline Two: A Graphic Should Reinforce the Written Text, Not Replace It	420
Guideline Three: A Graphic Should Be Ethical	420
Guideline Four: A Graphic Should Be Labeled and Placed Properly	422
Displaying Data with Graphs, Tables, and Charts	423
Line Graphs	424
Bar Charts	425
Tables	426
Pie Charts	427
Flowcharts	429
Using Pictures and Drawings	430
Photographs	431
Inserting Photographs and Other Images	432
Illustrations	433
Using Cross-Cultural Symbols	434
Chapter Review	437
Exercises and Projects	437
Case Study: Looking Guilty	439

Preparing and Giving Presentations 441

Planning and Researching Your Presentation	442
Defining the Rhetorical Situation	444
Allotting Your Time	446
Choosing the Right Presentation Technology	447
Organizing the Content of Your Presentation	450
Building the Presentation	450
The Introduction: Tell Them What You're Going to Tell Them	451
Help: Giving Presentations with your iPod, MP3, or Mobile Phone	454
The Body: Tell Them	456
At Work: How Can I Overcome My Fear of Speaking in Public?	457
The Conclusion: Tell Them What You Told Them	459
Preparing to Answer Questions	461
Choosing Your Presentation Style	462
Creating Visuals	464
Designing Visual Aids	464
Using Graphics	466
Slides to Avoid	466
Delivering the Presentation	467
Body Language	467
Voice, Rhythm, and Tone	469
Using Your Notes	469
Rehearsing	470
Evaluating Your Performance	470
Working Cross-Culturally with Translators	472
Chapter Review	476
Exercises and Projects	476
Case Study: The Coward	478

Appendix A: Grammar and Punctuation Guide 479

The Top Ten Grammar Mistakes	479
Comma Splice	479
Run-On Sentence	480
Fragment	481
Dangling Modifier	481
Subject-Verb Disagreement	482
Pronoun-Antecedent Disagreement	483

Faulty Parallelism	483	
Pronoun Case Error (<i>I</i> and <i>Me</i> , <i>We</i> and <i>Us</i>)		484
Shifted Tense	485	
Vague Pronoun	485	
Punctuation Refresher	486	
Period, Exclamation Point, Question Mark		487
Commas	487	
Semicolon and Colon	489	
Apostrophe	491	
Quotation Marks	492	
Dashes and Hyphens	494	
Parentheses and Brackets	495	
Ellipses	496	

Appendix B: Documentation Guide 497

APA Documentation Style	498	
APA In-Text Citations	498	
The References List for APA Style		500
Creating the APA References List		503
CSE Documentation Style (Citation-Sequence)	504	
The References List for CSE Citation-Sequence Style		504
Creating the CSE References List (Citation-Sequence Style)		507
MLA Documentation Style	508	
MLA In-Text Citations	508	
The Works Cited List for MLA Style		509
Creating the MLA Works Cited List		512
References	513	
Credits	515	
Index	517	
Sample Documents		<i>Inside Back Cover</i>

Preface

People use their computers to help them research, compose, design, revise, and deliver technical documents and presentations. By making computers central to the writing process and exploring how we use them to join the ongoing conversation around us, *Technical Communication Strategies for Today* helps students and professionals take full advantage of these important workplace tools.

New media and communication technologies are dramatically altering technical fields at an astounding rate. People are working more efficiently, more globally, and more visually. These changes are exciting, and they will continue to accelerate in the technical workplace. The second edition of *Technical Communication Strategies for Today* continues to help writers master these changing communication tools that are critical to success in technical fields.

Today, as the technical workplace has expanded, almost all professionals find themselves needing to communicate technical information. To meet this need, this book addresses a broad range of people, including those who need to communicate in business, computer science, the natural sciences, the social sciences, public relations, medicine, law, and engineering.

What's New in the Second Edition?

The second edition of *Technical Communication Strategies for Today* provides students with up-to-date information.

- New microgenres feature that allows students to work on smaller assignments that help them build up to more complex genres (Chapters 5-11).
- New organization of the text that places all of the major technical communication genres at the front of the book to encourage students to write earlier in the semester (Part 2).
- Chapters on letters, memos, and e-mails that have been combined to better reflect how e-mail has become a primary form of correspondence in many workplaces.
- Strategies for using social networking in the workplace to collaborate with colleagues and work with clients (Chapter 3 and 15).
- Combined chapter on research (Chapter 12) that helps students quickly locate electronic, print, and empirical sources and cite them properly.
- New sample documents that provide even more examples of the types of communications you will be generating and reading in the workplace, including a technical description (Chapter 6), a status report (Chapter 9), and a poster presentation (Chapter 10).

Guiding Themes

In times of accelerated change, we must quickly adapt to new communication tools and strategies, while retaining proven approaches to writing and speaking. In this book, I have incorporated the newest technology in workplace communication. But the basics have not been forgotten. You will also find that the book is grounded in a solid core of rhetorical

principles that have been around for at least two and a half millennia. In fact, these core principles hold up surprisingly well in this Information Age and are perhaps even more relevant as we return to a more visual and oral culture.

My intent was to develop a book that teaches students the core principles of rhetoric, while showing them how to use computers in a rapidly evolving information-based society.

Computers as Thinking Tools

The foremost theme of this book is that computers are integral and indispensable in technical communication. This premise may seem obvious to many readers; yet the majority of technical communication textbooks still do not successfully integrate computers into their discussions of workplace communication. These textbooks often limit computers to their word-processing abilities. They do not adequately show students how to fully use their computers to succeed in a networked technical workplace.

This book reconceptualizes the computer as a thinking tool in the technical workplace and in student learning. We need to recognize that students use their computers as thinking tools from beginning to end, inventing their ideas and composing text at the same time. In this book, the writing process has been redefined with the computer as a communication medium. As a result, the writing process described here is far more in line with the kinds of computer-centered activities that are common in the technical workplace.

Genres as Pathways for Interpretation and Expression

This book follows a genre-based approach to writing and speaking in technical workplaces. Genres are relatively stable patterns that help people accomplish their goals in a variety of common rhetorical situations. Genres are not formulas or recipes to be followed mechanically. Instead, they offer flexible approaches that allow people to create order in the evolving reality around them.

Genres can be used to interpret rhetorical situations, helping people in technical workplaces make decisions about what kinds of information they need to generate or collect. Genres can help individuals and collaborative teams plan projects and develop rhetorical strategies for responding appropriately to complex situations. They can then be used to guide invention, organization, style, and design.

A genre-based approach to technical communication provides students with a “genre set” that is applicable to a variety of technical communication situations. While practicing these genres, students will also learn how to adapt genres and cross genres in ways that help them respond appropriately to situations that are unique or new to them.

Visual-Spatial Reading, Thinking, and Composing

This book also reflects an ongoing evolution in technical communication from literal-linear texts toward visual-spatial documents and presentations. We now see documents as “spaces” where information is stored and flows. Visual-spatial reading, thinking, and composing involve interacting with text in three dimensions.

This book addresses this evolution toward visual-spatial thinking in four ways:

- First, this book shows writers and speakers how to use visual-spatial techniques to research, invent, draft, design, and edit their work.
- Second, it teaches students how to write and speak visually, while designing highly navigable documents and presentations.
- Third, the book shows how to compose visual-spatial documents like hypertexts, websites, and multimedia presentations. Writing in these environments is becoming increasingly important as companies move their communications and documentation online.
- Finally, it practices what it preaches by presenting information in a visual-spatial way that will be more accessible to today's students. Clearly, students learn differently now than they did even a couple of decades ago. This book reflects their ability to think visually and spatially.

This visual-spatial turn is an important intellectual shift in our culture—one that we do not fully understand at the moment. We do know, however, that communicating visually and spatially involves more than adding headings and charts to documents or using PowerPoint to enhance oral presentations. Instead, we must recognize that the advent of the computer, which is a visual-spatial medium, is revolutionizing how we conceptualize the world and how we communicate. Increasingly, people are thinking visually and spatially in addition to literally and linearly. This book incorporates this important change.

The International, Cross-Cultural Workplace

This edition of *Technical Communication Strategies for Today* includes expanded coverage of international and cross-cultural issues. I have met with hundreds of technical communication instructors and have learned that they want even more coverage of the globalized, cross-cultural workplace.

International and cross-cultural issues are integrated into the main discussion rather than shunted off into special sidebars, because issues of globalization are no longer separable from technical communication. Today, we always need to think globally, because computers greatly expand our reach into the world.

The Activity of Technical Communication

In this computer-centered age, people learn by doing, not by passively listening or reading. This book continues to stress the activity of technical communication—producing effective documents and presentations. Each chapter follows a process approach that mirrors how professionals communicate in the technical workplace. Meanwhile, the book shows students how to pay close attention to the evolving workplace contexts in which communication happens.

Perhaps this theme comes about because of my experiences with students and my observations of people using books like this one. As someone who has consulted and taught technical communication for nearly two decades, I realize that today's students rarely read their textbooks. Instead, they raid their textbooks for the specific information they need to complete a task. They use their textbooks like they use websites. They ask questions of the text and then look for the answers.

Supplements to the Book

Accompanying this book are important tools that instructors and students will find especially helpful.

Instructor's Manual

The *Instructor's Manual* offers teaching strategies for each chapter while also providing prompts for class discussion and strategies for improving student writing and presentations. The *Instructor's Manual* is available online at www.pearsonglobalaleditions.com/johnson-sheehan.

MyWritingLab for Tech Comm [MyWritingLab](#)

Instructors who package MyWritingLab for Tech Comm with *Technical Communication Strategies for Today*, Second Edition, provide their students not only with the full text of *Technical Communication Strategies for Today* in electronic format but also with a comprehensive resource that offers the very best multimedia support for technical writing in one integrated, easy-to-use site. Contact your local Pearson representative for details.

CourseSmart*

Students can subscribe to *Technical Communication Strategies for Today*, Second Edition, as a CourseSmart eText (at www.coursesmart.co.uk). The site includes all of the book's content in a format that enables students to search the text, bookmark passages, save their own notes, and print reading assignments that incorporate lecture notes.

