Introduction to Technical and Professional Communication

INTRODUCTION TO TECHNICAL AND PROFESSIONAL COMMUNICATION

Technical Communication through a Social Justice Lens

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TECHNICAL COMMUNICATION, RHETORIC, AND SOCIAL JUSTICE

Brigitte Mussack

Our sites of work, often mundane and driven by minutiae, remain sites of injustice.
–Walton, Moore, & Jones, 2019, p. 1

Social justice benefits everyone. Working to achieve or restore equity for one population or community does not require anyone with access to those rights to relinquish them–quite the opposite, actually. For technical communication, specifically, equity means fair and just access to and representation in scientific and technical communication for all stakeholders.
–Haas & Eble, 2018, p. 11

Language is important; how we use language directly shapes how we interact with the world. Language not only reflects, but actively constructs, our values, worldview, lenses, and frameworks. In other words, each time we communicate, we shape and construct the world around us.

This text frames communication, and technical communication in particular, as actively engaged in shaping our values and our world views. Throughout this text, you will be introduced to the various ways in which technical communication intersects with issues of social justice and with diversity, equity, and inclusion. When technical communicators make decisions about communicating with a specific audience, they must make choices related to social justice and equity. This text specifically approaches technical communication as audience-focused, and frames technical communication as *always* concerned with access and inclusion.

Over the last several years especially, we have seen how language impacts the world around us. Consider how you interact with language, especially writing, on a daily basis. How does that language shape your worldview? How has it moved you to do some of your own research, or to change the way that you do something? Can you think of an instance when language–how something is expressed using text and images–impacted the way you interact with the world? Can you think of a time when language has impacted the way that you understand the world and your relationship to it?

This yard sign, found in a Minneapolis neighborhood in 2020, informs and instructs residents regarding where and when they can vote in a national election. The information provided in this sign showcases the intersection between technical communication and social justice, allowing audience members access to information that impacts their ability to participate in an election. The yard sign uses a combination of text and visuals to communicate. Sign designed by Alex V.

Kern.

As folks interested in technical communication, we know the importance of language. What is not always so apparent is the idea that language is never *neutral*. In this text, we examine the ways that technical communication, which is often understood as "objective," "straightforward," or "neutral," is still wrapped up in and impacted by things like bias, politics, and individual experiences and beliefs. The language we use is always steeped in ideologies (how we make sense of information or how we order our worldviews) *and* shaped by our own narratives, experiences, and beliefs. Even when you are creating, or using, a set of instructions that show you how to retile your bathroom floor, the language used to communicate these steps is impacted by the cultural context of the communicator and the audience.

Technical communicators explain things, but how do they do this work? How do they make choices about the language they use so that they are always conscious of the ways in which they not only report but *shape* the material world? How, as technical communicators, can we work towards social justice, knowing the importance of language and words and communication as things that move people to *action*?

This text approaches technical communication with two key concepts and frameworks in mind:

1. Language is a powerful tool that is always inherently

involved in shaping and framing the way that people interact with the world and

2. Technical communication is rhetorical.

While technical communication is sometimes framed as a straightforward, objective way to use language, this text positions technical communicators as engaged in social justice **every time they engage language**. This text focuses on this intersection between technical communication and social justice as it moves through key theoretical frameworks and genres in the field. It curates recent articles and texts that examine what it means to engage social justice in technical communication and emphasizes the importance of always understanding how language shapes worldviews. Technical communicators are often curators, as well; as they make choices about *what* things to explain, *how* to explain them, and *which* voices are elevated and valued, they engage in action related to social justice.

Understanding the connection between social justice and technical communication is tied to understanding technical communication as *rhetorical*. In what follows, we explore what it means to take a rhetorical approach to technical communication. Then, we define the field and describe its important link to social justice. Finally, we explore key genres in the field of technical communication and dissect each genre with the rhetorical situation and concerns about social justice in mind.

Important texts, sources, and background

This text is rooted in the experience of technical communication instructors who have taught this course and who recognize the importance of centering social justice in an approach to learning technical communication. It is also based in the work of researchers and educators who have been calling for increased attention to how technical communication intersects with social justice, and whose work emphasizes the need for technical communicators to reflect on a history of exclusionary practice and to work towards diversity, equity, and inclusion in the field.

In particular, this text is based in the work of Rebecca Walton, Kristen R. Moore, and Natasha N. Jones, whose text *Technical Communication After the Social Justice Turn* is an important read for any technical communicators, students, teachers, and researchers.[1] The opening quote comes from the introduction of that text, in which they position technical communicators, and the field of technical communication, in

1. Walton, R., Moore, K., & Jones, N. (2019). Technical communication after the social justice turn : Building coalitions for action (ATTW book series in technical and professional communication). New York: Routledge. https://doi-org.ezp1.lib.umn.edu/10.4324/9780429198748

relation to justice and injustice. They emphasize the need for increased reflection on current and historical practices that ask whose voices have been included, and whose voices have been excluded or silenced. They also explain the importance of developing coalitions: in order to be more inclusive, it's important to work collaboratively and to actively seek out other viewpoints. This text also discusses the importance of collaboration among technical communicators and provides some strategies for collaborating on projects and student work. Collaboration means *listening* to other voices and other experiences, and the model of *coalitions* means recognizing when we can step in as experts and when we can turn to other experts. In short, it is important to continually learn from each other and work together.

The second quote at the beginning of this text comes from *The Social Justice Turn* by Haas and Eble (2018), which likewise positions technical communication as always engaged with matters of justice.[2] Technical communicators, they argue, must be aware of the ways that their work either perpetuates systems of injustice or dismantles such systems and works

2. Haas, A., & Eble, M. (2018). Introduction: THE SOCIAL JUSTICE TURN. In HAAS A. & EBLE M. (Eds.), Key Theoretical Frameworks: Teaching Technical Communication in the Twenty-First Century (pp. 3-20). Louisville, Colorado: University Press of Colorado. http://www.jstor.org/stable/j.ctv7tq4mx.6

towards equity and inclusion. In this text, we describe how rhetorical approaches to technical communication can frame each new instance of communication as an opportunity to work towards social justice by focusing on inclusion and equity and through centering a specific audience.

Along with such foundational texts, this book is a collaborative effort among instructors and a result of many formal and informal communications, many teaching and professional development meetings, and the shared efforts of WRIT 3562W instructors past and present at the University of Minnesota Department of Writing Studies who work to make social justice an important part of their introduction to technical communication courses through their selection of readings and creative activities and assignments.

Finally, this open text is not meant to replace any other articles or readings on social justice and the field of technical communication, but rather to act as a companion text that is intentionally practical, straightforward, and tailored specifically to undergraduate students enrolled in WRIT 3562W at the University of Minnesota. If you come across this text outside of this course, please feel free to use and remix what you find useful.

How to read this text

As mentioned above, you may be reading this text as part of

your introduction to technical and professional communication course. Or, you may have come across this text because you are interested in better understanding the work of technical communicators and the relationship between technical communication and social justice. In either case, this text need not be read strictly from beginning to end. The various sections of this text reference each other, and you may find yourself moving back and forth among them. However, if you start at the beginning and work your way to the end, you will notice that concepts build off earlier concepts from this text.

If you do not read the text from beginning to end, you may choose the specific sections that interest you. You can just read about genres, for example, or about defining the field. You could start by reading about technical descriptions and then read about diversity, equity, and inclusion. Your instructor may assign certain sections to go along with other course readings and texts. While some of the organization is a bit "messy" and many of the concepts are repeated, the basic structure of the text is sketched out below.

This text is divided into four main sections:

Section 1: Taking a Rhetorical Approach

Section 2: Technical Communication, Social Justice, and Collective Access

Section 3: Defining the Field of Technical Communication

Section 4: Common Genres in Technical Communication

Each section begins with the title, followed by a brief interlude called "voices from the field." In "voices from the field," you'll read quotes from practitioners and professionals regarding the core concept or topic of each section. These brief paragraphs are meant to tie what you're learning from this text (which is often somewhat theoretical) to the practices of working technical communicators. They offer a glimpse into how professionals make sense of the rhetorical situation or how they encounter social justice in their work. This text attempts to bridge current academic research and theory with working technical communicators, and to make connections between academia and current practices. As a student of technical communication, it is useful to understand how theory and practice intersect.

Each major section is further divided into **clusters** of information. These **clusters** are labeled 1.1, 1.2, etc., followed by a heading title that describes what information you'll find. Just like with each major section, you'll find some overlap and repetition among the information clusters. This grouping of information is meant to help organize the concepts and approaches in each section.

While the sections are labeled 1 through 4, you may read them in a different order. Section 4, especially, tends to stand on its own, since it addresses common genres in the field of technical communication. Of course this section does

approach genres as both rhetorical and as engaged in social justice, and if these concepts are unclear it would be helpful to go back and read sections 1 and 2. Because some people may read this text out of order, you'll find certain concepts repeated throughout. The concept of the rhetorical situation, for example, is an important one, and it comes up in each section (not just section 1).

Finally, because this is an electronic text, you will find links to other useful texts and resources. Such links and references provide more information and do the work of expressing the same information in different ways (since we each tend to learn differently). Each included link is useful and helps to give a fuller "picture" or understanding of a concept, so do take the time to explore them as you read! If you are enrolled in WRIT 3562W, some of these readings may also be available through the University of Minnesota libraries or through your course Canvas site.

Throughout these sections, you will also find other suggested readings, discussion questions, and activities. This text includes citations for additional readings and direct links, when possible.

The following describes, briefly, what you'll find in each major **section** and **cluster**.

Section 1

Section 1 describes what it means to take a rhetorical approach

to technical communication. This section covers the following clusters:

- **1.1 Understanding rhetoric.** In this first cluster, you learn what a rhetorical approach "looks like," about the rhetorical situation, and about the rhetorical appeals. This cluster also focuses on the importance of audience, which you will see mentioned throughout this entire text.
- **1.2 Communication as process; writing as action.** This cluster frames communication as action, and focuses on writing as a process (rather than as a final product). What this means for technical communicators is that their work is ongoing, always in process, and that it is frequently tied to their audience taking some specific action.
- **1.3 Collaboration.** Technical communication is most often collaborative: in this cluster you find steps for developing a collaborative process and various strategies that make it easier to work with a team. This cluster also describes the various benefits of collaboration and provides some collaborative frameworks.
- **1.4 Editing and revising.** This cluster again describes the process of communication, focusing specifically on revising and editing. It provides some strategies and examples for revising a text, and emphasizes revision as an iterative, rather than a linear, process.

- **1.5 The rhetorical work of research and citation.** Finally, this cluster discusses the importance of research and frames citation as rhetorical and as related to diversity, equity, and inclusion. This cluster provides links to other readings and resources for APA citation style.

Throughout section 1, you'll find the reasons behind approaching technical communication using a rhetorical framework. The concepts in this section will carry over into the others. While section 1 focuses on technical communication and rhetoric, it also emphasizes how taking a rhetorical approach also allows us to understand the relationship between technical communication and social justice. This section emphasizes the importance of audience and context and of approaching each communication situation in a way that considers diversity, equity, and inclusion.

Section 2

Section 2 focuses on how technical communication intersects with social justice and collective access. This section includes the following clusters:

- **2.1 Diversity, equity, and inclusion.** This first cluster briefly defines the terms diversity, equity, and inclusion.

It provides a foundation for understanding how technical communication is concerned with these concepts, and why it is so important for technical communicators to always consider them.

- **2.2 Social justice, technical communication, action and community.** This cluster describes how diversity, equity, and inclusion are related to the concept of social justice. It articulates the role that technical communication plays in the work towards social justice.
- **2.3 Audience and access.** This cluster examines the importance of focusing on your audience when you approach each new instance of technical communication. It also introduces accessibility and document design as a part of accessibility.
- **2.4 Intercultural communication.** This cluster discusses intercultural communication and introduces the practice of localization, which helps technical communicators adapt or create content for specific audiences.

Each of these areas of focus within section two are meant to serve as a starting point for your inquiry into social justice and technical communication. These concepts are introduced in this section, but there is much more to research and read when it comes to how technical communication works towards diversity, equity, and inclusion! Focusing on your audience, for example, is an ongoing process for technical communicators,

who must continually work to seek out and incorporate new ways of understanding and communicating.

Section 3

Section 3 articulates how the field of technical communication creates its borders and how we define technical communication. This section is the shortest of the four major sections and helps to explain the boundaries and parameters of the field. This section covers the following clusters:

- **3.1 Defining technical communication.** This cluster works to define technical communication and also explains why that definition is fluid. It also explains some distinctions between using the terms technical communication and technical writing and discusses professional communication.
- **3.2 Technical communication and technology.** This cluster focuses on the relationship between technical communication and technology. It ends with an activity to help you develop your own definition and understanding of technical communication.
- **3.3 Technical communication and relaying information.** In this cluster, you'll read about technical communication as "explaining things" to a target audience. This cluster emphasizes that, while technical communicators are working to relay information, they

are still making rhetorical choices about *how* to best explain things.

Section 4

Section 4 focuses on common genres of technical communication, and introduces the concept of genre as fluid, socially defined categories. This section includes the following clusters:

- **4.1 Genre, social action, and access.** In this first cluster, you'll be introduced to the idea of genre as social action. You will read about why it's useful to learn specific genre conventions while still taking a rhetorical, audience focused approach to technical communication.
- **4.2 Technical descriptions.** In this cluster, you'll learn about the genres of technical definitions and descriptions. This cluster describes where you may find this common genre, and why it's so important to consider your specific audience when creating a product or process description.
- **4.3 Instructions.** This cluster describes the genre of instructions, which you have likely already interacted with. You'll find resources on creating effective instructions, and learn about the importance of usability testing.
- **4.4 Proposals.** This cluster covers the genre of research

proposals, which is similar to but distinct from something like a business proposal or plan. The proposals described in this cluster articulate a researchable problem and discuss a plan for researching that problem.

- **4.5 Reports.** This cluster discusses the genre of a formal report, which follows a fairly standardized format. You'll learn about the IMRD structure and find resources for developing a persuasive, informative report that ethically and accurately provides data or research results.
- **4.6 Presentations.** In this final cluster, you will read about technical presentations, which is yet another way to deliver information to a specific audience. This cluster focuses on using text, images, and audio to deliver information. It also provides links to other resources for creating an effective presentation.

Keep in mind, as you read, that the concepts introduced in each section may well fit in other areas: there is so much overlap among each concept and approach, and the organization of the four main sections and each subsequent cluster is just one of many possible ways to group such information. This text makes connections among concepts and approaches, and you should work to make such connections as you read.

The intersection between technical communication and social justice is complex and dynamic. Consider this text, and

its organization, a useful place to begin your inquiry, and let it lead you to other important readings and research. In other words, you can think of this text as a useful starting point to understand technical communication and social justice, but keep in mind that the work towards diversity, equity, and inclusion is ongoing, and that the field of technical communication is continually adapting and evolving to the needs of its audiences.

TAKING A RHETORICAL APPROACH

In this text, communication is framed as always rhetorical. Even the most seemingly straightforward examples of technical communication require a communicator to make intentional choices based on the context, purpose, audience, etc. To frame technical communication as rhetorical, or to take a rhetorical approach to communication, means that technical communicators must be flexible and responsive to their situations and environments. It also means that technical communicators recognize the ways in which language not only reflects but shapes the world, creates or maintains or challenges our value systems, and either perpetuates or challenges structures of oppression. Technical communication allows audiences access to information, and communicators must make rhetorical choices to best decide how content can be most accessible.

A sign at Itasca State Park uses plain language to alert visitors of all ages that they've arrived at the headwaters of the Mississippi. The large, permanent structure, its placement in the landscape, the size and font style of the text, and language used in the sign all respond to the rhetorical situation and are tailored for a specific audience. Image by Ryan Eichberger.

This first section focuses on taking a rhetorical approach to technical communication. First, it defines and explains the rhetorical situation and why it is important to take a rhetorical approach as a technical communicator. Then, it describes the rhetorical appeals–ethos, pathos, and logos–and discusses how and where they "show up" in technical writing. Next, it describes language as action, specifically framing technical

communication as language having direct impact on the material world or leading the audience to specific action. Finally, this chapter discusses research and citational practices, frames these practices as inherently concerned with social justice and ethics, and explains why research and citation are essential in technical communication.

Voices From the Field

"The audience for my product is very broad. While sometimes there are priority audiences from a business perspective, what I write needs to be generally understandable. I try to write as simply and clearly as possible, as that tends to scale better to translation and localization."

Bill Siemers
Content Strategist, Facebook

1.1 UNDERSTANDING RHETORIC

Brigitte Mussack and Evelyn Dsouza

Rhetoric often refers to recognizing and understanding the available means of persuasion. Some frame all communication is an act of persuasion: viewing all communication as persuasive means that even when you are composing a technical manual, for example, you are working to persuade the reader to see things a certain way, to take some specific action, to recognize a particular concern, etc. While the term *rhetoric* often relates to persuasion, the field of rhetoric has evolved to include understanding how language functions between a speaker or writer and an audience. *Rhetoric* can also refer to a systemic investigation of how language works to shape the world and to get things done.

Framing all language as rhetoric, or acts of communication as rhetorical, means looking at language and communication in terms of how people intentionally use language to accomplish specific goals. It also means that making choices about effective communication relies heavily on what you want to *do.* Taking a rhetorical approach to writing involves recognizing that no two writing situations are exactly alike,

and that what might work for one situation may not be appropriate in the next. While some things that make "good" writing are consistent across various situations, each time you write, you have to consider the goals, context, audience, etc. of that unique writing situation. A rhetorical approach might be contrasted to something like using a template to write a specific genre or document: rather than learning various conventions and applying those same conventions each time you writing, a rhetorical approach means that you remain flexible and responsive to the requirements or needs of that specific situation.

Key Takeaway: Rhetorical Approach

Throughout this text you'll find that each aspect of technical communication is informed by rhetoric, and each stage of the communication process demands a rhetorical approach. In the simplest terms, a **rhetorical approach** means that each communication situation is unique and can be analyzed based on understanding the various components of that specific, individual **rhetorical situation**.

As you read this first section, consider how you've already been taking a rhetorical approach to communication. How have you adapted your communication style and tactics to fit a given audience, context, and purpose? What would it mean to NOT take a rhetorical approach to communication? What is an alternative approach?

This text frequently uses the term *rhetorical* to mean that a text—or an approach to writing and understanding a text—considers the impact it has on an audience and considers how it can work to achieve its context-bound purpose or goal. When describing all the things that surround a given act of creating a text, or the context in which a text was created and is used, we will refer to the *rhetorical situation* of that text.

The **rhetorical situation** refers to the various components that surround an act of communication. The rhetorical situation asks that you consider the following components each time you approach a new writing situation:

- **Context** (specific context of the organization, more general context of the time and culture in which you and your audience and this text will exist)
- **Audience** (who are you writing for? Who is your primary audience? Secondary? Tertiary? How will your

audience interact with this text? Will they read it from beginning to end? Skim for the parts they need? Move back and forth among various sections?)

- **Purpose** (is the main purpose of this text to inform? To instruct? To persuade? To move your audience to some action?)
- **Goal** (what is the immediate and longer term goal of this text? How will you know whether the text is successful?)
- **Writer** (yourself, your team, your organization—what about your own experience, your demographics, your biases, your expertise might inform the way you approach this writing task?)

Understanding the rhetorical situation allows you to make decisions each time you approach a new communication task. Because each task exists in its own unique context, with its own purpose, target audience, etc., each requires a new analysis of that specific rhetorical situation.

In the Mojave Desert, 2000-year-old petroglyphs continue to communicate with us, left behind by the Basket Maker people and the Anasazi Pueblo farmers. Such artifacts can be understood as texts that responded to a specific rhetorical situation, working to communicate with a specific audience, within a given context, and for a purpose. Today they exist in a new rhetorical situation, and new audiences bring their own contexts and perspectives along with the historical context in which they were created. Image by Ryan Eichberger.

Take a look at this resource from the Purdue OWL (online writing lab) regarding the rhetorical situation. Keep in mind that each time you approach a new writing situation, you can begin by assessing and analyzing the rhetorical situation. Doing so allows you to communicate effectively, with your audience, context, purpose, goal, and own limitations or perspectives in mind, even when you come across a new genre or unfamiliar writing task.

Activity theory

Contributed by Evelyn Dsouza

Activity theory is a social scientific framework for understanding systemic human activity: groups of people doing work together. Through the lens of activity theory, we can more readily see the ways that activities are shaped by social interactions–for example, those within an organization or profession–and by the tools we use, including texts, language, and discourse.

In particular, activity theory captures activity systems in a state of motion; while it acknowledges the importance of ongoing histories, it can also open opportunities for intervention by prompting generative questions.

This theory can serve as a complement to **rhetoric**; both perspectives give us some vocabulary for thinking about communication in context. In addition, it can also help us

think about the work of technical communication in more concrete ways by looking at specific aspects of "context." For example, to help us understand **genres** as typified ways of responding to a recurring need or social situation, the model of activity theory makes clearer and concretizes the production processes of documents, highlighting their authorship and the division of labor involved, their objects and outcomes, the tools and rules that condition their making and use, and the communities or audiences in which they circulate.

You can read more about activity theory in "Activity Theory: An Introduction for the Writing Classroom" by Kain & Wardle, which is found in the text *Writing about Writing*.[1] As you read, consider especially the questions on page 280. Think of the specific kinds of texts that are used in your field. How might these questions relate to your own practice of technical and professional communication? How could they help you navigate new or unfamiliar activity systems? How might asking these questions help you think both creatively and analytically as a communicator?

Importance of a rhetorical

1. Wardle, E., & Kain, D. (2014). "Activity Theory: An Introduction for the Writing Classroom." In E. Wardle & D. Downs (Eds.), *Writing about writing: A college reader*. (pp. 273-283). Bedford/St. Martin's.

approach

Why is it important to understand rhetorical theory in a technical and professional writing course? Tania Smith addresses the connection between rhetorical theory and technical communication by explaining that rhetorical theory can be used to create texts *and* to critique the texts you read. So, it's a valuable tool in terms of invention and evaluation, and can be applied to any new communication context. She explains that a rhetorical approach to technical communication is **intentional** or **purposeful**. When using a rhetorical approach to communication, a communicator will try to understand the social context of their intended audience, and will be strategic about using language towards a specific purpose. So, a communicator must know whether they are trying to persuade or inform, for example, and they must understand enough about their audience to know *what* might be persuasive or *how* they can inform them. She emphasizes that rhetoric–and a rhetorical approach–is not just something used in advertisements or politics, but something that intentional communicators use in every communication situation.

Smith goes on to explain that rhetorical approaches are useful because (as this text emphasizes, too) no two instances of communication are the same. Further, no two audiences are the same. It is as important to take a rhetorical approach to **reading and listening** as it is when creating texts. While

it is useful to learn certain **heuristics**, which are guidelines or best practices for creating texts, it is important to avoid letting those heuristics become templates. **Hermeneutics**, which give us the tools to answer the "why" questions about how texts are perceived and how communication impacts an audience, help to balance out **heuristics**, which allow us to answer the "how" questions. Once again, using rhetorical theory to both receive and create texts allows us to better understand effective, and ethical, communication.

Read how Tania Smith describes the relationship between studying rhetoric and studying technical communication in her article "What Connection Does Rhetorical Theory Have to Technical and Professional Communication", and consider why it's so important for technical communicators to take a rhetorical approach to communication.[2]

Along with the reasons that Smith brings up in her article, this text takes a rhetorical approach to technical communication for the following key reasons:

1. There is no "one size fits all" or template way to approach technical communication. Taking a rhetorical

2. Smith, T. S. (2008). What connection does rhetorical theory have to technical and professional communication? in Jennifer MacLennan (Ed.), *Readings for Technical Communication* (pp. 114- 120). Don Mills, ON, Canada: Oxford University Press Canada.

approach allows us to treat each new writing situation effectively, considering audience, purpose, and context. In this way, a rhetorical approach is a strategic approach, and framing technical communication as rhetorical allows us to make choices for effective communication with a specific audience.

2. Understanding the rhetorical situation, and taking this approach to technical communication, also allows us to see the field and practice of tech comm as directly engaged in ethics and social responsibility. A rhetorical approach frames communication as action, or as directly linked to the material world. It also frames communication as stepped in culture, values, politics, bias, and frames language as always working with or against systems of power and oppression. As technical communicators, we have a responsibility to promote social justice; understanding the rhetorical nature of language more broadly, and of technical communication in particular, helps us to understand how technical communicators engage social justice.

Take a look at this video on responding to the rhetorical situation.

One or more interactive elements has been

excluded from this version of the text. You can view them online here: https://pressbooks.umn.edu/techwriting/?p=5#oembed-1

Throughout this text, you are reminded of the importance of analyzing each rhetorical situation as you begin a writing project. Specifically, this text emphasizes the importance of audience: a technical communicator needs to always be audience focused and keep their specific, target audience in mind. This work happens through audience analysis, understanding the rhetorical situation, and often through collaboration.

Key Takeaway: Heuristics vs Hermeneutics

Do take time to read the article linked above by Smith, which describes the relationship between rhetorical theory and technical communication. Smith introduces a range of terms, which can be a

lot to take in and to remember. For our purposes, as technical communicators, it is most useful to understand the **approach** that rhetorical theory allows us to take. If the terms become confusing, keep in mind the key guiding principles of **flexibility** and **responsiveness. Heuristics** lets you understand how parts of a text or how approaches to communication impact an audience; **hermeneutics** lets you understand why a text impacts an audience in a certain way.

Rhetorical theory is important because technical communicators need to understand both the **why** and the **how**. Take a moment to reflect on the last text you read (maybe even this textbook); what specific things in that text impacted you? How were you impacted by things like the organization and language choices along with the content? Now consider why these parts of a text impacted you. Does understanding how you are impacted, as an audience member, help you to create texts that are more impactful to others?

In the next section, you'll learn about the rhetorical appeals and work to identify their usefulness in technical communication. Remember, though, that learning how to

recognize and deploy these appeals are part of what Smith describes as **heuristics**; while they are useful to recognize or name, it is also important to know *how* these appeals are received by an audience.

Understanding the rhetorical appeals

When discussing rhetoric, the three rhetorical appeals often come up; the rhetorical appeals are foundational concepts of rhetorical approaches to communication. You may have heard of these appeals already: **ethos**, **pathos**, and **logos**.

- **Ethos** refers to an appeal to character; persuading your reader based on your own experience or expertise is an example of an appeal to ethos. Ethos might look like taking time to explain to your audience that they can trust your opinion based on your years of training, research and experience. Or, ethos might look like an appeal to a 'good name' or reputation. Say you are persuading your audience to purchase a Subaru: an appeal to ethos would be mentioning what a great reputation Subarus have, or that it is frequently the consumer's choice, or that the brand has been around for so many year.
- **Pathos** appeals to emotion; a pathos appeal connects

with your reader on an emotional level. If I want to convince my same audience to purchase a Subaru, then I might appeal to pathos by creating an ad that shows what a good family car Subaru's are by telling the story of a specific family watching their child grow up in a Subaru. This appeal works by evoking a specific emotional response from the audience and thus persuading them that the Subaru is the right car for their family.

- **Logos** is an appeal to logic or reason; an appeal to logos might lean on data or logical reasoning. Let's say that I want to sell that Subaru through an appeal to logos. To do this I might give my audience some specific statistics, or some data, to help them see that Subaru's are safe or affordable or get good mileage. I might use data alongside reasoning, meaning I would use specific evidence and then explain to my audience how or why this evidence supports my claim that a Subaru is really the best choice for them.

