WRITING
TO BE
UNDERSTOOD

What Works and Why

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Writing to Be Understood
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INTRODUCTION

Can you name your favorite nonfiction books—the ones that explain complicated topics or shift your perspective while holding your interest?

If you're always prowling the nonfiction lists for undiscovered gems or leafing through magazines for fresh and fascinating topics, then you know the joy of reading a book, blog post, or article, and gaining new insights about the world. Sometimes you encounter answers to niggling questions you didn't realize you had.

You also know the disappointment of diving into an article or book with high hopes, only to get lost, confused, or bored partway through, putting it aside with resignation and the thought that life is too short.

What's going on here? Why are certain writers so effective at connecting with us and explaining complicated and unfamiliar topics, while others leave us cold?

Clearly, individual tastes come into play. Your list of favorite authors, journalists, and explainers won't match mine. Skim the Amazon reviews of any best seller and you'll find that *no* author resonates with every reader.

Yet some writers delight a broad audience, even when

covering fields like finance, astrophysics, cognitive science, or medicine. They are masters at explaining complicated topics to non-expert readers. We cherish those writers who guide us through the unknown; they become friends and teachers we return to for insight.

What makes their writing different? Why does it connect with us? And how can we, as writers, try to be more like them?

What Works

Determining what "works" in writing is a highly subjective exercise. To paraphrase the famous saying about pornography, I can't define effective writing, but I know it when I read it.

In doing the research for this book, I started by surveying the writers *I* find particularly engaging and successful. A few are specialists in their fields who succeed at writing accessible books for a general audience; others are journalists or nonfiction authors who specialize in explaining complexity for the rest of us. Were these writers born with exceptional written communication skills? Probably not.

What if we could join their ranks, or at least get closer to their results?

I dissected these authors' writing strategies to tease out what they did. To offset my own biases, I interviewed many nonfiction lovers about their strategies and favorite writers. Despite the diversity of styles and subject matters represented, the same methods and techniques appeared repeatedly: stories, explanatory analogies, skillful use of details, figurative language, repetition, and more.

Could it be that simple? To use a term from the technology industry, could we reverse-engineer effective nonfiction writing?

I don't think it's quite that easy.

It's Not About the Words

A piece of writing succeeds or fails not on the page but in a reader's head. To increase the impact of your nonfiction writing, focus beyond the words and topic, on the minds of the readers.

If you have spent years agonizing over word choices and polishing prose, this advice may trigger an uncomfortable shift in perspective. It's humbling or distressing to think that those words you have slaved over may have slid right past glazed-over eyes. Your success depends on other people's comprehension.

To visualize this concept, imagine a Venn diagram for your writing topic, with two overlapping circles. One circle contains the ideas or topics you want to communicate, and the other contains those topics that your readers are interested in right now, at this moment.
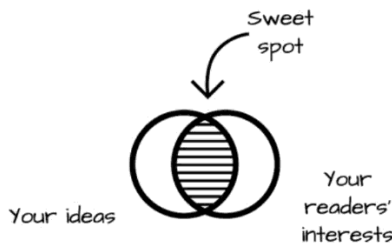
The circles overlap in your content *sweet spot*. This is the

logical starting point for your writing.

If the intersection is large and *everyone* wants to read about your topic, you are either exceptionally lucky or deluded:

Really?

Your ideas

Your readers'
interests
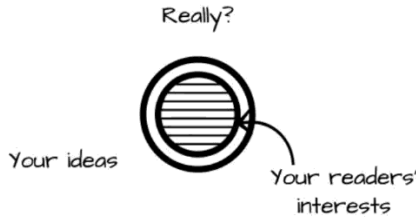
If you don't see any overlap, try a different approach. Think deeply about the readers' situations and their needs, adjust your target audience, or switch topics.

Sweet
spot

Your ideas

Your
readers'
interests
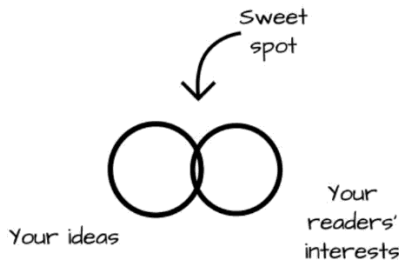
If, as is often the case, the intersection of your enthusiasm and the readers' interests is a narrow sliver, don't worry. *Skillful writers expand the sweet spot as they write.* They do this by understanding what's going on in the readers' heads.