Acknowledgments

The second edition of *Technical Communication Strategies for Today* has given me the opportunity to work with many people at Pearson and at colleges around the country. I wish to thank the following individuals for their insight and support:

Teresa Aggen, Pikes Peak Community College; Sherrie L. Amido, California Polytechnic State University—San Luis Obispo; James Baker, Texas A&M University; Lauri M. Baker, University of Florida; Russell Barrett, Blinn College; Eric Bateman, San Juan College; Norman Douglas Bradley, University of California—Santa Barbara; Lee Brasseur, Illinois State University; Stuart Brown, New Mexico State University; Ellie Bunting, Edison College; Maria J. Cahill, Edison State College; Tracy L. Dalton, Missouri State University; Roger Friedman, Kansas State University; Timothy D. Giles, Georgia Southern University; Jeffrey Jablonski, University of Nevada—Las Vegas; Rebecca Jackson, Texas State University; Leslie Janac, Blinn College—Bryan Campus; Miles A. Kimball, Texas Tech University; Christy L. Kinnion, Wake Technical Community College; Barry Lawler, Oregon State University; Barbara L'Epplattenier, University of Arkansas—Little Rock; Anna Maheshwari, Schoolcraft College; Barry Maid, Arizona State University; Jodie Marion, Mt. Hood Community College; Steve Marsden, Stephen F. Austin State University; Mary S. McCauley, Wake

This product may not be available in all markets. For more details, please visit www.coursesmart.co.uk or contact your local Pearson representative.

Technical Community College; Kenneth Mitchell, Southeastern Louisiana University; Jacqueline S. Palmer, Texas A&M University; Andrea M. Penner, San Juan College; Cindy Raisor, Texas A&M University; Sherry Rankins-Robertson, Arizona State University; Carlos Salinas, The University of Texas at El Paso; Teryl Sands, Arizona State University; Jennifer Sheppard, New Mexico State University; Nancy Small, Texas A&M University; Krista Soria, University of Alaska Anchorage; Karina Stokes, University of Houston—Downtown; Christine Strebeck, Louisiana Tech University; Valerie Thomas, University of New Mexico; Christopher Toth, Iowa State University; Jack Trotter, Trident Technical College; Greg Wilson, Iowa State University; Alan Zemel, Drexel University.

Thanks also to my colleagues, Professors Scott Sanders, Charles Paine, and David Blakesley. Finally, thanks to Gracemarie Mike and Mary McCall for working as research assistants on this project.

Most important, I would like to thank my wife, Tracey, and my children, Emily and Collin, for their continued support.

RICHARD JOHNSON-SHEEHAN
PURDUE UNIVERSITY

Global Edition

Pearson would like to thank and acknowledge the following people for their work on the Global Edition:

Contributors

Shailja Agarwal, Institute of Management Technology—Ghaziabad
Shilpi Agarwal

Reviewers

Bhavna Bhalla, Institute of Management Technology—Ghaziabad
Chitra S.



In this chapter, you will learn:

- How to develop a writing process that is suitable for the technical workplace.
- How genres are used in technical workplaces to develop documents.
- To define technical communication as a process of managing information in ways that allow people to take action.
- The importance of communication in today's technical workplace.
- The importance of effective written and spoken communication to your career.

CHAPTER

1

Communicating in the Technical Workplace

Developing a Workplace Writing
Process 22

Genres and the Technical Writing
Process 24

What Is Technical
Communication? 30

How Important Is Technical
Communication? 35

Chapter Review 36

Exercises and Projects 37

When college graduates begin their technical and scientific careers, they are often surprised by the amount of writing and speaking required in their new jobs. Of course, they knew technical communication would be important, but they never realized it would be so crucial to their success.

Effective communication is the cornerstone of the technical workplace, whether you are an engineer, scientist, doctor, nurse, psychologist, social worker, anthropologist, architect, technical writer, or any other professional in a technical field. People who are able to write and speak effectively tend to succeed. People who cannot communicate well often find themselves wondering why they didn't get the job or why they were passed over for promotions.

Developing a Workplace Writing Process

One of the major differences between workplace writing and college writing is the pace at which you need to work. Computers have greatly increased the speed of the technical workplace, and they allow people to work around the clock. So, you need to work smarter, not harder.

To be successful, you need to develop a writing process that helps you consistently produce high-quality documents, presentations, and multimedia materials. In this book, you will be learning a *genre-based approach* to the technical writing process. Genres are relatively stable patterns that reflect the activities and practices of the workplace. A genre shapes a document's content, organization, style, and

Computers Are the Central Nervous System of the Workplace



Your ability to communicate with others through computer networks will be critical to your career.

design, as well as the medium in which it is delivered. Genres also help you anticipate the needs of your readers and the situations in which they will use your documents and presentations.

For example, *analytical reports* follow a different genre than *technical specifications* (Figure 1.1). Analytical reports and specifications are written for different kinds of readers for different workplace situations. They include different kinds of information and follow their own organizational patterns. The style and design of these two genres are distinctly different. Yet, someone working in a technical workplace would need to know how to use both of these genres.

Genres do much more than help you organize your ideas. They help you interpret complex workplace situations and make sense of what is happening around you. For example, if you know you need to write an analytical report, the genre will help you figure out what kind of information you need to collect, how that information should be arranged, and how it should be presented. Your readers, meanwhile, will interpret your ideas through the genre. If you call something a “report,” they will have specific expectations about the content, organization, style, design, and medium of the document.

Genres are not formulas or recipes to be followed mechanically. Instead, genres reflect the activities and practices of scientific and technical workplaces. Each genre should be adapted to fit the readers and the situations in which the document will be used.

Two Different Genres

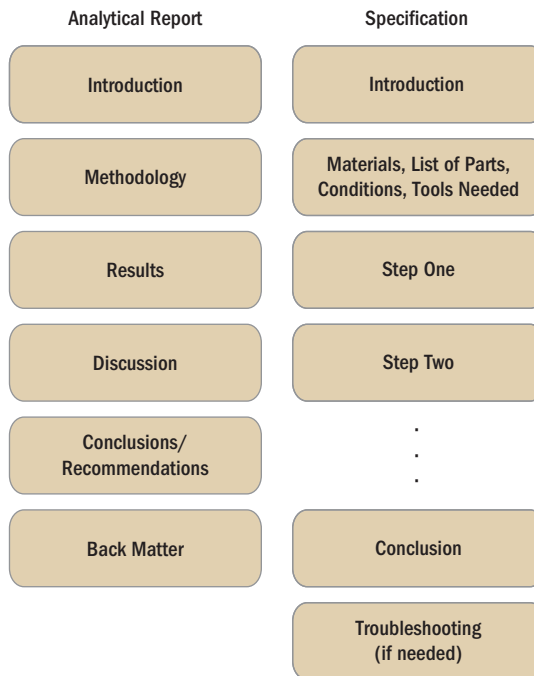


Figure 1.1: Each genre has its own content, organization, style, and design. Here are the outlines of two distinctly different genres set side by side.

Genres and the Technical Writing Process

Over time, you will develop your own writing process for the technical workplace. For now, though, you might find it helpful to view technical writing as a *process* that includes the stages shown in Figure 1.2:

- **Planning and researching**—Planning the project, using research to collect information, and developing your own ideas.
- **Organizing and drafting**—Deciding how to arrange your information and then turning those ideas into sentences, paragraphs, and sections.
- **Improving the style**—Writing clearly and persuasively for your readers.
- **Designing the document**—Developing an appropriate page design that improves the usability and attractiveness of your document.
- **Revising and editing**—Improving the quality of your work by revisioning, rewriting, and proofreading your writing.

As you write your document or develop your presentation, you will find yourself working back and forth among these stages, as shown in Figure 1.2. While drafting, for example, you may discover that you need to do more research on your topic. While editing, you may decide that you need to draft an additional section for the document. Overall, these stages will lead you from the beginning of a project to the end.

Meanwhile, the genre you are using will guide you through each stage in your writing process. The genre helps you make decisions about the content of the document, as well as the organization, style, design, and medium that would be best for readers.

The Technical Writing Process

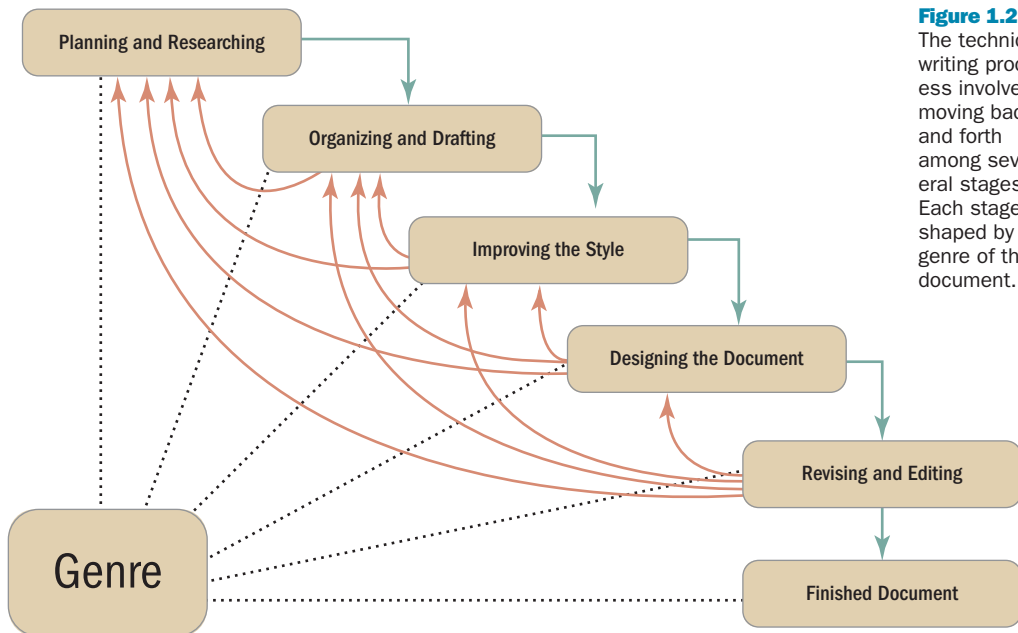


Figure 1.2: The technical writing process involves moving back and forth among several stages. Each stage is shaped by the genre of the document.