In technical communication, it may seem that logos is the favored rhetorical appeal. Technical communication is often perceived as objective, unemotional, absent of a "point of view." However, since we've already discussed how technical communication is rhetorical, all three rhetorical appeals show up in even the most "objective" instances of communication. When you cite sources, for example, that action might be

understood both as an appeal to logos (logic, reason, past research, data) AND an appeal to ethos (are you citing reputable sources, authors, and journals? Are you showing that other credible folks in your field can back up your own findings?). Many technical documents appeal to pathos, as well–consider how you might persuade a reader to care about climate change even as you are presenting information from recent research or reports.

Recognizing these rhetorical appeals allows us to see how technical communication, which is often viewed as objective and "purely informational," is also inherently value-laden. In other words, technical communication is steeped in cultural structures and systems, and it is never purely "objective" or informational, because any type of communication is connected to a human being, with their own biases, values, and experiences. **However, recognizing that technical communication is never neutral is an important step towards recognizing and mitigating bias.** While it might seem counterintuitive, framing technical communication as rhetorical can help technical communicators to work towards goals of diversity, equity, and inclusion, because it deconstructs the problematic assumptions that any one instance of technical communication can be neutral or objective. Communicators make choices based on their purpose, the context, and their audience, and must be aware of their own positions, experiences, and world views and be explicitly conscious of how these things shape their approach to

communication. By understanding technical communication (and all communication) as impacted by values, world views, frameworks, etc., communicators can make choices about their audience's needs.

Taking a rhetorical approach to technical communication also means recognizing the relationship between technical communication and ethics (which we discussion further in **Section 2**). When considering the rhetorical appeals, and making decisions about using them in a text, it's also important to consider *ethics* and *diversity, equity, and inclusion*. Rhetorical appeals can help communicators to persuade their audience, and can frame information so that an audience can understand how that information pertains to them. For example, if a technical communicator is working with an environmental scientist to develop an infographic, it is important to understand not only *what* information to present to a non-expert audience, but also *how* to present that information so that the audience feels a connection to the subject matter and can understand the central message.

For a fuller explanation of ethos, pathos, and logos, and how these rhetorical appeals work to persuade an audience, take a look at this resource from our university libraries, Persuasive Strategies.

Activity and Reflection: Describing the Rhetorical Situation

Find something that you would consider an example of technical communication, such as a set of instructions, or a technical description. As you look for an example, pay close attention to whether this document seems *neutral* or *objective* in its use of language. So, don't look for a document that has a very obvious point of view or that seems to appeal to only a very narrow audience. Find something, instead, that you think might be written for a wide audience without much bias or loaded, emotional language.

Once you have found your example, think back to what you read in this cluster. Then work alone or with a partner to answer the following questions.

1. What is the rhetorical situation of this document? Describe each feature of the rhetorical situation (you may have to guess a bit, but try to make educated guesses). What features of the document (what specific

things that you can point to or cite) help you to reconstruct its rhetorical situation?

2. How does this document appeal to logos? What are some examples in the text?
3. How does this document appeal to ethos? Explain how the document uses this appeal.
4. How does this document appeal to pathos? Explain or illustrate where you can find pathos.
5. How are these appeals appropriate for or related to the rhetorical situation that you describe in question 1?

1.2 COMMUNICATION AS PROCESS; WRITING AS ACTION

One way to understand what it means to take a rhetorical approach to technical communication is to consider what *questions* we ask as we work to define the boundaries of technical communication and the work of technical communicators. For example, instead of asking the question "what does technical communication *look like*?" we might shift our focus to ask the question "what does technical communication *do*?" As technical communicators, we explain things (you can read more about technical communication as explaining things in **Section 3**). In order to do the work of explaining things to specific audiences with particular intentions, we need to understand the rhetorical situation, which changes with each new communication task.

In this text, technical communication is understood as **action**. There are the actions that technical communicators take to assess and respond to a rhetorical situation, and then there is the action taken up by the audience. Technical communication generally assumes some specific action: its

purpose is nearly always tied up in moving an audience to *do something* or to *act* in some way.

Minnesota's Lost 40 Scientific and Nature Area. Surveyors miscalculated during their survey, producing technical schematics that led loggers to miss this forest, accidentally preserving some of the nation's last old-growth forest. Technical communication has a direct impact on actions, and in this case miscommunication led to accidental preservation. Image by Ryan Eichberger.

If thinking about communication in terms of action seems confusing, consider common examples of technical communication, such as an informative brochure about the Covid-19 vaccine, or a set of instructions on how to assemble a piece of furniture. In both cases, the **texts**–the brochure and the instructions–are instances of communication that assume some action on the part of the reader or audience. For the most part, technical communicators can assume that the purpose of an informational brochure on the Covid-19 vaccine is either working to persuade the audience to get the vaccine, or is offering information to an audience who already did get the vaccine, or is providing information to an audience that is deciding whether to get the vaccine. In each case, there is an associated action: receiving a vaccination against a specific virus. In the case of the instructions, one can assume that the audience will use those instructions to complete the specific action of assembling that piece of furniture.

Key Takeaways: Communication as Action

The two examples above demonstrate the important relationship between technical communication and action. Can you imagine other

instances of technical communication that are linked to a specific action that the audience may take? Can you imagine an example of technical communication that is not tied to action?

Considering the rhetorical nature of communication, and framing communication in relation to action, also shifts the focus of technical communication towards the ***process*** rather than the ***product***. In other words, while the products of technical communication vary quite a bit (you can practice some of these in **Section 4** by reading about common genres), the process is always rhetorical. The process of technical communication is **recursive, rhetorical, audience-focused,** and linked to **action.** Technical communication is a recursive process, that involves writing, listening to feedback, revising, editing, and researching. You can read more about what it means to understand technical communication as a recursive process below.

Technical communication as recursive

As we take a rhetorical approach to technical

communication–and to writing in particular–by analyzing and responding to each unique rhetorical situation, we also focus, in this text, on technical communication as **recursive** and as **responsive**.

Technical communication is **recursive** in that the process is iterative rather than linear; one recent workplace study frames professional writing as "multimodal editing" and as almost always collaborative. Technical communication is responsive in that it is user focused, and must respond to shifting needs, contexts, and purposes. The more we work to frame writing as recursive, with a focus on the process of technical communication (alongside an analysis of various products, which we do later in this text), the more we can also focus on communication as action, invested in access and equity. The recursive nature of technical communication means that there is always room for growth, change, and improvement: and there are always opportunities to work towards equity.

Working towards equity and inclusion in communication has not been, and is not, a linear process. Similarly, the process of creating a text or document rarely follows a linear path. In both cases, as we (technical communicators, researchers, and writers) collect new information or recognize previously unrecognized user needs, we need to step back and start again.

Often, as you write and research and collaborate and revise, you have to revisit and change things that you completed earlier during the writing process. For example, say you are writing a technical definition and receive input from a subject

matter expert (SME) that challenges the definition you gathered from earlier interviews with other SMEs. What do you? Likely, you halt your writing to complete more follow-up research to see whether there is a second, equally accepted definition of this product or process, or whether the product or process has two competing approaches.

When we read texts (such as manuals, or technical reports, or definitions), we don't see the process that went into creating and re-creating these texts. As a result, it might seem like a report (or manual or definition) was written in the order that you read it. As you write (and as you've likely already discovered writing and researching up to this point) you learn that introductions should be written last, or that you might work on three different sections of a report at the same time, or that first drafts look nothing like what ends up in a final draft of a definition on a webpage.

The writing process changes from one writer to another, and from one writing task to another. Some things that impact the writing process include:

- Time allotted to complete the task
- Whether you are "starting from scratch" or stepping into a project that has already begun (for example, whether you are coming up with a new proposal based on your own recommendations or experience, or whether you are asked to revise your organization's employee handbook)

- Whether you are working independently or collaboratively
- The *rhetorical situation* (audience, purpose, context) of this particular writing task

Often, the writing process looks something like this:

1. Brainstorm and research (come up with an idea, make some notes, figure out your task and how to approach it)
2. Outline (develop your notes and structure the document)
3. Draft (begin to write)
4. Revise (receive some feedback on your draft and make changes based on that feedback and on your own re-reading of the document)
5. Edit (multiple levels of editing exist, at which point you are reworking the details of your document to make it as closely aligned with your intended audience and purpose as possible).

In this picture of the writing process, a writer or group of writers move smoothly from brainstorming all the way to editing. The five major steps are achieved in that order, from step 1 until step 5, at which point your writing is complete!

The actual writing process, as you very likely have already experienced, rarely looks this way. Although you may begin with brainstorming and conclude a project with editing, many

things happen throughout these "steps" that cause you to go back to a previous step, jump ahead to a future step, or repeat various steps as needed. Further, you may begin your own role in a project at various stages of that project's timeline. For example, you may begin work with a document that has already been written, and your task is to update the document for a current calendar year or current project. In this case, do you begin with brainstorming? Is revising also considered drafting? Do you make an outline after you have done some writing or after you have received some feedback? You can see how, in practice, this simplified writing process quickly evolves into something else.

Rather than moving from step 1 to step 5, your writing process for any given writing project might move something like this:

3. Draft (begin to write)

1. Brainstorm (out of the draft you begin to process new ideas or thoughts or approaches)

3. Draft (begin, again, to write)

2. Outline (from what you've written, you can now suss out your main ideas and organize them into an outline)

1. Research (after looking at your outline, you recognize the need to research and see what others have found/argued/claimed/written)

3. Draft (your research leads you to change some aspect of your initial draft and so you begin again…)

And so on and so forth.

Each rhetorical situation–each writing task and context–may inspire its own process. It is also possible that you will find one process that works best for you, regardless of the particular writing task (such as beginning with a 1-page draft and then moving to an outline to organize your content). It is very unlikely, however, that your writing process will be as well contained and as predictable as we first saw in steps 1-5; further, you should not be afraid to "start over" if something disrupts this process–if, during revisions, you realize that you need to conduct more research or that you need to refocus your main point. Finally, the writing process is constrained according to time and whether you are working collaboratively. A brochure that you are to produce with a team over the course of a month will likely involve a different process than an email that you need to send to your team in the next hours.

So, if the writing process always looks different from one project to another, why focus on the process at all? And if this process is recursive and messy, why might it still be helpful to break it down into its component parts?

It's important to have a picture of the writing process and to focus on your own writing process even though it so often looks different from one project to the next. The more we understand the various components, the better equipped we are to understand how to approach a project. Further, understanding the writing process—and most importantly,

understanding this process as recursive—helps us to streamline our own writing process and to develop appropriate plans and timelines given the rhetorical situation (given the context, goal, purpose, etc.).

Key Takeaways: Focus on Process Allows for Flexibility

The recursive and complicated process of writing also makes room for writers to revise, edit, or change information **as new information or different feedback becomes available**. In this way, framing the writing process as messy–rather than neat and linear–makes room for incorporating diversity, equity, and inclusion. Part of the process should involve seeking diverse feedback and listening to feedback, even when that means needing to change key features of your text.

In sum, it is important to understand how to analyze the rhetorical situation so that you can make deliberate choices when you approach each new instance of technical communication. Focusing on technical communication as

action, and focusing on the process rather than product, are important parts of taking a rhetorical approach. This approach allows technical communicators to create effective texts with each specific purpose, context, and audience in mind.

Activity and Reflection: Responding to a Rhetorical Situation

Consider the following rhetorical situation:

You are hired to work with public health experts, medical experts, and scientists at the University of Minnesota to write a brief (1 page) guide for safely attending classes during the covid-19 pandemic. This guide is designed to synthesize and summarize safety information related to the spread of viruses and will be published on the university's website. It will include links to more in depth studies and data, but should itself be short and easy to understand.

What things, related to this rhetorical situation, should you consider? Who is your audience? What are some potential relevant contexts? What do you need to know about your purpose? How does your own identity inform your decisions?

Brainstorm how you might begin this task.

Now, imagine that you are asked to summarize and synthesize the same information for a 6 page, illustrated, paper brochure that will be available in all on campus housing and which will be handed out to students during orientation. What things might you change or what differences might you consider as you create that content?

Finally, imagine that you are asked to, yet again, summarize this information and send an email to prospective students and their families. Once again, consider the rhetorical situation. What things do you need to understand in order to create that email?

1.3 COLLABORATION

Brigitte Mussack and Joe Moses

Just as this text takes a rhetorical approach to technical communication, this text also frames technical communication as a **collaborative process**. Beyond this text, there are many workplace studies that claim most technical and professional writing projects are collaborative. If you are a student, you have very likely participated in collaborative writing already, and if you are enrolled in WRIT 3562W at the University of Minnesota, you will complete some collaborative projects this semester. For each of these reasons, and because collaborative writing is increasingly present across industries, it's important to consider how to best approach collaboration.

Collaboration can take place a variety of ways: you might collaborate with other writers on a group project, or you might collaborate through asking for feedback or revising an existing text. Or, collaboration might happen between you and your reader/client/target audience through direct feedback, usability testing, or conversations. Finally, you might even come to understand any writing that relies on previous research as collaborative: you are building off the work of others and using what they have done in your own researched projects.

Collaborative writing means working with someone else to create a text. However, collaboration might not always "look" the same, and you can even be the sole author of a text while still engaging in a collaborative process by asking for feedback or relying on previous work and research. It's important to recognize the various ways in which technical communication is nearly always collaborative.

So much of technical and professional communication happens collaboratively, and this section focuses on specific strategies and approaches to effectively working with a team in order to create cohesive collaborative texts. According to Bill Siemers, a content strategist for Facebook:

> Writing has to be collaborative. I often see my role as helping my product team pick the right words—this involves generating ideas with my product team, listening to different perspectives, and soliciting feedback on my work. While I'm ultimately responsible for the words that go into my product, the words are part of the product, and everyone owns the product together. I need to be collaborative in order to do my job.

Along with emphasizing the need for collaboration and helping you to strategize effective ways to collaborate, this

section also addresses the ways in which collaboration is *rhetorical* and frames collaboration as engaged with social justice and as concerned with diversity, equity, and inclusion.

Key Takeaway: How Are You Already Collaborating?

Take a moment to consider the writing that you already do (for your courses, at work, on your own time, etc.). How much of that writing is collaborative? Consider any time that you've participated in peer review, or you've given your roommate feedback on a course essay, or you've visited your university's writing center for help with a paper. Are those instances of collaboration? How did working with another person impact your writing?

Collaboration, rhetoric, and social justice

When working as a team, it is so important to consider diversity, equity, and inclusion. Just as we've discussed in

previous sections, language is shaped by experience, culture, world views, and values, AND at the same time, language shapes each of these things. Collaboration is one way to focus on equity and inclusion, but it is important to consider how collaborative teams are set up, and how they can work towards diversity and inclusion.

Some of the most obvious benefits of collaboration include a better finished **product** and a more thorough, rigorous **process**. When you work with someone else to create a text, you invite in another set of world views, of experience, of skills, of expertise; you invite another perspective to your own writing. Feedback on your course paper from your instructor or your classmates is helpful because different perspectives can recognize things (such as mistakes, or the need for more clarification, of the most useful or interesting findings) that you cannot always see on your own. Likewise, when you collaborate with others on a piece of technical communication, that text benefits from having multiple perspectives. Hopefully, in the best of cases, you also learn and grow as a writer when you work collaboratively.

A wall of clocks at Fermilab's DZero particle accelerator attest to the complex business of collaborating across borders, timezones, and cultures. Image by Ryan Eichberger.

Most folks already recognize the role that collaboration plays in creating a better product. A less obvious benefit of collaboration is the role that collaboration can play in developing a **community**. Collaboration has the potential to create a rich, supportive community through the process of developing a collaborative text. Community is formed through collaboration when members of a collaborative project work together, listen to each other, and are able to feel included and valued as members of this community. Developing a community is such an important thing for technical communicators.

Community–especially a community made up of

individuals from different backgrounds, with different experiences and world views, and with different expertise or knowledge sets–makes communication a less isolating task. Community can lead to a "better" product because that product is more nuanced and enriched by a variety of voices. More importantly, community allows technical communicators to ask for help, to ask for input, and to remember that communication is **social.** With a community of writers to offer feedback or a different perspective, communicators and more easily get a sense of how their audience might receive a text. A community of diverse communicators enables technical communication to be more **inclusive**, since texts are created not just with different audiences in mind, but by **different communicators.**

There are so many benefits of developing a community and working collaboratively. Consider how much you learn from others, and how much more difficult it is to learn or do something in isolation. Community members can offer and ask for help, and can bring different perspectives in order to achieve a shared goal and to reach an intended audience. However, working collaboratively can also be challenging, and not every collaborative project will automatically lead to a supportive community. In order to use collaboration as a way to develop a community, technical communicators must be **intentional** about that goal. They must be willing to lead and to listen, and they must be open to feedback, especially when

that feedback challenges their own ways of thinking and moving through the world.

Key Takeaway: Collaboration and Community

Working collaboratively can develop a **community** of writers, which can be incredibly beneficial not only for the final product but also for the process and the community itself. Further, this community approach to technical communication is an essential part of centering diversity, equity, and inclusion. However, for community to result from collaboration, and for community to work towards diversity, equity, and inclusion, folks must be **intentional** about this goal. If you are working on a collaborative project, what specific steps can you take to make diversity, equity, and inclusion part of your team's core values? What steps can you take to focus on community?

In order to enjoy the benefits of collaboration, such as community, a better product, and increased opportunity for inclusion, technical communicators must learn to navigate

various challenges. Some of the most obvious challenges of collaboration include managing team dynamics and dealing with potential conflict. It can be challenging to navigate different personalities, work styles, communication styles, and even distinct opinions and areas of expertise. However, if you do some planning during the early stages of collaboration, many of these challenges can be met and resolved. Below, you'll find potential steps for establishing a communication and work flow plan, and for handling potential conflict. Use these steps as guidelines, and adjust them to the needs of your specific project, context, and team.

Steps for collaboration

The 5 basic steps that can making collaboration run much more smoothly are as follows:

Step 1: Getting to know your team

Step 2: Establishing communication practices

Step 3: Developing a project timeline

Step 4: Assigning team roles and responsibilities

Step 5: Outlining potential conflicts and resolution plans

Again, these steps are not "written in stone"; rather, consider them as flexible guidelines. Generally, the more planning you do at the beginning of a project, the more smoothly that project will go. So, establish things like your

timeline, roles, and conflict resolution plans during your first team meeting. Without these early conversations, it's much more likely that your team will run into problems down the line.

Step 1: Getting to know your team

The first–and perhaps most obvious–step in working collaboratively is getting to know your team. So, during a first team meeting, take a little time to learn something about the folks you'll be collaborating with. You don't need to share personal information: rather, consider what types of things might impact a team dynamic or the specific project. It's useful to know what types of expertise and experience each member brings to the team. It's also important to know about schedules and preferred work patterns and means of communication.

Some questions you might address:

- How comfortable are you with this project?
- Are there specific aspects of the project that are of particular interest to you?
- What does your schedule look like, both day-to-day and over the course of the project (short and long term)?
- Is there anything regarding this project that you are particularly wary of, or that might be most difficult to

navigate?

- When you've worked collaboratively in the past, what has worked well?
- What do you consider your biggest strengths as a writer (researcher, designer, project manager, etc.)?

Step 2: Establishing communication practices

Once you have spent a little time getting to know each other, establish how you'll do most of your communicating for this project. It's important to establish your group communication practices and set some guidelines so that, should something come up later during the project, you know the best way to contact each other, and you'll already have these guidelines in place.

Because so much work–and collaboration–happens remotely, it is especially important to establish these guidelines and practices for team communication. Along with communication guidelines, consider what tools you will use both to communicate and to compose and organize your work. Perhaps your team will work in person, or perhaps you will have some in person meetings and do most of your composing online in a shared document. Or perhaps you will only meet online over a video conferencing software, or you'll divide up the responsibilities and complete most of the project asynchronously.

Some questions to consider as you establish your communication practices:

- What mode of communication should we use to schedule meetings and to contact each other (text, email, phone call, calendar invites, slack, etc.)?
- If we need to get ahold of someone in the group for an emergency, what is the best way to do that (text, phone call, email, etc.)?
- After we've reached out to someone, how long should we allow for a response (should we commit to responding to messages within 24 hours? 48 hours?)?
- When we contact one person, should we contact the entire team? Is there a particular chain of communication or one person who can handle questions, schedule changes, etc?
- If someone does not respond to the agreed upon communication channel in the agreed upon timeframe, what are the next steps? (this question will also be addressed when you plan for potential conflicts)

Addressing these questions is just a starting point. Consider why communication is such an important part about working collaboratively. When asked why they most dislike about group projects, students often respond that it's difficult when some group members don't "pull their weight" or when not all group members are "on the same page" about the project.

Effective communication can address and curtail these concerns, for the most part. Communicating about your approach to communication helps to ensure a smooth collaboration.

Step 3: Developing a project plan and timeline

Once you have determined how you will communicate and what the communication expectations of each group or team member include, you can begin to develop a project plan and timeline. Of course, in order to do this work, you must assess the rhetorical situation and establish what your project is. Consider the following things when putting your project plan together:

- What is your main goal or purpose? What is it that you are trying to accomplish?
- Who is the target or intended audience? What are their needs and expectations?
- What is the context of this project (how much time do you have to complete it? What kinds of guidelines were you given? What is the general context of your organization/company/location/culture etc.?)?
- What major steps need to be taken in order to complete the project?
- What minor steps need to be taken in order to complete

each major step?
- How can you assess the project as you go?

There are many ways to create a project plan; once you have a general sense of what you need to do and how you will do it, create a timeline for your project. Start with the end: when does your project need to be completed? From there, work backwards and establish various internal deadlines. If this project is due in 4 weeks, then when should the first draft be completed? When should you have finished collecting your data? The more detailed your timeline, the better you may be able to stay on task. It's helpful to create a visual for your timeline, and to utilize calendar software to help your team meet each deadline.

Step 4: Assigning team roles and responsibilities

Another useful step, once you have a project plan in place, is to assign team members to specific roles, tasks, and responsibilities.

Some examples of assigned roles might be:

- Researcher
    - a researcher (or researchers) might be in charge of finding and summarizing appropriate sources
    - researchers might also work as "fact checkers" or

    design surveys or other ways to collect data
- Editor
    - the editor could be in charge of putting all the content together
    - editors might be responsible for things like smooth transitions, clear language, correct content, etc.
- Designer
    - the designer might focus on document design, organization, and use of images and graphics
    - the designer can pay close attention to the layout and how things fit together visually
- Reviewer
    - a reviewer might be in charge of reading through the entire document or sections of a document
    - reviewers can fact-check or double-check any research, claims, data; a reviewer might also pay attention to "flow" or organization and clarity

You can assign specific roles based on the content you want to create. You could also assign roles like "scheduler" or "contact person" to make sure that someone keeps track of the rest of the team and keeps you on your timeline. It is important, when collaborating on a technical communication project, not to assign one person to the role of "writer"; everyone working on the collaborative team should help to create content.

The suggested roles above are just examples. You should

create the necessary roles for your project as a team, based on your needs!

Step 5: Outlining potential conflicts and resolution plans

Finally, an important part of your early planning should include articulating potential conflicts and your plans or approaches for conflict resolution. Try to brainstorm, with your group, a list of potential likely conflicts. Some easy examples are how you might handle a communication breakdown, or what your process should be for dealing with an uncommunicative group member. Or, consider what process you'll use if you disagree about how to proceed with an idea or about content or design. Thinking about potential conflicts before they arise means that you can be better prepared to face and resolve them together.

Once you have your "conflict list," decide how you can best resolve them. If someone misses a deadline, can you offer a 24-hour grace period? Can you have someone in charge of sending reminders or reaching out to that member? Coming up with these plans together will help you to create a sense of community and shared responsibility and will allow you to better work together on your project. And, coming up with potential conflict resolutions will allow you to move quickly through conflicts and focus on your collaborative work.

In sum, collaborative writing is a crucial part of technical

communication, and most technical and professional communicators work collaboratively. Learning to work effectively with a team also involves practicing communication, and focusing on the specific context, goals, and needs of your team members. Planning at the start of a project, and considering the best ways to communicate, can go a long way in avoiding major roadblocks. Finally, collaboration can contribute towards diversity, equity, and inclusion when a team is intentional about including different voices. Good collaboration also means listening and making equity and inclusion (which you can read more about in section 3) central to your team's values and goals.

Activity and Reflection: Collaboration activity

Students working in teams report a variety of benefits from their collaborative work, including learning from others, improving their individual writing, being able to use collaboration skills in their other courses and at work, and learning about the strengths they didn't know they had.

Learning objectives

What you'll learn:

- How to use a team charter for getting acquainted
- The importance of keeping teammates updated on progress
- How checking in can be productive for everyone
- Ways to divide work for productive teamwork
- Reaching consensus in teams

Managing collaborative projects

Many projects that you'll work on as a technical and professional communicator will involve collaborating with others in order to determine goals, objectives, channels of communication, and how the work will be accomplished. Discussing these elements before beginning a project ensures that you and your team members are in agreement about what needs to be done and how it will be done. Regardless of what your team's collaborative process may look like, all successful teams should begin by establishing

shared expectations and goals, as well as a plan or workflow that outlines what the collaborative process will look like. This is a crucial first step that creates structure for the rest of your project.

First, it's important to reflect on your own approach to collaboration, your own understanding of the purpose of the project, and your own writing strengths and areas of improvement. Assessing your experiences and biases can help you become more aware of how to best contribute to your team's process. Before you begin working, ask yourself:

- What do I like about working with others? What do I dislike? How might these preferences affect my contributions to this project?
- What are some experiences I've had with collaborative writing work? How might those experiences impact how I approach this project?
- What is my understanding of the purpose and outcomes of the project?
- What writing work do I feel comfortable taking on? What writing work do I feel less comfortable taking on?

Once you've spent some time reflecting, meet with your team to become acquainted with them. One way to learn more about your team members is to complete a project plan that outlines team goals, methods for communication, meeting schedules, team member roles, project deadlines, and more. Writing down your plans allows you to clearly organize your collaborative approach while also negotiating your own expectations with those of your team members. Additionally, you can always return to the project plan to make changes, or to hold other team members accountable. Below is an example of a project plan that you can use to structure your collaborative work. You can add or remove elements to fit your collaborative situation.

Team Members:

Contact Information:

Main method of communication:

Meeting frequency and schedule:

Team member writing strengths:

Team member areas for writing improvement:

Project roles:

Major project tasks:

Task deadlines:

Expectations for accomplishing tasks:

Technologies/platforms to be used for project tasks:

Scheduling conflicts interfering with this project:

Getting work done

Accomplishing the work your team set out to do is key to the project's success, but can be difficult if you haven't set up team member roles. You may decide to divide sections of writing among your team members — one person may write section A, while another writes section B, and so on. While this division of work is often a useful and necessary step in collaborative writing, it can be helpful to think about assigning roles to team members in ways that

break from this model. For example, teams completing instruction sets or documentation may take on different project roles — some team members may focus on producing text, others on document design, and some may act as editors. These project roles can also reflect team member strengths. Overall, the goal is to establish roles that are best-suited for the project's success and for the strengths and skill set of each team member.

