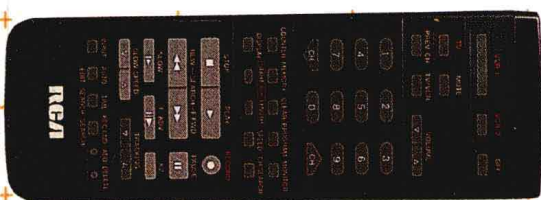


Riordan  
+  
Pauley



7<sup>TH</sup> EDITION

TECHNICAL REPORT  
WRITING TODAY

S E V E N T H   E D I T I O N

# Technical Report Writing Today

---

**Daniel G. Riordan**

University of Wisconsin-Stout

**Steven E. Pauley**

---

HOUGHTON MIFFLIN COMPANY

Boston   New York

## **Technical Report Writing Today, 7th Edition**

First published 1999 by:

Houghton Mifflin Company

222 Berkeley Street

Boston, MA 02116-3764

United States of America

Original ISBN 0-395-90351-3.

Copyright © 1999 Houghton Mifflin Company. All rights reserved.

This edition is reprinted by:

International Thomson Publishing Asia, a division of Thomson Asia Pte Ltd,  
by license from Houghton Mifflin Company.

---

No part of this publication covered by the copyright hereon may be reproduced or used in any means — graphics, electronic, or mechanical, including photocopying, recording, taping, or information storage and retrieval systems — without prior permission in writing from the publisher.

---

1 2 3 4 5    03 02 01 00 99

When ordering this edition, please use ISBN **981-4040-17-7**.

**This edition may be sold only in those countries to which it is consigned by International Thomson Publishing Asia, a division of Thomson Asia Pte Ltd, in accordance with the Agreement with Houghton Mifflin Company.**

# To the Instructor

The seventh edition of *Technical Report Writing Today* maintains the tradition of a complete yet concise text. Updated to include the newest developments in the rapidly changing field of technical communication, this edition is appropriate for the contemporary technical writing course with its blend of majors. As in previous editions, the seventh edition contains both real-world professional examples and student models from a wide range of fields. The accessible style, the exercises, and the chapter topics enable students to focus on the writing demands they will face in college and on the job.




*Technical Report Writing Today* introduces students to professional and technical writing by helping them to internalize the skills and standards necessary to produce good, clear writing. The text's emphasis continues to be on such skills as definition and description and on such common forms as memos, informal reports, proposals, and letters of application.

The text proceeds from theory to skills to applications, but you may assign chapters in any sequence that fills your needs. For instance, you could easily begin your course with applications such as descriptions or letters.

The goal of this revision is to continue the text's teachability. Each chapter is self-contained, repeatedly asking the students to follow a process of creation that emphasizes audience analysis, visual analysis, and assessing problems related to creating the type of document under consideration. Each chapter contains exercises, assignments, models, and planning sheets designed to get students planning, analyzing, developing, and evaluating documents.

Changes to this basic format enhance the ability to use the text in many ways in the classroom. The following is a list of changes to this latest edition. Key additions include Web materials, teachability features, and metacognition exercises.

