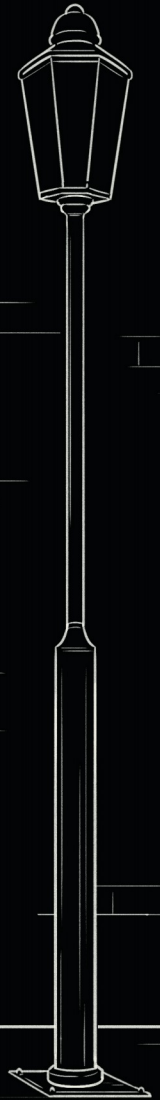# TECHNICAL COMMUNICATION TODAY

RICHARD
JOHNSON-SHEEHAN

SIXTH EDITION

Pearson

Technical Communication Today

Sixth Edition

Richard Johnson-Sheehan
Purdue University

1   16

Pearson

To Tracey, Emily, and Collin

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Contents

Appendixes

Preface

The sixth edition of *Technical Communication Today* marks a major shift in the direction of this highly successful book. In the previous five editions, *Technical Communication Today's* signature feature has been its emphasis on networked computers as the central nervous system of the scientific and technical workplace. At the time, that was a revolutionary concept. Today, digital devices, from smartphones to mainframes, are the indispensable infrastructure of today's workplace. These networks have become the central hub of written, spoken, and visual communication in today's technical workplace.

As we launch this new edition of *Technical Communication Today*, I want to draw your attention to what I believe is an emerging revolutionary change in science and technology: the centralization of innovation and entrepreneurship in the technical workplace. Of course, innovation and entrepreneurship are not new. What *is* new is that these concepts have been moved from the leading edge into the core mission of scientific and technical work. Today, you will be involved in developing new products and services. Your employer will expect you to look for creative new ways to do things faster, cheaper, and more efficiently. You will need to engage and interact with customers, clients, and the public. In other words, innovation needs to be happening everywhere and all the time to keep up with the rapid shifts in communication technologies and emerging markets.

Meanwhile, entrepreneurship is not just a buzzword in today's scientific and technical environments. You need to always think like an entrepreneur, whether you are helping to launch a start-up tech company, working for a large enterprise tech company, or doing research in a laboratory. Entrepreneurship is a mindset that blends together creativity, leadership, self-reliance, resilience, and persuasive communication. This innovation-centered mindset is a recognition that the workplace is always fluid and flexible, continuously adapting to new ideas and technologies. In the workplace, you will be assigned to specialized teams that are designed to take on specific projects. Then, when those projects are finished, you will be put on other teams that are meeting other objectives. The teams you are working on will often include people from around the world, who are being brought in because they have specialized skills and knowledge. Like an entrepreneur, you will need to know how to work independently and in teams, adapting quickly to new people, new tasks, and new workplace environments.

Of course, much of this change is due to the disruptive power and creative potential of emerging information technologies. Communication tools like social networking, cloud storage, videoconferencing, and real-time collaboration are accelerating the pace of the technical workplace. If you know how to write clearly, speak persuasively, and design functional and attractive texts, you will succeed in today's innovation-based and entrepreneurial workplace.

Personally, I'm excited about this new edition of *Technical Communication Today* because it strikes off in a new and uncertain direction. We've seen incredible changes in the technical workplace over the past decade, and I can only imagine what kinds of changes are waiting for us over the next decade. Whatever happens, I know scientific and technical communication will be at the center of it all.

What's New in the Sixth Edition?

The focus on innovation and entrepreneurship in *Technical Communication Today* 6e has brought about many improvements and new features. Here are some of the major changes in the book.

Improvements throughout *Technical Communication Today* include:

- A new focus in every chapter on the importance of innovation and entrepreneurship in today's scientific and technical workplace.
- Increased coverage of transcultural and global issues and their impact on emerging markets.
- New figures that are more illustrative of important processes and concepts.
- Direct connections between learning objectives and specific key sections in each chapter, making assessment much easier.
- Streamlined chapters that incorporate computer-based skills once featured in separate "Help" sections.