Why Good Writing Works

When assessing *why* a piece of nonfiction makes an impact,

we should start with what happens during reading. I don't pretend to have all the answers, but I sure have a lot of questions. For example:

- Why does an apt metaphor help you understand or remember a topic?
- Why do you space out when reading about abstract concepts, and how can writers alleviate that mental fatigue?
- Why do you unthinkingly push back against or reject certain ideas, and how can writers get around that resistance?

This book grew from my attempts to answer these questions. I've explored cognitive science topics and posed questions to experts in fields such as psychology, comedy, journalism, and logical reasoning, who have generously shared their advice and perspectives in these pages. I've looked at the works of successful nonfiction authors, and tried a lot of the advice in my own writing.

In the chapters that follow, we'll explore the challenges and techniques of nonfiction writing, particularly when writing to explain. We'll examine what's happening with the reader, theorize about why specific writing techniques work, and delve into ways that you can implement these methods in your own work.

Who Should Read This Book

Because my success as a writer depends on *you*, the reader, let's start with a few basic assumptions. Specifically, I'm

assuming that you're either a nonfiction writer seeking to explain things or someone who loves reading this kind of work. Either way, you're curious about what makes the best writers so effective.

If you struggle to get the attention of readers or are writing for an audience other than your peers, this book will help. If you make your living as a writer translating between specialists and general audiences, you will discover the theory behind common writing techniques so that you can use them more effectively.

At its core, this book serves nonfiction writers who seek to explain complicated topics outside of the comfort and familiarity of a particular industry or academic discipline. It is dedicated to those who work in the messy trenches of the real world, where people skim an article on a mobile phone while riding the subway, or pick up a book in a few spare minutes of the day.

When you're writing for a general audience, you have no built-in control over the reader. Academics can *assign* reading to students and test their comprehension of it. When you are writing for the world at large, readers may spend only a few seconds to decide whether to pick up (or click through to) your writing, and a few moments more to determine if it's worth their scarce attention.

Your words are all you have; learn how to use them to their greatest effect.

For writers, you're an ideal audience for this book if:

- You know your stuff. Your topics may be complicated and knotty, but you know them well.
- You can write. We won't talk about grammar or

sentence structure here, although you will find a discussion of tone and style in Part Three.

- You care about connecting with readers and sharing your knowledge or your message. Instead of sounding smart or demonstrating your expertise, you desire to be understood by others.

The tools and methods in this book can help you make your writing more effective, reaching more people or connecting more deeply. In short, you can learn to emulate the nonfiction authors you most admire.

How to Use This Book

Every writer can learn and hone the skills of compelling communication. By focusing on your audience's needs and applying the practices of effective writing, you can transform your own style and approach.

Considering that the topic is writing, you may be surprised by the amount of cognitive science in this book. That's because the end goal is being *understood*, and understanding is a cognitive function.

Part One begins with strategies and methods for understanding the audience needs and context. Because the chapters in Part One create the foundation for the subsequent sections, I'd suggest that you at least skim this section and ponder the context for your writing.

The chapters in Part Two discuss writing tactics and the challenges of explaining complicated topics. We'll examine techniques for writing about abstract concepts, the power of analogy and storytelling to communicate complex ideas, and

the use of repetition to reinforce understanding.

You also have to hold the reader's attention. Masterful communicators make esoteric subjects interesting for the rest of us. The chapters in Part Three include advice for enlivening your writing through imagery, tone and style, humility, and humor.

Each chapter covers both the why and how of the various writing methods. Big, juicy topics like humor and storytelling deserve deeper study than I can provide. The discussions here are meant to inspire you to experiment with these techniques and to lower the barriers to getting started. Even a dash of humor or a snippet of story can help readers absorb your message.

Simply reading this book won't make you a better writer. If only it were that easy! By exploring and practicing the methods in this book, you can expand your skill set and develop a writing style that reaches more people.

Why It Matters

Many brilliant people struggle to communicate outside of their core audiences. We see evidence of this problem on a daily basis. Climate scientists run into barriers of beliefs when explaining events in their fields. Technologists describe the next disruption without sensing discomfort or confusion in their readers. Policymakers frame discussions in terms that don't make sense to the average voter or that obscure the human impact of critical decisions.

As the world grows ever more complex, we need people who write and speak across industry and genre boundaries, who incite our curiosity and show us the truths we should

see. We need people who communicate across chasms in beliefs and understanding, healing the divisiveness that characterizes current public debate.

Journalists once filled this role for the average reader, yet they are under pressure from changing business models. We cannot rely on journalism alone, nor can we reserve important messages and ideas for the shrinking population of readers with the time or focus to do deep, scholarly reading.