## NEW TO THE SEVENTH EDITION

-  *Web Focus Boxes.* The seventh edition contains a set of focus boxes that will introduce your students to the World Wide Web.
  - *Focus on Web Searching* (Chapter 5). This focus box introduces students to principles for using search engines and Boolean logic to find material in the confusing world of the Web. Appropriately placed in the chapter on research, this box allows students to use the newest research tool effectively.
  - *Focus on the Internet* (Chapter 5). This revision of a previous focus box now emphasizes HTML (hypertext markup language). The focus box explains the basic rules of Web addressing.
  - *Focus on Color* (Chapter 7). This focus box introduces students to the color theory that they need to know to use color effectively in their Web documents. This often misused but now absolutely necessary set of skills is explained in practical incremental terms. By following the principles set forth here, students will be able to use color that communicates their meaning in a pleasing, professional manner.
  - *Focus on Web Development* (Chapter 12). This focus box, the heart of the new Web material, explains principles for developing Web sites. It does not stress any particular software method of creating the sites; rather, it explains general principles to follow in creating sites. The principles are supported by comments and examples from students who have successfully created effective Web sites.
  - *Focus on Electronic Presentations* (Chapter 17). The appearance of the Web has introduced new ways to apply for jobs. Key to these new ways is the electronic résumé, which is similar to the print résumé but requires several changes in approach. This focus box explains those changes, often a much more simply formatted approach, so that students can make informed confident choices as they prepare these important documents.
-  *Web Exercises.* Each chapter now includes at least one, and sometimes two, exercises that require students to work on the Web. These exercises range from analysis of audience and format to feasibility of using the Web as a professional tool and creating a manual to display on the Web.
-  *Exercise Variety.* The exercises have been increased to enhance teachability. In addition to the Web exercises, other changes have been introduced.
  - *Various activities.* Each chapter contains exercises that ask for different kinds of activities: items for students to redo, items for students to create, items for students to analyze, and activities that start or continue student progress toward completing one of the

writing assignments. Many exercises ask students to analyze or revise one of the models. Some exercises ask students to compare a model in one chapter with a model in another.

- **Evaluation.** These new exercises supplement the many planning exercises that *Technical Report Writing Today* has long included. Now there are exercises to do after the drafting, ones that ask specific questions of evaluation.
  - **Group.** The exercises are phrased so that the instructor may create “production” groups in which a team creates a final document (these exercises should be previewed by a close reading of Chapter 3, The Technical Writing Process, which discusses principles for group management) or “support” groups, which essentially meet for one time for one purpose—say, to evaluate a draft or co-operatively produce an analysis of a problem.
- **Metacognition.** Each chapter now includes a metacognition assignment, especially appropriate for portfolio work, but valuable with any assignment. The metacognition report asks students to reflect on what they have learned from the process of writing the document. In these learning reports students often articulate their understanding of key principles like audience analysis, format effectiveness, and strategies of production. Often short, these reports can be one of the most effective things that students use to grasp—and keep—the principles of clear writing.
- **In a Nutshell.** Each chapter now opens with a “Nutshell,” a summary of the main point to grasp in the chapter. This feature should increase student comprehension of the chapter’s contents and in some cases act like a good executive summary, eliminating the need to wrestle with the entire chapter. Note that to add this feature, the old chapter summaries have been deleted.
- **Usability Testing.** Long a major component missing from this text, this new subsection in Chapter 16, User Manuals, introduces students to this complex but important activity. Based on current articles on the topic, the subsection explains how to set up and carry out a usability test in a variety of ways.
- **Increased Professional Models.** Many brief professional models have been added to this edition. These models range from brief abstracts to longer reports and articles. Exercises have been included so that students may incorporate the strategies used by the professionals into their own writing. Exercises also ask students to use the models as content resources from which to write their own papers, much as if they had been asked to prepare a background or information paper to assist a group in understanding certain concepts before they can decide upon a course of action.

## TRANSITION GUIDE

In nearly every chapter you will find new material. The description of changes in the seventh edition is meant to serve as a transition guide for instructors currently using the sixth edition.

- Chapter 1 is still focused on the implications of the new interactive theories of communication. However, the chapter is shortened and simplified into three sections, each focusing on a major emphasis in technical writing: audience, presentation, and responsibility. Basic concepts are explained here and then elaborated in future chapters. In particular, audience is developed in Chapter 2 and presentation in Chapters 4, 7, and 8.
- Chapter 2, Defining Audiences, and Chapter 3, The Technical Writing Process, have been reversed from their previous order in the sixth edition. This change has eliminated some of the redundancy that existed and strengthens the organization by placing technical writing's most important concept first. Both chapters, along with Chapter 1, have extensive exercise sections so that students can practice the concepts involved or can get into writing memos and short reports immediately.
- Chapter 5, Researching, includes a new focus section on Web searching, giving students the basic knowledge they need to add this new tool to their repertoire of research strategies.
- Chapter 6, Summarizing and Outlining, contains two abstracts from journals, showing how professionals write clear abstracts that help readers grasp the gist of the article. This type of professional clarity should help students develop their skills with this brief but difficult writing genre.
- Chapter 7, Formatting, has a new focus section on the use of color. This section gives a brief introduction to color theory based on the color wheel and then focuses on a rhetoric of using color to communicate messages. The emphasis is not on what a highly paid professional can do with high-end equipment, but on principles that anyone creating a simple Web page can use to be effective.
- Chapter 12, Memorandums and Informal Reports, has been changed. The IMRD (Introduction, Methodology, Results, Discussion) section is expanded. This important genre, based on the work of Jimmie Killingsworth and Carlyle Gilbertson in *Signs, Genres and Communities*, is a key way to report many of the projects that professionals undertake. Emphasizing this key genre, both here and in many exercises throughout the book, gives students a basic tool and way of thinking that they can use profitably in their careers.