Chapter-by-chapter improvements include:

- **A completely revised Chapter 1, "Technical Communication in the Entrepreneurial Workplace,"** which explores the emerging importance of innovation and entrepreneurship in technical communication. Technical communication is recast as part of the creative work of scientific and technical fields.
- **A revised Chapter 2, "Profiling Your Readers,"** which shows how to think of readers as stakeholders who can be motivated to say yes to new ideas and projects. The chapter explores in greater depth how transcultural readers react to written, verbal, and visual cues.
- **An improved Chapter 3, "Working in Teams,"** which reframes teaming in terms associated with entrepreneurial start-ups and projects, helping students understand the fluid and evolving nature of today's technical workplace.
- **A repositioned Chapter 5, "Starting Your Career,"** which moves the career chapter forward in the book to reflect how and when it is used in most technical communication courses. This content emphasizes the importance of continually revising career materials for today's evolving workplace.
- **A revised Chapter 7, "Technical Descriptions and Specifications,"** which shows how the purpose of technical descriptions is changing to fit today's innovation-based technical workplace and stresses the importance of technical descriptions in developing new products and services.
- **An updated Chapter 9, "Proposals,"** which highlights how proposals are often the centerpiece of innovation and entrepreneurship in scientific and technical fields.
- **A new Microgenre, "Post Mortem," in Chapter 10, "Brief Reports,"** a new text that is becoming increasingly common and essential in today's technical workplace. In addition, the chapter has been renamed in accordance with emerging workplace terminology.
- **A completely revised and retitled Chapter 12, "Thinking Like an Entrepreneur,"** which moves creativity-enhancing techniques to the forefront, while following with strategic planning tools that capitalize on creative thinking.
- **Reworked coverage in Chapter 13, "How to Be Persuasive,"** which offers strategies for getting people to say yes to a new idea.
- **A revamped Chapter 20, "Presenting and Pitching Your Ideas,"** in which presentations are reimagined as a way of using persuasion to support new ideas, products, and services. More emphasis is placed on the importance of promoting new ideas rather than simply transmitting technical information, as well as the importance of online types of presentations.

- **A revised Chapter 21, "Writing for the Internet,"** which stresses brand-building, messaging, and teaming strategies that are common with today's Internet. In addition, there is more emphasis on reaching out to team members, clients, and customers with social networking, blogs, and websites.

- **Seven completely new case studies** that feature the experiences of entrepreneurs in today's scientific and technical workplaces. These are titled "Entrepreneurship Case Study":

  - Facing the challenge of maximizing productivity and getting team members to work together (Chapter 3)

  - Developing a revolutionary idea while considering the physical and ethical implications of the concept (Chapter 4)

  - Creating a design and prototype for a new product while stealing someone else's idea (Chapter 9)

  - Generating ideas for new products at an enterprise company (Chapter 12)

  - Starting a new service on a college campus (Chapter 13)

  - Using a start-up incubator as a way of introducing the importance of design in new products and services (Chapter 17)

  - Figuring out how to pitch a product idea with a colleague who is not a confident public speaker (Chapter 20).

- **New and updated exercises and projects** throughout.

- **Completely revised MLA documentation coverage** that reflects the 2016 overhaul of MLA style.

Guiding Themes

In this book, I have incorporated the newest technology in workplace communication, but the basics have not been forgotten. *Technical Communication Today* is grounded in a solid core of rhetorical principles that have been around since the beginning. These core principles have held up well and, in fact, are even more relevant as we return to a more visual and oral culture.

Entrepreneurship as a Mindset

This edition features innovation and entrepreneurship as central motivators in the scientific and technical workplace. Students learn how to "think like an entrepreneur," always looking for ways to be creative, self-reliant, and resilient.

Computers as Thinking Tools

This book's long-standing theme is that networked computers and mobile devices are integral and indispensable in technical communication. *Technical Communication Today* shows students how to fully use computers and succeed in a complex and fast-moving technical workplace.

Visual-Spatial Reading, Thinking, and Composing

Documents are "spaces" where information is stored and flows. Visual-spatial reading, thinking, and composing involve interacting with text in real time. *Technical Communication Today* shows students how to engage, compose, and interact with texts in four important ways:

- It shows writers how to use visual-spatial techniques to research, invent, draft, design, and edit their work.

- It teaches students how to write and speak visually, while designing highly navigable documents and presentations.

- It provides guidance on composing visual-spatial multimodal documents and presentations.

- It practices what it preaches by providing information in an accessible, visual-spatial format.

The International, Transcultural Workplace

As with each edition, international and transcultural issues have been expanded as the world

becomes more globalized. This topic has been woven into the main chapter discussion rather than placed on its own because issues of globalization are not separable from technical communication.