We need more effective communicators—starting with you.

PART ONE
UNDERSTANDING YOUR READERS

WHO ARE YOUR READERS?

How choosing a narrow audience can broaden your reach
Why finding points of connection makes readers more receptive
How to choose a specific audience

ALTHOUGH LANGUAGE IS STILL PRETTY recent in an evolutionary context, it has been with humans for millennia, shaping our brains and behaviors. As individuals, most of us have been learning from and sharing with other people our entire lives. Each of us carries within us enormous amounts of working knowledge about how to communicate.

Think about it for a moment. You automatically adopt different explanatory styles based on the person you are addressing. If a three-year-old asks you how your phone works, you'll give a different answer than you would to an adult colleague. Faced with someone returning to civilization after two decades in the wilderness, you'd come up with a different approach altogether. You automatically make decisions and shift your explanations based on what you know about the other person, as well as real-time feedback

such as questions or confused expressions.

Yet when we write, those absent readers become less real to us, and we lose the benefit of a lifetime of acquired skills. We become entranced with our own words or caught up in our subject and write for ourselves or for some faceless, anonymous "general public." Everybody suffers when this happens.

To improve your nonfiction writing, first bring the reader back into the equation. When you picture a real person, you can activate that almost-instinctive knowledge you've acquired about communicating.

The Unknown Reader

While it may feel like a one-way street, writing does not fulfill its purpose until someone reads and understands the words.

Remember the Venn diagram in the introduction: what *you* want to write, and what *the reader* needs to see?
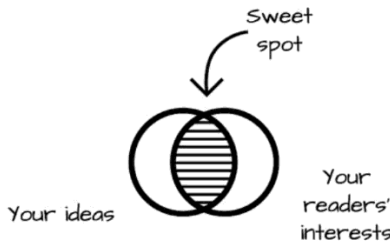
To find the area of overlap, you must understand the reader's needs and context. For many writers, this is the most pressing and difficult problem to solve.

So, who's *your* reader?

If you've honed your writing skills in an academic context,

this question may be easy to answer. Whether writing papers for classes or peer-reviewed journal articles, you have a fairly accurate sense of the audience, including their background knowledge and why they're reading your work. The same holds true when you write for people in your industry; you understand their roles and needs.

This background knowledge is missing when you address a general, unknown audience. The potential world of readers is as broad and wide as the ocean. Authors who are expert in their fields can fall prey to one of two conflicting temptations in this situation:

- They stick to writing for readers they know, such as colleagues or people like them. Academic researchers who present dense, scholarly works to a general audience limit the potential scope and impact of their efforts.
- Conversely, they may attempt to write for everyone, assuming that the reader brings nothing to the conversation. This approach often results in a generic, dull description that interests no one.

No matter how compelling you find your topic, you won't reach everyone—that's a given. The more specific you are in visualizing the target reader, the more effectively you can write. Put aside your fascination with the subject and pick a target audience.

Pick an Audience, Any Audience

Thinking of a specific person activates your built-in

communication skills, using your life-long training in human interaction to make decisions about the writing. Knowing your reader influences the words you choose, the sentences you craft, and even the approach you use to present your ideas.

Many writers make the common mistake of being too vague when picturing a reader. When it comes to identifying a target audience: *everyone* is *no one.*

You may worry about excluding other people if you write specifically for one individual. Relax—that doesn't necessarily happen. A well-defined audience simplifies decisions about explanations and word choice. Your style may become more distinctive, in a way that attracts people beyond the target reader.

Andy Weir wrote *The Martian* for science fiction readers who want their stories firmly grounded in scientific fact, and perhaps rocket scientists who enjoy science fiction. I belong to neither audience, yet I enjoyed the book. Weir was so successful at pleasing his target audience that they shared it widely and enthusiastically. Because Weir didn't try to cater to *everyone*, he wrote something that delighted his core audience. Eventually, his work traveled far beyond that sphere.

It may be counterintuitive, but if you want to reach a larger audience, consider concentrating more closely on a specific segment of it. To broaden your impact, tighten your focus on the reader.

Once you've chosen a target reader or two, make a list of the identities, beliefs, or experiences you may have in common. Particularly when you're trying to reach people outside your field, or readers with different beliefs, these

connection points offer clues as to how to proceed to earn and sustain the readers' attention.