Another key to getting work done is to make decisions about what technologies or platforms your team will use. However, you want to choose tools that will best facilitate your work. As one example, Google Docs is a common platform for collaborative writing that allows multiple team members to contribute to a document simultaneously. Depending on sharing settings, all team members have the ability to view, edit, or comment on a document. Still, Google Docs has limited design capabilities that may make formatting difficult. In this case, you might choose to format and design your document in another program like Microsoft Word, and to add the text written in Google Docs into this document. Your team might also use photo-editing or design tools like Adobe Photoshop or Gimp (an open-source program) to create or edit

images, or project management tools like Trello or KanbanFlow to keep track of what project tasks have been completed. Spending some time exploring different tools during the planning stages can streamline your collaborative process.

While your team should focus on completing tasks, it's critical that you communicate often and are prepared to adapt to any changes throughout the collaborative process. Send an email or group chat message to other team members when you're nearing a deadline to share your progress. Schedule in-person or "online" meetings to check in, work together, or ask questions. Use any class time to let your team know how your task is coming along. Similarly, projects don't always go as planned — laptops crash, schedules change, and life events interfere with our work. The key is to let your team members know when you won't be able to contribute to the project as planned. The more your team communicates, the better positioned you will be to adapt as complications arise.

Reaching consensus in teams

Collaborative writing gives teams a chance to pool their intellectual resources to come up with solutions

that exceed what individuals can create by themselves. When teammates work toward shared goals, their unique efforts can...but only when teammates move forward with shared understanding of priorities and goals.

Reaching shared goals commonly begins with a process of reaching consensus about what the goals are, so this activity asks you to reflect on key objectives of the technical description project. The project asks you to think critically about your audience....to research valid sources of information, to meet genre and structure requirements for technical descriptions, synthesize the information you find, and review and edit your materials.

Because students have a variety of experience with critical thinking, research, genres, synthesis and review/editing, teammates typically think of those writing activities in widely different ways depending on your majors, your professors, work experience, and writing experience.

What you bring to the class

In this activity, you and your teammates reflect on your perceptions of–and past experience with–five

activities technical writers practice while developing content.

1. Working individually, respond to the prompts on each of the pages that follow.
    - Write or draw in the four squares.
    - Base your responses on your current understanding of the five activities.
2. Collaboratively write a memo that includes all of the different ideas from your team.
3. Draft a definition of each activity that captures key ideas from the memo.

Critical thinking

This exercise provides one helpful way to understand and practice critical thinking.

Looks like	Feels like
Is similar to (make a comparison to something)	Is different from (contrast critical thinking with one of the other objectives [research, genre/structure, synthesis, review/editing, briefly discussing how they're different from each other], briefly discussing how they're different from each other)

Research

Based on my past experience, here's how I think about research:

Looks like	Feels like
Is similar to (make a comparison to something)	Is different from (contrast research with one of the other objectives [critical thinking, genre/structure, synthesis, review/editing], briefly discussing how they're different from each other)

Genre/structure

Based on my past experience, here's how I think about genre/structure:

Looks like	Feels like
Is similar to (make a comparison to something)	Is different from (contrast genre/structure with one of the other objectives [critical thinking, research, synthesis, review/editing], briefly discussing how they're different from each other)

Synthesis

Based on my past experience, here's how I think about synthesis:

Looks like	Feels like
Is similar to (make a comparison to something)	Is different from (contrast synthesis with one of the other objectives [critical thinking, research, genre/structure, review/editing], briefly discussing how they're different from each other)

Review & editing

Based on my past experience, here's how I think about review/editing:

Looks like	Feels like
Is similar to (make a comparison to something)	Is different from (contrast review/editing with one of the other objectives [critical thinking, research, genre/structure, synthesis], briefly discussing how they're different from each other)

Contributed by Dr. Joe Moses, University of Minnesota.

1.4 EDITING AND REVISING

As discussed in the previous sections, taking a rhetorical approach to technical communication includes focusing on the **process** alongside the product. This process is sometimes "messy," often collaborative, and always iterative. **Editing** and **revising** are two important parts of the process for technical communicators. Just as communication, and writing in particular, is **recursive**, revising and editing often happen more than once for a given text. Revising might be part of your later writing stages, or it may happen early on in your process. Whenever revision happens in the process of creating a specific text, it is important to practice revision and editing with your specific audience in mind.

When editing or revising a document, you must understand the rhetorical situation. Making revision choices often involves a clear, specific understanding of your target audience, context, and purpose. Just like the beginning stages of writing, revising is rhetorical. Revising and editing are also very often collaborative; frequently, revisions respond to feedback from an editor, from sample readers, or from target users. **Usability testing** (which we discuss in-depth in cluster 4.3) is one way to receive feedback that can guide revisions. Usability testing

involves observing users as they interact with a text and directly or indirectly gathering feedback based on how they interact with that text. For example, if you are creating a set of instructions for assembling a chair, usability testing might involve observing users as they work to assemble that chair and taking not of how they use the instructions, where they run into trouble, and how long it takes them to complete the task.

Key Takeaway: Revising and Editing are Rhetorical

Technical communication is rhetorical, and editing and revising are two parts of the technical communication process. As such, this text emphasizes the rhetorical nature of editing and revising. These steps are rhetorical because they must respond to a specific rhetorical situation, and they must be audience-focused. What's more, revising and editing often involve soliciting feedback from a reader or user. Consider a time that you have participated in peer review, and gotten feedback on a writing assignment. How did this feedback guide

your revisions? How did the feedback help you to understand your audience?

Just as editing and revising are rhetorical, they should also be guided by considerations of equity, diversity, inclusion, and accessibility. When soliciting feedback, for example, consider who is represented as a potential audience member, reader, or user. Consider how you can seek out feedback from users that include diverse perspectives, and consider how you can revise with your specific audience–their needs, contexts, cultures, and perspectives–in mind.

When creating a text, you are likely going to be guided and influenced by your own biases and your own lens. Your biases refer to your beliefs and world views, and even when you work towards being objective, you can never completely remove your bias. Your lens refers to the way that you move through the world and the way that you incorporate new information into your already existing, complex narrative of "how things work." Biases and lenses can be considered roadblocks for technical communicators, but they are also necessary parts of our own subjective experiences and understandings. Consider how infants approach each new task, and then consider how adults approach each new task. Most adults already have a mental "map" that allows them to make choices and decisions,

and this map is based on past experiences and world views (which are also tied up in what we call biases and lenses).

However, while such past experience can be important and useful as you work to solve new problems, you have to remember that your audience likely has different past experiences, different biases, and different lenses. Understanding the rhetorical nature of communication involves working to make choices based on how your audience moves through the world and solves problems, knowing that you cannot count only on your own experience to know those things. For this reason, it is important to not only "put yourself in the place of your audience" but to actually **get feedback from other readers and users.**

Grand Prismatic, Yellowstone. Despite signage, people routinely walk off the boardwalk and damage the microbial mats that produce striking colors. Technical communicators must consider that, when texts are ineffective, they must work with a target audience and community to make revisions. Ignore signage is one type of feedback: current methods of communication are not working. Image by Ryan Eichberger.

It is a technical communicator's job to gather feedback from target users; part of this job involves listening to feedback openly and specifically partnering with users who may be historically or currently underrepresented. Consider, for example, a technical communicator who is tasked with creating infographics for patients and their families at a children's emergency room that explains masking policies and procedures. If the patients at this ER include English and Spanish-speaking families, then it is important to seek out

feedback from individuals who part of these communities. Understanding who your audience is, and being sure to collaborative with that audience, is an important part of the revision process, and technical communicators must work to make information accessible.

Key Takeaway: Revising for Equity

Revising and editing are rhetorical, and technical communicators must consider diversity, equity, and inclusion during the revising and editing stages. It is important to not only revise with a specific audience in mind, but to actively seek feedback from underrepresented or marginalized members of this audience. As a technical communicator, how might you work with marginalized populations during the revision stages of your project? Why is it important to seek out feedback from real audience members?

As you revise and editing your work, continue to reflect on these processes as **rhetorical** and as engaged in equity and inclusion. In the rest of this section, we discuss the distinctions between revising and editing.

Revision

Revision (or revising) often refers to global, content-related changes (as opposed to sentence-level, style, or grammatical changes). In this text, we will use revision to refer to more substantive changes in content or style, and editing to refer to more local changes, or changes that align your text with various specific guidelines and requirements.

As mentioned above, revising is nearly always a collaborative task. It can be very difficult to revise your own work. Practice makes this process easier, and there are various strategies that can help. Some strategies include reading something out loud to yourself, along with giving yourself 'space' and 'time' between drafting and revising so that you are better able to approach your text as an outside reader might. It is generally easier, for example, to revise a document that you created last week than it is to revise a document that you created earlier today. Although these strategies can make it easier to revise your own work, it is often important to ask someone else to read through your text and to provide feedback or suggestions (this is where usability testing or peer review become so important!). Finally, you are likely to work with professional, dedicated editors for important, long term projects. Even when you work collaboratively to create a document, gathering feedback from readers or users outside that team can give you a new perspective on how that text might be revised and improved.

Of course, if you are writing something quickly, or if you do not have the means to reach out to another reader or editor, it is still important to edit and revise your own work. This is where your skills in articulating a rhetorical situation come in handy. When editing and revising, imagine the specific needs and expectations of your audience, given the context and purpose of your text.

Just as it is useful to sketch out a rhetorical situation before you begin to write, revisiting that situation–especially considerations of audience–is an important step during revision. Even if you are revising something quickly, keep your target audience in mind. Of course, interacting with a text "as the target audience" is very difficult, since it involves pretending to be someone else, with a different set of world views and biases and experiences. Further, as composers, we generally have a different understanding of the communication process than we do as audience members. Often, technical communicators are either experts on the content or are working very close with subject matter experts to reach a specific audience. That audience may be less familiar with the content, may have different time constraints or road blocks or other considerations that impact how they interact with that text.

When revising a text, consider what the target audience needs to know, what they already know, and how they will access the document. Imagine yourself as the reader: how would you want the document to be organized? How might

summaries, repetition, and headings help you to approach the text? If you had to quickly scan the text for information, could you do that? Is it better to have more, short paragraphs, or a bulleted list, or even a chart or image? Consider all the modes of communication, and try to make things as easy on your reader as possible. And, again, work to seek feedback from your target audience as part of this process. Be flexible and open-minded, and listen to that feedback. If users report that something in your text is confusing, then work with them to make it less confusing (rather than relying only on whether *you* find that content confusing). As much as you can work to imagine yourself in your target audience's position, it is more important to listen to and incorporate feedback from members of that audience.

For more strategies on revising, and to get a sense of how revision fits into the writing process, take a look at the Purdue OWL's "Steps for Revising Your Paper".

Editing

While revision refers to more substantive changes in a text, like the organization or major chunks of content, **editing** refers to more detail-oriented, often sentence-level changes. Editing often takes place towards the final stages of a document, after more global changes have already been made. In some cases, the technical communicators who created a document also

work to edit that document. In other cases, a separate team of editors will work on a document that they did not create. Editing content that has already been created is a common role for professional and technical communicators; developing close reading skills and becoming familiar with approaches to technical editing are crucial.

Editing is a similar task and requires similar skills to **proofreading**, which focus on clarity and usability by paying close attention to local aspects of a document. See this helpful information from the Purdue OWL about editing and proofreading. Editing and proofreading involve looking at the structure and technical aspects of your writing, including sentence structure, organization, clarity, grammar, spelling, punctuation, and document design. Proofreading and editing are important, but generally should happen after more substantial revisions take place.

During the editing stages of the writing process. technical communicators might need to conform to a specific **style guide**, such as APA or MLA, or an internal style guide specific to their organization. Style guides help documents to conform to the expectations of a very specific audience. They provide guidelines for things such as citation practices, heading styles, language usage, and visuals. While learning a *particular* style can be important, it is more important to know how to follow style guides *in general*, since the particular style will likely change if you move from one professional organization to the next, or as you write for different audiences. For example, some

publications require that writers use MLA style, and some require APA style. While it's helpful to become generally familiar with each style, it's more useful to know where to look for guidance and how to adapt to various style guides.

Activity and Reflection: Revising For Your Audience

Option 1

Find something that you've written in the past year for any course that you were enrolled in (or, find something you've written in a professional setting). This piece of writing should be at least 4 weeks old (meaning, do not use something you've written in the past 4 weeks).

Another option: find a piece of writing on your university website (a few paragraphs is plenty).

Consider, now, how audience impacts your revision strategy and focus. Imagine two different audiences and revise the test for each audience. For example: if you find something

on your university website that is written for students, revise this content for an audience of parents, and again for an audience of faculty.

Consider, after you revise these documents:

1. How did the imagined target audience impact your tone, word choice, and organization?
2. Did you (or might you) make different choices about content, based on your imagined target audience?
3. What other specific qualities in your text did you consider when you revised for different audiences?
4. If you did not change the text significantly for various audiences (or, if you did), why do you think that is the case?

Option 2

Think back to the last significant piece of writing that you completed for a class or for your job. How much time did you spend revising and editing that text? When you edited and revised this text, what things did you consider, and why? What things seemed to be most important to you, and why? If you reached out to another person for feedback or

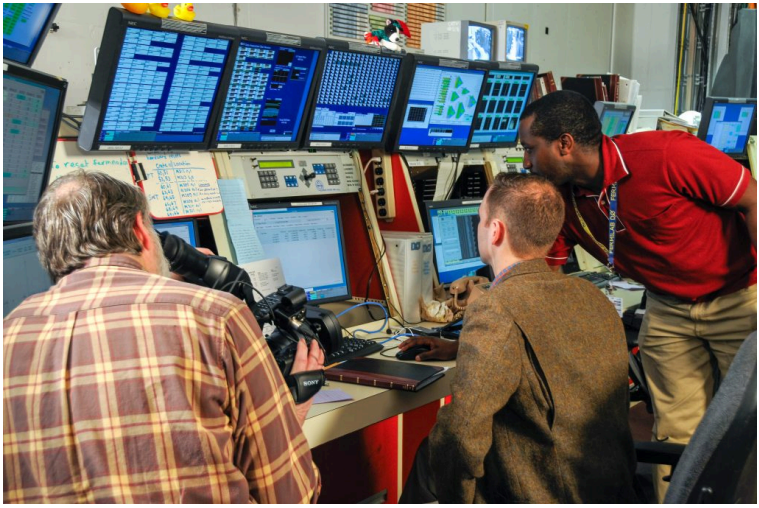
to edit the piece, what was that experience like? Why is it sometimes easier to edit someone else's writing?

1.5 THE RHETORICAL WORK OF RESEARCH AND CITATION

Technical communication is grounded in research: technical communicators often work closely with **subject matter experts (SME)** to articulate complex information to a non-expert audience. Further, technical communicators often must conduct their own research, both to inform their approach to a given communication task *and* to create their content. Research happens at various stages of the communication process, and informs the work that technical communicators do.

Research, proper citation of sources, and ethical and accurate use of data, are key components of technical communication. Because technical communicators work to explain things to a target audience, research is a crucial part of that work. In the previous section, we focused on the importance of receiving feedback during the revising and editing stages of a project. This type of feedback can also be framed as research, since technical communicators are gathering data and then making decisions based on what this data suggests. So, they use research to inform their approach

to a given task. Technical communicators also must gather research when developing genres such as proposals, reports, and instructions in order to be sure that they are communicating accurate, appropriate information to their audience. You can read more about these genres in Section 4.4 and Section 4.5 of this text.



A photographer documents scientists at work at Fermilab, an international research center. Their research is collaborative and rhetorical; scientists build off research that has come before even as they collect their own data. Properly crediting and incorporating previous research helps them to situate their own studies in a specific, rhetorical context. Image by Ryan Eichberger.

In this section, we consider two key frameworks through which to understand research and citation in technical communication:

1. Citations are an "ethos building" practice. Conducting research and using sources in your writing is a rhetorical move as much as it allows you to build your content and information.
2. Research is an ethical practice; it is important to consider how your research is engaged in diversity, equity, and inclusion, and how it considers social justice and representation.

We discuss research, and citation practices, as a way to develop ethos below. First, let's consider the second point: Research is an ethical practice.

How is research ethical? When conducting research in the past, have you considered how your research practices and inclusion of sources intersects with issues of diversity, equity, and inclusion? Research is related to ethics both in how you conduct research and in how you choose to include or represent data in your work. As technical communicators, it is important to always consider whether the research you've conducted includes a variety of voices. It is important to note, however, that including diverse voices does not mean that all opinions are equally valid! In fact, as researchers, we work to back up an opinions and personal experiences with data–something that we can observe or measure and that helps us to make sense of the world around us. Including a variety of voices, experiences, and world views does not mean that we stop evaluating those sources for credibility (which we discuss

below). Instead, it means that we are careful to include credible sources from a variety of perspectives even when those perspectives do not match our own.

Including a variety of voices as we conduct research also means that technical communicators must acknowledge the ways in which certain voices have been systemically or historically excluded and work to revise claims or approaches that are rooted in that exclusion. Including a variety of voices means that technical communicators consider who they include when they collect their data (ie does their research subject population only white, middle-class men? only white men and women with a college level of education?) and that they consider which secondary sources (see below for information on primary and secondary sources) they seek out and read when conducting their research.

As an example, consider that you are conducting usability testing on your organization's website in order to make sure that the information contained in that website is accessible. As you recruit participants, what would happen if all participants (or most participants) are part of the same cultural, sexual, age, language, or class demographic? When specific groups are excluded from usability testing, can you really determine whether your website is accessible?

As another example, consider that you are conducting research for the content you'll include in that website. Part of that research includes library searches, and part of your research also includes conducting surveys with folks across the

Twin Cities. Why might it be so important to recruit a diverse demographic for your surveys? How can you conduct research in a way that considers what various groups and individuals have already published, researched, or found related to your topic?

For more on putting diversity, equity, and inclusion at the forefront of your own research, please see Conducting Research through an Anti-racism Lens at our University of Minnesota library website.

Key Takeaway: Research, Ethos, and Ethics

Research is important in developing **logos**, the rhetorical appeal to logic or reason. Research helps a technical communicator support their claims and allows them to communicate accurate and appropriate information to their audience. Research

is also important in developing **ethos**, which is the appeal to authority or "character" of the document. Research develops ethos by communicated to an audience that the information is trustworthy, that they can believe what this text is telling them. Consider how both logos and ethos do not exist in a cultural vacuum; logos and ethos are informed by culture and are tied to a specific audience. How can you consider the specific context and culture of your target audience when using research to establish an appropriate appeal to logos and to ethos? How can you make connections between using and conducting research and considering diversity, equity, and inclusion in your project?

Nearly all instances of technical and professional communication involve research. While the type of research involved in technical and professional communication might look different than academic research, there are some consistent principles related to using and evaluating data, supporting claims, developing a persuasive or trustworthy ethos, and avoiding plagiarism.

Think back to the rhetorical situation and the three rhetorical appeals: ethos, paths, and logos. Research is an important part of understanding a given rhetorical situation

and in developing the appeals. Research, very broadly speaking, allows us to better understand what it is we want to convey, question, or communicate and make choices about how to best do that work for a specific audience.

Research involves, often, asking a question and finding credible, reliable sources to help you find an answer (or, sometimes, to validate that there is no adequate answer). At the beginning stages of a writing task, research can help you to better assess the rhetorical situation. For example, in order to understand the context in which your problem or question exists, you might conduct secondary research using the library or Internet in order to see what others have said or are currently saying about this question.

Research can help you to make choices related to rhetorical appeals, because it helps you better understand your audience by finding out what you can about who is likely to interact with your writing. Further, the way you use research in your writing can appeal both to ethos and to logos. Research appeals to logos because data (particularly numbers) often appeals to a reader's sense of logic and reason. Research appeals to ethos because it lends credibility to your writing: citing reliable, credible, or expert sources makes your reader more likely to "buy in" to your claims. And, of course, technical communicators want to clearly and accurately communicate information, which requires conducting and evaluating various types of research.

Primary and secondary research

Secondary research refers to finding published articles, books, and other sources of research that have been completed and compiled by someone else. This type of research is often referred to as library research, and it is likely what you've done in the past for research papers. Secondary research is useful because, once again, technical communication is collaborative. As a technical communicator, you can build off the research that others have done before you without needing to start each project "from the very beginning." Secondary research allows you to understand what the "current conversation" about a certain topic already looks like in a given field. For example, imagine that you need to work with doctors and nurses at a local clinic to develop a brochure about cold and flu season. Where can you begin? Perhaps you have never developed such a brochure, but chances are many others have. Start your project with some research that allows you to get a better sense of how this topic has been approached in the past before you choose how to approach it yourself.

As another example, imagine that you are a technical communicator working for a small nonprofit, and your nonprofit wants to apply for a state-wide grant. The grant will help your nonprofit with their goal of increasing pollinator gardens in empty lots across the city. As part of the grant

application process, you need to articulate the specific **need** or **problem** that your project is responding to. Secondary research–seeing what experts have found during decades of research about pollinators, local pollinator plans, the connection between pollinator gardens and climate change, etc.–allows you to get a sense of the ongoing "conversation" happening across space and time among various researchers and subject matter experts. Of course you can also collect your own data, but seeing what others have found allows you to know where to begin your own work.

Some more examples of secondary research include:

- Using a library database to find published articles on a certain topic
- Searching for literature reviews on a particular topic or research question
- Finding information published on a government or organizational website
- Reading books to learn more about current practices or conversations in a particular field

As a student, you have countless experiences conducting secondary research. As a technical communicator, these research skills continue to be useful. Knowing *where* to look for accurate and credible sources and knowing *how* to evaluate sources are important. As you conduct secondary research and consider *where* and *how* you can be sure that your sources

are **accurate, appropriate,** and **credible**, consider the following questions:

- Who is the author of this source? What is their primary purpose or goal?
- How did this author conduct their research? How transparent are they in their own research methods?
- How does this author present their findings? Do their claims match their actual data (and can I access that data myself)?
- Where was this source published? What is the primary purpose or goal of the publisher?
- Does the information provided in this source directly (or indirectly) relate to my own research question?
- In what ways is this source biased or bound by its own context?
- Is this source transparent about its own limitations? Are the claims nuanced, or are the "black and white" (considered the difference between a source making a claim about all college students vs. a claim about many college students, or many college students between the ages of 18 and 22 who live in the upper midwest, etc.).

To read more about using and evaluating secondary sources, take a look at this book chapter "Finding and Evaluating Research Sources" from the book *Technical Writing Essentials* by Suzan Last.

Primary research refers to research that you conduct yourself: you develop a question, method, collect data, and make some meaning out of that data. Empirical research refers to collecting and analyzing your own data gathered through various research methods. As a technical communicator, you will often need to do primary research and collect your own data. Your primary research can be informed by secondary research: you can use what others have done to help develop your question, help frame your data, and help decide which research methods to use. You might also conduct primary research to try to replicate research done previously. For example, if someone published research in the year 2007 that included surveys and interviews to assess technology literacy among 18-22 year olds, you might repeat a similar project to compare their findings to the findings from surveys and interviews that assess technology literacy among 18-22 year olds currently. You might even use some of the same questions or techniques if your goal is to compare data gathered in 2007 to data gathered in 2021.

Unlike with secondary research, when you conduct primary or empirical research, you are not relying on how others interpret data. Instead, you are gathering and interpreting your own data. Primary and empirical are not completely interchangeable terms; however, one important distinction here is between research based on your own collection of data or observations or experiments, and research based on a summary and synthesis of other sources (data or observations

or experiments gathered and conducted and analyzed by other researchers).

Some examples of primary research include:

- Surveys
- Interviews
- Case studies
- Ethnographies
- Rhetorical analysis

You can find more information on conducting primary and secondary research in cluster 4.5 when describing the common genre of technical reports.

Again, it is so important to consider diversity, equity, and inclusion as you conduct both primary and secondary research. As a technical communicator, you are always engaged in the rhetorical process of communication, even as you make choices about using and citing sources. **Please take a moment to read this important resource from the University of Minnesota libraries on Decentering Whiteness in Primary and Secondary Research.**

Part of considering research ethics, including access and inclusion, means understanding academic integrity. As a technical communicator, you are tasked with weaving together and accurately representing various voices as you work to communicate with your target audience. Technical communicators frequently build off existing research and conversations by using both primary and secondary research, and it is important to continually reflect on how to do this work both rhetorically and ethically (you can read more about ethics in section 2). Part of ethical research also means that technical communicators must balance the ideas that:

- Research and data, gathered by humans, are never completely objective. It is important to understand how the bias of the researcher and subjects are part of the data we gather.
- Knowing that research is subjective does not mean that "anything goes" or that "there are two sides to each story." Rather, it means that when presented with new data, we can revise our understanding of the world.
- Technical communicators must still work towards information that is accurate, credible, and appropriate while also remembering that many fields of study have a problematic history of oppression, bias, and silencing certain voices.

Take a look at the following video on academic integrity and

scholarly conversations from the University of Minnesota Libraries:

One or more interactive elements has been excluded from this version of the text. You can view them online here:
https://pressbooks.umn.edu/techwriting/?p=87#oembed-1

You can also read more helpful tips on how to evaluate sources of information at the Purdue OWL. You'll notice that, in their guidelines for evaluating sources, you are once again analyzing elements of the rhetorical situation!

Key Takeaway: Research and Subjectivity

The terms ***objective*** and ***subjective*** are often problematically used to mean something like ***true*** and ***false***. It is important for technical communicators to remember that research is nuanced, and that while researchers are always

subjective, credible and ethical researchers work from a place of open-mindedness. **Academic integrity** allows technical communicators to understand that the following things are true:

- Ethical research acknowledges and builds of the research that has come before (the ongoing academic conversation)
- Ethical research adjusts conclusions or recommendations when presented with new data
- Ethical research invites participation from a wide range of world views and experiences
- Ethical research recognizes the way that it is steeped in values
- Ethical research still works towards building credible, accurate, appropriate knowledge

One of the most challenging things to maintain when conducting research is a **nuanced** perspective. When you conduct research, how can you both acknowledge diverse perspectives and also recognize that not all opinions are equally "valid"?

APA citation style

One important aspect of using research in your writing involves citing your sources, or letting your reader know where data, claims, arguments, or illustrations come from.

This text goes over the basics of APA citation style. However, it is worth noting that you will not necessarily use APA (or MLA, or Chicago) style when writing technical and professional documents. In fact, it's very difficult to say which citation style you will use, as the style guidelines tend to change from one workplace to another.

So why learn APA style? Even though you may use a variety of styles, it's useful to become familiar with–and to understand the rhetorical function–of a widely used, standard style like APA. APA stands for American Psychological Association, and this style evolved in psychology research. When psychology was still an emerging field, clearly regimented citation style allowed researchers to ground their work in a body of researchers. APA style is now widely used, beyond the field of psychology, through the social sciences and throughout academic research writing. Becoming familiar with such a widely used citation style is useful, even if you are asked to document research differently in the future, because 1) learning one citation style provides a framework for citing sources, making it easier to use other citation practices or to develop your own when needed and 2) learning APA style

allows us to practice the rhetorical move of citing sources, avoiding plagiarism, and constructing ethos.

Anytime you cite a source, you should create 2 citations: an **in-text citation**, and a **reference page citation**.

To cite most types of courses in your text, use an author's last name and publication year. You can either cite by referring to the author as part of your sentence (say the author is your subject) or you can cite parenthetically. For example:

> According to Johnson (2020), technical communication relies on research.