- Chapter 12 also contains a new focus section on Web development, the site for this newest kind of informal report writing. This focus box contains comments from students about how they planned their Web sites and gives practical advice on how to create effective sites. Because of the rapidity of change in the software of Web authoring, advice focuses on principles, not on specific programs.
- Chapter 16, User Manuals, now contains a section on usability, long a missing element in this text. The usability section explains how to create and evaluate usability tests.
- Chapter 19, Job Application Materials, now contains a focus box on electronic résumés. This box shows students how to adapt the principles of print résumés to situations that call for paperless résumés.
- Appendix B, Documenting Sources, contains two new professional research examples and two new models of student research into technical topics. These papers show how professionals present their research in both informal and more formal situations. Focused analysis of them will reveal the strategies, such as answering the next related question, that they used not just to organize the paper but to direct their own research planning. The student papers deal with fresh topics of current interest written for audiences who might attend a conference presentation—professionally adept in the field, but not expert in this area. This type of rhetorical situation allows students to see that they can contribute to the field and frees them to write effective papers, rather than restrict themselves to “essay answer” reports, which do not assume that the audience knows less than they do.

## FEATURES

- **Clear and Concise Presentation**  
The chapters in this book are designed as “read to learn to do” material. The book assumes the reader is a student with a goal. By providing short paragraphs and clear presentation, the text helps the student achieve the goal.
- **Numerous Helpful Models**  
The models illustrate contemporary ways to handle writing situations. The principles of organization and the logic behind a decision to use a particular model of organization are clearly demonstrated. Many students and teachers have commented on the helpfulness of the models.
- **Exercises Focus on Chapter’s Assignment**  
In many chapters the exercises are actually steps in the planning and drafting process required by the writing assignments for the



chapter. Requiring students to complete the exercises will at the same time allow them to develop the project required for that unit.

#### Situational Approach

Each of the genre chapters (proposals, instructions, job application letters) is built on situational principles. The student finds in the chapters all the necessary information, ranging from the audience to the rhetoric of the situation to the organization, format, and type of visual aids that work best in the situation. The proposals chapter includes a brief discussion of Gantt charts. The recommendation chapter includes a discussion of generating criteria. The manuals chapter includes a discussion of storyboarding.

#### Pragmatic Organization

The text proceeds from theory to skills to applications, but teachers may assign chapters in any sequence that fills their needs. For instance, teachers could easily begin their course with an application such as descriptions or letters. Because of the situational approach used in many chapters, students can get right into writing without having to read many theory chapters.

#### Focus Boxes

The text has many “focus boxes,” which discuss concepts not readily treated in a chapter. These boxes discuss important topics like credibility and strategy and bias in language, all of which students must master to become effective professionals. Other focus boxes are discussed elsewhere in this section.

#### Annotated Student Examples

Over 100 sample student documents illustrate different writing styles and approaches to problems.

#### Worksheets

Every major project has a worksheet that helps students organize their thoughts and prepare for the assignment.

#### Individual and Group Exercises

With a balance of individual and group exercises, students are exposed to different kinds of technical writing problems and solutions. Exercises in all chapters, even theory chapters, make it easy to get students writing. They are designed to help students solve their writing problems.