Stage 1: Planning and Researching

When planning and researching, you should spend some time doing three activities:

Define the rhetorical situation—Identify your document’s subject, purpose, readers, and context of use.

State your purpose—Sharpen your purpose into a one-sentence statement that will guide your research and drafting of the document.

Research your subject—Use electronic, print, and empirical sources to collect information on your subject.

DEFINING THE RHETORICAL SITUATION A good first step is to define the *rhetorical situation* that will shape the content, organization, style, and design of your document. Understanding the rhetorical situation means gaining a firm grasp of your document’s subject, purpose, readers, and context of use (Figure 1.3).

To define the rhetorical situation, start out by asking the *Five-W and How Questions*: who, what, why, where, when, and how.

- *Who* are my readers, and who else is involved with the project?
- *What* do the readers want and need, and what do I want and need?
- *Where* do they need the information, and *where* will they use it?
- *When* will the information be used, and *when* is it needed?
- *Why* do the readers need the information in this document?
- *How* should I achieve my purpose and goals?

The Five-W and How Questions will give you an overall sense of your document’s rhetorical situation.

Defining the Rhetorical Situation

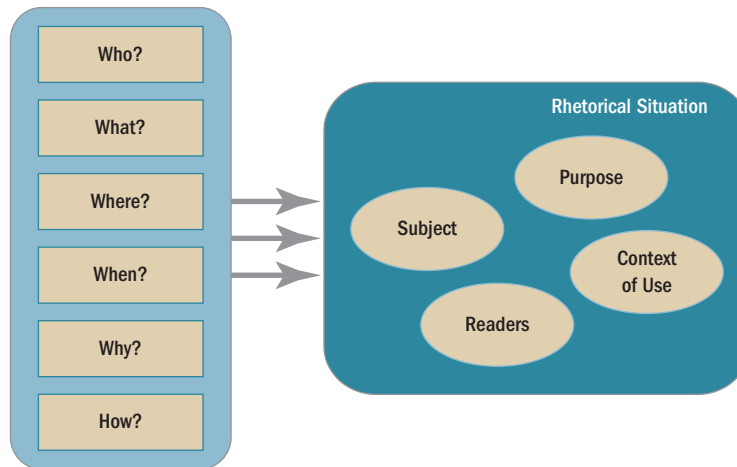


Figure 1.3: The Five-W and How Questions can help you determine the rhetorical situation for your technical document or presentation.

Now, spend some time taking notes on the following four elements of the rhetorical situation:

Link

To learn about adapting texts to readers and contexts, go to Chapter 2, page 45.

Subject—What is the document about? What is it *not* about? What kinds of information will my readers need to make a decision or complete a task? What is the scope of the project?

Purpose—What does this document need to achieve or prove? Why do my readers need this document and what do they need to know?

Readers—Who are the readers of this document? What are their specific needs and interests? What are they looking for in this document?

Context of use—Where and when will this document be used? What physical, economic, political, and ethical constraints will shape this text?

Defining the rhetorical situation may seem like an added step that will keep you from writing. Actually, knowing your document's rhetorical situation will save you time and effort, because you will avoid dead ends, unnecessary revision, and writer's block.

DEFINING YOUR PURPOSE Among the four elements of the rhetorical situation, your document's purpose is probably the most important. It is what you want to do—and what you want the document to achieve.

Your purpose statement is like a compass for the document. Once you have clearly defined your purpose for yourself and your readers, you can use that purpose statement to guide your decisions about the content, organization, style, and design of your document.

When defining your purpose, try to express exactly what you want your document to achieve. Sometimes it helps to find an appropriate action verb and then build your purpose statement around it. Here are some useful action verbs that you might use:

Informative Documents

- to inform
- to describe
- to define
- to review
- to notify
- to instruct
- to advise
- to announce
- to explain
- to demonstrate

Persuasive Documents

- to persuade
- to convince
- to influence
- to recommend
- to change
- to advocate
- to urge
- to defend
- to justify
- to support

Once you have chosen an action verb, try to state your purpose in one sentence. It might help to finish the phrase “The purpose of my document is to”

The purpose of my report is to review the successes and failures of wolf re-introduction programs in the western United States.

The purpose of my proposal is to recommend significant changes to flood control strategies in the Ohio River Valley.

Hammering your purpose statement down into one sentence is hard work but worth the effort. Your one-sentence purpose statement will focus your writing, saving you time.

RESEARCHING YOUR SUBJECT Solid research is your next step. You need to gather information from a variety of sources, including the Internet, print documents, and empirical methods (e.g., experiments, surveys, observations, interviews). Chapter 12 will help you do effective research and evaluate your sources.

Computers have significantly changed the way we do research in technical workplaces. Before computers, finding enough information was usually a writer’s main challenge. Today, there is almost too much information available on any given subject. So, it is important that you learn how to *manage* the information you collect, sorting through all the texts, scraps, junk, and distortions to uncover what you need. Your documents should give your readers only the information they require to make a decision or take action. Leave out anything else.

Stage 2: Organizing and Drafting

Organizing and drafting is usually the hardest part of the writing process. While organizing and drafting, you are essentially doing two things at the same time:

Organizing the content—Using common genres to shape your ideas into documents that will be familiar to readers.

Drafting the content—Generating the content of your document by including facts, data, reasoning, and examples.

Here’s where the concept of genres is especially helpful. If you understand the genre, you will understand how to organize the information you’ve collected in a way that achieves your purpose. For example, the document in Figure 1.4 is easily recognizable as a *set of instructions* because it is following the genre.

Chapters 5 through 11 will teach you how to use the most common genres in technical workplaces. In most situations, you will already know which genre you need because your supervisor or instructor will ask you to write a “specification,” “report,” or “proposal.” But if you are uncertain which genre suits your needs, pay attention to your document’s purpose. Then, find the genre that best suits the purpose you are trying to achieve.

Sample of Genre: Instructions

Larger steps are clearly marked.

The text explains each step.

Headings guide readers.

Diagrams illustrate the steps.

STEP 1 ▶ Connect Your Recorder

▶ **Let's Get Started!**
Connecting your Recorder usually takes less than half an hour. See the *Installation Guide* for additional setup information. After connecting, completing on-screen Guided Setup should take less than an hour.
IMPORTANT NOTE: You must complete Guided Setup (Step 3, on page 7) before you can play and record DVDs.

Upgrade to TiVo Plus™ Service (optional)
Your Recorder comes with TiVo Basic™ service—but that's just the beginning! To get features such as Season Pass™ recordings, WishList™ searches, TiVo Suggestions, and more, upgrade to TiVoPlus. For details, see Chapter 6 in the User's Guide. To upgrade, visit www.tivo.com/upgrade or call 1-877-367-8486.

Do you have a satellite or cable box?

No I don't have a satellite or cable box ▶ **Option A** page 4

Yes I have a satellite or cable box ▶ **Option B** page 4

Get to Know Your Cables
The Recorder comes with a Composite A/V cable (shown below). Composite provides excellent audio and video, and you can connect the Recorder to a TV or A/V receiver using only this cable. All of the programs show connections using a Composite A/V cable. The Recorder's back panel also includes premium connectors for S-Video and Component Video cables, and for a Digital Audio cable. If you want the best quality audio and video available, and you have equipment that supports these connections, you can purchase these additional cables to use instead of the Composite A/V cables shown in the setup diagrams. Cables included with your Recorder:
(You may not use all of them.)

	Composite cable with L.R. Audio (red and red) and Video (yellow)		Phone cord
	S-Video cable (for Hi-Fi Repeaters only. See Setup to Manufacturers Guide for details)		Phone splitter
	Component Video cable (for Hi-Fi Repeaters only. See Setup to Manufacturers Guide for details)		Power cord
	Control Cables (includes the change channel, and volume or satellite box)		IR Control cable
			Serial (Data) Control cable (the DIRECTV satellite receiver or Motorola/Sanyal Instruments DCT-1000 digital cable box)

STEP 2 ▶ Add a VCR (Optional)

First complete Step 1, Option A or B

Before you begin: This diagram shows VCR connections only. Only highlighted in red. You must first complete Option A (page 4) or Option B (pages 4 & 5) before connecting a VCR.

- Connect Recorder to VCR**
Connect a Composite A/V cable from the **Output 2** connector on the Recorder to the **Input 2** connector on the VCR. This will allow you to transfer recordings from video tapes to the Recorder (so you can turn your video tapes into DVDs).
- Connect VCR to Recorder**
Connect another Composite A/V cable from the **Output** connector on the VCR to the **Input 2** connector on the Recorder. This will allow you to transfer recordings from video tapes to the Recorder (so you can turn your video tapes into DVDs).
- Connect VCR to TV (Optional)**
To watch video tapes on your VCR, connect an RF Coaxial cable from the **RF Out** connector on the VCR to the **Antenna** connector on the TV. Press the **Input**, **Source**, or **TV/Video** button on your TV until you see channel numbers displayed. Then use the buttons on the front of your TV to go to channel 3 or 4.

Important: You must setup 2 on the Recorder to make recordings from a VCR or a video camera. See Chapter 3, "Playing and Recording Programs," in the User's Guide for more information.

Now go to page 7 ▶

Tips and Alternatives

- This setup shows Composite A/V cables. If you have a TV or A/V receiver that has other audio and video connections, you might prefer to use S-Video, Component Video, or Digital Audio cables (not supplied). See the *Installation Guide* for details.
- Want to watch one channel while recording another? See the *Installation Guide* for details.
- Remember to connect the Coax connector of one device to the IR connector of the next.
- After you complete Guided Setup, you'll be able to connect your Recorder to a home network (or use a shared broadband Internet connection instead of a phone line) to make connections to the TiVo service. See Chapter 6, "Connecting to a Home Network," in the User's Guide.

STEP 3 ▶ Complete Guided Setup

Guided Setup is Easy!
When you see the Welcome screen, you are ready to begin Guided Setup. During Guided Setup you will be asked simple questions about your program source, Zip code, and time zone. Use the SELECT button on the remote to select/deselect options or to move to the next screen. Use LEFT arrow to go back to the previous screen. You must complete Guided Setup before you can play and record DVDs.