Or

> Technical communication relies on research (Johnson, 2020).

If there is no individual author, you might cite a corporate author. For example:

> According to the World Health Organization (2020), wearing a mask decreases the risk of contracting the virus.

Or

> Wearing a mask decreases the risk of contracting the virus (World Health Organization, 2020).

When deciding how to cite your source in your text, consider what you want to emphasize. If the author is your sentence's

subject, you emphasize the source. If you cite parenthetically at the end of a sentence, you emphasize the information.

Either way, you will show your reader where your information comes from and build your ethos as credible and reliable (if you use credible, reliable sources!).

You should cite a source any time you think it's necessary so as to avoid confusion. In other words, if your reader might ask "where does this information come from?" then go ahead and cite the source. You'll often cite the same source multiple times.

Each source citing in your text will appear once on your reference list. To cite on your reference list, you'll include the following elements:

Author's name. (Publication date). Title of source. Publisher information.

These elements "look" different depending on the type of source. So, an article from a journal will look different than a webpage or a book or a manual.

Key Takeaway: Citation is Rhetorical

While memorizing every aspect of a given citation style is not necessary, it can be useful to recognize

and memorize **patterns** for citing sources. Seeing this patterns also allows you to be consistent each time you cite a source; consistency helps your reader to understand your citations, as well. Remember that you cite sources not only to avoid plagiarism, but to communicate to your audience. The way you cite your sources communicates where your information comes from. The way you include source citation also communicates your emphasis (do you want to emphasize the information? The particular study? The fact that most experts are in agreement?). Consider a conversation you've had recently (written or spoken) when you were **working to persuade someone** and mentioned something you read or something you heard. How did you work to build your credibility in that conversation? How did you "cite your source"?

For detailed, up to date information on how to cite sources using APA style, check out the following websites:

- Purdue Owl
- American Psychological Association

Why cite sources?

It's very likely that you already know about the importance of citing someone else's work in your own writing: you want to be sure to give credit where credit is due, and you want to be very sure to avoid plagiarism. There are a variety of articles that dig into the impact the Internet on plagiarism: it's easier to plagiarize, but the importance of your digital footprint and the fact that it's also easier to detect plagiarism makes working to avoid plagiarism even more important. One easy way to avoid plagiarism is to be sure to cite your sources, be sure to paraphrase, and be sure to cite your sources correctly.

So, it's important to cite sources in order to avoid plagiarism. It's also important to properly **paraphrase** and **summarize**, and to understand the difference between these things. Take a look at the Purdue OWL's resource on when to quote, paraphrase, and summarize research.

Paraphrasing means taking content and rewriting it completely. You may recall being told to rewrite something "in your own words." Paraphrasing is often challenging, because it can be hard to read something and then try to say the same thing differently. And, if you don't say it "differently enough," you may still be plagiarizing content.

One trick to paraphrasing is to rewrite what you've read or learned without looking at the original source. Try not to just swap out each word in a sentence or paragraph, but rather imagine that you are explaining something to a friend. How

would you explain it? How does this information fit with your own research question or purposes?

If you want to draw attention to how something was originally written–not just what was written–then you may consider using a direct quote. Consult the links above for APA style guidelines on when and how to quote.

So, paraphrasing means restating something so that you capture the content or meaning but so that the tone, words, language, and style fit your own paper. **Summarizing** means to take a longer text or a lot of information and condense it. So, you are doing some of the "putting into your own words" when you summarize, but you are ALSO condensing, or writing something with fewer words.

So, when you summarize, you try to capture the most important or most relevant information and might leave out some of the details. Consider movie and book summaries. Or again, imagine that you just saw a movie and your friend asked you what it was about. How would you condense a 2 hour film into a 10 minute conversation?

Getting back to the reasons for citing sources: we want to avoid plagiarism. But why do we need to rely on sources–why summarize and paraphrase what others have written–at all? Research, and incorporating reliable, credible, relevant research into your writing, is important because it helps you to develop your **ethos,** as mentioned in the "Key Takeaway" exercise above. Not only does including and conducting research contribute to ethos, but ethos is wrapped up

specifically in **how and when you choose to cite your sources.** In other words, reliable sources that are properly cited can make your own claims more credible and more convincing.

In the previous section, we mention the importance of following a particular **style guide**. Some of your ethos development depends not only on using accurate and appropriate research, but also on citing that research in a way that conforms to your audience's expectations. So, if your organization follows a particular style, be sure to adhere to those stylistic conventions. If you are asked to use either APA or MLA, be sure that you know where to look for style guide information and pay close attention to how you cite sources. Finally, if you are not sure of a particular style guide, consider that citation's main purpose should be to **make information accessible to your reader.**

Activity and Reflection

Alone or with a partner, choose among the following research questions:

- How can technical communicators consider

diversity, equity, and inclusion in their work?
- What is the relationship between equity and technical communication?
- How can rhetoric inform the field of technical communication?

For your chosen question, develop a research plan that includes
both **primary** and **secondary** research. Make a list of the research methods you will use (library research, Internet searches, conducting surveys and interviews, conducting a case study, etc.). Divide the various methods into either
primary or **secondary** research categories. Then, sketch out a plan for each methods. Consider the following questions:

- When conducting library and Internet research, what key terms will you use? Where will you look?
- What resources can you utilize through your university library?
- When conducting primary research (when gathering your own data), how can you consider diversity, equity, and inclusion in your research design?

- What kinds of claims can you make based on the data that you've gathered? In other words: if you conduct a survey of 20 professional technical communicators in the Twin Cities, what does that data tell you?

TECHNICAL COMMUNICATION, SOCIAL JUSTICE, AND COLLECTIVE ACCESS

Taking a rhetorical approach to technical communication means that each writing situation is unique; there is no "one size fits all" way to communicate effectively. A rhetorical approach also centers the audience, or user, their experience of and their engagement with a text. Because technical communication is audience and user centered, and because technical communication often advocates some type of action or works to solve a problem, it is crucial that technical communicators are always aware of the ways in which they engage and center social justice in their work. A rhetorical approach to communication reminds us that language is always not only *reacting to the world*, but also *working to shape the world*. Language reflects AND constructs world views, which means that the way we communicate impacts things like power structures, accessibility, and equity.

Old-fashioned technical communication: at Solheimajokull Glacier, Iceland, farmers and later scientists have been measuring and marking the retreat of the ice since the late 1800s. No high tech tools, but reliable nonetheless. Such community-created technical communication is often at the center of environmental justice and social change. Image by Ryan Eichberger.

In this section, we focus specifically on the intersections between technical communication and social justice. The section defines diversity, equity, and inclusion, and provides a various exercises and resources to introduce the notion that technical communicators must always be aware of how their work impacts their audience. Further, technical communicators need to recognize the ways that their field has historically marginalized certain voices and take steps to undo such marginalization by centering diversity, equity, and

inclusion as they approach each new rhetorical situation. Finally, this section again emphasizes the importance of audience, the work of listening, and the need for flexibility.

Voices From the Field: How do you consider your audience?

"I do my best to write clearly and simply so that what I write scales as best it can to a wide audience. I work with the product team to make sure we're following accessibility best practices, and shipping experiences that are accessible and localized around the world."

Bill Siemers
Content Strategist, Facebook

Voices From the Field: How does your work intersect with social justice?

"Medical information is often technical with a diverse intended audience. Patients and families frequently have heightened emotions while trying to receive and process medical information. Health outcomes are dependent on communicating complex ideas in an effective manner. As the COVID-19 pandemic has unfolded in a time of instant information access and social media, it has become obvious how language can create a sense of fear instead of importance. Fear will displace the brain's ability to reason and block uptake of new information. Information should be delivered with clear points of action to guide patients in next steps as well as explanations to provide education."

Erin Blackwell
DPN, APRN, C-PNP, Children's Minnesota Hospital–Twin Cities

2.1 DIVERSITY, EQUITY, AND INCLUSION

Technical communication impacts the world we live in: it allows readers to access information and, many times, to access more tangible things like technology, housing, legal protection, or medical care. Because technical communicators often play the role of ***explainers*** by making such crucial things accessible and available to their audience, they must consider how diversity, equity, and inclusion are built into the work that they do. They must also recognize the ways that their work has not aligned with goals of diversity, equity, and inclusion, and build coalitions and communities that center these goals.

Social justice has increasingly become a central concern to researchers and practitioners of technical communication. Technical communicators are working to consider the role they play in either perpetuating or dismantling problematic systems that suppress certain individuals or groups. The role of technical communicators, one could argue, is to ***make things accessible***. So, technical communicators must recognize when things are *inaccessible* and come up with a plan to dismantle barriers that audiences face so that they can access the information they need.

Key Takeaway: Making Information Accessible

Technical communicators work to explain things to a target audience. One way that technical communicators can increase accessibility is to reflect on who is currently centered or included when they write for an audience. Technical communicators can do this work by **asking questions** and recognizing that working towards accessibility is an ongoing task. Some important questions for technical communicators to ask of themselves and their team include:

- Who is part of this audience, based on a rhetorical analysis of the text?
- Who might be excluded, intentionally or unintentionally?
- Is any important information being withheld, either intentionally or unintentionally?

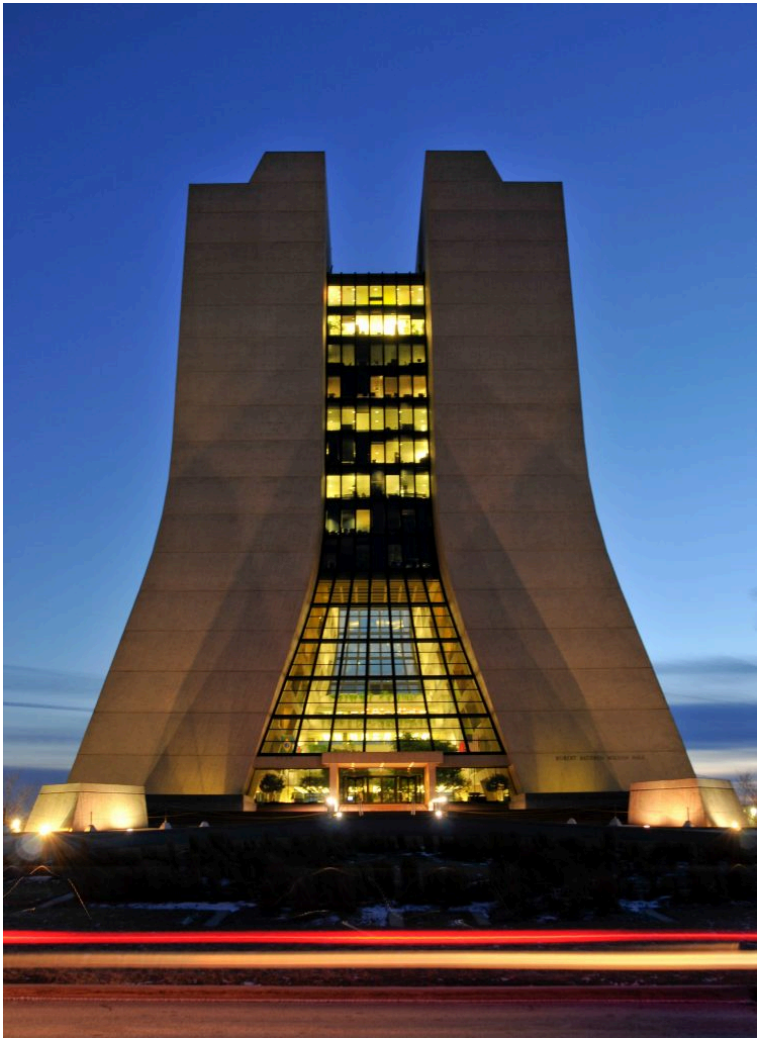
As you read the rest of this section, continue to reflect on the following questions:

- What does it mean to center diversity, equity, and inclusion when you are reviewing a technical manual?
- What does it mean to focus on social justice when you are designing the content for an organization's website?

There are many ways to make diversity, equity, and inclusion central in your work as a technical communicator. In this text, we discuss such specific considerations as using plain language, collaborating with your user through usability testing and centering your audience, and representing data in an ethical way. Throughout each discussion, and each tactic for equity and inclusion, a guiding principle is to 1) consider the specific rhetorical situation and 2) listen to your audience. Avoid centering yourself–your audience, their needs, and their perspective, should guide your choices. Finally, consider who your audience is, and be wary of whom you may be leaving out. Whose voice is not currently being heard? Who does not have access?

Many of the considerations from Section 1 are important when approaching technical communication through a social justice lens. In this text, taking a rhetorical approach to technical communication and considering technical

communication's place in matters of diversity, equity, inclusion, and social justice, go together hand-in-hand. As we discuss in this section, and throughout the text, one way to focus on diversity, equity, and inclusion happens through a focus on (and collaboration with) your specific audience. In order to have a good understanding of your audience–their needs, expectations, context–and how that audience intersects with your document–its purpose, goals, and context–it is essential to understand the rhetorical situation.



Fermilab, located in Illinois, is a nature reserve, scientific laboratory, particle accelerator, and site of cultural events. Because it hosts events and is often open to the public, it is a site for accessible research and technology. It deploys a variety of technical communication strategies to focus on equitable access and community. You can see their website and learn more here. Image by Ryan Eichberger.

Before you continue, do a bit of reflection. How do you define the terms *diversity, equity, and inclusion*? What do these terms mean, and how might they show up in technical communication? What is the relationship between diversity, equity, and inclusion and the important work of considering audience in technical communication?

In their text, Walton, Moore, and Jones (2019) stress the importance of building coalitions towards social justice in the field of technical communication. They also emphasize the importance of recognizing that social justice is integral to the field: that technical communication professionals and scholars must continually work to recognize the ways in which their work has created barriers to access or worked against, rather than with, marginalized communities. Of course, knowing that technical communication has contributed to inequality is an important part of understanding how, as a technical communicator, your work can contribute instead to social justice. Throughout this text we try to frame writing not only as rhetorical, but as constantly engaged in matters of access and inclusion. The idea of building coalitions highlights technical communication as a collaborative process: writings work together with other writers and with their audience in order to continually do better and increase access and inclusion.

The Department of Writing Studies at the University of Minnesota says this about diversity, equity, and inclusion on their website:

The Department of Writing Studies at the University of Minnesota-Twin Cities recognizes that equity, diversity, and inclusion must be addressed on individual and group levels. We accept the Office for Equity and Diversity's (OED) definitions of bias and prejudice as "preconceived judgment or opinion; an adverse opinion or leaning formed without just ground or before sufficient knowledge."

The department is also aware that relations of privilege and oppression are institutionalized on a systemic level but strives to address the principle of social justice for all. The department recognizes that society is often unjust but that the department (and its individual members) can play important roles in mitigating these injustices and become a space that better embodies equity, diversity, and inclusion. Thus, the department encourages equity, diversity, and inclusion in representation as well as the development of personal awareness, and

the department actively seeks to engage in creating socially just learning and workplace environments and opportunities.

[Read the complete Department of Writing Studies equity and diversity statement.]

When considering how technical communicators can work towards diversity, equity, and inclusion, it is important to understand what these terms mean. Although defining terms is complicated (see Section 4.2 to read about the common genre of technical definitions and descriptions), below are some contextual definitions of these key terms. The definitions are *contextual* because they depend upon a specific context. You can find other definitions and construct your own as you develop your own understanding of technical communication and social justice, and as you continue to research and read about this intersection.

Diversity

Diversity might be defined as the wide range of lived experiences, of cultures, of abilities, of beliefs, or of behavior; diversity refers to the various ways that individuals and groups move through the world. Linguistic diversity refers to the differences in how groups and individuals use language. Diversity, at its core, means difference, and a goal related to diversity would be to have differences represented in a meaningful way. Another goal would be to value and honor difference and to recognize that audience members are inherently different in how they communicate and approach texts. Technical communicators should seek out diversity in their work. Diversity might also include a range of human differences like age, race, culture, language, occupation, gender identity, sexual orientation, religion, education background, etc.

Equity

Equity is a term that is related to equality. However, while equality simply means something like making sure each person is given the same opportunities, equity recognizes that individual differences mean that folks have different needs that must be met *in order for them to participate*. Equity considers

differences and accommodates differences with the goal of equal participation or access.

Inclusion

Inclusion might be a more familiar or common term, and for the purposes of our text inclusion means that folks feel invited and able to participate. Just like equity, inclusion considers difference and works towards access. Consider what it means to be included in a space, or included in some special knowledge. Inclusion means more than presence; inclusion signals something like participation or agency. Inclusion might mean access to resources, to knowledge, to opportunities, or to physical or virtual spaces. When we consider inclusion, we need to consider how marginalized people are or are not invited to participate.

Social justice

Social justice generally refers to the idea that everyone deserves equal and equitable access to things like wealth, political power, information, and opportunities. Social justice takes on the goals of diversity, equity, and inclusion, and puts something into practice in order to work towards achieving these goals.

Take a moment now to do some research and reflection

of your own. Given these definitions, how would you define each term specifically in relation to the field of technical communication? When a technical communicator or a team of writers considers diversity, equity, inclusion, and social justice in their work, how might they define these terms? You can be as specific as you'd like and use some illustrative examples!

Key Takeaway: Defining Terms

This text frequently pauses from delivering information in order to ask you to reflect on a specific question. Performing what's known as **reflection** or a **metacognitive** exercise (when you think about how you think about things, your you reflect on how you know what you know), helps learners to retain information in such a way that lets them more easily transfer that information to new situations. For this reason, even as this text defines terms, it asks you to reflect on those definitions and to create your own understandings.

As you are presented with these contextual

definitions of **diversity**, **equity**, **inclusion**, and **social justice**, how can you map these terms onto your own understanding or experiences? How can you define these terms for yourself, and how can you relate these terms to what you've already learned about technical communication? Technical communicators work to explain things; how would you explain **diversity**, **equity**, **inclusion**, and **social justice** to someone in your life who may not be familiar with these terms?

As you continue to reflect on these ideas, **keep in mind that diversity, equity, and inclusion require ongoing work and are dependent on context**. Just as each new writing situation means you need to analyze a new rhetorical situation, each new writing situation means a new set of concerns related to diversity, equity, and inclusion.

Remember, too, that an important focus of this text is the communication **process**, not only the final product or specific text you are working to create. Part of that process includes revision, rewriting, editing, or remixing. When we understand diversity, equity, and inclusion as ongoing concerns, it becomes even more important to think of technical communication as something that is always in process, or to frame a text as never completely finished. So much of the work

of technical and professional writers is actually revising or editing an existing text to incorporate new information or to address specific needs of a new audience. When you learn something about your audience, and what they need in order to access information, or what they need in order to gain equitable participation, or what it may mean to consider diversity and inclusion for your text, purpose, and audience, you will need to revise and edit to accommodate those needs. In other words: seek to get some feedback and gather new information and then revise, revise, revise!

It is so important, because technical communicators are concerned with diversity, equity, and inclusion, that our work towards social justice involves *listening* to feedback and seeking out input from diverse audiences. Be sure that you do not center yourself, as the writer; just because something appeals to you or "makes sense" based on your experiences and context, that does not mean it will appeal to or make sense to your audience. The work of de-centering yourself is also ongoing, and takes practice. Of course you will always write from your own point of view, but recognize your own biases and perspectives. Understand that it takes work to develop a text for someone with different perspectives (this is another reason that collaboration can be so useful in technical communication: you get to draw from the perspectives of a team!).

Activity and Reflection: Centering Diversity, Equity, and Inclusion

For this activity, find a text that you would consider technical communication. A great example might be a set of instructions, a lease or "terms and conditions" contract, or a technical description. Working alone or in a group, answer the following reflective questions:

1. Who is the target audience for this document? Be as descriptive as possible. What specific features let you know something about the target audience?
2. Who is being left out of this audience?
3. How does this document engage (or ignore) diversity, equity, and inclusion?
4. How would you revise this document to better consider diversity, equity, and inclusion? What would you change, and how might those changes make the document more accessible for the audience that is left out?

2.2 TECHNICAL COMMUNICATION, ACTION, AND COMMUNITY

In this text, we focus on technical communication's relationship to social justice in part by framing technical communication as **action** and **community-oriented**. This section focuses again on the importance of framing technical communication as moving an audience towards action. As discussed in Section 1, technical communicators work not only to inform but often to provide information that enables, equips, or persuades their audience to *do* something. Audiences often seek out technical communication because they want to do something and need information. The ***texts*** created by technical communicators are often linked to a specific ***action***. For example, you would seek out ***instructions on how to build a chair*** **(text)** because you want to ***build the chair*** **(action)**. Or, you would search for ***information on where and how you can access the Covid vaccine*** **(text)** because you are planning to ***take the Covid vaccine*** **(action).** A slightly more complicated example would be reading

through your ***apartment lease*** **(text)** because you want to ***understand the terms of that agreement and how they impact your housing situation*** **(action)**, or, you might want to understand whether you are able to ***break your lease early*** **(action)** after the landlord has ignored your complaints about water leakage.

Hiking in Minnesota's Sawtooth Mountains means learning to read and understand trail markers and signs. Making such public spaces accessible include attention to accessible technical communication, developed for a variety of potential users. Community access to activities such as hiking are dependent upon technical communication that centers diversity, equity, and inclusion. Image by Ryan Eichberger.

Social justice, like technical communication, is concerned with action: social justice means challenging or creating systems and

structures so that folks have access to things like education, wealth, resources, decision-making power, and other things that contribute to equity and inclusion. As we mention in Section 2.1, **social justice involves taking issues related to diversity, equity, and inclusion, and then creating *actionable steps towards social change*.** Because social justice is related to action, it often focuses on groups or individuals who do not *already* have access to these things, or who are currently and historically marginalized.

Key Takeaway: Technical Communication, Social Justice, and Action

A useful way to understand the relationship between technical communication and social justice is to recognize the ways in which both are connected to **action.** Technical communicators create texts that allow their users to take some action; social justice refers to creating or taking action that moves towards equity and inclusion. Because technical communicators work to explain things to their audience, and **because they create**

texts that are linked to their audience's ability (or inability) to take action, technical communicators can always consider social justice in how they work to make information available and accessible.

Consider an example of technical communication (a text that you have recently come across); how can you describe that text as contributing to social justice? How does that text allow an audience to take a specific action? Or, if the text is not particularly accessible, how might it be revised or changed so that it aligns with the values of diversity, equity, and inclusion?

Language and values

It may be easier to understand how some texts (a contract like the apartment lease describe above, for example, or public health documents like the information on how and where to obtain a Covid vaccine) are related to social justice than other texts (such as manuals or instructions). It's important to understand that all acts of communication must be concerned with diversity, equity, inclusion, and social justice because

communication is never neutral. In other words, even seemingly benign or straightforward documents are created by people (with their own biases and world views) for people (with potentially conflicting biases or world views). Just as we take a rhetorical approach to technical communication, and understand that communication is always responding to a specific context and purpose for a specific audience, we must recognize that all communication–including technical communication–is never simply "reporting" or "transcribing." Every act of communication is, in fact, shaping and creating, rather than responding to, the subject matter.

As we discuss throughout this text, virtually all aspects of technical communication are relevant to matters of social justice. Even when a genre or writing situation is not *directly* focused on social justice, that text impacts a given community and, very often, explicitly or implicitly asks a community to take some sort of action. Because technical communication is so audience focused, technical communicators should **always be mindful of how their work impacts communities and how it either participates in or against social change**. Language always participates in shaping and endorsing values, and so it's important for technical communicators to recognize how the organizations they work for and the texts they construct or revise are value-laden.

Language, ethics, and community

This text frames all language, and technical communication in particular, as rhetorical. Part of what it means to understand language as rhetorical is to recognize:

1. Language is context-dependent
2. Language reflects and reinforces community values

Technical communicators, as they respond to a particular rhetorical situation, need to be aware of the values held by their target audience and understand how they

Technical communication is concerned with social justice not only because language is steeped in values, but also in more direct ways. For example, technical communicators are always working to make information accessible. Whether or not information is accessible is a social justice concern, since having accurate or appropriate information enables people to make decisions and take action.

language they use reflects and is reflected in these values. In this way, technical communicators respond to values that already exist. For example, if your goal as a technical communicator is to encourage a community to seek specific medical care, then you must understand that community's values and how to appeal to or work within those values. Does that audience value community? Do they value individualism? Do they value children or elderly members in a particular way? Do they value Western medicine or knowledge generated through research? Do they value personal experience and shared narratives? Understanding an audience's values is an important part of rhetorical communication. In this way, too, the language that a technical communicator chooses (and by language we include the mode of delivery, use of images, etc.) is **context-dependent** and is tied up in **values**.

Just as technical communicators must understand and respond to the values of their audience, they should recognize the ways in which they are **perpetuating values** through the texts that they create. Think back to **Section 1.5** (or take a moment to read that section if you have not done so) and consider how values are passed down even through research methods. Technical communicators are not only responding to a rhetorical situation or to an audience, but they are also responsible for recognizing how their communication methods construct community values and, sometimes, perpetuate problematic systems of oppression. Technical communicators should now only respond to the values and

needs of their audience, but should also work to be **ethical** in how they approach communication.

Social justice, technical communication, community, and action intersect is around **ethical action**. Consider, for example, ethics and compliance in the workplace, and read this overview from the University of Minnesota office of vice president for research, where you'll find more resources and information about ethics and compliance across various areas of research. When working with or within an organization, and whenever you work with human subjects, ethics is a key component of research and communication. Another great resource comes from the Online Ethics Center for Engineering and Science. Technical communicators often work closely with scientists and engineers, and it is important to understand ethical research and practice in these fields. Finally, take a look at the Ethics Compliance Initiative's website for information and resources on ethics and compliance in the workplace.

Technical communicators often work with communities to make difficult, scientific, or medical information more readily available. They often serve as a bridge between highly specialized researchers and the general population. Consider, for example, the current public health crisis of the COVID 19 global pandemic. Consider how many stakeholders are involved in ongoing pandemic research, and how important it is for different audiences to have clear, accessible, and accurate information. Even as they conduct their own research, organizations like the World Health Organization (WHO)

have industry-wide and internal codes of ethics that they follow. As one example, take a look at the WHO's *Code of Conduct for Responsible Research*. What do you notice about how ethics, community, and action intersect?

In many areas, such as healthcare, the importance of equitable access to clear and accurate information is crucial. Nurses, doctors, hospital staff, and patients must be able to communicate with each other so that individuals can make choices that impact their wellbeing. From Dr. Erin Blackwell, pediatric nurse practitioner working in Minneapolis, social justice means:

> Communicating medical information in a manner that empowers patients and families. Directing patients and family members in healthcare actions can sometimes be seen as an imbalance of power, especially if the provider is white and the patient is of another culture. When we create the space for shared decision making, the patient and provider are better equipped for receiving valuable information from each other. When we look at vaccine hesitancy in the Black community, there are multiple given explanations. One reason for refusal is the desire for parents to take control of their child's health from the medical system- which is historically white. Empowering parents to make the choice to vaccinate instead of the choice not to vaccinate changes the rhetoric.
>
> It is also the responsibility of the provider to provide accessible information to educate patients and families without an assumption of power. This creates an opportunity for patients to make educated decisions based on facts and less guided by information acquired from

> invalid sources. For example, if a white doctor gives treatment direction to a non-white patient without providing education on the disease or treatment, the patient could easily opt to ignore this advice and follow that of a trusted family member of the same culture. Additionally, this is a reminder that communication goes both ways. Taking the time to ask a patient about their cultural understanding of a diagnosis or hesitance of treatment allows for a shared plan of action that has better health outcomes.
>
> –Erin Blackwell, DNP, APRN, C-PNP, Children's Minnesota Hospital, Twin Cities

Whenever there is an imbalance of power–between the folks who have access to information and folks who need to access that information for their own health and safety–communication must be open and shared. Technical communicators can work with doctors, nurses, and healthcare experts to create accessible information that empowers patients to make informed choices about their care.