## OTHER MATERIALS FOR TEACHERS AND STUDENTS

#### Instructor's Resource Manual

The Instructor's Resource Manual retains its chapter-by-chapter organization but offers more features to help teachers teach. Each chapter provides an abstract of a chapter in the book, teaching sug-

gestions (including suggested schedules for sequencing an assignment), and comments on the exercises and writing assignments. The manual has always contained student examples, but in response to many requests the new edition expands the number available. These examples, all created by students responding to assignments in the text, will show your students how others have solved the problems posed in this book. The goal is to provide your classes with material that they can sink their teeth into. Use these examples as models or as the basis for discussions and workshops on effective or ineffective handling of the paper in the situation. You may photocopy these examples and use them as class handouts or create transparencies from them.

■ **Grammar Review and Practice Software**

PEER (Practical English Exercises and Review) is an interactive software program for practice in individualized student practice. It consists of 300 items eliciting five different kinds of responses from students. It is available for both IBM and Macintosh. Free to instructors upon adoption, the disks may be copied for student use.

■ **American Heritage Dictionary, Third Edition**

This standard reference is available in a hardcover, thumb-indexed College Edition or a briefer, less expensive, but still durable hardcover Concise Edition. Both dictionaries can be purchased at a deep discount when ordered in a shrinkwrap package with *Technical Report Writing Today*.

■ ***A Guide to MLA Documentation*, Fifth Edition, by Joseph Trimmer (Ball State University)**

This handy booklet distills the key information students need to document their work properly in MLA style. It includes a complete model student paper and an appendix summarizing APA style. Updated to reflect the changes made in MLA style in 1998, the guide includes information on documenting electronic sources. The booklet is thin enough to slip into a notebook and cheap enough to serve as a supplement for a main text.

■ ***Writing Online: A Student's Guide to the Internet and World Wide Web*, Second Edition, by Eric Crump (University of Missouri) and Nick Carbone (University of Massachusetts)**

This brief, inexpensive, and easy-to-use supplement for writing courses provides basic information about communicating on-line and finding and retrieving information. The book follows a logical progression of Internet use, covering e-mail, Usenet, gopher, the World Wide Web, Telnet, and FPT (file transfer protocol). Special attention is paid to issues of on-line research, such as how to assess the credibility of and accurately cite electronic sources.

## ACKNOWLEDGMENTS

I would like to thank the technical writing teachers from around the country who offered valuable and insightful comments about the manuscript:

James Bailey, Arizona State University

Wayne Losano, University of Florida

Alice Rieck, Cincinnati State Technical and Community College (OH)

Kathryn Skulley, Denver Technical College (CO)

In addition, my appreciation goes to the many students who over the years have demanded clear answers and clear presentations and who have responded with quality writing. For allowing their material to be reprinted in this book, thanks to these students:

Jill Adkins	John Furlano	Jerry Mackenzie
Dan Alexander	Bret Gehring	Todd Magolan
Tom Allen	Karen Greig	John Mancosky
David Ayers	John Gretzinger	Matt Maertens
John Bauch	Cheryl Hanson	Jim Miller
Rich Biehl	Neil Hardin	Tracy Miller
Tom Blodgett	Paul Hartman	Collen Mueller
Kim Bloss	Cynthia Hauswirth	Keith Munson
Tony Bynum	Dan Heiar	Jim Nord
Craig Cardell	Tadd Hohlfelder	Mark Olson
Kevin Charpentier	Jodi Hubbard	Maureen Peters
Nikki Currier	Rachel A. Jacobson	Steve Prickett
Christine DeBauche	Sherry Jellison	Steve Rachac
Steve Dennis	Karl Jerde	Lynn Radloff
Kristi Dickerson	Pat Jouppe	Angie Ray
Tim Dunford	Kim Kainz-	Randy Richart
John Dykstra	Poplawski	Michelle Royer
Jeff Edwards	Cindy Koller	Shawn Royster
Linda Elsing	Mary Beth LaFond	Jocelyn Scheppers
Louise Esaian	Janet Ley	Jim Schiltgen
Craig Ethier	Chris Lindblad	Stacy Schmansky
Curt Evenson	Chris Lindner	Amy Schneider
Carol Frank	Holly Maas	James Shortreed