Helpful Hints (see the User's Guide for more information)

Phone

- ▶ What if your phone jack isn't close to the Recorder? Use the included 25-foot phone cord to complete Guided Setup. Afterwards, you'll be able to connect your Recorder to a home network and use a shared broadband Internet connection instead of a phone line to make connections to the TiVo service. See Chapter 6, "Connecting to a Home Network," in the User's Guide.
- ▶ Having trouble with the Guided Setup phone calls? Go back to the Phone Dialing Options screen and try these steps: If you have call waiting, take out the phone you inserted. Turn off call tone detection. Turn off phone availability detection. (See the User's Guide for details.)
- ▶ If you need to use your phone during a Guided Setup call, pick it up, wait 5 to 10 seconds, then hang up. When you pick up the phone again, the line should be free. You can complete Guided Setup later.

Channels You Receive

Channels

- ▶ During Guided Setup, you select a channel lineup. A channel lineup is the set of channels you subscribe to, such as "Digital Extended Basic" or "DIRECTV-Digestor, MAX." If you aren't sure of your lineup, check your channel lineup card, your cable bill, or make your best guess. Guided Setup includes a Channels You Receive screen where you can check to make sure that channel numbers shown match your lineup. If you guess was wrong, go back and select a different lineup.

Remember to use the Channels You Receive screen to remove checkmarks for channels you don't receive or never watch. (You can change your channel selection later, even after you complete Guided Setup.)

TiVo Basic™
VCR Style Recording
After Guided Setup, your Recorder will have TiVo Basic service. You'll be able to pause and rewind live TV, record shows from the program guide at the touch of a button, discover new programs with Showcases, and store hours of programs, easily accessible from your Now Playing list.

TiVo Plus™
Smart, Automatic Recording
TiVo Plus gives you the full benefits of smart, automatic recording technology. Never miss an episode—even if the time changes—with Season Pass™ recordings. Find your favorite programs by title, actor, director, or keyword using WishList™ searches. See the User's Guide for details on upgrading to TiVo Plus.

Figure 1.4: A genre follows a pattern that readers will find familiar. Readers would immediately recognize this document as a set of instructions and be able to use it.

Screenshots are used to illustrate results of steps.

Additional notes help readers adjust to their specific needs.

Source: TiVo.

Stage 3: Improving the Style

All documents have a style, effective or not. Good style is a choice you can and should make. Two kinds of style widely used in technical documents are plain style and persuasive style.

Plain style—This style stresses clarity and accuracy. By paying attention to your sentences and paragraphs, you can make your ideas clearer and easier to understand.

Persuasive style—You can use persuasive style to motivate readers by appealing to their values and emotions. You can use similes and analogies to add a visual quality to your work. You can use metaphors to change your readers' perspective on issues. Meanwhile, you can use tone and pace to add energy and color to your work.

Most workplace texts are written in the plain style, but technical documents sometimes need the extra energy and vision provided by the persuasive style. Your goal should always be to make information as clear and concrete as possible. When persuasion is needed, you will want to energize your readers with persuasive style techniques.

Stage 4: Designing

Designing a document only takes minutes with a computer, and you can create graphics with a few clicks of a button. So, not only is design possible—your readers will *expect* your technical documents to be well designed.

As you think about the design of your document, keep this saying in mind: *Readers are “raiders” for information.* Your readers want the important parts highlighted for them. They prefer documents that use effective graphics and layout to make the information more accessible, interesting, and attractive (Figure 1.5).

Chapter 13 will show you how to design workplace documents. Chapter 14 will show you how to create and place graphics in your documents. As you draft and revise your document, look for places where you can use visual design to help readers locate the information they need. Look for places where graphics might support or reinforce the written text. The design of your document should make it both attractive and easy to read.

Stage 5: Revising and Editing

When you have finished drafting and designing the document, you are only a little over halfway finished. In technical communication, it is crucial to leave plenty of time for revising, editing, and proofreading. Clarity and accuracy are essential if your readers are going to understand what you are trying to tell them.

There are four levels of revising and editing:

Level 1: Revising—Reexamine your subject and purpose while thinking again about the information your readers need to know.

Level 2: Substantive editing—Look closely at the content, organization, and design of the document to make sure your readers can find the information they need.

Document Design Is Very Important

The organization's name is easy to locate.

Topics are listed clearly.

Pictures add a human quality.

Text is highly scannable because it is in groups.

Color adds energy.

Figure 1.5: Because readers are raiders of information, you want the design of your document to be visually accessible.

The screenshot shows the American Red Cross website in a Firefox browser. The page features a navigation bar with links like 'DONATE FUNDS', 'GIVE BLOOD', and 'TAKE A CLASS'. A main banner image shows a woman hugging a child, with the headline 'Urgent need for platelets and blood remains.' and a 'Make an Appointment' button. Below the banner are news snippets and a 'Sign Up for News and Updates' form. Annotations with arrows point to these various elements, highlighting their design and accessibility.

Source: American Red Cross, <http://www.redcross.org>.

Level 3: Copyediting—Pay close attention to the document's sentences, paragraphs, and graphics to make sure they are clear, accurate, and efficient.

Level 4: Proofreading—Carefully proofread your document to eliminate grammar problems, typos, spelling errors, and usage mistakes. In workplace documents, errors are a signal of low-quality work.

Revising and editing is a crucial step in the technical workplace, where clarity and accuracy are essential. Your supervisors will ask you to do much more revising and editing than your college professors.

What Is Technical Communication?

Let's step back for a moment to look at the big picture. This chapter hasn't given you a definition of "technical communication" yet—on purpose. That's because you first needed to understand that technical communication is a *process*. Here is the definition of technical communication that will be used throughout this book:

Qualities of Technical Communication

Technical communication is:

- interactive and adaptable
- reader centered
- reliant on teamwork
- visual
- bound ethically, legally, and politically
- international and cross-cultural

AT A GLANCE

Technical communication is a process of managing technical information in ways that allow people to take action.

The key words in this definition are *process*, *manage*, and *action*. In this book, you will learn the *process* of technical communication so that you can *manage* large amounts of information in ways that allow you to take *action*. As illustrated in Figure 1.6, technical communication involves learning a variety of skills that will help you manage the flow of information.

Technical Communication Is Interactive and Adaptable

One of the most significant changes brought about by computers is the amount of *interactivity* and *collaboration* among people in the technical workplace. In the computer-networked workplace, people are constantly communicating with each other and sharing their ideas.

As a result of this interactivity, it is possible for you to quickly adapt documents and presentations to fit the specific needs of many different kinds of readers and situations. Websites are an especially interactive form of technical communication (Figure 1.7). Using a website, people can find the information that is most helpful to them. And, if they cannot find the information they are looking for on the website, they can send an e-mail or text to get the answers they need.

Similarly, paper-based documents can also be adapted to the changing needs of readers. Before computers, it was difficult to adjust and revise paper-based documents. Once they were printed, documents were hard to change. Today, with computers, you can easily update documents to reflect changes in your company's products and services, or quickly revise documents to address unexpected changes in the workplace.

The Qualities of Technical Communication

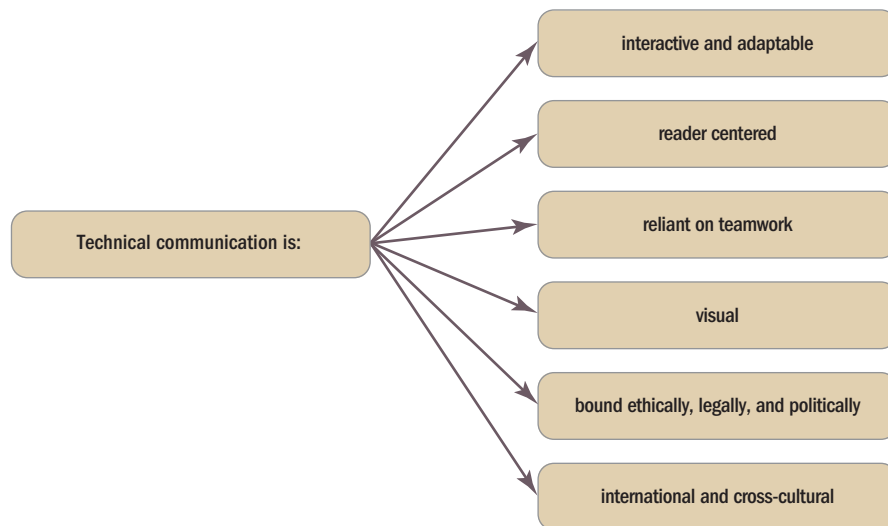


Figure 1.6: Technical communication puts much more emphasis on managing information and taking action than most other forms of writing.

Sample Webpage

Document is highly scannable and adaptive to readers' needs by using small columns.

The webpage is highly visual and includes color.

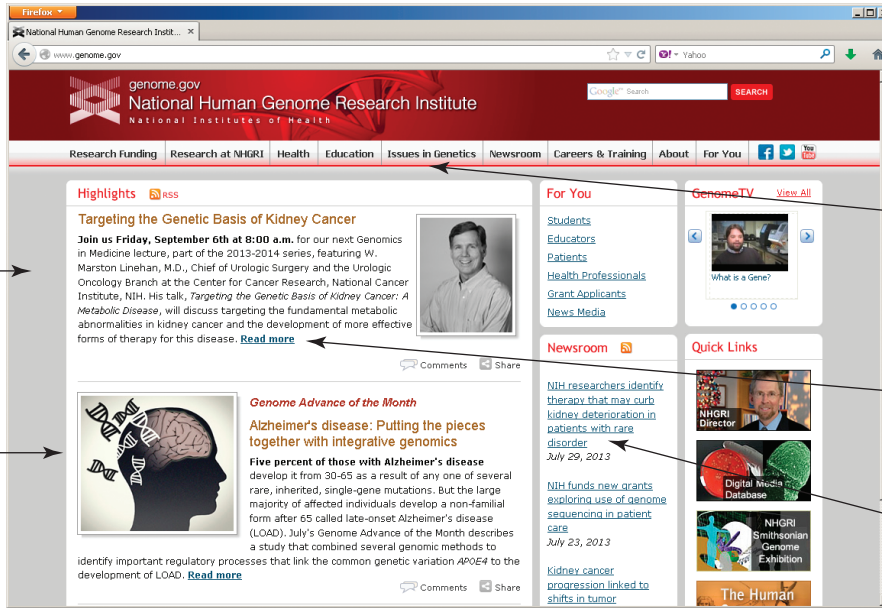


Figure 1.7: Websites are highly interactive, allowing readers to follow a variety of paths to find information.