Forging a Shared Identity with the Reader

In the Prologue of her memoir, *Lab Girl*, Hope Jahren starts by asking you (the reader) to look out the window and contemplate a leaf on a tree. After discussing possible factors to explore (its shape, color, veins, and more), she prompts you to pose a specific question about your leaf. Then she makes a surprising assertion.[1]

> Guess what? You are now a scientist. People will tell you that you have to know math to be a scientist, or physics, or chemistry... What comes first is a question, and you're already there.

Because you asked a question, you are a scientist and one of her colleagues—and therefore have stake in her story.

We get so caught up in our subjects, we often forget about the readers. When writing about sensitive or challenging subjects, the readers may be the most important part of the story. People who feel they share something in common with you are more likely to be open to your ideas.

In 2016, a team of researchers led by the Harvard School of Education surveyed ninth-grade teachers and students in a large, suburban high school in the U.S. More than 300 students and 25 teachers answered a series of questions as part of a psychological study disguised as a "getting to know you" exercise. After receiving the questionnaires, the

researchers gave students and teachers alike feedback (manipulated, of course) about their shared characteristics and preferences. Some were told they aligned on three key points, others on five.

The researchers checked back five weeks later, asking students and teachers alike about their experiences so far. Those teachers and students who were told they shared five points of connection reported better relationships, while students earned higher grades.[2]

Human beings come with built-in us/them filtering. Family members are our closest groups, followed by community members, work colleagues, citizens of cities or states, and so on. We also sort and categorize people by behavior and appearance: those who look like us, dress like us, behave like us, root for the same sports teams, worship in the same way, etc.

When we first meet someone, we instinctively look for ways that we are the same or different. We're not aware of many of these us/them filters. Deep in our primitive minds, we are trying to determine if the person poses a threat.

Despite our strong need to form groups, people also shift identities and switch between roles quickly: parent, child, sibling, work colleague, singer in the choir, member of the neighborhood, etc.

Our social identities are fluid.

When reading fiction or nonfiction, we virtually inhabit different groups, perspectives, and identities. So, take your readers' roles and identity into consideration when writing.

For complicated or global topics, you may choose to reframe the reader's sense of belonging from a smaller group to a broader one. The famous Blue Marble photo of the Earth

from the Apollo 17 space flight altered our perspectives. Rather than being members of neighborhoods, cities, and nations, we saw at a glance the larger group made up of the inhabitants of this globe. For a moment, at least, viewers experienced a shared global identity.

Even as you define a target audience and understand their differences, remember the roles and identities you share. That perspective will be invaluable if you want to forge a stronger connection with the absent reader.

Methods for Writers: Identifying Your Audience

Spend some time thinking about your ideal audience, the people you most want to address with your writing. To help you narrow in on reader profiles, borrow a practice from marketing.

Identify ideal readers

In the technology industry, where I spent my career, businesses create *buyer personas*, or detailed profiles of buyers and decision-makers. Personas begin with job titles and add general demographic and psychographic information, such as attitudes and aspirations, to create a fictional character who represents a segment of buyers. Armed with this insight, marketers generate content to meet the needs of specific groups of prospects and customers.

Persona development forces marketers to contemplate customer needs and context rather than the thing they are selling. Writers can benefit from doing something similar.

Choose a few "ideal readers" for your work. Come up with

specific examples of individuals you would like to reach. Aiming for a market segment isn't enough. We don't write for data or segments—we write for *people.* Picturing an individual (whether fictional or real) connects with your innate social instincts, guiding decisions about what to include, what style to adopt, and which stories might resonate.

If you're not sure of your ideal audience, start by selecting people based on their backgrounds and motivation for reading. For example, you might start with:

- People who read the *New York Times* and are interested in housing policy
- Educated baby boomers seeking to understand the recent advances in medicine that are relevant to their lives

Then find real or fictional characters that fit in those categories. When you can envision a specific individual, you can start to call on cognitive empathy—the subject of the next chapter.

Look for shared experiences and identities

Michelle Tillis Lederman, author of *The 11 Laws of Likability*, coaches corporate executives and nonprofit leaders to connect with others through shared experiences: "Realizing we share a connection with someone else puts us at ease." According to Lederman, "When we find one place of agreement, it's easier to get to the next place of agreement. For example, we might present a universally acceptable objective, such as ridding the world of cancer, while acknowledging controversy over the mechanisms that we to reach that objective. Even if we're not on the same page about

how, we agree on *why*."

Three rules to remember

These are my three essential rules for choosing your ideal reading audience:

1. Your audience is never "everyone." Writing for everyone pleases no one.
2. Having a specific audience makes your writing better.
3. Personas, demographic classifications, and customer segments aren't people. Write for people.