The Activity of Technical Communication

Technical Communication Today continues to stress the activity of technical communication—producing effective documents and presentations. Each chapter follows a step-by-step process approach that mirrors how professionals in the technical workplace communicate. As someone who has consulted and taught technical communication for over two decades, I know that students today rarely read their textbooks but, instead, raid them for specific information. For this reason, like any good technical communicator, I have tried to make this book as "raidable" as possible. That way, students can get in the book, get what they need, and get things done.

Resources for Students and Instructors

Revel™

Educational Technology Designed for the Way Today's Students Read, Think, and Learn

When students are engaged deeply, they learn more effectively and perform better in their courses. This simple fact inspired the creation of Revel: an interactive learning environment designed for the way today's students read, think, and learn.

Revel enlivens course content with media interactives and assessments—integrated directly within the authors' narrative—that provide opportunities for students to read, practice, and study in one continuous experience. This immersive educational technology replaces the textbook and is designed to measurably boost students' understanding, retention, and preparedness.

Learn more about Revel at http://www.pearsonhighered.com/revel/

Instructor's Manual

The *Instructor's Manual,* available online at www.pearsonhighered.com, offers chapter-specific teaching strategies, prompts for class discussion, strategies for improving students' writing and presentations, in-and-out-of-class activities, and quizzes (with suggested answers).

Acknowledgments

Most important, I would like to thank my wife, Tracey, and my children, Emily and Collin, for their patience, because sometimes working on books like this one takes time away from them.

Richard Johnson-Sheehan

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Chapter 1
Technical Communication in the Entrepreneurial Workplace

In this chapter, you will learn to:

1.1 Develop a writing process that is suitable for the technical workplace.

1.2   Recognize how genres in technical workplaces are used to innovate and turn new ideas into documents.

1.3   Identify the features that technical communication and entrepreneurship have in common.

1.4   Identify the key characteristics of technical communication.

1.5   Identify eight traits of a successful entrepreneur.

1.6   Recognize the importance of effective written and spoken communication to your career.

When new college graduates start 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.

They also quickly discover that today's technical workplace is more entrepreneurial than ever. You will need to be innovative and self-motivated. You will need to think critically and creatively. And, you will need to use strategic planning and resilience to develop new products, services, and solutions.

The purpose of this book is to help you develop the communication skills and entrepreneurial know-how to succeed and thrive in today's dynamic and evolving technical workplace.

Technical Communication: The Workplace's Central Nervous System

1.1   **Develop a writing process that is suitable for the technical workplace.**

One of the major differences between workplace communication and college writing is the pace at which you need to work. Networks of computers, including mobile phones, tablets, workstations, and mainframes are the central nervous system of the technical workplace. These communication networks have greatly increased the speed of the technical workplace, and they allow people to work around the clock. So, you need to know how to work smarter, not harder.

To help you work smarter, this book will teach you a *genre-based approach* to technical communication. Genres are patterns that reflect how communities, including people in technical workplaces, get things done. A genre shapes a project's content, organization, style, and design, as well as the medium in which it is delivered.

Communication Is the Central Nervous System of the Workplace

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

For example, the proposal is a commonly used genre in the technical workplace (Figure 1.1). Proposals are used to present new projects, pitch new products and services, and pursue new opportunities. If you tell people you are writing a proposal, they will have specific expectations about its content, organization, style, and design. Figure 1.1 shows a typical organizational pattern for a proposal that would be familiar to readers in technical workplaces.

Genres do much more than help you organize your ideas. They help you interpret workplace situations and make sense of what is happening around you. Genres are not formulas or recipes to be followed mechanically. Instead, they reflect the everyday activities and practices of technical workplaces. Genres are flexible, allowing them to be adapted to many different kinds of projects.

In this book, you will also learn how to use *microgenres*. A microgenre, like the elevator pitch shown in Figure 1.1, helps you achieve a specific goal. An elevator pitch is a miniature proposal that can be stated in only two minutes (a short elevator ride). Elevator pitches can be used in a stand-alone way, or they can be used as a stepping-stone to writing a full proposal. In this way, microgenres are useful tools for doing these kinds of limited but important tasks.

Figure 1.1 Genres: The Elevator Pitch and the Proposal

Each genre has its own content, organization, style, and design. Here are typical ways to organize an elevator pitch (a microgenre) and a proposal (the full genre).