Ethics and politics are an important concern in all technical documents.

Links make the text highly interactive.

Links take readers to more information about a subject.

Source: National Human Genome Research Institute, <http://www.genome.gov>.

Technical Communication Is Reader Centered

In technical communication, readers play a much more significant role than they do in other kinds of writing. When writing a typical college essay, you are trying to express *your* ideas and opinions. Technical communication turns this situation around. It concentrates on what the readers “need to know” to take action, not only what you, as the writer, want to tell them.

Because it is reader centered, effective technical communication tends to be highly pragmatic. Technical communication needs to be efficient, easy to understand, accessible, action oriented, and adaptable.

Link

For more information on working in teams, see Chapter 3, page 65.

Technical Communication Relies on Teamwork

Technical workplaces are highly collaborative, meaning you will likely work with a team of specialists on almost every project. Writing and presenting with a team are crucial skills in any technical workplace.

Computers have heightened the team orientation of the technical workplace. Today, because documents can be shared through e-mail or the Internet, it is

common for many people to be working on a document at the same time. In some cases, your team might be adjusting and updating documents on an ongoing basis.

Technical Communication Is Visual

By making texts highly visual, you can help readers quickly locate the information they need. Visual cues, like headings, lists, diagrams, and margin comments, are common in technical documents (Figure 1.8). Graphics also play an important role in technical communication. By using charts, graphs, drawings, and pictures, you can clarify and strengthen your arguments in any technical document. Today's readers quickly grow impatient with large blocks of text. They prefer graphics that reinforce the text and help them quickly gain access to important information.

Technical Communication Has Ethical, Legal, and Political Dimensions

In the increasingly complex technical workplace, issues involving ethics, laws, and politics are always present. Ethical and legal standards can be violated if you aren't careful. Moreover, computers have created new micro- and macropolitical challenges that need to be negotiated in the workplace. To communicate effectively in the technical workplace, you need to be aware of the ethical, legal, and political issues that shape your writing and speaking.

Link

For more information on visual design, see Chapter 13, page 388.

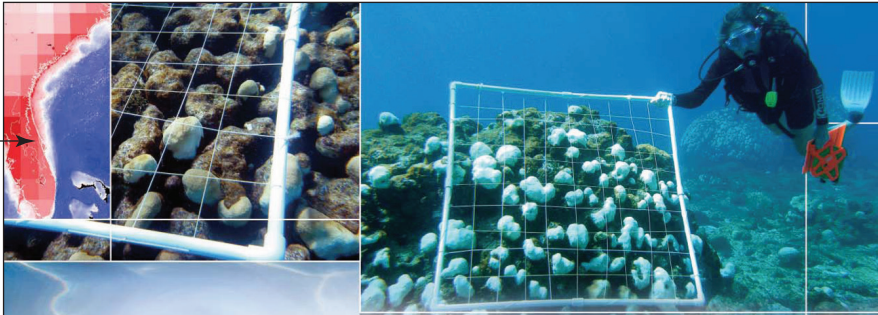
Link

To learn about using graphics in documents, turn to Chapter 14, page 418.



Working with a team can be fun and rewarding. Teams take advantage of the strengths and knowledge of different people to succeed.

The Importance of Visual Design



Visuals add color and emotion.

An easy-to-read title identifies the document's subject.

Ecosystems

Headings make the text highly scannable.

The two-column format makes the text easy to scan.

NOS Releases Two National Progress Reports on Reef Conservation

This year, NOS released two major progress reports on coral reef research, monitoring and management. *The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2005* established the first quantitative baseline of the conditions of shallow water coral reef ecosystems in the U.S., the Republic of Palau, the Republic of the Marshall Islands, and the Federated States of Micronesia. More than 160 scientists and resource managers contributed to the report, which documents the geographic extent of reef ecosystems and the status of water quality, benthic habitats, associated biological communities and key threats to coral ecosystem health. The second report, *Implementation of the National Coral Reef Action Strategy: Report on U.S. Coral Reef Agency Activities from 2002 to 2003*, highlights the activities of NOAA and the U.S. Coral Reef Task Force under each of the 13 national conservation goals defined by the 2002 U.S. National Coral Reef Action Strategy. The report indicates that collective research and management actions are moving in the right direction, citing examples like the creation of 14 new coral reef protected areas and the creation of Local Action Strategies for conservation.

Tortugas Ecological Reserve Show Signs of Species Abundance

Four years after the establishment of the Tortugas Ecological Reserve, NOS scientists are studying how the ecosystem is changing as a result of reserve status. This year, scientists conducted 253 dives to collect data and fish samples, and found that certain fish species are increasingly abundant.

New Tide and Water Quality Monitoring Station Includes Multiple Features

In August, NOS installed a tide and water quality monitoring station at the Wells National Estuarine Research Reserve (NERR), in Wells, Maine. The station combines the capabilities of the National Water Level Observation Network (NWLON) and the System-wide Monitoring Network. The station, which is the first of its kind installed at a NERR, includes primary and backup water level sensors, a suite of meteorological sensors, and a water quality sensor that measures several parameters. The NWLON technology allows Wells NERR staff to access water level, weather, and water quality data all from the same platform at the same time. Products generated from these data will benefit both short-term (such as habitat restoration) and long-term (such as sea level trends) applications, as well as research and education objectives.

Restoration Efforts at Blackwater National Wildlife Refuge

NOS and NOAA Fisheries are working with the U.S. Geological Survey (USGS), U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, National Aquarium in Baltimore, and others to restore 8,000 acres of wetlands at the Blackwater National Wildlife Refuge in eastern Maryland. Under common observing and data management principles of the Integrated Ocean Observing System, the partners are collecting water level data so that NOAA can process and conduct analyses of the data to apply to the restoration project. The Refuge also hosted a workshop on the importance of geodetic control for tidal analysis and applications. After the workshop, a global positioning system survey was conducted to connect NOAA's and USGS's water level stations, and USGS's surface elevation tables to the same geodetic network.

NOAA'S NATIONAL OCEAN SERVICE: ACCOMPLISHMENTS 2005

Figure 1.8: Visual design is an essential part of technical communication.



In the global market, the ability to communicate is the key to success.

As management structures become flatter—meaning there are fewer layers of management—employees are being asked to take on more decision-making responsibilities than ever. In most corporations, fewer checks and balances exist, meaning that all employees need to be able to sort out the ethical, legal, and political aspects of a decision for themselves.

Link

Ethical, legal, and political issues are discussed in Chapter 4, starting on page 89.

Technical Communication Is International and Cross-Cultural

Computers have also increased the international nature of the technical workplace. Today, it is common for professionals to regularly communicate with people around the world. Almost all companies and institutions compete in a global marketplace. Many have offices, communication hubs, and manufacturing sites in Europe, Asia, Africa, Australia, and South America. The growth of international and cross-cultural trade means you will find yourself working with people who speak other languages and have other customs. They will also hold different expectations about how technical documents and presentations should work.

Link

To learn about communicating internationally and cross-culturally, go to Chapter 2, page 52.

How Important Is Technical Communication?

At this point, you're probably still wondering how important technical communication will be to your career. Surveys regularly show that oral and written communication skills are among the most important in the technical workplace. A survey of Silicon Valley recruiters found that “employers were not fully satisfied with the business communication skills (writing, speaking, interpersonal) of their newly hired college graduates” (Stevens, 2005, p. 25). This survey found that 40 percent of employers wanted new hires to have better speaking skills, and 25 percent wanted better writing skills.

These findings are in line with conclusions from other surveys. When members of the American Institute of Aeronautics and Astronautics (AIAA) were asked to evaluate their educational preparation for their jobs, they ranked the following areas as the ones needing improvement in engineering education.

Areas of Needed Improvement in Education for Engineers

1. Oral communication
2. Visualization in three dimensions
3. Technical writing
4. Understanding the processes of fabrication and assembly
5. Using CAD, CAM, and solid modeling
6. Estimating solutions to complex problems without using computer models
7. Sketching and drawing

The membership of the AIAA is made up mostly of engineers, so it is interesting that two out of three of the top skills they listed stress the importance of technical communication.

Corporations spend billions each year to improve the writing skills of their employees, according to the 2004 report “A Ticket to Work . . . or a Ticket Out,” from the National Commission on Writing. Poor writing skills are the “kiss of death,” according to the report, because 51 percent of companies say they “frequently or almost always take writing into consideration when hiring salaried employees” (p. 29).

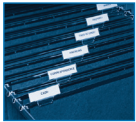
Fortunately, you can learn how to write and speak effectively in the technical workplace. The ability to communicate effectively is not something people are born with. With guidance and practice, anyone can learn to write and speak well. Right now, you have a golden opportunity to develop these important technical communication skills. They will help you land the job you want, and they will help you succeed.

If you are reading this book, you are probably in a class on technical communication or are looking to improve your skills in the technical workplace. This book will give you the tools you need for success.



- By consciously developing a writing process, you will learn how to write more efficiently. In other words, you will “work smarter, not harder.”
- A useful workplace writing process includes the following stages: planning and researching, organizing and drafting, improving the style, designing, and revising and editing.
- Technical writing genres are helpful for organizing information into patterns that your readers will expect.
- Computers, the Internet, and instant forms of communication have had an enormous impact on communication in the technical workplace.

- Technical communication is defined as a process of managing technical information in ways that allow people to take action.
- Technical communication is a blend of actions, words, and images. Readers expect technical documents to use writing, visuals, and design to communicate effectively.
- Technical communication is interactive, adaptable, reader centered, and usually produced in teams.
- Technical communication has ethical, legal, political, international, and cross-cultural dimensions that must be considered.
- Effective written and spoken communication will be vital to your career.