WRITING ADVICE FROM A BESTSELLING NONFICTION AUTHOR

Name: Daniel Pink

Experience: Author of six best-selling nonfiction books

Specific Skill Set: Writing effectively about complicated topics for a wide audience

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Daniel Pink writes about topics ranging from neuroscience to human motivation to chronobiology, explaining these subjects for the general reading public. His books rise quickly to the top of nonfiction best seller lists and stay there for months. Plus, they are always a pleasure to read.

How does he cover these geeky topics while making them appealing to a broad audience? I asked him. It turns out that he applies many of the writing practices described in this book, while focusing relentlessly on the needs of his audience.

Identifying his ideal audience

Says Pink, "I write for readers who want to understand big ideas and findings but who aren't experts. I do the time-consuming work of figuring stuff out so they don't have to. What's more, one of my own tests of whether I understand a

concept is whether I can explain it quickly and clearly to someone who knows little about the subject."

Getting outside opinions

To write for others effectively, we have to get outside our own heads. Pink does this extensively during the idea-generation phase. "When it comes to generating and testing ideas, I like to talk to people—to bounce notions off of them, get their reactions, have them find weak spots."

How about during the writing process? "In the writing itself, my circle is quite small. The most important reader is my wife, who is also my business partner. She reads every word I write—often multiple times. She is an extremely sharp-minded and astute reader who—and this is important—doesn't shy away from telling me I'm not making sense. My book editor, too, plays an enormous role in both talking through ideas and reading and editing pages."

Balancing story and data

In each of his books, Pink draws readers in with stories and anecdotes told well. *When* begins with the launch of the *Lusitania*. *Drive* begins with monkeys unexpectedly solving puzzles. I asked him how he found the balance of story, data, and exposition. His response: "I don't aim for specific ratios. But I think hard about what combination is the best way to get across an idea. Sometimes doing that requires leaning more heavily on one particular element. Also, the balance is sometimes dictated by the quality of the material. If I've got a great story, I'll use that and supplement with research. If I've got a mind-boggling study, I might rely less heavily on the story and let the findings speak for themselves."

Other important writing advice

What other advice does he offer to nonfiction writers?

"Three things. Rewrite. Rewrite. Rewrite."

THE ABSENT READER

Why writers need cognitive empathy
Your reader isn't entirely rational—and neither are you
How improv develops empathy for the reader

WHEN WE CONVERSE with another person, we receive real-time feedback into whether or not that person understands us (if we bother to pay attention.)

In a face-to-face conversation, we can detect when the listener's interest flags. We see them reaching surreptitiously for their phones or their eyes glazing over. Perhaps a puzzled expression makes us pause, giving the listener a chance to ask a question. When writing, however, we lack those cues, so we have to understand and empathize with someone who is not actually in front of us.

How can we train ourselves to think about that absent reader and their needs? We need to develop empathy for people who are not present.

Empathy for the Reader

People throw around the word *empathy* loosely, so let's distinguish between a couple of variations on the term.

Cognitive empathy refers to the ability to take another person's perspective. When someone says, "I see where you are coming from," they are claiming cognitive empathy.

Affective empathy is the ability to summon the appropriate emotional response for another person's emotional state. The common refrain for affective empathy is "I feel your pain."

Writers don't have to feel or directly respond to readers' emotions, but they should at least have a sense of the readers' feelings. As an obvious example, if you're writing about end-of-life care, you're aware that readers inhabit highly emotional environments. But if you're writing about technology advances, you would want to know if the audience approaches technological or behavior change fearfully. That insight would change the way you write.

As a writer, cognitive empathy helps you understand readers' perspectives: what they already know and need to know, what they are doing when they encounter this information. And while you do not need to feel their pains, you should consider the emotional context.

What's Going On in the Reader's Brain

Most nonfiction writers operate in the realm of the rational, analytical thought. The reasoning mind is a wonderful thing. All around us, we see evidence of the miraculous results of human reasoning and problem solving: airplanes that appear to defy gravity, medicines that cure unseen illnesses, or

manipulation of matter at the atomic level.

Yet, always remember that human thought is a complex combination of abstract thought, linear thinking, associative processes, emotions, sensory perceptions, mental shortcuts, and ephemeral memories. You are not an entirely rational being. Nor is your reader. By planting yourself firmly in the field of rationality and ignoring emotion, you reduce the effectiveness of your writing.