Key Takeaway: Working with a Community

The importance for technical communicators to work with the communities they service came up

in **Section 1** and is again an important point to remember as we further discuss the relationship between technical communication and social justice. Keep in mind that technical communication requires technical communicators to consider **ethics**, **social justice**, and a specific **community** each time they approach a new project. It is important to remember, too, that technical communicators do not only respond to a particular situation, but they **impact** that situation as they make choices. Consider how technical communication is nearly always **collaborative**; how can technical communicators work with a community towards the goal of social justice? What options might a technical communicator have if they find themselves working for an organization whose practices or values do not align with their own code of ethics?

One important concept that you've likely heard before is the concept of an **ethical dilemma**. For something to be an ethical dilemma, there must not be one clear, correct choice. A situation presents a dilemma because each available choice presents some negative outcome or drawback. For example, if a technical communicator recognizes that they are asked to create a text that works against equity or access (by

withholding information or intentionally confusing data to mislead readers), the "ethical" choice or the choice most aligned with social justice may be for the technical communicator to address their concerns with their team or with leaders at the organization. In the real world, this choice presents a variety of drawbacks. What if the organization leaders or team members disagree with these concerns? What if the technical communicator loses their job? There may still be one choice that most aligns with what you would consider ethical, but that does not always make the choice easy. How could the technical communicator work to change the culture or values of an organization? Is that work always possible?

Ethical dilemmas might present a choice with an even *less clear* solution, in the sense that each choice still results in an outcome that goes against values. Technical communicators may also run into situations where their own values or code of ethics are challenged. Consider the possibility that new information, or learning the values and goals of a different community that don't align with your own, can cause you to revise your own world view or revisit some of your own values. It is also possible to work towards diversity, equity, and inclusion even when you are delivering information that somehow conflicts with your own choices.

As mentioned in Section 1.5, while values and world views and experiences are subjective, and while we can never completely escape individual bias, this does not mean that all opinions are equally valid. In fact, technical communicators

must still work towards objectivity and towards articulating information that is **clear, accessible, credible,** and **accurate**. Knowing that new information can change what we previously believed does not mean that "all beliefs are accurate" nor does it mean that "anything goes." Again, technical communicators work with subject matter experts and with research precisely so that they can work with the most currently accurate information. At the same time, technical communicators know that language is subjective and laded with values, and that they must adapt as new information becomes available. Working closely with communities and forming coalitions is one way to work towards this type of social justice through technical communication.

Activity and Reflection: Ethical Guidance

Where else might you find resources for ethical conventions and practices across fields and industries? Consider your own field of study: where might you turn for information about codes of ethics?

For this activity, find a code of ethics for your major or your field of study. Consider how this code of ethics is applicable to the work you might do as a communicator or writer in this field, and answer the following reflection questions:

1. How does this code of ethics help you to understand language as action and as community focused?
2. How can this code of ethics inform your own actions as a technical communicator or as a practitioner in your field?
3. Come up with a specific scenario where this code of ethics might help to guide your decision making process.
4. Reflect on and explain the relationship–and distinction–between this code of ethics and social justice. This is a difficult distinction to make, but remember that social justice is specifically concerned with **action**. If you use this code of ethics to help guide your decision making, how can you use it to help you make decisions related to social justice?

2.3 AUDIENCE AND ACCESS

Technical communication is user-centered: as we learned in Section 2.2, understanding your audience–their goals, their expectations, and their needs–is a key component to addressing a rhetorical situation and communicating effectively. Below we first discuss audience analysis and the importance of working with and listening to your audience, and then focus on the importance of document design and accessibility in technical communication.

Centering your audience

When we asked our Technical Communication Advisory Board to talk about how diversity, equity, and inclusion impact their work, they responded with various examples. Overwhelmingly, a touchstone of each example was the importance of their audience. Technical communicators MUST center their specific audience in the work that they do; centering their audience is a key to considering diversity, equity, and inclusion.

One important thing to consider regarding technical

communication and your audience is that you are rarely writing for an imaginary, universal audience. Your audience, rather, will often be predetermined and specific. Even if you are writing for a broad audience, remember that that audience is made up of specific, individual people, with their own identities, values, experiences, etc., all of which impact the way they interact with a text and the way they make sense of information.

In 1932, physicist Enrico Fermi coined the term neutrino to describe a theoretical elementary particle. Neutrinos were eventually observed via a device called a bubble chamber, which allowed scientists to photography their trails and

analyze the nuclear events that gave birth to them. One such chamber was located at Fermi National Accelerator Laboratory, Illinois. Today, images of neutrino trails are part of Fermilab's public art and architecture. Such images, on display an accessible to the public, help to make complex information available to a general audience. Scientists and communicators at Fermilab work to create content for an audience of non-experts and non-scientists. Multimodal communication and displaying information alongside public art increases access. Image by Ryan Eichberger.

As a technical communicator, it is important that you are writing *for your audience* rather than *for yourself*. In order to write for your audience, you must get to know your audience, understand their needs and context, and make sure that you have them in mind as you write and revise your text. So, how do you get to know your audience? If you are a 25-year-old college educated midwesterner living in an urban area, how do you write for an audience of retired adults living in rural Minnesota? In order to consider your audience's needs it's also important to consider how your own experiences–your age, race, gender, education, culture, etc.–impact the way you move through the world. Then, work to get to know your audience, not only in an abstract way, but by really asking or considering how their experiences will impact how they interact with this text.

How can you get to know your audience? One important thing to keep in mind is that you want to avoid reducing your audience to a set of stereotypes: we can try to understand how

different categories of people might interact with your text and information, but each individual person has a unique set of experiences, knowledge, beliefs, etc. Further, some things about your audience's identity might be important to this particular writing situation, and some things may not be. One way to get to know your audience's needs is to try to learn as much as you can about them. Another way might be to consider how you can develop a collaborative, working and learning relationship with your audience.

One way to really focus on what your audience needs in a text is through **usability testing**, which we talk more about in Section 4 when describing the common genre of **instructions**. Usability testing asks potential users to interact with a text and to provide direct feedback, or to provide indirect feedback through observation and techniques like **think aloud protocol** (asking users to verbalize their thought process as they complete a task). For example, you might ask a group of four users to follow your instructions for building a deck or planting a tree, and observe how they actually interact with the instructions as they complete the task. Where did they struggle? What seemed clear and easy for them? Where did they have to reread or repeat a step? Where could the instructions be improved for clarity or to be more user friendly?

Take a look at this page from the CDC's website: Covid-19 Vaccine Information for Specific Groups.

- What do you notice about how information is present for different groups of users?
- What do you notice specifically about language choices and document design?

Technical communicators working in the area of public health often work with very complex information. They work with subject matter experts to make that information accessible to very diverse audiences. Consider how the Center for Disease Control and Prevention makes public health information accessible to a variety of potential users.

For an illustration of poor user design (or lack of consideration for user experience), read this article from the *Atlantic* by Amanda Mull: "The Vaccine Cards are the Wrong Size".[1]

You might also ask your target audience–or some members of your target audience–to collaborate with you by giving you feedback or providing something like "peer review" comments on a draft of your document. This way you don't have to guess at how a reader might respond to something; instead, you can get a response from a "real" reader and apply that feedback to another draft.

Working directly with your target audience, or some part of your target audience, is the best way to be audience centered in your communication design. However, sometimes you don't have the opportunity for direct feedback or collaboration with your audience, and so you might instead take a research approach in order to understand their needs and perspectives.

The University of Minnesota has a usability lab that does this type of testing and research. The department of Writing Studies also offers an entire course in usability testing and UX design. This text will only scratch the surface of usability, but for our purposes, remember that usability is another area where it is important to consider diversity, equity, and inclusion by centering your audience's experience rather than your own. It is also important to know that there are specific

1. Mull, A. (2020, August 10). *The vaccine cards are the wrong size.* The Atlantic. https://www.theatlantic.com/health/archive/2021/08/covid-19-vaccine-cards-why-so-big/619707

techniques and approaches for gathering audience feedback (more on this when we describe instructions).

Key Takeaway: Centering Your Audience

As this text emphasizes over and over again, viewing technical communication through a social justice lens means centering your audience for each new rhetorical situation. While you could try to imagine your specific audience and their needs, it is important (and more useful!) to get direct feedback from members of your audience. Working collaboratively with your audience can also help technical communicators to **empower** their users by providing information that is **accessible** and that allows them to **make choices**.

When you develop a text with a specific audience in mind, how might you collaborate with that audience? How could you work with something like a usability resource center to gather feedback on your user design?

Consider the two texts linked in the boxes above,

one from the CDC and one from the *Atlantic*. Reflect on the following questions:

- What does each text help you to understand about user experience?
- How does the CDC seem to consider user experience as they create content for different audiences?
- How are the Covid-19 vaccine cards an example of failure to consider user experience in their design?

Document design, audience, and accessibility

Document design

One key component to user experience, and one component that impacts access to content, is document design. Usability testing will often help you to make decisions not only about content but about the design of the document. Consider the last three websites that you interacted with; was one easy to navigate? What made it easier? Was one particularly difficult to navigate? What made it more difficult? Document design,

when done in a way that promotes accessibility, can often seem "invisible"; however, the way that information is arranged on a page, how and whether the organization is clear, and choices about using images and different fonts make a huge difference in whether users can access information.

As you probably know by this point, one key component of document design flexibility: there is not one way to organize a document that can be systematically applied across all instances of technical communication. Once again, when making decisions about document design, you must consider the rhetorical situation AND, especially, your specific audience and their needs. Once again, usability testing is one way to get direct feedback from your audience, and to see how they interact with a text. Remember that document design should increase access; your work as a technical communicator is to remove barriers to information whenever you can.

Although there is no "one size fits all" approach to document design, there are approaches and best practices that you can follow. One useful tool to consider document design is referred to as the HATS approach: Headings, Access, Typography, and Space. You can click through a helpful and easy to follow slide deck at Purdue University's online writing center.

Headings, and other organizational cues, are so important for reader access because they allow readers to understand how content fits together. They also make documents more easily scannable or searchable. The above linked slide deck walks you

through the HATS design principles, which you can apply to any document you create or revise.

Some other guiding principles of document design include **contrast**, **repetition**, **alignment**, **proximity**, and **balance**.

Contrast signals to your reader that something should stand out or be paid close attention to compared to the rest of the document. For example, consider a WARNING! In a set of instructions.

Repetition lets a document feel cohesive or unified. Repetition in document design also helps a reader to understand how information fits together. Repetition also allows for contrast to be effective: without most font choices or headings looking the same, that boldfaced warning would not stand out to a reader.

Alignment refers to how text is positioned, in relation to other text and to images, on a page. Text and images can be right, center, or left aligned, for example. When making choices about alignment, consider your audience's expectations and how they will likely interact with this text based on genre or cultural conventions.

Proximity means things that are related to each other should appear near to each other. In other words, readers will make assumptions about content relationships based on where things are placed on a page, whether they are near or far to other things. So, information that belongs together should be grouped or chunked together; information that does not belong together should not be grouped together.

Balance means that images and text are positioned in a way so that the page does not seem like one side is too "heavy" or "light." Balance is important because of how users interact with items on a page. White space should be used strategically, to signal organization or help to chunk content; if one side of a page is very text or image heavy and the other side contains mostly white space, consider how that feels unbalanced (and unsettling) for a reader.

If you search for something like "principles of document design," you will find similar if slightly different takes on what these key principles are. Some say that there are five guiding principles, some include seven, etc. However, each slightly different approach or theory of document design points to the same rhetorical principles: know your audience and act intentionally when making choices in your document.

> You can read another short, useful take on key principles of document design at the Writing Commons.

Audience

Understanding principles of document design are a helpful place to start. However, knowing your audience ALSO

impacts the choices you make about document design. Consider what your audience expects, what they need, how they will likely interact with your text. Consider specific ways that your document design can fit the needs of your target audience. Some questions to consider include:

1. How do cultural expectations impact your design choices? (culture can be very broadly conceived of, and might apply to any number of things that make up the cultural identity or association of your audience)
2. How can my decisions about document design impact accessibility?
3. How do I consider social justice, diversity, equity, and inclusion in my document design?
4. What are some ethical considerations that I need to be aware of when I make decisions about document design?

None of these questions has an easy answer, and each one will depend largely upon the rhetorical situation of that communication task (considering the audience, purpose, context, etc.). However, it's good to reflect on these questions and to become more informed about the relationships between document design, audience, social justice, and ethics.

Let's start with number 1: **How do cultural expectations impact your design choices?**

First, consider how you understand "culture." What cultures do you belong to? There are very broad ways to define

culture, like nationality (I live in the United States and identify as culturally as American). But culture is multilayered and complex; maybe I live in Minneapolis, which has its own culture, and is also in some ways impacted by the culture of Minnesota, and of the United States. My family is Islamic, which also impacts my cultural identification, and my mother and father were raised in New York City, which again has its own mix of linguistic culture.

Cultural expectations impact a text when it comes to choices we make about language, font, style, use of color, images, directness or indirectness, how we tell a story or incorporate research...nearly every choice we make as communicators is touched by the various cultures that we belong to. Design choices, in particular, are impacted by culture. Various colors, for example, may signal different things across different cultures. Or, cultural expectations may change based on whatever a given audience is used to seeing.

As an exercise, find a website for an international company (McDonalds is a great example). Take a look at their webpages for different countries. Try to pay attention only to things like color, images, and document design. Which things change? What remains constant?

As a technical communicator, it is important to consider potential cultural impact and differences when it comes to your design choices. How might your audience read certain design features? How can you make choices that are tailored to a specific audience?

Accessibility

Let's move now to document design and access with reflection question 2: **How can my decisions about document design impact accessibility?**

One of the most crucial jobs of a technical communicator is to ensure that the information they create is accessible to their target audience. Some key questions to consider when making choices about document design and accessibility include:

- Can my audience immediately see how the content is organized?
- Am I using various communication modes (such as graphics of visuals alongside text) in order to illustrate information for my audience?
- Are there markers (such as headings) that help my reader understand how information connects?
- Have I considered how visually impaired audiences can access information? Have I made choices (like including closed captions) for audiences that have trouble accessing information through audio?
- Is the language that I'm using clear and accessible? Will my target audience understand it?
- Are the color choices, font, paragraph breaks used in a way that makes reading easier for my audience?
- Do my choices about font size and type make it easy for my reader to understand how information is organized

and which parts of that information are most important or crucial?

One seemingly basic element of document design and access is readability. Consider the things that impact readability, like font size, organizational visual cues (like headings, boldface font, italics, use of white space), and shorter paragraphs. Consider how your reader will interact with this text (on their phone? On a computer? On a piece of paper delivered home with their child? On a poster handing in the student union?). Design choices that are readable on a poster, for example, may not work as well on a website. The interface matters when you consider user experience.

To read more about creating accessible content, take a look at the following resources:

- From the University of Washington: Creating Accessible Documents.
- From the University of Minnesota: creating accessible documents and pdfs
- From Accessible U (University of Minnesota): Create Accessible Content

As you assess a new communication situation, consider all the factors that impact your audience's ability to access that information. Language and content are important, but elements such as design also impact your audience's experience with that text.

Key Takeaways: Document Design and Target Audience

It is important to consider your target audience in all aspects of creating a text, and document design is a major contributor (or barrier) to accessibility. As a reflective exercise, go to the website for the Minnesota Department of Health. Take a look at this homepage and consider who their target audience most likely is.

- How are they considering accessibility?
- What features (headings, images, consistency, balance, contrast, alignment, color and font choice) make this page

more or less readable?

- In what ways is this website following cultural expectations or conventions that you have seen on other, similar sites? Consider, for example, where the "search" feature is located, where major titles are located, and how information is organized.

Universal design

When focusing on accessibility, another important approach is called universal design, which considers how a document might be accessible to a wide or general audience by building accessibility into the core features of the document. University design moves away from thinking of accessibility as an "afterthought" or an "add-on" and instead makes access the focus or foundation of document design. One example of universal design would be: if I am creating a video for one of the courses that I teach, or if I am creating an instructional video for tiling a bathroom, I would not wait until I had a specific student or user who was hard of hearing to go back to that video and create a text transcript available only to that student or user. Instead, closed captions would be *part of the*

initial design of that video. The principles of universal design emphasize that making content more accessible to one person makes content more accessible to *everyone*. So, any number of students or users may have an easier time accessing information in the video if they could watch with closed captions, whether or not they had trouble accessing the audio. Universal design says that accessibility features should be built into the design for any audience member.

> Read more about the concept of universal design from the University of Washington. You can also take a look at the website from the Center for Excellence in Universal Design to read more about the principles of universal design.

Document design should always be concerned with access and accessibility. And as a technical communicator, a key skill that you'll develop is listening and responding to the needs of your audience. Question 3 asks: **How do I consider social justice, diversity, equity, and inclusion in my document design?**

Take a moment to reflect on this question; then consider how document design works *towards* inclusion or *against* inclusion. The answer to question 4 has a lot to do with centering your audience's experience and making document design choices that make

information *more* accessible and, therefore, more inclusive. Considering diversity in your document design means that you consider an audience that is not homogenous. Your audience is made up of a variety of individuals, each with cultural, social, individual contexts and experiences. Engaging diverse audience members in usability testing or in focus groups to gather and incorporate feedback is a good step towards centering diversity in document design. It is important to listen to your audience: if something about the document design doesn't work for them, how can you change it? How can you make it more accessible?

Another way to center diversity, equity, inclusion, and work towards social justice in your document design is to consider frequently or historically marginalized audience members. Consider whose voices are not often taken into account. Some questions to reflect on might be: who is my imagined audience? Who is my "default" user? Who am I leaving out, and how can I push my own boundaries in order to include marginalized voices in my design process?

Ethics, access, and language

Finally, let's consider question 4: **What are some ethical considerations that I need to be aware of when I make decisions about content and access?**

Ethics and access are closely connected in technical communication. One way that you can consider ethics has to

do with making sure that the language you use is accessible to your audience. Along with document design, the language used in a document can greatly influence accessibility.

One way to consider the ethics of language usage comes up in conversations about **plain language** (sometimes called plain English). Plain language refers to a movement toward making complex information accessible by removing overly complex language choices or jargon that would (intentionally or unintentionally) exclude some members of your audience. Using plain language means choosing language that is more widely understood and accessible; in this way, more accessible language means more accessible information. Take a moment to complete **this reading on plain language and consider what it means for technical communication and ethics.**

Consider, for example, a contract. The reading describes a move away from legalese towards plain language or plain English: something that would be more accessible for a broader range of readers. Legal jargon or overly complex language can act as a barrier to information–sometimes intentionally. Take a moment to think about who benefits from a contract written in complex or unfamiliar language.

It may seem obvious that an ethical goal of communication, and one that cares about equity and access, is to use language that is clear and simple enough so that your reader can understand your content, even (and especially!) when that content is very complex. However, not everyone agrees that simple language is best. One argument against the use of plain

language is that it "dumbs down" the work. In other words, there are those that argue plain language overly simplifies complex content to the point that it is no longer accurate.

The difficult work of a technical communicator, whether you are creating content for the department of public health that informs the community about preventing the spread of Covid-19 or you are creating a terms of use or contract for a cell phone company, is to make often very complicated and complex information accessible AND accurate. One way to do this work is to collaborate with subject matter experts (SME) and to use a variety of strategies (images, text, headings, document design) that assist your reader. And, along with these other strategies, it is important to work towards language that is clear and accessible without compromising the complexity of your content. Remember always that the goal is access and equity and that it is important to listen to feedback and remain flexible!

Activity and Reflection: Creating Accessible Content

As an reflective exercise, consider how you might

use what you know about the rhetorical situation AND about diversity, equity, and inclusion in the following scenario:

You are asked to create a flier that will be sent home to parents at a community elementary school in Minneapolis. The student population is roughly ⅓ Somali, ⅓ Latinx, and ⅓ white. The flier notifies families of new policies and safety regulations for the 2021/2022 school year in light of Covid-19 cases in Hennepin County.

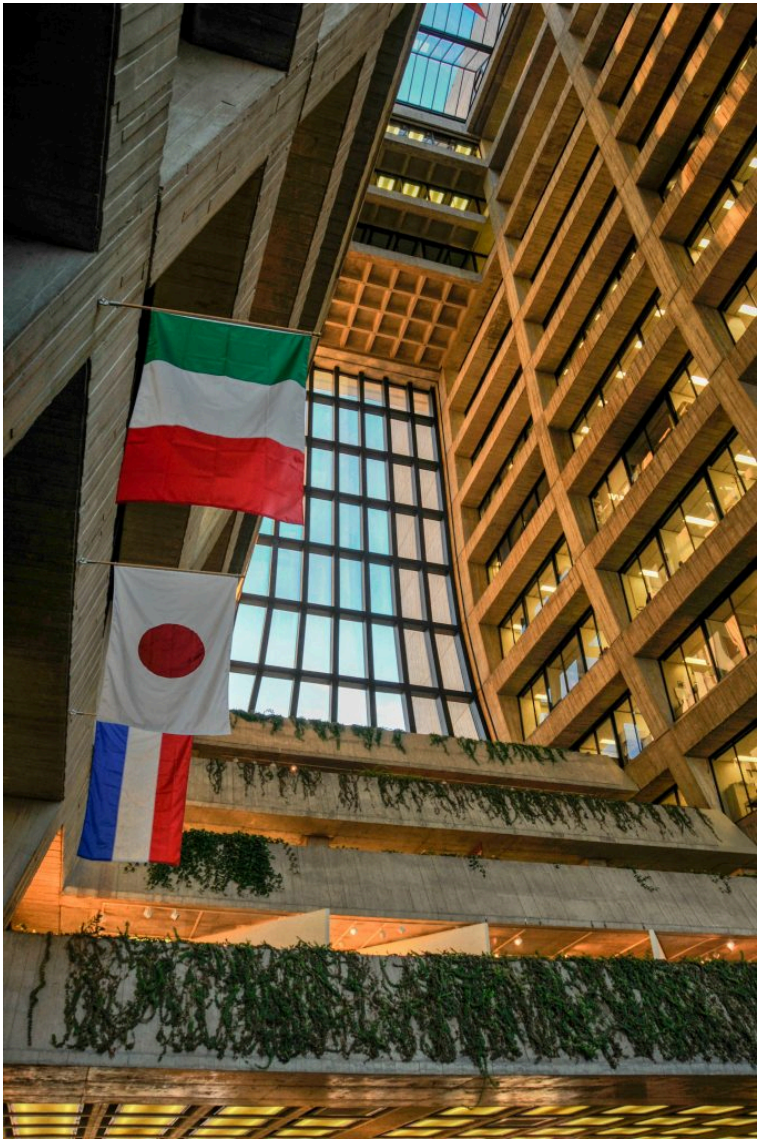
The flier includes information for different safety measures and is meant to both inform and reassure parents. All the content has been provided for you, and you must decide how to revise that content and present it for this specific audience on one sheet of paper. Alone or with a partner, consider the following questions:

- How would you approach this task? What is the rhetorical situation?
- What factors would you consider and what type of research would you conduct?
- How might you work *with* these communities in order to ensure that your flier is culturally appropriate?

- What language factors, specifically, might you consider, and how would you make this project collaborative in order to address linguistic needs beyond your own capabilities or expertise?
- How might you use some of the principles of universal design to guided your decision making?

2.4 INTERCULTURAL COMMUNICATION

As discussed throughout this section, a key consideration of each instance of technical communication is **accessibility**. Understanding and ensuring accessibility is an important goal for a technical communicator, and one way in which technical communicators can work towards **social justice**. When considering access, a communicator must understand their **audience**, and this understanding often comes through collaboration. This text keeps coming back to the importance of knowing and centering the audience because technical communicators must consider whether the information they share is accessible to their specific audience. This work can be particularly challenging when technical communicators work with an **intercultural** audience because they must consider the best way to partner with a particular community in a way that **empowers their reader and avoids relying on stereotypes**.



Fermilab: an international scientific endeavor supported by every kind of technical communication one can imagine. Researchers, scientists, and communicators at Fermilab work together to create and share content across cultures. Image

by Ryan Eichberger.

So often, the work of technical communicators is intercultural. Technical communicators often collaborate with or communicate with writers, researchers, and users across cultural and linguistic boundaries. Part of working towards diversity, equity, and inclusion in technical communication means effectively collaborating with multilingual and multicultural or international communicators. Part of this work includes **listening, reflecting on how our own cultural and linguistic lenses are formed and how they filter information,** and **knowing when to defer to others**.

Key Takeaway: Listening to an Audience

Technical communicators must not only create work tailored for a specific audience, but they must learn to **listen** to their audience. This work of listening becomes particularly important when a text involves a **multicultural** or **intercultural** communication exchange. Technical communicators are experts in

communication, but they are not expert in each culture they encounter, and keep in mind that *culture* is a multilayered, nuanced concept!

Consider how technical communicators can practice giving over control or deferring to others when working with an intercultural audience. Can you find any good examples of this particular work?

Understanding culture

When asked to speak about how diversity, equity, and inclusion factor into their work, members of the technical communication advisory board for the Department of Writing Studies at the University of Minnesota stressed that they are always working with and for their audience, and as such they must be responsive to their audience's cultures. They note that **culture is a nuanced, layered concept**, and as such **intercultural and cross-cultural communication can mean many things**. For example, consider an organization like Target, headquartered in Minneapolis, Minnesota. Technical and professional communicators working at Target need to learn and respond to the organizational culture of Target, likely set by leadership and understood among

employees. There is a broader culture of Minneapolis, and then of Minnesota, of the upper midwest, and so on. Finally, Target is an international organization with storefronts across the United States and online clients, partners, and costumers across the world. A professional or technical communicator must understand and work with these diverse and fluctuating cultures when creating content for specific groups.

Within these cultural groups mentioned above (say, the culture of Minneapolis), there are cultural differences among these individuals, as well: not all folks who live and work in Minneapolis are part of the same culture, and with various cultures come different communication styles and expectations. Technical communicators need to consider the cross sections and the heterogeneous nature of cultures and understand how to communicate with audiences in a way that makes information

So, if culture is such a broad concept, then how can we address it? Again, our advisory board of professional technical communicators stress the importance of understanding and communicating with your specific, target audience.

accessible and that empowers them to make decisions or take action.

Localization and translation

One way to address writing for an **international** or **intercultural** audience is through ***localization***. Localization means tailoring your message to your audience's specific cultural expectations, context, use of language and symbols, etc. Localization, for it to be useful and successful, must actually understand the cultural context of the audience. Some things to consider: culture is never static, and cultural considerations should always be bound by context.