Individual or Team Projects

1. Locate a document that is used in a technical workplace through a search engine like Google.com, Bing.com, or Yahoo.com. To find documents, type in key words like “*report*,” “*proposal*,” “*instructions*,” and “*presentation*.”

What characteristics make the document you found a form of technical communication? Develop a two-minute presentation for your class in which you highlight these characteristics of the document. Compare and contrast the document with academic essays you have written for your other classes.

2. Using a search engine on the Internet, locate a professional who works in your chosen field. Write an e-mail asking that person what kinds of documents or presentations he or she needs to produce. Ask how much time he or she devotes to communication on the job. Ask whether he or she has some advice about how to gain and improve the communication skills that you will need in your career. Write a memo to your instructor in which you summarize your findings.
3. Using the information in this chapter, write a memo to your instructor in which you compare and contrast the kinds of writing you have done for classes in the past (e.g., essays, short answer, short stories) with the kinds of writing you expect to do in your career. Then, tell your instructor how this class would best help you prepare for your career in a technical workplace.

Collaborative Project: Writing a Course Mission Statement

As you begin this semester, it is a good idea for your class to develop a common understanding of the course objectives and outcomes. Companies develop mission statements to help focus their efforts and keep their employees striving toward common ends. Corporate mission statements are typically general and nonspecific, but they set an agenda or tone for how the company will do business internally and with its clients.

Your task in this assignment is to work with a group to develop a “Course Mission Statement” in which you lay out your expectations for the course, your instructor, and yourselves. To write the mission statement, follow these steps:

1. Use an Internet search engine to find your own examples of mission statements. Just type “mission statement” in Yahoo.com, Bing.com, or Google.com.
2. In class, with your group, identify the common characteristics of these mission statements. Pay special attention to their content, organization, and style. Make note of their common features.
3. With your group, write your own course mission statement. Be sure to include goals you would like the course to meet. You might also want to develop an “ethics statement” that talks about your approach to ethical issues associated with assignments, course readings, and attendance.
4. Compare your group’s course mission statement with other groups’ mission statements. Note places where your statement is similar to and different from their statements.

When your course mission statement is complete, it should provide a one-paragraph description of what you are trying to achieve in your class.



CHAPTER

2

Readers and Contexts of Use

Profiling Your Readers 40

Profiling Contexts of Use 45

Using Profiles to Your Own Advantage 46

International and Cross-Cultural Communication 52

At Work : What Are Some Strategies for Communicating with People from Another Culture 57

Chapter Review 58

Exercises and Projects 58

Case Study: Installing a Medical Waste Incinerator 60

In this chapter, you will learn:

- How to develop a comprehensive profile of a document's readers.
- How to tailor your document's content, organization, style, and design for international and cross-cultural communication.
- How to sort your readers into primary, secondary, tertiary, or gatekeeper audiences.
- Techniques for identifying readers' needs, values, and attitudes about you and your document.
- How to analyze the physical, economic, political, and ethical contexts of use that influence how readers will interpret your text.
- How to anticipate the needs of international and cross-cultural readers.

Knowing your readers is vital to effective technical communication. Your readers will have their own needs, values, and attitudes about what you are saying. Meanwhile, more than ever, readers don't have time to slog through information they don't need. So, you should find out exactly what your readers need to know and how they want that information presented.

Another concern is the ever-increasing importance of international communication through electronic networks. In technical fields, you *will* find yourself regularly communicating with people who speak other languages, have different customs, and hold different expectations. Computers have broken down many of the geographical barriers that once separated people and cultures. It is now common to communicate with people around the world on a daily basis.

Profiling Your Readers

In technical communication, documents are designed to suit the needs of specific types of readers. For this reason, early in the writing process, you should profile the types of people who might be interested in your document.

Reader profiles are sketches of your readers' tendencies, abilities, experiences, needs, values, and attitudes. To build a profile, begin by asking yourself the Five-W and How Questions about your readers (Figure 2.1).

Who might read this document?

What information do they need?



Your readers only want the information they need to make a decision or take action. As the writer, it is your job to find out what they need and how they want the information presented.

Developing a Reader Profile

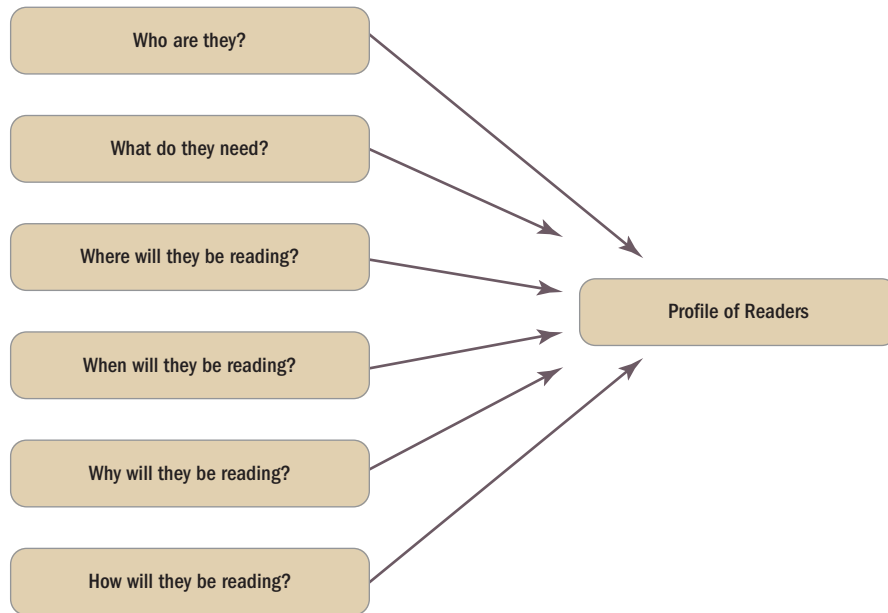


Figure 2.1: To develop a profile of your readers, use the Five-W and How Questions to look at them from a variety of perspectives.

Where will they read the document?

When will they read the document?

Why will they be reading it?

How will they be reading it?

As you answer these questions, keep in mind the following guidelines about your readers and how they prefer to read.

Guideline One: Readers are “raiders” for information—People don’t read technical documents for pleasure. Instead, most readers are *raiding* your document for the information they need to make decisions or take action.

Guideline Two: Readers are wholly responsible for interpreting your text—You won’t be available to explain what your document means, so your readers need to be able to easily figure out on their own what you are telling them.

Guideline Three: Readers want only “need-to-know” information—Readers want you to give them only the information they need, nothing more. Any additional material only makes the information they want harder to find.

Guideline Four: Readers prefer concise texts—The shorter, the better. Usually, the longer the document is, the less likely it is that people are going to read it. Your readers prefer documents that get to the point and highlight the important information.

Guideline Five: Readers prefer documents with graphics and effective page design—We live in a visual culture. Large blocks of text intimidate most readers. So, include graphics and use page design to make your document more readable.

Identifying Your Readers

You should always begin by identifying the readers of your document. Figure 2.2 shows a Writer-Centered Analysis Chart that will help you locate the various kinds of people who might look over your text (Mathes & Stevenson, 1976). You, as the writer, are in the center ring. Each ring in the chart identifies your readers from most important (primary readers) to least important (tertiary readers).

To use the Writer-Centered Analysis Chart, begin filling in the names and titles of the primary, secondary, tertiary, and gatekeeper readers who will or might look over your work.

PRIMARY READERS (ACTION TAKERS) The primary readers are the people to whom your document is addressed. They are usually *action takers* because the information you are providing will allow them to do something or to make a decision. Usually, your document will have only one or two primary readers or types of primary readers.

Writer-Centered Analysis Chart

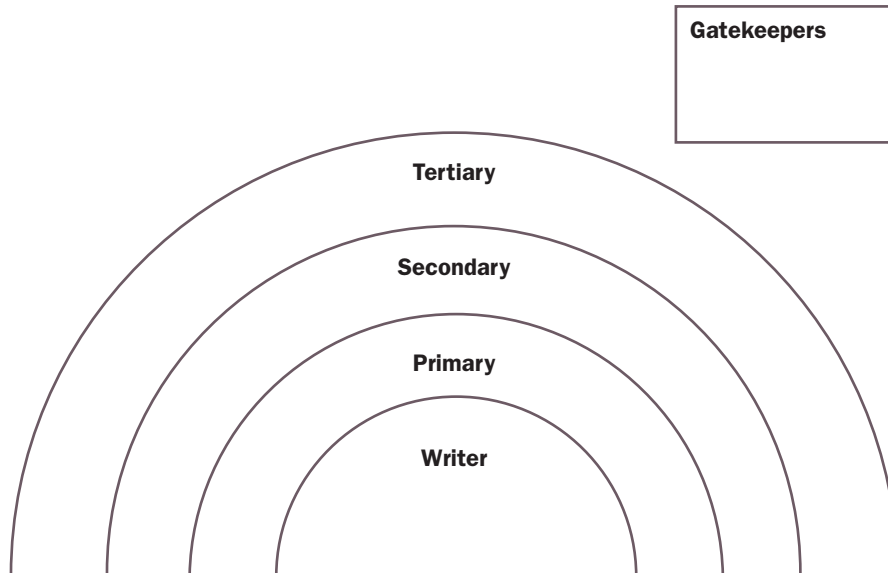


Figure 2.2: A Writer-Centered Analysis Chart starts with you in the center and identifies the various people who might be interested in your document.

Types of Readers

- Primary readers:
Action takers
- Secondary readers:
Advisors
- Tertiary readers:
Evaluators
- Gatekeepers:
Supervisors

SECONDARY READERS (ADVISORS) The secondary readers are people who *advise* the primary readers. Usually, they are experts in the field, or they have special knowledge that the primary readers require to make a decision. They might be engineers, technicians, lawyers, scientists, doctors, accountants, and others to whom the primary readers will turn for advice.

TERTIARY READERS (EVALUATORS) The tertiary readers include others who may have an interest in your document's information. They are often *evaluators* of you, your team, or your company. These readers might be local news reporters, lawyers, auditors, historians, politicians, community activists, environmentalists, or perhaps your company's competitors. Even if you don't expect your document to ever fall into these readers' hands, you should keep them in mind to avoid writing anything that could put you or your company at risk. Figure 2.3, for example, shows a memo in which the tertiary readers were not kept in mind.