Numerous psychological studies have proven the link between emotion, learning, and memory.[3] Ignore emotion at your own peril. Even as you attempt to engage the analytical part of your reader's brain, you won't go far without bringing the rest of those mental processes along with you.

If you want to change someone's opinion or influence their behavior, then it's even *more* critical that you understand what's going on beyond the analytical mind.

At the risk of vastly oversimplifying a complex field, let's create a working model of the reader's brain, labeling a few cognitive functions for later reference. This isn't a neurobiology textbook, so I'll refrain from too much anatomical mapping.

Sensory systems interpret the sight, sound, touch, and other senses. These systems activate even when we *think* about seeing, touching, moving, or hearing things.

Reasoning systems include the prefrontal cortex and other regions of the brain that manage language, symbols, and abstractions. We identify with our reasoning systems, believing (usually in error) that they control our decisions and behavior. But the reasoning mind isn't always rational. Behavioral economists demonstrate that when we make decisions, we frequently rely on unreliable shortcuts and

then rationalize our choices after the fact. So, we are less rational and analytical than we may believe. If you're familiar with Daniel Kahneman's *Thinking Fast and Slow*, I'm including both his System 1 (fast and intuitive) and System 2 (slow and analytical) in the description of the reasoning systems.

Emotional systems use evolutionarily older parts of the brain, including the limbic systems. Some emotions run pretty deep. As writers, we should understand that our words and images prompt emotional reactions that may affect the reader's receptivity to a particular topic.

Further back in time and lower in the brain you'll find the *amygdala*, an ancient structure that manages the quick responses that keep us alive in times of threat. It's home to the "fight or flight" instinct. Emotions related to the amygdala (fear, disgust, etc.) kick in quickly, before rational thought has a chance to work.

The act of reading may operate on many levels in the reader's mind: visual and language processing systems parse the words, visual or sensory systems again imagine what the person is reading, reasoning systems assess the content. The limbic (emotional) systems may respond to the ideas *or* to the writer personally. A reader who feels threatened might have an active amygdala response as well.

You are writing for the reader's entire mind, not just the rational parts. I'm not saying that you should overtly *manipulate* people, but if you want to be effective in reaching your audience, understand how and why readers react to your writing. You can explain things to the rational reader, but to make an impact, appeal to other layers of the reader's mind.

Connecting on Multiple Levels

The most effective writers don't simply explain things—they make their ideas memorable. They leverage innate communication skills to connect with other people.

Having a clear understanding of your audience makes you a more effective writer. To use the writing methods and techniques described in Parts Two and Three, start with an understanding of the reader. Take the reader's perspective.

Writers apply different techniques and strategies for reminding themselves about the reader, so as to activate cognitive empathy.

- Many people visualize their ideal readers when drafting.
- A few paste pictures of target audience members on their walls.
- Others try out topics or ideas on existing groups of colleagues, students, family members, or strangers at parties. (I've done that last one.)

If you struggle with perspective taking, consider signing up for an improvisational comedy class. Surprisingly, doing collaborative, improvised skits with others can make you a better writer.

Although he is best known for his acting skills, Alan Alda has dedicated years to the cause of improving scientific communication. This mission started with a gig he had hosting the PBS television series *Scientific American Frontiers* for eleven years. Doing this, he confronted the challenges of communicating effectively about scientific topics to a general

television-viewing audience.

In his book *If I Understood You, Would I Have This Look on My Face?*, Alda describes how he realized that improvisational acting techniques could help scientists communicate more effectively. (In addition to being a talented actor, Alda is also an engaging writer. It doesn't seem entirely fair, does it?)

It makes sense. Improvisation requires that actors focus intently on their scene partners to follow what's happening. The two cardinal rules of improv are saying *yes, and...* to any situation offered you, and always making your partner look good. These are worthwhile skills. Writes Alda, "Developing empathy and learning to recognize what the other person is thinking are both essential to good communication."

Alda didn't stop at applying this insight to his own television work. He joined up with Stony Brook University in New York and lent his name to the Alan Alda Center for Communicating Science, where training and research continues in this intersection of empathy and scientific or medical communication. He and the team at the Alda Center devised the Alda Method™ for Science Communication.

In addition to conducting research into scientific communication, the Center holds workshops and training for professionals in science, technology, and medical fields. Says Laura Lindenfeld, director of the Alda Center, "Our mission is to train scientists and medical professionals to communicate with empathy, warmth, and clarity." The Center takes its workshops on the road, around the country and around the globe.