Viewing culture as static, or ignoring specific context of an audience and situation, are extremely problematic understandings of intercultural communication and can often lead to stereotyping, rather than tailoring information for a specific audience. When you work to translate information for a specific audience, you need to consider not only the larger context but the more specific one, too. For example, if you need to translate information from English into Spanish for Spanish speaking members of your neighborhood in Minneapolis, you are not only moving from English to Spanish, but you are considering the context and needs of a specific community. Consider how you might do things differently if you were to translate that same information for

a Spanish speaking community in the Rio Grande Valley in Texas. If you only consider language and culture as a static, homogenous thing–such as a culture of "folks who speak Spanish"–then you will likely rely on stereotypes and broad assumptions or generalizations. In other words, you are not really doing the work of localizing information for a specific audience. You are, instead, letting one aspect of a culture–language spoken–dominate all decisions you make as a communicator.

A better way to approach such a task would be to consider not only a general language–like, English or Spanish–but consider how that language is used locally within a community. What are the important cultural considerations to keep in mind when you develop content for this community? What are some cultural touchstones, like images or terms or landmarks, that the audience would understand and appreciate? What can you learn about this specific audience, their needs, their expectations, and how they might interact with this information? What barriers exist currently and how can you remove these barriers or address them so that this audience can access this information?

As discussed in Section 2.2, healthcare is one area where it's easy to understand the importance of equitable access to clear and accurate information. Healthcare providers often work with intercultural audiences; doctors and nurses work daily to communicate diagnoses and treatment options to patients from a variety of cultural and linguistic backgrounds. Dr. Erin

Blackwell, a DNP working in emergency medicine articulates the importance of localization and of avoiding stereotypes and generalizations when communicating across cultures:

> **Interpreters vs. translator**. A translator is putting information into Google translate and presenting the result to a patient in their native language. This results in important information and cultural connotations being lost. In the medical field, a medically trained interpreter is vital. We rely heavily on our interpreters to help patients convey their concerns and to bridge the cultural gap between patient and provider communication needs. There is a clear benefit of an in-person interpreter from the same culture or community as the patient. A strong relationship between medical staff and interpreters creates space for the interpreter to not only translate spoken words but also interject cultural concerns of the patient that could otherwise lead to adverse health outcomes.
>
> **Avoiding assumptions and generalizations**. One of the classic shortfalls in medical education is medical textbooks with photos of primarily white patients as learning examples. Ignoring the difference in presentation of symptoms on different colored skin leads to misdiagnosis and perpetuates the idea of "color-blindness" as equity.
>
> –Erin Blackwell, DNP, APRN, C-PNP, Children's Minnesota Hospital, Twin Cities

Working with your intended audience and collaborating across cultures is the best way to tailor content. Collaborating, continually gathering feedback, and revising texts are key

components to intercultural or communication. Culture and language usage can be incredibly nuanced, and technical communicators must know when to reach out to cultural liaisons and translators, just as they collaborate with subject matter experts.

Key Takeaway: Localization vs Translation

Localization means tailoring content to a specific culture. **Translation** generally refers to a focus on language, making content available to speakers of a particular language (such as a translation of a document from Spanish to Somali). Technical communicators sometimes work with translators, but must focus on **localization**, which considers the nuanced and complex nature of a target audience's culture or cultures.

As you continue to learn about and practice intercultural communication, keep in mind that listening to and collaborating with your target audience. Technical communicators must be open to feedback and know how to learn about and work with members of a specific culture.

Avoid tailoring content for a target audience in a way that relies on stereotypes or viewing culture as homogenous.

Reading and Activity: Understanding Localization

Localization refers to adapting information for a local, specific audience. Localization is more than translation, since localization is often useful even when adapting information among audiences who share a language. Localization considers the specific audience's cultural context and works to make information as accessible as possible.

Take a look at this recent blog post[1] about the importance of localization in business and technical communication.

1. Nice, Bradley. (2000, April 6). *Localization in Technical Writing*. Medium. https://medium.com/level-up-web/localization-in-technical-writing-c71b8b342e24

Then, final a local company or organization. Take a look at their web presence: you can look to an organizational website or social media presence. Take notes about the specific ways that this web presence targets a local audience. How are they using language, but also cultural context and specific references, for this audience?

Finally, alone or in a group, imagine that this organization wants to expand in another area and that you are in charge of helping them with localization related to their web presence. Consider the following questions for reflection and discussion:

1. Where does this organization wish to expand?
2. What will you consider as you help them with localization?
3. What specific things would you incorporate into their web presence for this new market? Consider language, images, local or cultural touchstones, etc.
4. Reflect on this process: what makes localization challenging? How might you approach localization collaboratively? What feedback process would help with this task? How can you consider equity and access

during this process?

DEFINING THE FIELD OF TECHNICAL COMMUNICATION

How can you define a type of communication that includes so many genres, situations, audiences, and topics? Defining the field of technical communication is ongoing and difficult, but the work of technical communicators does have boundaries that separate it from other kinds of writing. While it is useful to note the similarities across types of communication, it is also useful to understand the specific work of technical and professional communicators, and to understand how the field has defined its work. Further, noting tensions among technical communicators and scholars helps us to see where the boundaries of the field are flexible or shifting, and can help to frame how technology and a changing landscape continues to push the field in various directions.

A list or chart in an unexpected place: a pie restaurant on Minnesota's North Shore. This chart provides information to a very specific audience: folks currently visiting this pie shop. Working like a "you are here" map of surrounding areas, this

text is a unique example of technical communication, working both to inform an audience and respond to a very specific rhetorical situation. Image by Ryan Eichberger.

In this section, we consider how the field of technical communication (and the work of technical communicators) has been and continues to be defined. One author simply stated that technical communicators "explain things," and we build off this understanding to get a better sense of the boundaries and possibilities of technical communication.

Even as we define technical communication, this section positions the work of technical communicators as:

1. rhetorical, and
2. always concerned with collective access and social justice.

Voices From the Field: What does technical communication look like for you?

"Technical communication is the process of transferring technical knowledge to those who need

it. Technical communication is the bridge that enables society to benefit from the advancement of technology and science, as well as accomplish specific tasks or goals.

Technical communication begins and ends with the audience or consumers of the communication. An analysis of the audience and their requirements (why they need particular technical knowledge) enables the technical communicator to select an appropriate strategy, format, and style for the communication. The technical communicator must be able to empathize with the audience in order to produce communication that will maximize understanding and benefit to the audience.

The technical communicator needs a good working relationship with subject matter experts. This enables the technical communicator to develop a thorough enough understanding of the subject to be able to translate this knowledge into communication that the audience can understand and use.

The technical communicator must be able to use language effectively, and be able to choose and use the appropriate media for the audience's requirements. The technical communicator should

write persuasively and logically, with economy, precision, discipline, and perfect grammar and style. Shortcomings in any of these areas will impede the technical communicator's ability to deliver communication of the highest quality, which will reduce the audience's ability to use and benefit from the communication.

I work in the information technology (IT) field of technical communication. The core of what I do is traditional technical writing: IT policy, process, and procedure documentation, which includes documents and knowledgebase articles. I have also leveraged my understanding of the communication process to design intranet websites and analyze business processes, both of which require similar problem-solving, creative, and communication skills to those used in technical writing. I am fortunate that my colleagues and leadership appreciate the value of effective communication and my contributions."

Matt Abe
Manager—knowledge management
MAXIMUS IT

Voices From the Field: Defining technical communication as multimodal

"I think the product I work on is so inherently multimodal that I don't think about it being multimodal. I don't incorporate video, images, etc. into my writing because the writing is part of a product that contains all of those things."

"Thinking about how to organize a document so that it clearly states a position, succinctly communicates its purpose is very important or nobody will read what you're writing."

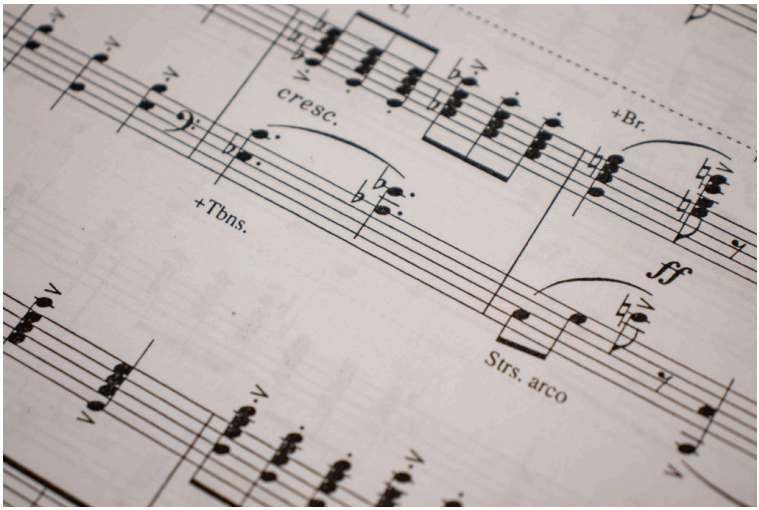
Bill Siemers
Content Strategist, Facebook

3.1 DEFINING TECHNICAL COMMUNICATION

At this point, if you have already read sections 1 and 2 of this text, you have a good idea of what technical communication *is* and what technical communication *does*. You know that technical communication is rhetorical: it is goal-driven, audience-focused, and dynamic. Technical communication responds to a specific rhetorical situation. Further, technical communication is dependent upon context. As technical communicators, it is important to consider your goals, your audience's specific needs, and the context that creates the need for this text.

It may seem odd to take a moment to pause and consider how we define technical communication at this point in the text, after we've already spent time discussing technical communication as rhetorical and as engaged with diversity, equity and inclusion. Likely, by now, you already have a good sense of how you would define technical communication (and maybe you already had a definition in mind before beginning this text). You know what technical communication looks like and that it is audience and goal focused, and that it **typically**

involves communicating complex information to a non specialized audience. So why devote an entire section on defining the field of technical communication? How can we define technical communication?



Sheet music allows a specific audience to follow a set of instructions and complete a prescribed action. Notice the symbols and abbreviations pictured here; a fluent reader and musician would be able to interpret these symbols as music and perform a complex task. Would you consider sheet music an example of technical communication? Does it fall without the boarders of the field? Image by Ryan Eichberger.

The answer to this question is that, even after reading about and practicing technical communication, **defining technical communication can be tricky**; technical communication encompasses many forms, purposes, and genres. The borders and definitions of technical communication are often debated

and in flux. Technical communication often involves technology (though not always). Technical communication often involves communicating expert, technical, or highly complex information to a non expert or more general audience. Technical communication often works to convince an audience to take some specific action. Technical communication might define, instruct, inform, or persuade.

Rather than focus on the boundaries of technical communication, it can be useful to focus on what technical communication is trying to *do*. It might also be useful to define technical communications by looking at a variety of examples, or by considering what technical communication is not (**Section 4.2** covers the genre of technical descriptions and definitions, and describes the various ways to extend a definition, including through examples and through negation).

Key Takeaway: What Does Technical Communication Do?

As discussed at various points of this text, technical communication often explains something to a

specific audience. While technical communication **looks** many different ways, it consistently works to **do the work of explaining things.** It may be useful to define technical communication by **what it does** rather than **how it looks**. Sections 1 and 2 of this text emphasize that readers often interact with technical and professional documents in order to **understand** or **do** something very specific, may scan or read documents looking for specific pieces of information. Consider how your reader will interact with your document and try to make it as easy as you can. Ask yourself: how can I make this document as readable as I can for my intended or imagined audience? How will my audience likely interact with this document?

As you consider your purpose and your readers, not only content but also style and format become very important. Be sure that you are audience focused, and that you make decisions about document design, language, and content with your specific audience in mind. What does your audience need from you in order to understand the content? What would make things easier on your audience? What specific experience, expectations, and knowledge does your audience bring with them?

To read more about defining the field, take a look at "The Case Against Defining Technical Communication" and consider what the author is describing. How can we define a field that covers so much? Do we define technical communication by genre, by style, or by topic? Does technical communication necessarily need to focus on technology?

To access this article, see the full citation below:

Allen, J. (1990). The Case Against Defining Technical Writing. *Journal of Business and Technical Communication, 4*(2), 68–77. https://doi.org/10.1177/105065199000400204

Technical communication vs. technical writing

We use the term *communication* in place of *writing* to more clearly encompass the breadth of forms and modes that we consider *technical communication*. Consider the example of sheet music above, or an infographic that explains how to properly wear a mask. Or, consider a nurse communicating

orally with a patient to address their questions about a prescription. Writing is communication, but not all communication happens strictly through writing.

Today, largely due to advances in telecommunication and digital technologies, technical communication includes more than what we might traditionally consider writing. For example, technical communication often relies not only on text, but also on graphics, images, hyperlinks, video, audio, etc. This course does focus on writing, but it invites you to consider all the ways in which elements beyond or outside of "writing" or "text" impact an audience.

We have already talked about the importance of document design, graphics, and images. One reason to use the term "communication" over "writing" is that communication emphasizes the fact that so many elements impact a text. Often when we think of "writing" we think of things like "grammar, punctuation, spelling" or other elements that impact clear writing. Certainly, these things are important for a technical communicator. But technical communicating–and really writing more generally–encompasses so much more than grammar or spelling. It is important to expand what you consider crucial elements of technical communication, because doing so also helps you to consider how you might reach an audience.

Just like document design, images, and other "non writing" parts of technical communication make a huge impact on a text, document design, images, graphics, and multimodal

forms of communication also help to make a text more accessible. Remember that accessibility is always the goal with technical communication; shifting the conversation from "writing" towards "communication" helps to frame the work of a technical communicator in a different way. Focusing on communication can be a more inclusive or flexible approach to technical writing, and this small shift in language might help folks to understand that the job of technical writing includes so much.

Key Takeaway: Writing vs Communication

Throughout this text, the term **communication** is favored over **writing**. Communication is preferred because it more fully encompasses the broad range of communication modes and methods used by technical communicators, including written communication, oral communication, video, infographic/images, etc..

Consider how you differentiate between "writing" and "communication."

- What considerations fall within the scope of technical communications?
- What different ways, modes, tools, etc. can you use to communicate?

Professional communication

Along with reflecting on *technical communication*, it is worth taking a minute to reflect on the category of *professional communication* and to understand the relationship between technical and professional communication. Professional communication is a broad term that could refer to any communication done in a professional setting toward professional ends. Or, professional communication might refer to communications among and within specific professions, which are bound by various community codes, patterns, and expectations.

If you search for the difference between technical and professional communication, you'll find various opinions. Some argue that technical communication *must* somehow involve technology as its subject matter (this text takes a broader view of technical communication). Some differentiate between the two by defining technical communication as

targeting a broader or non specialist audience, while professional communication is more specific to a certain profession or internal to an organization or a field.

These terms–writing, communication, technical, and professional–are not easily defined and do not contain clear borders. While these terms can be differently understood and continually debated, this course encourages you to imagine technical and professional communication in the context of your major and future profession.

How do you imagine professional and technical communication looks in your field?

Activity and Reflection: Technical Communication in Your Field

For this activity, take a moment to consider professional and technical communication in your area of study. What do you think it "looks like" in your field? Try to come up with a scenario in which you will use technical or professional communication. What are some things to consider? What are some "qualities" (clear, simple, concise

language; use of graphics or images; responsiveness to audience needs or context and goals;) of that communication situation?

Share what you've written with a partner or with a group. Consider differences and similarities among your communication situations. What shared qualities do you notice?

3.2 TECHNICAL COMMUNICATION AND TECHNOLOGY

We have already talked about the impact of technology on technical communication, and we've talked a bit about the relationship between technology and technical communication. In this section, we will continue to reflect on that relationship as we consider whether technical communication is always connected to technology in some way (either by way of content or focus or because technical communicators use technology in their work). How have advances in technology changed technical communication, and the role of technical communicators?

The answers to this question might be quite obvious: as communication technology changes, technical communicators must learn how to utilize those technologies. Another impact that technology has on technical communication comes in *what* communicators are writing about, not just *how* they are doing that writing. In other words, as a new technology develops and is sold or distributed, technical communicators are tasked with explaining that technology to users.

Many argue that technical communication does not need to be writing *about* technology (you might create a very technical description of a process for planting tomatoes in your home garden, or you might consider recipes a kind of technical communication). Part of the trickiness, as we've already covered, comes in how we define or understand *technology* (recipes utilize technologies like ovens or electric mixers, and when I'm gardening I certainly use a variety of tools). While the subject of technical communication may or may not be technology-focused, technical communicators often *utilize* various forms of digital technologies to communicate with a target audience. Strictly speaking, any type of written communication uses technology (the pencil and paper are technologies, after all, just not terribly recent developments). When we hear the word "technology," we often think of new technology or digital technology (we aren't often thinking of pencils). Technical communicators will often write for the web, or communicate using a combination of various *modes* such as text, image, video, sound, etc. We refer to these types of communication as ***multimodal***, which means that a text is using more than one communication mode (such as words plus images).

Engineering programs at universities and colleges around the country compete annually in a baja racing competition, in which technical knowledge of mechanical systems is put to the test on real-world tracks. Technical communication is impacted by developing technology, as users and developers such as engineers communicate complex systems across audiences. Image by Ryan Eichberger

Document design is an important part of technical communication, and, as we've discussed already, an important element in accessibility of information. Consider how important it is to create visual organizational cues for your reader, and how useful it is to use images or graphics alongside your text. Consider, too, that document design and the use of various communication modes should not be secondary to the work of a technical communicator; rather this work is an important, integral part of technical communication.

In fact, one thing that might set technical communication apart from other forms is the focus of readability and document design. Another aspect that helps us to define technical communication is the relationship between technical communication and technology, and the importance of various communication modes.

Finally, remember that an important consideration for this text and our approach to defining the field of technical communication includes a framing of technical communication as ***always*** **concerned with diversity, equity, and inclusion, in part because it is a communication that is heavily dependent on a relationship between communicator and audience**. Technology, too, is tied up in issues of social justice, diversity, equity, and inclusion. Just as there is a strong relationship between technical communication and diversity, equity, and inclusion, there is a strong relationship between each of these things and technology. Technology has often increased access to various information and communication, but it is also very important to consider how we can use technology or leverage technology *towards* increased access (rather than utilizing technology as a barrier to information).

Key Takeaway: Technology and Social Justice

Just as technical communication is always wrapped up in social justice, technology intersects with issues of diversity, equity, and inclusion because **technology can serve as an access point or a barrier to information**. Further, technology can serve as an access point or barrier to **action** and **inclusion.** How can technology promote access in technical communication? How might technology exist as a barrier? Can you find some examples of each and reflect on them?

While technical communication is not limited to communication about technology, such as a user manual to a new smartphone, technical communication is impacted by technology. Further, technical communication often utilizes technology as a way to reach and communicate with an audience. As technology changes, so does the role and work of technical communicators.

Activity and Reflection: Defining Technical Communication

For this activity, work alone or with a group. Find an example of technical communication (any genre, any type). Perform a brief rhetorical analysis of this text, answering the following questions:

- Who is the target audience?
- What is the main purpose or intent?
- What can you identify about this text's context?
- Who is the author?

Then, make a case as to why you consider this text "technical communication." Why would you fit this under that general category? Are there certain features that mark the text as technical communication? Is the genre something that fits under the umbrella of technical communication? Is it the document's purpose or intended audience? Why? Try to provide a convincing rationale, and include your own definition of technical communication as part of that rationale.

3.3 TECHNICAL COMMUNICATION AND RELAYING INFORMATION

One of the key, most easily identifiable elements of technical communication is that technical communicators often work to provide information. As Rick Lippincott said in an issue of the technical communication journal *Intercom*, as technical communicators, "we explain things" (2014).[1] Technical communication can look many different ways, but a common thread is the purpose of explaining often complex information to non specialist audiences. As he explains in his article, technical communication is a very old field, and he believes it is a field that will last well into the future. Whenever there is something new to be explained, technical communicators are needed. In cluster 3.2 we talked about the relationship between technology and technical communication. The term

1. Lippincott, R. (2014, April 29). *We explain things.* Intercom. https://www.stc.org/intercom/2014/04/we-explain-things/

technology is quite broad, and refers to much more than digital technology; any time there is something new that folks need or want to use, technical communicators act as an information bridge between the experts and the users.

Even though technical communication works to explain things, that does not mean that the work of technical communicators is purely *objective* or removed from *bias*. As sections 1 and 2 claim, technical communication is *rhetorical* and it is engaged in issues of *social justice*. So, technical communicators need to be aware of the way in which diversity, equity, and inclusion impact their decision making when they make decisions about how to best explain something so that it is **most accessible for their specific target audience.** Further, technical communicators must explain things while working within various power structures. Often, they work with subject matter experts to not only explain but persuade those in power to take action. Or, they work with subject matter experts to explain things to an audience so that they can make decisions that empower them.

As oceans warm, the Atlantic puffin faces a dwindling food supply. The future of species depends on careful field study, made possible by charts, tallies, shorthand note taking, and other cornerstone tools of the technical communicator. Technical communicators work closely with environmentalists and researchers to not only explain the problems of climate change, but to convince decision makers that climate change is a significant and present issue. Technical communicators choose language that appeals to their specific audience and that connects to their values. Image by Ryan Eichberger.

One way to think about technical communication is to consider the **windowpane theory** of how language works. You can imagine that language is a clear windowpane, and that its job is to be as invisible as possible, so that information can "pass through it" and on to the users. Or, you can examine that windowpane and recognize that, no matter how clear it is, **the**

windowpane itself changes light that passes through it. While this is not a perfect metaphor, it does come up often in discussing different frameworks for how language functions: Is language like a clear windowpane, just letting information pass directly through? Or is language itself a technology that shapes how that information is understood and received?

In this text, we do not consider technical communication to be merely a clear windowpane. Rather, we frame language–and the technical communicators making choices about their language usage–as always impacting *how* information is shaped and received.

So, what does this mean for our approach to technical communication? If we understand language as a *technology* rather than as something like a *clear windowpane*, then language is playing a much more important role than merely relaying or relating an objective true. Instead, language is actually *shaping* the information. In this sense, language works to construct or, at least, impact the truth it conveys. Technical communicators must should recognize the ways in which language shapes, constructs, or obscures the information they want their audience to receive. Part of this work is understanding and assessing the **rhetorical situation** and being aware of their own biases and contexts. Then, it is important to understand your audience, as much as you can, and how their own contexts (their culture, age, language, education, race, class, gender, sexual orientation,

etc.) intersects with how they use language, their beliefs, and how they might receive information.

Key Takeaway: Language is Never "Neutral"

Throughout this text, language is framed as inherently, or always, steeped in values. Language is so closely tied to culture that language can never really escape or ride itself of a specific culture, a specific world view, a specific set of values, etc. Even genres that work to be objective and neutral, like many types of technical communication, are created using language that is full of implicit bias and cultural norms. Rather than working to escape these things and working towards the goal of a neutral document, consider instead the importance of recognizing that language contains values and tailor your language to your specific audience.

As you work through creating, revising, and reading texts, consider:

- How is the information presented in this text

participating in cultural norms or values?

- How can technical communicators use their understanding of their audience's culture and values to better explain things?
- What things remain consistent across various cultures and value systems?

If you have generally thought of language as a clear windowpane, and if you have particularly considered technical communication an example of language usage that is free of context or bias, try to pay close attention to the ways in which language is steeped in a specific context. Notice how you already choose language based on your target audience. An easy example would be thinking about how you develop a public health pamphlet for a group of junior high students and how you would articulate that same information to a group of research scientists at a national conference. A trickier example might be how you would design an elementary school website for students, families, school faculty, and staff to share information. In the second example, your audience is more complex and it may be less immediately clear how your language choices impact multiple audiences.

In both examples above–explaining data related to public health to an expert and non-expert audience and creating a

school website with various audiences in mind–language is a tool that not only informs but also persuades, shapes how audiences move through the world, and creates community.

> Consider that *how* information is communicated impacts *what* is communicated. How do technical communicators make choices to explain things in a particular way, and how do those choices impact their audience? For an example of explaining things using visuals over text, take a look at this infographic from Johns Hopkins Medicine: Coronavirus at a Glance.

In Coronavirus at a Glance: Infographic, Johns Hopkins Medicine explains complex public health information to a wide audience. While Johns Hopkins Medicine works to explain Covid-19 in a way that is **accurate** and **appropriate**, this information must also be **accessible** to their audience. Consider how they use images and text together to explain things. Consider, too, how their use of images and text are simple and straightforward but also influenced by cultural considerations. While the information presented could be considered singular (meaning that it is correct, accurate, or objective), there are multiple ways to explain this information. The language used to explain Covid-19 is not neutral, but is

itself a technology. Considering an infographic as an example might make it clearer that the language itself shapes the information. In other words, technical communicators made intentional, calculated, and specific choices about *how* to communicate and *what* language (including images, colors, shapes, document design) best communicates in this context.

Reading and Activity

Mr. Bliss: An episode of Radiolab

Readings:

Abumrad, J., & Krulwich, R. (Hosts). (2012, December 17). Mr. Bliss [Audio podcast]. Retrieved from https://www.wnycstudios.org/podcasts/radiolab/segments/257194-man-became-bliss.

Activity:

Framing the Reading

As you have read in this section, technical and

professional communication is not so much about creating clear windowpanes through which knowledge can be transmitted from sender to receiver, such that goals of the writer can be accomplished in a linear way; it is, rather, about seeing communication as a technology, as a powerful mediator of our everyday working lives, experienced in real, embodied, and often complicated ways. Because our communication shapes, structures, and organizes our collective activities, we must engage and reflect on our own practices of creating, forwarding, and using the meaning-making resources at our disposal, including texts, documents, sounds, imagery, and language. These considerations matter for broader questions like purpose, audience, and structures or limitations, as well as the individual and even sentence-level decisions we make as writers and designers.

Radiolab is a popular public radio program that discusses topics of science, technology, and philosophy in a light-hearted and accessible manner. In 2012, the program aired an episode called "Mr. Bliss," the story of a chemical engineer and semiotician (i.e., person who studies signs and meaning-making) who wanted to create a graphic symbol system that he thought would be "pure" or

"neutral": readily understood by all, even across time, space, and language barriers. The system is comprised only of inscribed pictures that are not meant to correspond to spoken language.

This story gives us an opportunity to reflect on many of the themes we have discussed throughout this text.

As You Listen

To guide your listening, consider the following questions:

- What cultural and historic circumstances shaped Charles Bliss's beliefs about language?
- What technological circumstances also shaped the creation and circulation of Bliss's language?
- How were words manipulated in Nazi messaging? (About 14:00)
- In what context did Blissymbolics finally get some recognition and traction? But what was Bliss's response to their use?

Questions for discussion or journaling

In addition to the questions above, these additional

questions can be used to debrief and reflect on the story.

1. Why do you suppose Blissymbolics failed to "take off" the way Bliss intended?
    1. What aspects of communication were, perhaps, missing in this system?
    2. How was Bliss imagining his language would be used? (About 15:00 – 16:00)
    3. Do you agree with Bliss's belief about the inherent violence or nonviolence of words vs. pictures?
2. In what ways does technical writing sometimes strive to be like Blissymbolics: (allegedly) plain, transparent, neutral transmitters of meaning — "more toward nature," as Bliss put it?
    1. Do you think Blissymbolics succeeded, though, even in this regard? Can you identify any culturally-laden assumptions in the pictures?
    2. How might your answers to these questions (2 and 2a) bear on the way you see technical communication, inside

or outside of formal settings?