Elevator Pitch	Proposal
Introduce Yourself	Introduction
Grab Readers with Story	Describe Current Situation
Present Your Big Idea	Explain Project Plan
Give 2–3 Reasons	Describe Qualifications
Distinguish Your Idea	Discuss Costs and Benefits
Discuss Costs and Benefits	Conclusion
Memorable Conclusion	Budget
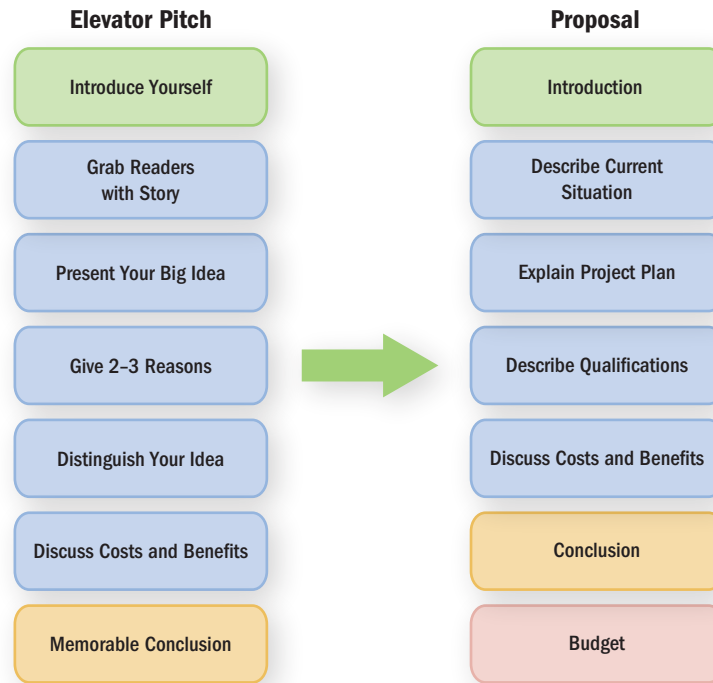
Innovation, Genres, and the Technical Writing Process

1.2 **Recognize how genres in technical workplaces are used to innovate and turn new ideas into documents.**

Genres also help you be more creative. In the technical workplace, writing a document or developing a presentation is an innovative process. New ideas don't just happen. Instead, innovative people use genres to generate those new ideas and deliver them with effective documents, websites, podcasts, and presentations. This genre-centered process can be divided into five stages:

Stage 1: Researching and Planning

Stage 2: Organizing and Drafting

Stage 3: Improving the Style

Stage 4: Designing

Stage 5: Revising and Editing

Figure 1.2 The Technical Writing Process

The technical writing process involves moving back and forth among several stages. Each stage is shaped by the genre of the document.
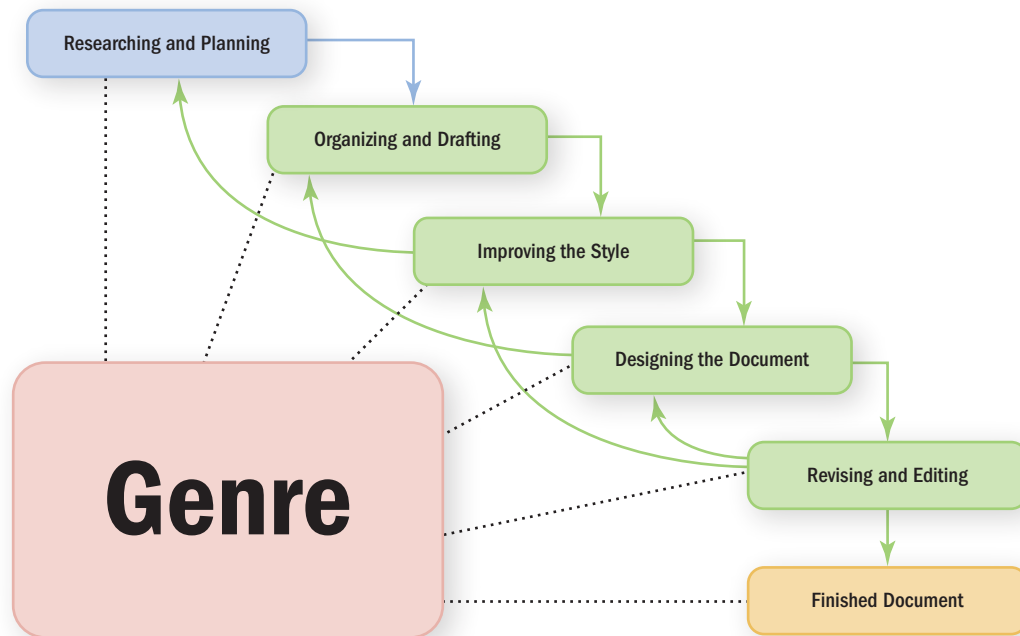
You don't need to follow these stages in lockstep. Instead, you should move back and forth among the stages as you work toward finishing the project (Figure 1.2).