In workshops featuring the Alda Method, participants learn the basics of improvisation and practice exercises that help them relate to their scene partners. They might toss

imaginary balls of varying weights to other participants, or do a mirroring exercise to come up with the same words at the same time as their partners. While those activities have little to do with science or medicine, they have *everything* to do with thinking deeply about your partner in a dialogue or conversation.

Says Lindenfeld, "The beauty of improv is that it helps you to understand something about the person communicating with you, and forces you to listen and consider their questions. Improv also has a rule about making your partner look good, which is a valuable attitude to bring to any interaction that includes potential disagreement."

The Alda Center curriculum first develops face-to-face communication and speaking skills. It then builds on this interpersonal training to enhance written communications, such as blogging, grant proposals, and opinion pieces.

I had to ask Lindenfeld: How do improv classes apply to writing skills? She answered: "Principally, the same things that make you a good speaker make you a good writer. It has to do with your relationship with the audience. Communication is about being present with your audience— whether it's a real one standing before you or a virtual audience that you imagine. The initial, face-to-face form of training helps people establish a strong sense that they are communicating *with* someone rather than *at* them. It is through this process that the training translates so well to writing. We ask our students to imagine their audience, what's at stake for them, and why they would care."

Improvisational exercises develop cognitive empathy, which fuels better communication with your reader. But they're not the only way to build up your interpersonal skills.

Simply conversing with others can improve your overall empathy. Sherry Turkle, professor of Social Studies of Science and Technology at the Massachusetts Institute of Technology (MIT), suggests that while our technological devices may be eroding empathy, human conversation can reverse this trend. "To the disconnections of our over-connected world, I argue that conversation is the talking cure."[4]

Cognitive empathy is a natural response to another person's perspective. Visualizing readers, talking to people, and taking improv classes are all ways to develop and refine this aptitude.

Methods for Writers: Getting to Know Your Readers

To develop cognitive empathy for your reader, use a two-pronged approach: get in front of real people, and then ponder their needs when they are absent. Here are a few strategies.

Engage in a conversation about your topic

Hold a workshop, and talk with people directly. If you're a teacher, give a lecture and welcome questions. Corner someone at a neighborhood gathering.

Or, find a friend or colleague who can serve as a proxy or stand-in for your ideal reader. This might be someone in the same role or with a similar personality type who understands the target audience well.

Do whatever it takes to test your message with other people and see how people respond. Do their eyes light up? Are they confused? What specific words do they use when

asking questions? What resonates with them?

This tactic only works if you pay attention to the other person. Make yourself pause during your delivery. Take a breath, slow down and watch the other person.

If your listener finds an excuse to slip away when you stop talking—well, they've just provided valuable input, even if it's painful. If that person belongs to your core audience, you may need to tailor your message.

Ask questions about the reader's context

When other people aren't present, imagine their needs, feelings, and context. Try answering a few questions about a typical reader you'd like to reach.

- How will they feel about the topic? Answering this question requires that you inhabit, for a moment, your reader's perspective. It's an exercise in cognitive empathy or perspective taking, and can yield invaluable clues that will help you write more effectively.
- How much will they trust you as a source? Will they find this information as the result of an Internet search, or will a trusted colleague, physician, or friend give it to them? If they might approach your words with a sense of skepticism or caution, you'll need to establish your credibility without sounding self-important.
- Will your writing appear within the context of a class? If so, most readers will bring a certain openness of mind and willingness to give your words a chance. You can lead with a story, and have faith they won't bail out immediately.

- Will they encounter this piece of writing as one more thing to do in a busy day? If so, you'll have to earn their attention—inspire them to find something useful and bookmark it for further reading.
- What's their motivation for reading? Do they hope to confirm their own opinions? Satisfy curiosity? Advance their careers? Are they suffering from a disease or facing a difficult dilemma, and searching for solutions?
- Do they need a quick answer? If so, what are their questions? Anticipate and answer their questions up front, then go into the "how and why" of your answers.

Your answers to these questions will guide decisions about what information to include and how to present it. If you're not sure of the answers, make a guess and move forward.

Simply thinking about the reader in depth has already enhanced your cognitive empathy. If you plan to continue writing on the topic, make a point of interacting with readers after you have published. Read the reviews and talk to people about the ideas in the text. The insight you gain can help you be more effective with your *next* work.

Write yourself a letter

Write a letter to yourself from your ideal reader, with all the questions you think they might ask. This forces you to take the other person's perspective.