GATEKEEPERS (SUPERVISORS) The gatekeepers are people who will need to look over your document before it is sent to the primary readers. The most common gatekeeper is your immediate supervisor. In some cases, though, your company's lawyers, accountants, and others may need to sign off on the document before it is sent out.

Each of these four types of readers will look for different kinds of information. The primary readers are the most important, so their needs come first. Nevertheless, a well-written document also anticipates the needs of the secondary, tertiary, and gatekeeper readers.

Profiling Your Readers' Needs, Values, and Attitudes

Now that you have identified the readers of your document, you should develop profiles that describe their needs, values, and attitudes. Don't assume that your readers have the same needs, values, and attitudes as you do. Readers often have very different characteristics and expectations than the writers of a document.

As you begin considering your readers, think about some of the following issues:

- readers' familiarity with the subject
- readers' professional experience
- readers' educational level
- readers' reading and comprehension level
- readers' skill level

With these readers' characteristics in mind, you can begin viewing your document from their perspective. To help you deepen this perspective, a Reader Analysis Chart, like the one shown in Figure 2.4, can help you identify your readers' needs, values, and attitudes toward your text.

To use the Reader Analysis Chart, fill in what you know about your readers' needs, values, and attitudes.

A Memo That Does Not Consider Tertiary Readers

Primary readers are identified here.

The purpose and main point are stated up front.

This list summarizes the current situation.

The author looks to the future.

The memo returns to its main point.

From: [DHS] Broadcast
Sent: Tuesday, January 30, 2007
Subject: MESSAGE FROM [DHS] DEPUTY SECRETARY (Michael) JACKSON: DHS FHC SURVEY RESULTS

Importance: High

January 30, 2007

MEMORANDUM FOR ALL DHS EMPLOYEES

FROM: MICHAEL P. JACKSON

SUBJECT: Federal Human Capital Survey Results

The Office of Personnel Management (OPM) surveyed federal employees last summer about various measures of job satisfaction and agency performance, and the results will be released today. Over 10,400 DHS employees responded and, candidly, what you said shows that DHS is not where any of us wants to be.

The survey results will be posted on the OPM website (www.opm.gov) and our own DHS intranet, and we encourage you to review them in detail. In brief, of 36 peer federal agencies surveyed, DHS ranks as follows:

- 36th on the job satisfaction index
- 35th on the leadership and knowledge management index
- 36th on the results-oriented performance culture index
- 33rd on the talent management index

These results deliver a clear and jolting message from managers and line employees alike. On whole, it is not significantly changed since OPM's 2004 employee survey. Secretary Chertoff and I discussed these results with concern.

Initial details indicate that we get low marks in basic supervision, management and leadership. Some examples are:

- Promotion and pay increase based on merit
- Dealing with poor performance
- Rewarding creativity and innovation
- Leadership generating high levels of motivation in the workforce
- Recognition for doing a good job
- Lack of satisfaction with various component policies and procedures
- Lack of information about what is going on with the organization

I am writing to assure you that, starting at the top, the leadership team across DHS is committed to address the underlying reasons for DHS employee dissatisfaction and suggestions for improvement.

Standing up this new and vital Department is clearly not a walk in the park, but our employees bring a passion for this mission, great professionalism and outstanding performance every single day. DHS employees have shouldered the weight of long hours, complex integration assignments, multiple reorganizations, and no small amount of criticism. In some cases you've had to wait too long for tools you need to succeed.

These are not excuses to rationalize where we stand, rather an acknowledgement on my part of how much our team is doing. And there are good news items in the survey for DHS. As chief operating officer of DHS, I commit to improve results. We will need your help.

Several months ago, the Secretary asked the Homeland Security Advisory Council to study and suggest a strategy for creating a stronger common culture. This month, drawing on the experience of top executives in the private sector, the Council has delivered a set of recommendations for promoting a culture of excellence in DHS.

In the days ahead, our Under Secretary for Management, Paul Schneider, will join the Secretary and me in evaluating carefully the details of the OPM survey and the HSAC report. Our first steps will be to analyze thoroughly the survey data, including specific attention to those government organizations that are recognized for their high performance in these areas, and determine the specific steps to improvement. This process will include the leadership team in each operating component and every headquarters unit to discuss details of the survey with our workforce. We will do so with a sense of urgency and seriousness.

Strengthening core management is one of the Secretary's highest priorities and the key elements are effective communications and proper recognition of our workforce. You deserve nothing less. We will build on some good work that has already been done to chart a path forward on these issues. We will then go where you point us, to improve job satisfaction for the DHS team.

Along the way, I will continue to ask for your help and guidance. Thanks in advance for that assistance, and thanks for what you are doing each day for DHS.

Figure 2.3:

This memo was leaked to the press by someone at the U.S. Department of Homeland Security (DHS). In it, the DHS Deputy Director discusses the results of a survey of government employees. The survey's results reveal the incredibly low opinion that DHS's employees have of their department and its management. The author tries to spin the results while conceding the obvious. This memo caused some public embarrassment when it slipped out.

Source: Slate Magazine, <http://www.slate.com/id2158997>.

Reader Analysis Chart

Readers	Needs	Values	Attitudes
Primary			
Secondary			
Tertiary			
Gatekeepers			

Figure 2.4: To better understand your readers, fill in this Reader Analysis Chart with notes about their characteristics.

Determining How Readers Make Decisions

AT A GLANCE

- *Needs*—information the readers need to take action or make a decision
- *Values*—issues, goals, or beliefs that the readers feel are important
- *Attitudes*—the readers' emotional response to you, your project, or your company

NEEDS What information do your primary readers require to make a decision or take action? What do the secondary readers need if they are going to make positive recommendations to the primary readers? What are the tertiary and gatekeeper readers looking for in your document?

VALUES What do your readers value most? Do they value efficiency and consistency? Do they value accuracy? Is profit a key concern? How much do they value environmental or social concerns?

ATTITUDES What are your readers' attitudes toward you, your company, and the subject of your document? Will your readers be excited, upset, wary, positive, hopeful, careful, concerned, skeptical, or heartened by what you are telling them?

As you fill in the Reader Analysis Chart, you will be making strategic guesses about your readers. Put a question mark (?) in spaces where you aren't sure about your readers' needs, values, or attitudes. These question marks highlight where you need to do more research on your readers.

Profiling Contexts of Use

The places where people will read your document can strongly influence how they interpret what you say. So, you should also build a profile of the *contexts of use* in which they will read or use your document.

Identifying the Context of Use

Perhaps the most obvious concern is the *physical context* in which the document will be used. Will your readers be in their office or at a meeting? Will they be on the factory floor, trying to repair a robotic arm? Or are they in the emergency room, trying to save someone's life? Each of these physical contexts will alter the way your readers interpret your document.

But context of use goes beyond your readers' physical context. Your readers may also be influenced by the economic, ethical, and political issues that shape how they see the world. To help you sort out these various contexts, you can use a Context Analysis Chart like the one shown in Figure 2.5.

To use the Context Analysis Chart, fill in what you know about the physical, economic, political, and ethical issues that might influence the primary readers, their company, and their industry.

Context of Use

AT A GLANCE

- *Physical context*—the places where the readers will use your document
- *Economic context*—the money-related issues that will restrict the kinds of actions possible
- *Political context*—the micropolitical and macropolitical trends that will guide your readers
- *Ethical context*—the personal, social, and environmental issues that shape the readers' responses

PHYSICAL CONTEXT Where will your readers use your document? How do these various places affect how they will read your document? How should you write and design the document to fit these places?

ECONOMIC CONTEXT What are the economic issues that will influence your readers' decisions? What are the costs and benefits of your ideas? How would accepting your ideas change the financial situation of your readers, their company, or their industry?

POLITICAL CONTEXT What are the political forces influencing you and your readers? On a micropolitical level, how will your ideas affect your readers' relationships with you, their supervisors, or their colleagues? On a macropolitical level, how will political trends at the local, state, federal, and international levels shape how your readers interpret your ideas?

ETHICAL CONTEXT How will your ideas affect the rights, values, and well-being of others? Does your document involve any social or environmental issues that might be of concern to your readers? Will any laws or rules be bent or broken if your readers do what you want?

Link

For more help with identifying ethical issues, see Chapter 4, pages 88.

Put a question mark (?) in spaces where you don't have specific information about your readers' physical, economic, political, and ethical contexts. You can then turn to the Internet for answers, or you can interview Subject Matter Experts who may have the answers you need.

Using Profiles to Your Own Advantage

You are now ready to use your Reader Analysis and Context Analysis charts to strengthen your writing and make it more informed and persuasive. In your charts, circle

Context Analysis Chart

	Physical Context	Economic Context	Political Context	Ethical Context
Primary Readers				
Readers' Company				
Readers' Industry				

Figure 2.5: Each reader is influenced by physical, economic, political, and ethical concerns. A Context Analysis Chart anticipates these concerns for the primary readers, their company, and their industry.

or highlight the most important terms, concepts, and phrases. The items you circle are the *tensions* that you will need to address as you collect information and draft the document.

As you draft your document, your analysis of readers and contexts of use will help you:

- make strategic decisions about what information to include in your document
- organize your document to highlight the information that is most important to your readers
- develop a persuasive style that will appeal to your readers
- design the document for the places where it will be used

Figures 2.6 and 2.7 show documents from the same website about the same topic, West Nile virus, which are written for two different types of readers. The first document, Figure 2.6, is written for the general public. Notice how it uses content, organization, style, and design to appeal to this audience.

The second document, Figure 2.7, is written for medical personnel. Notice how the content is far more complex and the style is less personal in the document for medical personnel. Effective reader analysis and context analysis allowed the author of these documents (probably the same person) to effectively present the same information to two very different kinds of readers.


Document Written for the General Public

Style is action oriented.

Images reinforce written text.


Headings help readers scan the document.

Common examples are used to illustrate points.



Fight the Bite!