Here is where genres can help you be more creative and entrepreneurial. As shown in Figure 1.2, the genre of your document guides you through each stage in your writing process. As you work on a project, the genre you are using will help you make good decisions about its content, organization, style, and design, as well as the most appropriate medium for presenting your ideas. Let's look at each stage more closely:

Stage 1: Researching and Planning

Every project should start with solid research and good planning. When starting a new project, you first need to figure out what is already known about your topic and then use your creativity and resourcefulness to come up with a plan for achieving your goals.

RESEARCH YOUR TOPIC   In the technical workplace, people use two types of research to collect evidence:

    Start-Up Research—This kind of research allows you to develop a quick overview of your topic. You can put keywords related to your topic into

a search engine like Google, Bing, Ask.com, or Yahoo. You can also find videos about your topic on YouTube, Vimeo, and Dailymotion. Jot down the key terms and big issues that keep popping up. Identify the major people involved and figure out what kinds of sources are available on your topic.

Formal Research—Formal research uses electronic, print, and empirical sources to help you locate factual and data-based evidence about your topic. While doing formal research, you should pay close attention to where and how evidence was acquired, while also assessing your sources' level of bias. You should also generate your own empirical evidence through observations, surveys, experiments, and interviews.

You will learn more about start-up and formal research in Chapter 14, "Researching in Technical Workplaces."

DEFINE YOUR PURPOSE   Now that you know more about your topic, ask yourself, "What exactly do I want this project to achieve?" Here's an easy way to help you define your purpose: Finish the sentence, "The purpose of my [insert genre] is to. . . ." For example,

> The purpose of my report is to explore how underwater sonar is affecting whales and other marine wildlife.

> The purpose of my proposal is to pitch a location-based augmented reality game that lets people play Humans vs. Zombies simultaneously in the virtual and real world.

You might find it helpful to identify a specific action verb and then build your purpose statement around it. Here are some common action verbs that can be used as an anchor for your purpose statement.

INFORMATIVE DOCUMENTS	PERSUASIVE DOCUMENTS
inform	persuade
describe	convince
define	influence
review	support
demonstrate	change
instruct	advocate
advise	recommend
announce	defend
explain	justify
notify	urge

DEVELOP A PROFILE OF YOUR READERS   You should also spend some time doing research on your readers so you can develop a *reader profile* that identifies their needs, values, and attitudes. Specifically, you will want to have answers to the following questions:

Needs—What kinds of information do your readers need to make a decision or take action? What kinds of products or services do they need to solve a problem or get something done?

Values—What outcomes, standards, or ideals do your readers consider most important? Specifically, what do they value above other things?

Attitudes—How do your readers feel about you, your company, and the topic you are writing about? Are they already leaning your way, or are they skeptical about what you are telling them?

Developing a reader profile will help you make better decisions about the kinds of information to include in your document or presentation. You will learn more about how to develop a reader profile in Chapter 2, "Profiling Your Readers."

TAP INTO YOUR CREATIVE SIDE   Creativity is a skill that can be learned; it's not something people are born with. You, too, can be a highly creative and innovative person. But, like anything else, learning to be creative takes some practice.

When you begin a project, start off with an activity that gets your creativity flowing. Some people like to use *concept mapping* to throw their ideas on a whiteboard, glass board, screen, or blank sheet of paper. Others like to use brainstorming lists in which they list everything that comes to mind about a topic. Workplace teams often use rapid-fire brainstorming techniques to get ideas on the table for consideration.

One simple trick is to keep asking yourself, "What has changed recently about this topic that makes it new or interesting *right now*?" This question will help you approach the topic from a new angle or perspective, allowing you to see it from alternate and competing perspectives.

The secret to being creative is giving yourself time to be creative. When starting a new project, you should set aside a block of time, perhaps an hour, to do some concept mapping, brainstorming, freewriting, storyboarding, or whatever gets you into a creative zone. You will learn more about being creative in Chapter 12, "Thinking Like an Entrepreneur."