Colin Sleichert	Steve Vandewalle	Marya Wilson
Mike Smith	M. R. Vanderwegen	Pat Wingo
Paul Smith	Steve Vinz	John Wise
Greg Swita	Mike Vivoda	Karen Witushek
Brad Tanck	Andy Vold	David Zangl
Kristin Tlachac	Michelle Welsh	
Sharon Tobin	Jeanne Wendlandt	

The following people at the University of Wisconsin–Stout deserve special thanks for their contributions to this volume: Susanne Johnston for insightful help with editing, and Clark Leeson, Lelah Lugo, Denise Madland, Kay Cooksey, and Janet Polansky. Special thanks to Jane and Mary for their patient work with difficult manuscript. For their insight and patience I would also like to thank the following people at Houghton Mifflin: Dean Johnson, Senior Sponsoring Editor; Kathryn Dinovo, Senior Project Editor; Bruce Cantley, Editorial Assistant; and Nancy Benjamin at Books By Design.

And finally, thanks once again to an understanding family who offered encouragement and support throughout this project—Mary, Jane, Simon, Nathan, Shana, and Clare Riordan, and Mike and Tim Riordan.

D.G.R.

# Contents

To the Instructor	xxi
-------------------	-----



## Section 1: Technical Writing Basics

<b>CHAPTER 1</b>	<b>Definition of Technical Writing</b>	<b>2</b>
<hr/>		
<i>Chapter 1 in a Nutshell</i>		2
Technical Writing Is Audience-Centered		3
Technical Writing Deals with Specific Situations		3
Technical Writing Enables Readers to Act		4
Technical Writing Occurs Within a Community		4
Technical Writing Is Interactive		7
Technical Writing Has Definite Purposes		9
Technical Writing Is Presentational		9
Use the Top Down Method		9
Use Headings		11
Use Chunks		11
Use Visual Aids		11
Establish a Consistent Visual Logic		11
Use Plain and Objective Language		12
Technical Writing Is Responsible		12
Use Honest Language		12
Use Format Honestly		13

Create Helpful Visuals	14
Use Direct, Simple Expression	14
Credit Others	15
Codes of Ethical Conduct	15
<i>Exercises 16 ■ Web Exercise 20 ■ Works Cited 20</i>	

## CHAPTER 2 Defining Audiences 22

---

<i>Chapter 2 in a Nutshell</i>	22
An Example of Technical Writing	23
How Much Does Your Audience Know About the Topic?	25
Finding Out What Your Audience Knows	25
Adapting to Your Audience's Knowledge Level	26
<i>Exercises 27</i>	
What Is the Audience's Role in the Situation?	28
Who Will Read This Document?	28
What Is the Audience's Need?	28
How Does the Writer's Goal Fulfill the Audience's Need?	29
What Is the Audience's Task?	29
<i>Exercises 30</i>	
What Are the Audience's Community Attitudes?	30
What Consequences Will Occur from This Idea?	31
What Is the History of This Idea?	31
How Much Power Does the Reader Have?	31
How Formal Is the Situation?	31
How Does the Reader Feel About the Subject?	31
How Does the Reader Feel About the Sender?	32
What Form Does the Reader Expect?	33
<i>Exercises 33</i>	
What Is the Audience's Place in the Organization?	34
Audiences in Different Situations	34
<i>Exercises 37</i>	
Multiple Audiences	38
Secondary Audiences	39
<i>Exercise 40 ■ Worksheet for Defining Your Audience 41 ■</i>	
<i>Writing Assignments 41 ■ Web Exercise 43 ■</i>	
<i>Works Cited 43</i>	