Avoid Mosquito Bites to Avoid Infection




Human illness from West Nile virus is rare, even in areas where the virus has been reported. The chance that any one person is going to become ill from a mosquito bite is low.

Three Ways to Reduce Your West Nile Virus Risk

1. Avoid Mosquito Bites
2. Mosquito-Proof Your Home
3. Help Your Community

Avoid Mosquito Bites!



Apply Insect Repellent Containing DEET (Look for: *N,N-diethyl-metoluamide*) to exposed skin when you go outdoors. Even a short time sitting outdoors can be long enough to get a mosquito bite. For details on when and how to apply repellent, see CDC's Insect Repellent Use and Safety page: http://www.cdc.gov/ncidod/dvbid/westnile/qa/insect_repellent.htm.

Clothing Can Help Reduce Mosquito Bites. When possible, wear long-sleeves, long pants and socks when outdoors. Mosquitoes may bite through thin clothing, so spraying clothes with repellent containing permethrin or DEET will give extra protection. Don't apply repellents containing permethrin directly to skin. Do not spray repellent containing DEET on the skin under your clothing.

Be Aware of Peak Mosquito Hours. The hours from dusk to dawn are peak mosquito biting times. Consider avoiding outdoor activities during these times -- or take extra care to use repellent and protective clothing during evening and early morning.

Mosquito-Proof Your Home

Drain Standing Water. Mosquitoes lay their eggs in standing water. Limit the number of places around your home for mosquitoes to breed by getting rid of items that hold water. Need examples? Learn more on the Prevention of West Nile Virus question and answer page: <http://www.cdc.gov/ncidod/dvbid/westnile/qa/prevention.htm>

Install or Repair Screens. Some mosquitoes like to come indoors. Keep them outside by having well-fitting screens on both windows and doors. Offer to help neighbors whose screens might be in bad shape.

Help Your Community

Clean Up. Mosquito breeding sites can be everywhere. Neighborhood clean up days can be organized by civic or youth organizations to pick up containers from vacant lots, parks and to encourage people to keep their yards free of standing water. Mosquitoes don't care about fences, so breeding sites anywhere in the neighborhood are important.

Figure 2.6:

This document on West Nile virus was written for the general public. It is action oriented and not very technical. The images also help reinforce the message, and the layout makes it highly scannable.

Source: Centers for Disease Control and Prevention (CDC), <http://www.cdc.gov/ncidod/dvbid/westnile/index.html>.

Figure 2.6:
(continued)

Links provide
more
information.

Report Dead Birds to Local Authorities. Dead birds may be a sign that West Nile virus is circulating between birds and the mosquitoes in an area. Over 110 species of birds are known to have been infected with West Nile virus, though not all infected birds will die.

By reporting dead birds to state and local health departments, the public plays an important role in monitoring West Nile virus. Because state and local agencies have different policies for collecting and testing birds check the Links to State and Local Government Sites page to find information about reporting dead birds in your area:

http://www.cdc.gov/ncidod/dvbid/westnile/city_states.htm. This page contains more information about reporting dead birds and dealing with bird carcasses:
http://www.cdc.gov/ncidod/dvbid/westnile/ga/wnv_birds.htm

Mosquito Control Programs. Check with local health authorities to see if there is an organized mosquito control program in your area. If no program exists, work with your local government officials to establish a program. The American Mosquito Control Association (www.mosquito.org) can provide advice, and their book Organization for Mosquito Control is a useful reference. More questions about mosquito control? A source for information about pesticides and repellents is the National Pesticide Information Center: <http://npic.orst.edu/>, which also operates a toll-free information line: 1-800-858-7378 (check their Web site for hours).

Find out more about local prevention efforts. Find state and local West Nile virus information and contacts on the Links to State and Local Government Sites page.

Document Written for Experts

Centers for Disease Control and Prevention

CDC
SAFER • HEALTHIER • PEOPLE™

West Nile Virus (WNV) Infection
Information for Clinicians

Clinical Features

Mild Infection

Most WNV infections are mild and often clinically unapparent.

- Approximately 20% of those infected develop a mild illness (West Nile fever).
- The incubation period is thought to range from 3 to 14 days.
- Symptoms generally last 3 to 6 days.

Reports from earlier outbreaks describe the mild form of WNV infection as a febrile illness of sudden onset often accompanied by

▶ malaise	▶ headache
▶ anorexia	▶ myalgia
▶ nausea	▶ rash
▶ vomiting	▶ lymphadenopathy
▶ eye pain	

The full clinical spectrum of West Nile fever has not been determined in the United States.

Severe Infection

Approximately 1 in 150 infections will result in severe neurological disease.

- The most significant risk factor for developing severe neurological disease is advanced age.
- Encephalitis is more commonly reported than meningitis.

In recent outbreaks, symptoms occurring among patients hospitalized with severe disease include

▶ fever	▶ gastrointestinal symptoms
▶ weakness	▶ change in mental status

- A minority of patients with severe disease developed a maculopapular or morbilliform rash involving the neck, trunk, arms, or legs.
- Several patients experienced severe muscle weakness and flaccid paralysis.
- Neurological presentations included
 - ▶ ataxia and extrapyramidal signs
 - ▶ optic neuritis
 - ▶ cranial nerve abnormalities
 - ▶ polyradiculitis
 - ▶ myelitis
 - ▶ seizures

Although not observed in recent outbreaks, myocarditis, pancreatitis, and fulminant hepatitis have been described.

Clinical Suspicion

Diagnosis of WNV infection is based on a high index of clinical suspicion and obtaining specific laboratory tests.

- WNV, or other arboviral diseases such as St. Louis encephalitis, should be strongly considered in adults ≥50 years who develop unexplained encephalitis or meningitis in summer or early fall.
- The local presence of WNV enzootic activity or other human cases should further raise suspicion.
- Obtaining a recent travel history is also important.

Note: Severe neurological disease due to WNV infection has occurred in patients of all ages. Year-round transmission is possible in some areas. Therefore, WNV should be considered in all persons with unexplained encephalitis and meningitis.

Diagnosis and Reporting

Procedures for submitting diagnostic samples and reporting persons with suspected WNV infection vary among states and jurisdictions. Links to state and local websites are available at http://www.cdc.gov/ncidod/dvbid/westnile/city_states.htm

Figure 2.7:

This document on West Nile virus was written for clinicians and other medical personnel. It is far more technical in style and design than the document written for the general public. Nevertheless, it contains much of the same information.

Language is much more technical (and precise).

Document is more focused on providing information than encouraging action.

Design is not as scannable.

Source: Centers for Disease Control and Prevention (CDC), <http://www.cdc.gov/ncidod/dvbid/westnile/index.html>.

Figure 2.7:
(continued)



Diagnosis and Reporting – continued

Diagnostic Testing

WNV testing for patients with encephalitis or meningitis can be obtained through local or state health departments.

- The most efficient diagnostic method is detection of IgM antibody to WNV in serum or cerebral spinal fluid (CSF) collected within 8 days of illness onset using the IgM antibody capture enzyme-linked immunosorbent assay (MAC-ELISA).
- Since IgM antibody does not cross the blood-brain barrier, IgM antibody in CSF strongly suggests central nervous system infection.
- Patients who have been recently vaccinated against or recently infected with related flaviviruses (e.g., yellow fever, Japanese encephalitis, dengue) may have positive WNV MAC-ELISA results.

Reporting Suspected WNV Infection

Refer to local and state health department reporting requirements:

www.cdc.gov/ncidod/dvbid/westnile/city_states.htm

- WNV encephalitis is on the list of designated nationally notifiable arboviral encephalitides.
- Aseptic meningitis is reportable in some jurisdictions.

The timely identification of persons with acute WNV or other arboviral infection may have significant public health implications and will likely augment the public health response to reduce the risk of additional human infections.

Laboratory Findings

Among patients in recent outbreaks

- Total leukocyte counts in peripheral blood were mostly normal or elevated, with lymphocytopenia and anemia also occurring.
- Hyponatremia was sometimes present, particularly among patients with encephalitis.
- Examination of the cerebrospinal fluid (CSF) showed pleocytosis, usually with a predominance of lymphocytes.
- Protein was universally elevated.
- Glucose was normal.
- Computed tomographic scans of the brain mostly did not show evidence of acute disease, but in about one-third of patients, magnetic resonance imaging showed enhancement of the leptomeninges, the periventricular areas, or both.

Treatment

Treatment is supportive, often involving hospitalization, intravenous fluids, respiratory support, and prevention of secondary infections for patients with severe disease.

- Ribavirin in high doses and interferon alpha-2b were found to have some activity against WNV in vitro, but no controlled studies have been completed on the use of these or other medications, including steroids, antiseizure drugs, or osmotic agents, in the management of WNV encephalitis.

*For additional clinical information, please refer to Petersen LR and Marfin AA, "West Nile Virus: A Primer for the Clinician[Review]," *Annals of Internal Medicine* (August 6) 2002: 137:173-9.*

For clinical and laboratory case definitions, see "Epidemic/Epizootic West Nile Virus in the United States: Revised Guidelines for Surveillance, Prevention, and Control, 2001," at www.cdc.gov/ncidod/dvbid/westnile/survy&control.htm

Links provide additional information.

Summaries are used to present important information.

Places where more information can be found are identified.

International and Cross-Cultural Communication

Computers have greatly blurred geographical and political boundaries. Whether you are developing software documentation or describing a heart transplant procedure, your documents will be read and used by people from different cultures. The use of computers, especially the Internet, has only heightened the necessity of working and communicating with people from different cultures (Hoft, 1995; Reynolds & Valentine, 2004). It's all very exciting—and very challenging.

International and cross-cultural issues will affect the content, organization, style, and design of your document.

Differences in Content

Cultures have different expectations about content in technical documentation.

- In China, the content of your documents and presentations should be fact based, and you should focus on long-term benefits for your readers and you, not short-term gains. In business, the Chinese tend to trust relationships above all, so they look for facts in documents, and they do not like overt attempts to persuade.
- In Mexico, South America, and many African countries, family and personal backgrounds are of great importance. It is common for family-related issues to be mentioned in public relations, advertising, and documentation. Business



Your documents will likely be used by people around the world.