3. What could Bliss have learned from user experience, if he had been open to it?
4. Can you imagine any applications for a tool like Blissymbolics not mentioned in the podcast? (What would be its affordances and limitations?)
5. In your view, did the opening story about Aleksander Gamme serve a purpose? What about the concluding remarks from assorted interviewees about what "bliss" means to them?

    1. Why do you suppose the writers and producers of this podcast made the choice to include them?
    2. Was this really a story about "bliss," or perhaps, something else?

Contributed by Evelyn Dsouza, University of Minnesota.

COMMON GENRES IN TECHNICAL COMMUNICATION

While this text takes a rhetorical approach to technical communication, it can also be useful to learn the conventions of common genres, and to understand how those genres are still flexible and responsive to a rhetorical situation. In this section we both examine the concept of *genre* as something that is based on social or cultural expectations, and as fluid or evolving. We explain the benefits to learning some common genres while also taking a rhetorical approach. As technical communicators, you will likely encounter unfamiliar genres, and while knowledge of genre conventions is helpful, it is also important to examine each new rhetorical situation and to frame writing as a process. Familiarity with common genres is helpful, but working collaboratively and taking each project on its own terms is also necessary. This chapter also talks about how, often, technical communicators are asked to work with existing documents, and to revise or remix them for a new audience and purpose.

Road signs and warning signs are a common genre and example of technical communication. While they follow genre conventions, such as "universal signals," they also respond to a specific context. Even if you don't speak any of these languages, you probably understand what this sign at the Solheimajokull Glacier in Iceland is saying, thanks both to its use of symbols and your familiarity with this genre. Image by Ryan Eichberger.

After briefly describing theories of genre, this section covers the 5 main genres that you practice in WRIT 3562W: technical descriptions, instructions, proposals, reports, and presentations. This section provides overviews of those genres along with links to further reading, examples, and exercises.

Voices From the Field: How do you approach a new project?

"I don't really have a prescribed process. Where I jump in as a writer depends project to project. Ideally, I'm able to start writing after workshopping with my product team to map the user journey, and to start with UX wireframes. More often than not I'm working with a designer or software engineer on something that already exists that either needs content or needs its content improved."

Bill Siemers
Content Strategist, Facebook

4.1 GENRE, SOCIAL ACTION, AND ACCESS

In this section, we cover commonplace technical communication genres, each of which you will practice this semester. Even as we describe and practice genre conventions–which are based in practice and audience expectations–it is important to approach each writing task with an analysis of the rhetorical situation. In other words, even with genre conventions to help guide your choices, you must still **make choices** based on the purpose, the context, the audience, etc.

One reason that it is still important to keep the rhetorical situation in mind, and to be flexible and adaptable to different situations, is that genre conventions are not "rules" or templates. They are based on collective expectations and, likely, some sense of purpose or function related to the purpose of that document and its context. Over time, audiences expect to see certain "moves" in a genre with which they are familiar. These moves developed organically–and they can change, adapt, and adjust like anything else.

Even within the common constraints of a genre, technical communication is still user and audience focused. And, when given genre conventions and guidelines, it is important to

continue to question how documents either work towards justice and equity or how they have historically worked against these things.

Some things that impact genre conventions or typical genre "moves":

- New or developing technologies
- Different audiences
- Growing awareness of or attention to accessibility
- Intentional goal of surprising your audience or going against their expectations
- Recognizing the genre's relationship to justice or injustice

Volcanic eruption in Iceland. In the space of weeks, a whole range of technical communication genres emerged in an otherwise wild area: desire paths, waymarkers, parking lots and signage, GPS maps for mobile apps–all because people wanted to go see the eruption. This eruption, and the texts that emerged in response to it, illustrates how technical communication genres respond to a specific need or opportunity; the variety of genres exemplifies how information is remixed for different audiences, purposes, and contexts. Image by Ryan Eichberger.

Revising, editing, and remixing

Recent research in professional communication positions most writing that happens in the workplace as collaborative, multimodal editing. So, for technical and professional communicators, this means that often you will be working with an existing document rather than creating a new one. Further, you will often be working with a team. Instead of being asked to generate a report or create a set of instructions, for example, you will be asked to work together with a team to significantly revise, improve, rewrite, or remix existing documents for a specific audience or in response to specific changes and concerns.

Why, then, talk about editing in a section on genre?

Often, your work will not be to create one of the genres discussed in this section "from scratch"; rather, you will be asked to take a document that falls into a genre and revise or remix it for a new audience, specifically considering 1) that audience's needs, expectations, and culture and 2) how this document aligns with concerns for diversity, equity, and inclusion.

So, even though you will often be working with an existing document, it's important to understand genre conventions and to practice some common genres. You may even be asked to revise a document in order to better fit with a specific genre

for a specific audience. So much of genre grows out of audience expectations and cultural conventions. Think about a genre that you interact with frequently (a cover letter is a common genre, for example, or an academic essay). At some point you've probably written a cover letter, and you've certainly written an essay for a writing class. How do you know what information to include? How do you know whether to use single or double spacing, to indent the beginning of a paragraph, or to use headings? A podcast is a good example of an emergent genre that has developed alongside the technology necessary to make podcasts easy to make and to access. What are some features of that genre? Are there ways to "do" a podcast that follow certain audience expectations or conventions? Are there ways to create a podcast that would be surprising or even jarring to an audience?

Genres develop over time and are based on the expectations that an audience has. Those expectations come from interacting with documents that are part of the same genre: documents that serve the same purpose or have the same goals or are part of a similar context. Those expectations then impact how an audience will interact with a text (when I listen to a podcast about true crime, I expect certain features based on the other podcasts that I've listened to before). In this way, experience shapes expectations, and expectations impact how easy it is for an audience to interact with or understand a text.

It is important to assess each unique rhetorical situation; **it is also important to become familiar with the**

expectations and guidelines of a genre, even if you plan on pushing against or changing some of those expected features. The work of understanding and analyzing a rhetorical situation AND the work of familiarizing yourself with genres both allow you, as a technical communicator, to make choices that increase access and equity, and that work towards social justice.

In this section, we look at some common genres in technical communication: **technical descriptions, instructions, proposals, reports, and presentations**. This text describes common moves, features, and expectations of each genre, while also considering how technical communicators can respond to specific rhetorical situations and consider diversity, equity, and inclusion within each genre.

4.2 DESCRIPTIONS AND DEFINITIONS

Brigitte Mussack and Brandi Fuglsby

Two closely related, common genres that you will come across in technical and professional communication settings are **technical descriptions** and a **definitions**. Throughout this open text, you can find definitions and descriptions of important concepts. In fact, **Section 3** is completely devoted to defining the field of technical communication. As you can see even in this text, definitions are much more complex than what you often find in an online dictionary entry. Defining a term includes not only coming up with a general way to explain that term to an audience, but it also requires putting a term into a given **context**. For example, you might want to define ***social justice*** or ***equity*** in a general sense for a broad audience. Or, you might be tasked with defining ***social justice*** or ***equity*** within the specific context of technical communication, or within the context of your organization and its approach to building client and customer relationships.

Like other communication situations, **definitions** exist within genre conventions and respond to specific social expectations. Think, for a moment, about genre conventions of a definition. When you search for a definition of a term, what are some things that you expect to see? Frequently, when looking for a definition, you might expect to see a brief description of that term followed by some examples or illustrations. You have very likely searched for a term in an online dictionary or encyclopedia, each of which follows various genre conventions and expectations.

If you had to define *equity* using a broad context for a broad audience, then had to define *equity* for a very specific context and audience, consider: How would those definitions look different? In what ways might they be similar or even the same?

Dictionaries such as Merriam-Webster have played a role in created genre expectations for **definitions**, and often readers come to

expect this genre to adhere to similar patterns. Take a look here at how Merriam-Webster's online dictionary defines ***description*** as a term. Now, take a look here at how Wikipedia defines ***description***. How are these two examples different? What do you notice about how the Wikipedia entry also contains definitions of terms, as compared to how Merriam-Webster defines a term?

When looking at the Wikipedia page for ***description***, what did you notice? In addition to the content of the page (which should help you to better understand what *description* **means**), the way that the page is designed and organized probably adheres to the genre conventions of Wikipedia, specifically, and of an encyclopedia more broadly. When you create a technical definition or technical description, such widely recognized publications like Merriam-Webster and Wikipedia will, to a certain extent, impact your audience's expectations. However, technical descriptions and definitions are often directed at a much more specific audience (like many genres in the field of technical communication). Technical definitions not only define terms broadly, they define terms within a specific context (consider again how audience and context impact the choices you make as a technical communicator).

Skeleton, Northern Illinois University Department of Primatology. Medical and biological textbooks often include technical descriptions that break something down into its component parts. How would you create a technical description of a primate skeletal system? Image by Ryan Eichberger.

There are various types of technical definitions, both simple and extended. As you can see from Wikipedia, a useful way to define a term is through an example or illustration. Extended definitions provide greater detail and are more precise. Extended definitions can be much longer, even several pages, and are often used for a more specific (rather than broad or general) audience. You might find extended technical definitions in a medical textbook, for example.

A technical description often includes a definition, then works to describe a product or a process for a specific, non-

expert audience. When you write a technical description, you are either writing as an expert, or you are working with a subject matter expert and helping to translate very complex products or processes for your target audience.

When you are writing a technical description, you should appeal to various senses, such as sight, taste, hearing, or touch. Be as specific and detailed as possible. Consider that you are writing something so that your audience has a good understanding or 'picture' of your subject. If describing a process, you want your audience to understand what that process entails, even though they are not necessarily planning to attempt the process themselves (this is a key difference between descriptions and instructions, which we discuss further on!).

So many fields and majors rely on technical descriptions! Take a look at the table below.

If you ever create a new...	For this field:
Medical device	Medical
Food item	Food science
Clothing item	Apparel design
Computer program	Computer science
Diet plan	Nutrition
Painting, sculpture, etc.	Art
Advertisement/commercial	Graphics design/business & marketing
Budget	Finance

...then you'll want to learn about and become familiar with technical descriptions.

If you ever need to describe...	For this field:
How farmers use hedging to estimate their profit	Agriculture & food business management
How pet owners keep an exotic animal; how the general public adopts a dog; how a certain disease affects a cat's body	Animal science
How a professional conducts a successful meeting	Business & marketing ed.
The Family System Theory	Family social science
How waste management works for a certain city; how to keep food items fresh when shipping them across borders	Food systems
How to take a patient's blood pressure	Nursing
A product to determine its worth/value; how store owners set up their display windows	Retail merchandising
How to forecast a business's profits	Economics
How to write a press release	Communication studies
How a certain part of the body works	Physiology
How to determine the age of an artifact	Anthropology
The design of a new office space	Interior design
How the justice system works	Criminology

How to improve human performance for a certain company	Human resource development
How to keep a youth from dropping out of school	Youth studies
How to track a certain animal in the wild	Fish, wildlife & cons. bio.
Which products are renewable	Bioproducts/ biosystems
The development of a certain social problem	Sociology
A workout	Kinesiology
Which presidential candidate used rhetoric best to convince the American people	Writing studies
The parts of a plant; how to grow an exotic plant in MN	Horticulture
How you decided which NFL team you think will win the Superbowl	Statistics
How to submit a story to an editor; how to get a book published	Journalism

...then you'll want to learn about and become familiar with Technical Descriptions.

Contributed by Brandi Fuglsby, University of Minnesota.

As you can see from the table above, technical descriptions

are common genres across disciplines, across fields, and across majors. What type of technical description do you think you'll run into in your own major? Or, what technical description does your field or area of specialization rely on?

Now that you have a better sense of technical definitions and technical descriptions, take a moment to consider how these genres relate to concerns about diversity, equity, and inclusion. How might you consider social justice when writing or revising a technical description? How can you be sure to consider diverse perspectives and experiences when describing a product or process? How can you work to make sure that a description is accessible?

One way to focus on access and equity in technical descriptions is to consider your specific audience and what features might make a technical description more or less accessible. To do this you need to get to know your audience, their expectations, prior knowledge, and needs (so, what is it they need to know or want to know about this product or process?).

Technical descriptions are one genre where plain language is very important. This text describes the use of plain language as an ethical consideration and discusses "The Plain English Revolution" by Alan Siegel above [here could we link to that section?]. Remember that plain language describes a way to take very complex, specialized information and to use language that accurately describes the content AND is accessible to a non specialized audience.

Take a look at this example of a technical description of a process from the Cleveland Clinic, describing the process of testing for Covid-19: Covid-19 and PCR Testing.

Now, reflect on this example:

- Did you notice that, along with a description of the process and product, there are some definitions of terms?
- How did this description appeal to sensory language?
- How was this description organized to make content easier to understand?
- Who do you think is the target audience for this description?
- Is there anything you would change if you were asked to revise this description for a different audience?

This description is certainly written for a non-medical audience, but it also seems to be written for a group of adults with a certain level of education or with a certain comfort level with medicine. In other words, this seems to be written for folks who have some understanding of biology or science and familiarity with visiting the doctor for various types of tests and treatment. Can you imagine different target audiences? How could you revise or remix this information to make sure that it is accessible and inclusive of historically underrepresented populations? If this description is written for an audience that already has a certain level of knowledge

and trust regarding doctors or clinics or the medical field more broadly, how might you rework this information for an audience who does not have that relationship with visiting a clinic or with the medical field in the United States?

Take a look at this very different description of Covid-19 testing from Boston Children's Hospital.

Now, reflect on this technical description:

- How is this second example different from the previous description of the Covid-19 test?
- Who is the intended audience and what is their relationship to doctors and to the medical field, based on what you see in this description?
- How does the mode (video vs. text) impact access?
- How are different features (like illustrations and animation alongside a doctor speaking directly to the camera) used in this video?

Both the webpage from the Cleveland Clinic and the video from Boston Children's Hospital describe the same process, but you can see how much of an impact the audience should make when making decisions about how to best create a technical description. You must assess the rhetorical situation and consider how you can make complex information as accessible as possible.

Finally, take a look at this description (which is closer to instructions, the next genre that we discuss in this text) of

completing the Covid-19 Nasopharyngeal swab test created by UConn Health and, once again, consider the differences and similarities among these three descriptions of the same process.

In the next section, we discuss the genre of instructions, which are closely related to technical process descriptions. Once again, instructions require that you consider your target audience and apply what you have learned about diversity, equity, and inclusion when making a process accessible to that audience.

Activity and Reflection: Extended definition

Consider how this textbook has worked to **define** various terms, including ***diversity, inclusion, technical communication, professional communication, rhetoric,*** and ***social justice.*** Even in this section, the text works to define specific genres so that you are better able to understand what those genres are and what they do.

When terms such as ***inclusion*** are defined in Section 2, these terms are put into a specific context and are compared to other terms. You might also find examples to help illustrate the term. An

extended definition uses various strategies, such as examples, negation (inclusion does NOT mean...), comparison (inclusion is similar to), etc.

Definitions are often elements of technical descriptions. These genres are related, but not the same. For this exercise, practice writing an extended definition and a technical description of the same term, and reflect on the overlap and distinction between these genres. Alone or with a partner, do the following:

- First, choose a term. This term might be an abstract concept (such as ***diversity***) or something more concrete (such as ***acupuncture***).
- Second, create a contextual definition of the term (take a look at how some terms are defined in other sections of this text if you'd like). You can create an extended definition by using more than one approach to define the term.
- Finally, create a technical description of your term. Reflection on how you approached these genres–definition and description–and how they are both similar and distinct.

4.3 INSTRUCTIONS

Instructions might be the technical communication genre with which you are already the most familiar. Have you ever had to assemble a piece of furniture? Are you interested in DIY home improvement projects? Have you ever built a complex LEGO structure?

It is very likely that you have had to do at least one of these things listed above, and that when you did you relied on a set of instructions to help guide your process. Think back to the most recent, or most interesting, interaction you have had with instructions. Now, ask yourself the following questions:

- Why did you turn to instructions rather than figure out how to complete the task on your own?
- How much did you rely on these instructions? In other words, did you follow them closely, step by step? Did you only turn to them as needed and figure out pieces of the process on your own? Did you read through sections multiple times?
- How did you interact with this text? Did you read or watch along as you went? Did you watch a video or read through the entire process before beginning?
- Were the instructions easy to follow? Why or why not?

- What specific features made the instructions easy or difficult (ie use of images, headings, mode)?
- How were the instructions delivered? Did you watch a video? Read a pamphlet? Did you have to turn pages of a book or scroll down a screen on your phone?
- What could have made these instructions better?

Chocolate chip cookies. Recipes are a sometimes disputed but common example of instructions. Objections to including recipes in the definition of "technical communication" are rooted in a problematic, exclusionist history of the field. Currently, recipes are generally considered part of the instructions genre and an example of technical communication more broadly. Image by Ryan Eichberger.

Sometimes instructions are useful because you want to get things "right," say for example because you are building a complex LEGO structure or making a new recipe. Other times

instructions are crucial because getting parts of a complex process "wrong" means that the entire project is ruined, or the structure you've built is unsafe. There are even scenarios when failing to complete a step in a complex process means life or death.

Atul Gawande's article "The Checklist" researched the difference that a checklist can make in patient health and recovery in hospital ICUs.[1] Read the article and participate in the activity with your class. Consider whether you are surprised to learn what a significant difference checklists could make. Consider, too, how checklists are a type of instructional document. How are they similar to a "how to" video on YouTube? How are they different?

Checklists, particularly the kind described by Gawande, are just one small example of technical instructions. Sometimes the best way to get a sense of genre conventions, and where those conventions are shifting and flexible, is to read a variety of documents that fall under that genre category. After reading through several examples, pay attention to 1) what they are doing that looks similar or what features they seem to have in common, and 2) what the documents do differently or where they make novel or divergent choices. In this way, you'll get

1. Gawande, A. (2007, December 2). *The Checklist.* The New Yorker. https://www.newyorker.com/magazine/2007/12/10/the-checklist

a sense of the boundaries and constraints, but also of the flexibility, within a given genre.

Take a look at the examples below. Each of the links takes you to a different type of instructional document.

- Standard Operating Procedure: Pouring Dental Impressions
- Instructions: MacBook Pro 13″ Unibody Early 2011 RAM Replacement
- Instructions: Ikea Skogsta Chair Assembly
- Instructions: Saris Superbones 3 Bike Rack
- Operating Instructions: LifePak defibrillator
- User Guide: Zojirushi Rice Cooker
- Procedures: Hamline University Building Evacuation Procedures
- Protocol: Feline URI Treatment

As we've already discussed, sometimes videos or images can be more effective than text when it comes to relaying complex information, or when it comes to instructions. With that in mind, the videos below describe instructions as a common genre in technical communication.

The first video, below, provides an introduction to instructional documents including features such as an effective title, list of materials, clear steps, and integration of text and visual elements.

What are Instructional Documents?

One or more interactive elements has been excluded from this version of the text. You can view them online here:
https://pressbooks.umn.edu/techwriting/?p=128#oembed-1

Based on a Lego® model, the video below addresses the characteristics of instructional documents and strategies used to construct effective step-by-step procedures using text and visual integration to reinforce tasks. Key components are the sections of instructional documents: lists of materials used, tasks broken down to major and minor steps, and integration of text with visuals. Guidelines include numbering and chunking tasks, using imperative voice, and diagramming parts. You will see one completed step of a procedure for assembling a Lego® figure.

Instructional Documents: Writing Effective Steps

One or more interactive elements has been excluded from this version of the text. You can view them online here:
https://pressbooks.umn.edu/techwriting/?p=128#oembed-2

Take another look at some sample instructions from the Lego® website:

Classic Lego Instructions 1

Classic Lego Instructions 2

What do you notice about these instructions? What are some features that stand out to you? How do they use only images and numbers to instruct their users? What are some positive attributes of these examples, and what would you change? Who do you think the target audience likely is, and are these instructions accessible for that audience?

Take some time to search for other sample instructions, and consider what you like and dislike, what makes them accessible or inaccessible, as a potential user.

Just like with descriptions, it is so important to be sure that instructions are accessible to your target audience. In order to create accessible content, you must consider your audience, their needs and context, the rhetorical situation, and how diversity, equity, and inclusion matters in this specific communication situation.

Creating accessible instructions depends upon knowing how your audience moves through the world and what they already know or practice or understand about the task. Instructions often help people complete some task that involves a variety of tools, so it's also important to consider your audience's relationship to those tools and what they might have access to or what they are familiar with.

As discussed elsewhere in this text, it is important to

consider the language you use AND the way that you communicate–videos, images, audio, and written language all help to ensure accessibility. Document design is an important part of creating an accessible document, too. Be sure that your audience understands where and how to access different steps in the instructions process.

Another thing to consider is how your audience will likely interact with your instructions. Will they read them from beginning to end and then begin the process for themselves? Will they be in their homes, or at work, or maybe outdoors? What tools will they likely have access to and where can they find the necessary tools or materials? Are there any cautions, warnings, or especially important considerations?

A great way to understand how your target audience interacts with instructions, and to understand what parts of your instructions could be improved, is usability testing. Usability testing is discussed in detail elsewhere; when conducting usability testing remember that an important way to focus on diversity, equity, and inclusion is to pay attention to your users and whether you are assembling a group of usability testers who can represent diverse experiences. In other words, if you conduct usability testing for a set of instructions, but all your users are white, middle class, heterosexual, cisgendered, Christian, college-educated men, are you really learning about a wide user experience? Can you, from that group, make assumptions about how folks will interact with your instructional design?

As you create instructions, and as you conduct usability testing and revisions based on what you discover through usability testing, stop frequently to reflect on whether you are working to represent and include marginalized voices in your document. Consider, during the creation and revision process:

- Who is my target audience?
- Is my target audience represented in the group of collaborators creating these instructions?
- Is my target audience represented in my group of users during usability testing?

Activity and Reflection: Document Design

Take a moment and consider the last time that you had to follow a set of instructions in order to complete a task. What was that experience like?

Alone or with a partner, find an example of what you might consider **poorly designed instructions**. Then, consider the following questions:

- What makes these instructions difficult to follow?
- What specific things can you point to in the document design that serve as “roadblocks” or “barriers” to information?
- If you have to revise the instructions, where would you begin? What elements would you focus on?
- Consider who target audience likely is; how can you create instructions that are more accessible to this audience?

4.4 PROPOSALS

A proposal does just what it sounds like it would do: it proposes a project or idea to a reader, often seeking either necessary approval or funding to begin that project.

If you are enrolled in WRIT 3562W, you will create a proposal for your formal report. Your proposal should be a research plan; in it, you ask a question and articulate a plan to investigate that question. Part of this plan includes a detailed description of the types of research you will conduct, an explanation of why that type of research makes sense for your question, and a timeline that shows when you expect to complete different stages or elements of your research project.

Your proposal should start by asking a question or identifying a problem. Your research question–some unknown related to the problem you've identified–will then lead your research investigation. The findings of this investigation will make up your report: our next assignment (which is the **formal report**, described in Section 4.5).

Take another look at our conversation about research in Section 1.5, and consider how the research process begins with an unknown or a question or a dissonance. In your proposal, you get to articulate that question for your reader, and explain why it's an important unknown, problem, or question that is

worth investigating. Part of this work includes situating your research question or unknown in a body of research. In other words, show your reader (and make sure for yourself!) that you are investigating something that is currently unknown but that is connected to other research investigations. Your proposal will include summarizing and synthesizing research so that you can really make sense of how YOUR question fits into an ongoing conversation.

Proposals must articulate a problem but also work to convince readers that the problem 1) exists and 2) matters. Proposals work to persuade as well as inform. Take common problems related to environmental justice or equity, for example. How might you articulate a specific problem related to climate change? How might you convince your audience that the problem is worth investigating? How can you develop a research plan that allows you to address this specific problem?

Common loon in Minnesota lake. Fallout from the 2010 Deepwater Horizons oil rig explosion continue to kill Minnesota loons, which are tagged, tracked, and mapped as they migrate and, unfortunately, die off. In order to understand how to preserve the current loon population in Minnesota, a researcher would first need to understand all the unknowns related to their disappearance. Proposals articulate a specific unknown and propose a research plan to better understand the problem. Image by Ryan Eichberger.

One challenge of writing a proposal is moving from a big problem, or topic, to a small, manageable question. The scope of your proposal will depend upon the time and resources you are able to allocate to your project. Like with any other genre, proposals respond to a rhetorical situation and are written for a specific audience. Often, your proposal will be tailored to fit specific requirements (for a funding opportunity, from your

workplace, or for a specific assignment). For example, if you want to research the declining loon population in Minnesota, you have to first develop a very specific unknown related to that bigger problem. You also have to work–using research and a rhetorical approach–to convince your reader that this specific problem is relevant and important. Some questions to ask as you begin your process of moving from the problem of "declining loon population" to something specific and manageable might be:

- What are some unknowns related to the problem?
- What does current research have to say about the problem?
- What are some specific factors contributing to this problem?
- Who are the key stakeholders (why does this problem matter, and for whom)?

Key Takeaway: Inform and Persuade

Proposals are a common genre for technical and professional communicators, and while they adhere

to certain genre conventions, they must also respond to their specific rhetorical situation. Proposals can take so many forms and contain various features; some things that proposals nearly always do are:

- Introduce a problem or question
- Articulate a plan to address that problem or question
- Work to both **inform** and **persuade** the reader

When creating a proposal for your formal report, you will focus on developing a question that grows out of a problematic situation. You will then articulate your research plan and timeline, describing how you will address that specific, nuanced question in your report. You will describe your research methods and approaches and help your reader to understand the work you plan to do.

Young, Becker, and Pike, in their text cited at the end of this section, outline a process for articulating specific, answerable questions, which are the starting points to meaningful research (or to other types of projects). They say that research often begins with a "problematic situation," or something called a "cognitive dissonance." A cognitive dissonance describes a

situation in which your own experience or worldview "bumps up against" does not align with some new information, experience, or a different worldview. Young et al. argue that many people choose to resolve the dissonance by ignoring or rationalizing the new information in a way that does not require them to revise their own worldview. This approach, as we understand it, goes directly against work towards diversity equity and inclusion. As technical communicators and as problem solvers, your job is to engage diverse perspectives and to reconstruct your understanding of a situation or topic based on new, even conflicting, information. So, this experience of a "cognitive dissonance" can begin meaningful inquiry and work!

Let's say, for example, that you believe wearing masks are ineffective when it comes to protecting the wearer. You remember hearing that this was the case at the beginning of the Covid-19 pandemic. You also remember reading that the virus particles were so small that they could easily pass through a mask.

Months later, masks are being recommended by most healthcare professionals. Data on masks shows that they are an effective way to prevent the spread of Covid-19.

You might experience this new recommendation as a ***cognitive dissonance***. On the one hand, you remember reading that masks were not effective (unless they were N95 masks). You also remember learning that Covid-19 particles could pass through the masks. **On the other hand**, you read

that masks are recommended and even required in certain spaces, and that data shows they are effective in preventing the spread of Covid-19.

As researchers, encountering a cognitive dissonance like this one might lead you to identify some specific **unknowns**. Unknowns that are contributing to the dissonance describe here might include:

- How do cloth masks work?
- How do Covid-19 viruses spread or travel?
- What does data look like in masked vs unmasked instances?
- What factors changed the recommendation from healthcare providers?

Each of these unknowns can lead to a proposal, which would sketch out a plan for research. These unknowns would be revised into research questions that lead to a specific route. The way that a question is phrased determines the type of research you would do (for example, asking "what do parents think about mask mandates in schools" leads to very different research from something like "are cloth masks effective measures to prevent the spread of Covid-19 in school settings").