000145105

## CHAPTER 3 The Technical Writing Process 44

---

<i>Chapter 3 in a Nutshell</i>	44
An Overview of the Process	45
Planning Your Document	45
What Constraints Affect This Situation?	46
Choose an Effective Strategy	47
Develop a Production Schedule	48
Using Groups in the Writing Process	49
Select a Leader	50
Develop a Sense of Effective Collaboration	50
Develop a Method to Resolve Differences	50
Plan the Group's Activities	51
<i>Worksheet for Planning</i> 51 ■ <i>Exercises</i> 53	
Drafting and Revising Your Document	54
Choose Devices to Help Your Reader	54
Activities for Getting Unstuck	55
Revising	57
Group Drafting and Revising	58
<i>Worksheet for Drafting and Revising</i> 59 ■ <i>Worksheet for Group Drafting and Revising</i> 59 ■ <i>Exercises</i> 60	
Finishing Your Document	60
Editing	61
Group Editing	62
Editing with a Word Processor	62
Producing the Document	63
Group Document Production	63
<i>Worksheet for Editing</i> 64 ■ <i>Worksheet for Group Editing</i> 64 ■ <i>Exercises</i> 65 ■ <i>Writing Assignments</i> 66 ■ <i>Web Exercise</i> 68 ■ <i>Works Cited</i> 68	




*Focus on Strategy* 69

## CHAPTER 4 Technical Writing Style 71

---

<i>Chapter 4 in a Nutshell</i>	71
Write Clear Sentences for Your Reader	72
Place the Main Idea First	73




Use Normal Word Order	73
Use the Active Voice	73
Employ Parallelism	75
Write Sentences of 12 to 25 Words	75
Use <i>There Are</i> Sparingly	76
Avoid Nominalizations	76
<i>Exercises 76</i>	
Avoid Strings of Choppy Sentences	78
Avoid Wordiness	79
Avoid Redundant Phrases	79
Avoid Noun Clusters	80
Use <i>You</i> Correctly	80
Avoid Sexist Language	80
<i>Exercises 81</i>	
Write Clear Paragraphs for Your Reader	82
Put the Topic Sentence First	82
Structure Paragraphs Coherently	82
Choose a Tone for the Reader	85
Organize Documents Clearly	87
Use Context-Setting Introductions	87
Place Important Material at the Top	88
Use Preview Lists	89
Use Repetition and Sequencing	89
Use Structural Parallelism	89
<i>Worksheet for Style 90 ■ Model 91 ■ Exercises 91 ■</i>	
<i>Writing Assignments 96 ■ Web Exercise 97 ■</i>	
<i>Works Cited 97</i>	
 <i>Focus on Bias in Language 98</i>	
<i>Focus on International Communication 100</i>	

## Section 2: Technical Writing Techniques

### CHAPTER 5 Researching 104

---

<i>Chapter 5 in a Nutshell</i>	104
The Purpose of Research	105
Questioning—The Basic Skill of Researching	105

How to Discover Questions	105
How to Formulate Questions	107
Collecting Information from People	107
Interviewing	107
Surveying	109
Observing and Testing	110
Collecting Published Information	111
Develop a Search Strategy	111
Search Helpful Sources	113
Record Your Findings	118
<i>Worksheet for Research Planning</i> 122 ■ <i>Exercises</i> 123 ■	
<i>Writing Assignments</i> 124 ■ <i>Web Exercise</i> 126 ■	
<i>Works Cited</i> 126	
 <i>Focus on the Internet</i> 127	
<i>Focus on Web Searching</i> 131	

## **CHAPTER 6** Summarizing and Outlining 134

---

<i>Chapter 6 in a Nutshell</i>	134
Summarizing	135
Definitions of Summaries and Abstracts	135
Audiences for Summaries and Abstracts	135
Planning Summaries	136
Writing Summaries	137
Outlining	142
Uses of Outlines	142
Types of Outlines	143
<i>Worksheet for Summarizing</i> 145 ■ <i>Model</i> 145 ■	
<i>Exercises</i> 147 ■ <i>Web Exercise</i> 148 ■	
<i>Works Cited</i> 148	

## **CHAPTER 7** Formatting 149

---

<i>Chapter 7 in a Nutshell</i>	149
Learn the Elements of Format	150
Page Parts	150
White Space	150
Text Features	151