DEVISE YOUR STRATEGIC PLAN   You will learn how to do strategic planning in Chapter 12, "Thinking Like an Entrepreneur." So, here is a quick overview. To create a strategic plan, you should do the following:

Identify Your Top Rank Objective and Secondary Objectives—Your *top rank objective* (TRO) is the ultimate outcome your project will strive to achieve. Your project's TRO will be similar to your purpose statement, though it is usually stated in more concrete terms. Your *secondary objectives* are the other goals (usually three to five items) that your project will also strive to achieve as you and your team pursue the TRO.

Being Creative Is a Process

Teams often use concept mapping to get their ideas out in the open where they can talk about them and explore the options available.

Create a Task List—Now, convert those secondary objectives into a list of tasks that will be completed by you or your team. This is your *task list* for the project. Each major and minor task will then be assigned to a team member and given a completion date. That way, everyone knows who is doing what and when each part of the project will be completed.

Create a Project Timeline—The *project timeline* is a master schedule that lists the completion dates for your project's tasks. That way, you and your team can keep track of the project's progress and focus on meeting important deadlines.

Stage 2: Organizing and Drafting

When you are finished doing research and strategic planning, you're ready to start organizing and drafting your document or presentation. At this stage, you are essentially doing two things at the same time:

Choose a Genre to Organize the Content—The genre will help you shape your ideas into patterns that will be familiar to your readers.

Generate Your First Draft—The genre will also help you generate the text you need by helping you weave together facts, examples, data, reasoning, and other evidence.

Figure 1.3 A Sample Genre: Instructions

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.

SOURCE: © Sony Interactive Entertainment America LLC. Diagram may not be representative of current PlayStation 4 system, manual, or other manuals. Please go to www.us.playstation.com for more information.
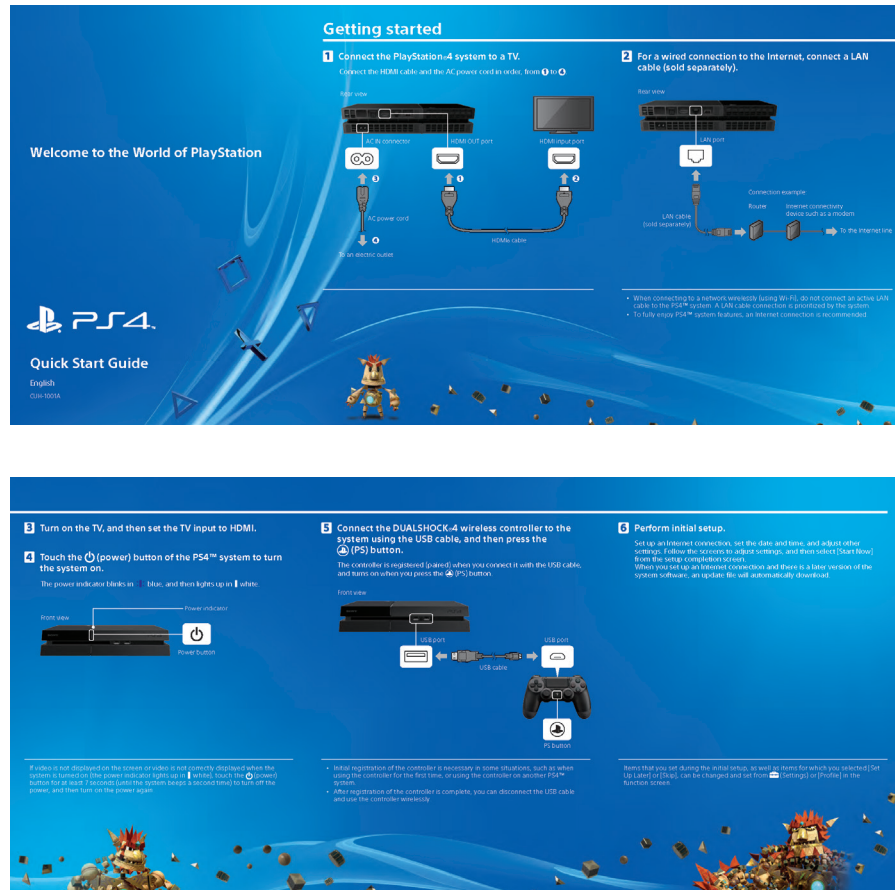
The genre you choose is like a map that helps you organize and structure your ideas. You have a destination in mind (your purpose); the genre will help you figure out the possible pathways for getting to that destination. For example, the document shown in Figure 1.3 is easily recognizable as a set of instructions. The writers of these instructions used this specific genre to help them make good decisions about how to lead the readers from a starting place to a final destination.

Chapters 5 through 11 will teach you how to use the most common genres in technical workplaces.