Let's work through another example of a cognitive dissonance that can lead to formulating a research question. A problematic situation might be one describe above in the

caption under the image for the common loon. A dissonant situation might be something like, **on the one hand**, wildlife preservation efforts often focus on the actions of individuals. Public campaigns to save the loon's habitat in Minnesota emphasize the importance of consumers to make better choices and to keep the lakes clean by not feeding wildlife and picking up their own trash. **On the other hand**, research indicates that specific events, such as the 2010 Deepwater Horizons oil rig explosion, make the most significant negative impacts on wildlife habitats. The actions of individuals make little difference in preservation efforts. The cognitive dissonance might lead a researcher to question: what factors most significantly contribute to the disappearance of the loon's habitat? Some unknowns include:

- What are the main factors contributing to the disappearance of the common loon in Minnesota?
- What factors contribute to disappearance or destruction of the loon's habitat?
- What factors are related to individual decisions, and which are tied to the actions of major organizations, corporations, or government entities?

These are just some of the potential unknowns that can lead to **specific, nuanced, and manageable research questions.** Consider how questions that are too "big" (like "How can we save the Minnesota loon?") can make a research

project unmanageable. Consider, too, that some questions are more difficult to answer, especially questions that lead to "yes" or "no" or "black and white/all or nothing" types of answers.

Finally, along with explaining how research questions evolve out of cognitive dissonances, Young et al. say that there are no problems existing out in the world waiting to be solved; technical communicators solve problems, ***but they also must explain and convince WHY something is problematic in the first place.*** Do not assume that your reader already understands or knows why a situation is problematic or why an unknown is worth investigating. Part of your job, in a proposal, is to demonstrate THAT a problem exists and to explain WHY this problem is worth addressing.

How can you consider diversity, equity, and inclusion when creating a proposal?

Proposals are engaged with social justice, and the work of creating a proposal is concerned with diversity, equity, and inclusion, because a proposal works to solve a problem. To solve or address a problem, keep in mind who the stakeholders are: whom does this problem affect? Who stands to benefit, and who stands to lose? Why are you working to address this

problem, and what perspectives are you considering when you do this work?

Another way that proposals engage diversity, equity, and inclusion comes into play in how proposals engage other texts and use research. Part of the work of a proposal includes 1) articulating an unknown or a problem and 2) situating that problem in a body of research. Remember that citational practices are one way to engage equity and inclusion. Which voices do you include in your research and in your approach to answering a question? Which perspectives can you consider as you engage a question or a problem from various perspectives?

As you come up with a topic for your proposal, try to think through a problematic situation or cognitive dissonance that you have experienced. Perhaps there was a time when you read something for a course that conflicted with your own experience of the world. Or, perhaps a friend or roommate shared an experience that did not match your own. Or, perhaps you read or experienced something that didn't "add up" based on your understanding of the world. Engaging a dissonance–rather than dismissing it or rationalizing it away–is one way to work diversity, equity, and inclusion into a proposal from the very beginning. Because a dissonance happens when two conflicting world views or experiences "push against" each other, engaging that dissonance through thoughtful research means engaging different perspectives and voices. Work to address your own biases and to recognize where and how you can seek out information and expertise.

Take another look, too, at Section 1.5 and consider how you can work DEI into your research plan. Remember that it's important to consider whose voices are included when conducting both primary and secondary research.

Section 4.5 discusses formal reports; in this genre, you get to follow through on the research plan created in your proposal.

Activity and Reflection: Identifying an Unknown

Read Young, Becker, and Pike's book chapter on "Identifying and Stating the Problem" from the book *Rhetoric, Discovery, and Change*.[12]

In this text, Young et al. describe the process of articulating a research problem as something that

1. Young, R., Becker, A., Pike, K. (1970). "Identifying and Stating the Problem." Rhetoric: Discovery and change. New York: Harcourt, Brace & World.
2. Writ 3562W students at UMN can find a PDF of this chapter in the Canvas course site.

begins with a felt discomfort, or a cognitive dissonance. Remember that they stress that problems don't exist separate from people: there are not problems out in the world waiting to be discovered. Rather, problems exist for someone. The job of a researcher is to let a problem turn into a generative project. So, let the problem be the starting point for asking questions and finding solutions.

They describe, for example, an experience that someone had who is an expert in bees. This person had read another study that claimed invertebrates (which includes bees) are colorblind. Our bee expert said that this study caused a cognitive dissonance, because it clashed with what he knew about bees and the variety of colors of flowers. He said that, if bees are colorblind, then what is the biological significance of flowers having such a variety of colors?

Rather than dismiss this other study, our bee expert turned this cognitive dissonance–two things that did not sit well together–into years of research.

This text is written for folks doing research in the social sciences; how might this way of framing and

describing problems from Young et al. be useful for technical communicators?

Remember that technical communicators work to solve problems, and that they work to communicate complex information to a variety of audiences. In their work, they often run into cognitive dissonance, where new information or a new experience–or a new member on your writing team with different expertise or knowledge–bumps up into previously existing ways of doing things. Technical communicators are often tasked with creating formal reports that chronicle systemic investigations into existing problems and that propose solutions based on the data collected (we will describe formal reports next!). Before jumping into a large project, a proposal helps you to really clearly articulate the problem and your proposed plan. The method of developing and articulating answerable questions that Young et al. describe is a useful approach when you develop your proposal.

For this activity, consider a cognitive dissonance or problematic situation that you have run into in your major, that is relevant to your field, or that has grown out of another course. Take some time and

describe that problematic situation in just 1-2 paragraphs.

Once you have described the situation, articulate 2-3 specific, researchable unknowns. So, for example, if the problematic situation is that, on the one hand, a report claims that invertebrates are colorblind and, on the other hand, bees seem to prefer flowers that are certain colors, what are the unknowns or questions contributing to this situation? Some unknowns might be:

- Are bees colorblind, or are they an exception?
- Do bees seem to prefer certain colors over others when it comes to flower pollination?
- Is there a biological significance of flower color variety?

You can probably come up with even more unknowns: from one problematic situation there are many questions that you might ask. Remember that the way you ask a question determines, in part, what the answer can be. Consider the three questions above, and the different research paths that each would lead to.

As you develop your own proposal, keep in mind what questions are the most "answerable" and

whether certain questions (like questions that require a “yes” or “no” answer) are “unanswerable.”

Once you have written 2-3 unknowns, reflect on how you might begin to research each. What would a research plan look like for the questions you’ve asked?

4.5 REPORTS

Formal reports are a common genre that you'll come across in technical communication, and they exist across a wide range of fields, industries, and audiences. Reports address a specific, guiding question or claim and present clear research and evidence in order to address that question or support that claim. Reports can make a recommendation based on the data gathered and presented, or reports can simply present findings and leave recommendations or conclusions up to the reader.

You report will follow what is known as the IMRD structure, which is described in detail below. The major sections of your report are the introduction (I), the methods section (M), the results section (R) and the discussion section (D). While a report genre is fairly consistent in terms of organization, structure, and content, you'll still need to make decisions based on the rhetorical situation and your audience, their knowledge, their expectations, and their needs. You might be asked to create a report, or you might create one based on your own proposal. Either way, reports are another way to address a problem, and they are purpose-driven and tailored to a specific audience.

Bison at Yellowstone. Maps, memos, and inventories helped facilitate the extermination of the bison from the North American plains–an ecological disaster that coincided with the forced internment of native people on reservations and the destablization of the grasslands biome. Research into how, in the case of the declining bison population, technical communication worked against environmental and social justice is an example of the intersection of technical communication and social justice. A formal report on this topic would address some of the "how" and "why" questions related to the role that technical communication played in bison extermination, and technical communicators could use research they've collected to either inform their readers and/or to make a recommendation. Image by Ryan Eichberger.

Diversity, equity, and inclusion

In many ways, a report is the most structured and

straightforward genre that you will work with this semester. However, there is still plenty of room for creativity, and there is still a need to consider how your formatting and content choices are concerned with diversity, equity, and inclusion.

How is a report related to diversity equity and inclusion? When writing a report, here are some of the decisions you will make that involve diversity, equity, and inclusion:

- You will make decisions about the content and focus
- You will make choices about how to conduct and include research and data
- You will choose how to format your report, including the use of visuals and graphics and headings

As we have discussed already in this text, even seemingly objective, logos-driven, "voiceless" genres are not actually socially or politically neutral. All pieces of communication, every text, contains a point of view. Even when you rely on data to tell a story, you are choosing which data to include and helping your readers to see the story in the data. Your own experience, bias, and point of view impacts your writing: effective technical communicators are aware of these things and work to account for them in their texts.

Just like with proposals, reports rely on research and citation. In fact, reports are built around research: you may collect your own data (empirical or primary research) or you may use data and research previously gathered and published

(secondary research). Remember that the way you ask a question determines, in part, what the answer can be. In other words, as you develop questions and choose how to gather and present data, you make choices that impact the conclusions you will reach. As such, it is so important to consider how your worldview and experiences impact the way you frame a question. This is yet another reason that it is important to get feedback and to listen to diverse perspectives during your research process!

As you learn more about the genre of formal reports, keep in mind how you can use research as a way to approach questions with an open mind, and how you can invite other voices and experiences into each part of your research process.

IMRD structure

Most formal reports, including the report that you write for WRIT 3562W, follow what's known as IMRD structure: **Introduction, Methods, Results, Discussion**. Each section follows the genre conventions described below, but once again, be sure that you balance genre expectations with flexibility and responsiveness to your purpose and audience.

Introduction

In the introduction, you tell your reader what the report is

about: what is your central question or problem or claim? Give the reader, in this section, any background information and research that they might need in order to better understand your focus. For example, if your report investigates an unknown, show your reader, through summarizing and synthesizing relevant sources, that this unknown is important and that it contributes to a problem in some way. Show your reader what past research has done to establish this problem as timely and important, and show how an unknown grows out of the literature.

Your introduction should include, likely towards the end, some *forecasting*. Tell your reader, directly and explicitly, what they can find in the rest of the report. Consider this section a "mini outline" for your reader. You can be very clear and direct, saying something like:

> In what follows, I first describe my methods of interview, survey, and library research, explaining...Then, I share my findings that...Finally, I discuss the significance of my data and recommend...

This type of forecasting helps your reader not only understand how your report is organized, but also what your report covers. Your introduction should be very clear, direct, and concise, and forecasting helps to set the reader's specific expectations.

Methods

In your methods section, you describe your methods, in as much detail and as clearly as you can, so that your reader has a very clear understanding of how you gathered your data. You can include relevant information (if you conducted a survey, how many people did you survey? How did you find participants? How did respondents complete the survey? What types of questions did you ask? Why was survey appropriate given your research questions?).

Results

This section can be tricky, because you need to display your results without editorializing them. So, do not tell your reader why they are significant or what they mean: instead, very clearly show your reader what you found.

This is a section where visuals are often very important for the reader's understanding. Many readers can more easily understand data displayed visually than a long block of text describing that same data. Be sure that you do, however, include text along with your visuals, to tell your reader what that visual means or how they need to interpret it. Tell your reader a story about the data (without adding your own opinions or arguments).

Remember that even though this section should not contain an *argument or interpretation* of results, you are still

controlling a narrative for your reader, even as you choose how to display your data or what data points to focus on. Consider ethics and social justice as you create this section: how can you be sure that your results are reflective of what you've found? How do concerns of equity and bias and inclusion impact how you frame this section?

Discussion

In this section, you make sense of the results for your reader, you interpret their significance and tie your findings back to your initial question or focus, and you make recommendations and conclusions.

It is important, in this section, to openly acknowledge any limitations in your research: acknowledging limitations not only helps you to build a credible ethos, but it also allows your report to openly address diversity, equity, and inclusion. It prevents you from making any sweeping generalizations based on your findings, and helps you to check your own implicit bias.

Your discussion section often also includes recommendations; keep in mind that you may end up recommending further research based on your findings.

Watch this video on IMRD structure in formal reports.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://pressbooks.umn.edu/techwriting/?p=134#oembed-1

Front and back matter

In addition to the introduction, methods, results, and discussion sections, your reports will contain **front matter** and **back matter**.

Front Matter for this report should include the following:

- Cover letter of transmittal
- Title page
- Table of Contents
- Executive Summary
- List of any figures or tables included in the report

Back Matter for this report may include:

- References of any sources you used, including personal interviews, internet sources, and library sources.
- List of interview questions

- Any other documents relevant to the report

Watch this video on front and back matter in technical reports.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
https://pressbooks.umn.edu/techwriting/?p=134#oembed-2

Data displays

Finally, your report will contain visuals, or graphics, to help your reader better understand your content. Graphics are used to reinforce important ideas or to help readers understand complex concepts. When creating graphics, consider the following guidelines detailed:[1]

1. A graphic should tell a story
2. A graphic should reinforce the written text, not replace

1. Johnson-Sheehan, J. (2018). *Technical communication today* (6th ed.). Pearson.

it

3. A graphic should be ethical
4. A graphic should be labeled and placed properly

Writers need to choose the appropriate type of graphic for the data they want to convey. For example, to show different parts of a whole, you would choose a pie chart, but to display a trend, you would choose a line graph. In addition, when dealing with cross-cultural audiences, you need to use symbols that translate internationally.

When using a graphic in your text, make sure that you tell a complete story by explaining to the reader *how* they should read that graphic. Place it into context and explain the significance. Numbers, without context, mean very little to a reader; what does it mean, for example, that there were 500 cases of influenza related hospitalizations in Minnesota in the last year? What did those numbers look like in previous years, or for other illnesses? What is the total population, for comparison? Make sure that you give complete information so that your reader understands the significance of the data you choose to display. Remember, too, that different types of graphics tell different stories (like the example of a pie chart versus a line graph above). If you wanted to tell a story about the loon population over the last 10 years in Minneapolis, what type of graphic might you use?

For graphics to reinforce, and not replace, written text, be sure that you directly refer to it in your text. For example, you

might frame a graphic in your text by including something like:

> As illustrated in the graph below, the bison population has decreased by X % over the past 5 years and Y % over the last 10 years. These numbers are significant when compared to the bison population over the last 100 years in Minnesota. Consider the stark differences in sections A and B, below.

After this type of text, above, the graphic should show the reader what they might expect to see, and again explain clearly what it is they are looking at. Another way to integrate a graphic into a text is to make sure that it is clearly labeled and placed appropriately. If you introduce "Figure A" in a paragraph, don't make the reader wait until the next page to finally see Figure A.

Finally, graphics displaying data should be ethical. Be sure not to mislead your reader when you choose how to display data by including appropriate information and labeling graphics appropriately. For example, if you survey 100 people in Minneapolis and 10 indicated that they are already aware of the ways in which the bison extermination in Minnesota was strategic and aided by technical communication, is it fair to say that "According to a survey, 10% of individuals in Minneapolis are already aware of the ways in which the bison extermination in Minnesota was strategic and aided by technical communication"? Why might this be misleading?

To read more about ethics and data displays, read "How to Lie With Statistics" by Darrell Huff, available through the University of Minnesota libraries. You can also read "11 Ways to Lie With Statistics" by Elizabeth Bogner here, which summarizes and elaborates on the core concepts in Huff's text.

Along with graphics that display data and that help your reader to visualize your research, images can sometimes make a powerful point and be useful in formal reports. Keep in mind, though, that images should not be decorative, but should be illustrative of your research or help the reader to better understand some finding, question, or conclusion that you discuss in your report.

Conducting research

For this report, you'll need to conduct both **primary** (empirical) and **secondary** research, which we also discussion in **Section 1, cluster 1.5.**

Primary research refers to data that you gather, sort (or code), and analyze yourself. Some methods of primary research that you might use for this report would be conducting a

survey or an interview. When you conduct primary research you are gathering your own data to help better understand some unknown or question. For example, if I want to understand how parents in a particular neighborhood in Minneapolis feel about sending their children back to school during a global pandemic, I might create a survey or interview and figure out how to get feedback from parents in that neighborhood.

Take a look at this resource from the Purdue OWL: What is Primary Research and How Do I Get Started?

Read through this resource from the Writing Commons about Empirical Research Methods.

You can read more about qualitative research methods on Writing Commons.

Finally, take a look at these resources on conducting interviews and survey research.

Secondary research refers to using data and research gathered from other authors or sources: in other words, secondary research might be something like library research. Finding sources that help you to understand your research question and summarizing what other authors have found is secondary research. You have very likely conducted secondary research many times already, searching through published sources to answer a question and find information. For example, let's say you want to know more about what parents across the country have to say about sending their kids back to school during a global pandemic. Rather than creating and

conducting your own survey (primary research), you can look for results of surveys that have already been published and made available. Secondary research relies on what other researchers have found and allows us to work collaboratively by sharing findings and comparing data.

Keep in mind that when conducting secondary research it is so important to attribute your information to the source by using accurate citation practices. Take another look at Section 1.5 as you gather research for your formal report.

Reading and Activity: Conducting Research

Think back to the chapter from Young, Becker, and Pike that you read in the activity at the end of cluster 4.4.[2] In this text, they claim that research questions begin with a dissonance, or a felt discomfort, when something that a researcher

2. Young, R., Becker, A., Pike, K. (1970). "Identifying and Stating the Problem." *Rhetoric: Discovery and change*. New York: Harcourt, Brace & World.

believes or has experienced does not align with something they read, another claim, or a new experience. They also make a point of saying that there are only problems for someone–problems do not exist out in the world, independent of people, waiting to be discovered. In other words, we identify problems not only from external sources but from internal world views.

Describe one cognitive dissonance–or problem–that you've experienced. Try to think of a time when you read an article for a class, or read a post on a relative's social media account, or heard someone describe something that did not align with your own world views, your own beliefs or knowledge, or your own experience. Describe the dissonance, as best as you can. It might look something like:

"On the one hand, I notice that flowers come in a variety of colors, and that bees seem drawn to certain colors over others. On the other hand, this article I've just read claims that bees and all invertebrates are colorblind. If bees are colorblind, what is the biological significance of the colorful nature of flowers?"

From this dissonance, come up with as many

researchable questions as you can. Remember that not every question is researchable. Remember, too, that the way you phrase a question will impact how that question can be answered. For example, the question "are bees drawn to certain colors?" leads to a different line of research than the question "are bees colorblind?"

Each problematic situation or dissonance can lead to any number of distinct research questions. Once you have created a list of some questions, pick one and consider how you might go about researching that question. What types of sources would you consult? What type of empirical research would you design?

Alone or with a partner, sketch out a research plan that includes the following:

- A specific empirical research plan that involves gathering your own data through some method like survey, interview, etc. Explain why this method is a good fit for your specific research question.
- A specific library research plan that includes some key words you will use to find existing research, or questions that will help you to guide your library research. Think about what

types of sources you will consult, such as which journals, or which disciplines (psychology, ecology, writing studies, etc.). Explain why these key search terms, these specific journals, or these disciplines are a good fit for your question.

- A brief outline of how your formal report will be organized, including what you might include in your Introduction (who is your target audience? what is your guiding question? what background research or information do you need?), your Methods section (what methods are you using and why are they a good fit for your project?), your Results section (what types of visuals or information might you include in this section?), and your Discussion section (what will you include in your discussion that you will NOT include in the Results section?).

4.6 PRESENTATIONS

Presentations are an interesting genre, since they can cover a variety of genres and purposes. Presentations provide the opportunity to present information in a multimodal format, and often require you to condense information for a broad audience. Within the very broad genre of "presentation" many genres fall with more specific conventions and constraints. Some examples include:

- Ted talks
- Conference presentations
- Less formal meeting or business presentations (internal)

As technology continues to develop, you might consider other genres under the umbrella of "presentations," including:

- Youtube videos
- Podcasts
- Websites

In this section, we talk about the specific genre of presentations, but we also focus on taking complex information (such as gathered in a formal report) and

reworking, condensing, and remixing that information into a presentation, a website, a poster or infographic, or a podcast.

Glacial icebergs, Iceland. Icelander Sveinn Palsson made the first true study of glaciers, producing revolutionary schematics of their structure. He was censured, his funding cut, and his work left unpublished, setting back glaciology by nearly a century. As you develop text into a new format such as a presentation, consider how impactful images can be to an audience. Images, such as this photograph, can often work to inform and persuade more effectively alongside text. Image by Ryan Eichberger.

Diversity, equity, and inclusion

Just like with the other common genres that we've discussed so far, presentations are developed for a specific audience. So, you need to consider how your audience might best receive the information that you are working to communicate. Presentations are a great way to reach an audience, and as a communicator you get to explore various communication modes and approaches. As with anything else, what might work for one audience would not work for another audience; think back to the different ways to communicate the process of conducting a Covid-19 nasal test. Each example was effective, but only in the context of their intended audience.

Technical presentations are a specific genre that often take the complex, lengthy information included in a formal report and condenses and translates that information in a way that includes visual and audio communication modes. Consider why it is useful to present information in various ways (as a formal report and as a 5-10 minute presentation). How might presenting information in various ways or formats increase accessibility? How might developing a presentation work towards equity of information access?

When creating a presentation, the principles of universal design are important things to keep in mind. One example might be adding captions if you create a presentation that

has any audio component. The captions are essential for any audience members who are hearing impaired, AND they make it easier to absorb content and understand the audio for your entire audience. Remember that universal design means that accessibility of information is an essential part of your presentation: do not think about accessibility after you've created your content, but work it in from the beginning and throughout your process.

Technical presentations

Technical presentations can vary quite a bit in length and content, depending on your purpose, audience, and context (remember that the rhetorical situation is always relevant!). Generally speaking, a technical presentation will:

- Condense a longer text, such as a formal report
- Summarize the most important, useful, or meaningful information from that text
- Use visuals, text, and audio together in order to tell a story

Most often, presentations work to inform, to persuade, or both. All the things that we've discussed so far are important to consider when you create a presentation, including plain language, document design, and considering diversity, equity,

and inclusion. Just as with any other genre, to create an effective presentation, you must understand your audience. There are various types of presentation software you can use for the visual component of your presentation, including PowerPoint, Google Slides, and Prezi. You can find some useful tutorials below:

PowerPoint

One or more interactive elements has been excluded from this version of the text. You can view them online here:
https://pressbooks.umn.edu/techwriting/?p=139#oembed-1

Google Slides

One or more interactive elements has been excluded from this version of the text. You can view them online here:

https://pressbooks.umn.edu/techwriting/?p=139#oembed-2

Prezi

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://pressbooks.umn.edu/techwriting/?p=139#oembed-3

These are only 3 of many free tutorials available online.

When creating effective presentation slides, be sure that you balance the amount of information on each slide. Consider how your audience is interacting with these slides: they are not likely sitting down with so much time to carefully read through each one. Rather, they may only have a minute to take in all the content. So, less is often better than putting too much text on any one slide. It's also important to use a variety of visual modes–such as graphics and images–along with text.

The text that you choose should summarize key points, and

the images should reinforce or illustrate those points. Do not make your audience take in large blocks of text. Instead, summarize key questions, data points, findings, and conclusions. Show them examples that help to illustrate these important points, but do not overwhelm them. You cannot include everything in a presentation that you would include in a lengthy report. Rather, you must choose the most important pieces so that your audience has a clear idea of what you want them to take away from your project.

When planning and creating audio, be sure that you do not simply read the text from our slides. Instead, you can use the audio portion of your presentation to further explain key concepts. Give your reader a bit more detail, but do not overwhelm them. A presentation works to create a narrative or tell a story. The audio and text should complement each other, but not be exactly the same (if you've ever attended a presentation where the presenter read each slide out loud, you know how uninteresting that can be!).

Finally, consider accessibility when you design your presentation. Create closed captions or subtitles when recording audio, and be sure to incorporate the principles of universal design. Try to imagine how to make information accessible to your audience in regards to your text, your use of language and terminology, your use of visuals and graphics, and your use of audio.

Message titles

On way to create stronger, more memorable presentations is through the use of **message titles** rather than **subject titles** for each slide. It's important to use strong titles, and a message title delivers a full message to your reader. A subject title is briefer and less specific. An example of the difference between a message title and subject title might be:

Subject title:

Covid-19 prevention

Message title:

How can I protect myself from Covid-19?

A message title is generally more effective for audiences because it provides more information. Further, delivering a full message helps audiences to retain the information presented in that slide and it frames what you cover in that section of your presentation. Remember that audiences must *listen* to your presentation and *read* your slides at the same time. Subject titles provide information, but message titles helps audiences place that information into a more specific framework. A message title delivers your message in a more complete way.

Condensing and remixing

While most formal reports use some sort of presentation software and rely on a combination of slides (which contain

visuals and text) and audio (which may be spoken live as you present to an audience or may be recorded ahead of time), there are other ways to remix and present information in a condensed and useful way. As technology develops, so does the presentation genre. For example, podcasts, videos, or websites might be useful in place of a technical presentation, again depending on the audience, purpose, and context.

If you are enrolled in WRIT 3562W, you are not asked to create a podcast or website; however, you may come across such genres and want to use them as sources in your own report. And, you will likely want to (or be asked to!) create a website or podcast someday. So how can you begin to take information presented in something like a formal report and revise, translate, and remix it for a completely different medium?

First, consider the rhetorical situation and reflect on your own experiences as a website user or a podcast listener. Which websites do you like best? Which podcasts do you enjoy? Then, do some reflection and analysis and consider the following questions:

- When interacting with a website, what features are most important to you? How are you typically interacting with content (do you want to be able to search for something specific, do you want something easy to skim, do you want to deeply read all the text, etc.)?
- Think of the easiest to navigate website you've visited

recently; what specific features made it easy to navigate? How did it use text, images, alignment, repetition, contrast, colors, language to help you know how to find and understand information?

- Think of the most difficult to navigate website that you've ever visited; what made it difficult? What specific features can you identify or isolate that made it hard to find information?
- Consider your favorite podcast; how does the creator(s) organize the content and present information clearly? How long does it take to listen to? What environment do you usually listen to podcasts in (your car, at home, using headphones, on a speaker while you cook dinner…). What specific features can you identify or isolate that make it enjoyable?

These types of reflection questions help you to make decisions about the texts that you create. They are useful when considering conventions or strengths of specific genres, AND they are useful when you have to create a genre that is completely new to you. Remember that analyzing the rhetorical situation and genre conventions together make it manageable as you approach any new communication task.

Throughout this text, we've discussed technical communication as rhetorical, as always concerned with diversity, equity, and inclusion, how we define or set the boundaries for technical communication, and the conventions

of common genres. As you continue your education and practice as a technical communicator, or as you approach any new communication situation, keep doing the work of analysis and reflection. Consider how each act of communication engages a specific audience for a specific purpose. Even the most seemingly objective genres require you to make choices: what information do you include, whose voices and experiences do you elevate, how do you take in feedback and revise your texts, how do you approach research in a way that reduces bias and incorporates marginalized experiences–these are all important pieces of the communication process. As technical communication continues to develop and evolve, and as technology and genres also change, keep these considerations in mind.

Activity and Reflection: Presenting information

Together or with a partner, find a presentation (you can search YouTube for technical presentations or Ted Talks). Reflect on the following questions to perform a **rhetorical analysis** on the presentation:

- Who is the target audience for this presentation? How can you tell?
- What is the main purpose or goal of the presentation? How can you tell?
- What did you like about the presentation (be specific)? What features make it effective?
- What would you change, and why?
- How does the presentation use **text** and **audio** together to deliver a message? How do these elements complement each other?