Rules to remember

- Your success depends on the reader, so understand their needs.
- If possible, talk to people who resemble your ideal readers.
- If your readers aren't available, do the next best thing and imagine their needs and situations.

HOW MUCH DO THEY NEED TO KNOW?

The curse of knowledge
Balancing width and breadth
The perils of oversimplification

FEW OF YOUR readers care about what you know, no matter how many years you have spent accumulating that wisdom. They care about what *they* need or want to understand.

You share much in common with your readers: you both live a world with numerous, competing demands on your attention, limited time for "deep reading," and perhaps a longing for simplicity and clarity.

How do you provide the right amount of information without either oversimplifying the subject or overloading the reader? You'll have to decide what to include and what to leave out. The more you love your subject, the harder this decision can be.

Think of a well-known, familiar song, like "Happy Birthday" or "Jingle Bells." Sing it to yourself in your head. Then, find a friend and ask them to guess the song as you tap out its rhythm.

You won't expect them to get it right away, but you might be surprised and frustrated by how long it takes them to correctly guess the tune rattling around in your head. At least, that's what psychologist Elizabeth Newton found when she tested this very thing.

In 1990, Newton was a graduate student in psychology at Stanford University. She conducted an experiment in which half of the participants (the tappers) were asked to tap out the rhythms of common songs, while the other half (the listeners) guessed the songs. The tappers estimated how long it would take the listeners to name the right tune.[5]

The people tapping were inevitably surprised by the listeners' inability to hear the tune that matched the rhythm. It seemed obvious to the tappers. This study illustrates a phenomenon known as the *curse of knowledge*, or the challenge of getting out of our own heads.

Once we know something, it's difficult to remember *not* knowing it. We take our knowledge for granted.

We can spot *other* people suffering from the curse of knowledge pretty easily. We've all seen it:

- The physician who speaks in medical terms you don't know
- The academic author who writes a paper, intended for a general audience, filled with terms that only a

graduate student would understand

These people aren't trying to hoodwink or confuse you. They simply forget that you don't know what they know.

It's much harder to detect symptoms of this tendency in our *own* behavior. When smart, caring people write incomprehensible stuff, the curse of knowledge is usually to blame. It plagues experts who write for the layperson, or the industry insider addressing an outsider.

Of course, a few knowledgeable and expert communicators avoid the curse of knowledge with apparent ease, but let's consider them outliers and confess that the rest of us struggle with it. The greater your knowledge, the stronger the curse.

Nonfiction writers confront this problem in many phases of the work. For example, we cannot proofread our own work effectively because we already "know" what's on the page. We use terminology that readers don't know because it is habitual to us.

You can defeat the curse of knowledge during later phases of the work by enlisting others for editing and proofreading. But you must avoid the curse earlier still, when deciding what to cover and how to approach it. Get outside your own head.

Go Wide or Go Deep

Before you write a single word, you face a fundamental decision about exactly what you want and need to cover. Answer these three questions.

1. Breadth: Will you cover a single issue or a wide

range of topics?

2. Depth: Should you dive into details? How many are necessary?
3. Background: How much does the reader already know, and how much will you need to backfill?

These decisions depend almost entirely on your readers. For a distinct, well-defined audience, you may be able to cover a wider range of concepts related to your topic. When addressing a general audience, you may choose to focus on the most important things, and avoid excessive detail.

The final form also matters. A book gives you more room to roam; readers expect a greater breadth or depth of coverage.

If you are expert in a topic, you may choose to cover it in great detail. For example, masterful biographers like Doris Kearns Goodwin and Walter Isaacson do deep dives into their subjects' lives, creating works that span several hundred pages. If that's your approach, you will need to dedicate time and effort to maintaining the reader's interest. The depth of a treatment can narrow the potential audience of readers.

For some books, *breadth* is part of the essential value, as in Neil deGrasse Tyson's *Astrophysics for People in a Hurry*. As the title promises, it describes a massive topic in a slim volume. Tyson went wide, not deep. Writing about complex topics effectively at this level is a rare skill. Tyson deploys analogies with care, frames the content in a human context, and shares his personal enthusiasm and sense of wonder to guide the reader through the universe. (These methods feature in upcoming chapters.) The book is a masterful example of writing about a complex and abstract topic.

There's no easy answer to the question of how broad or deep your treatment should be. It depends on your purposes and the needs of your audience.

Self-indulgent writers include everything they feel like covering. Thoughtful writers who seek to be understood focus on fit and purpose. Sometimes you have to let things go or put them aside for another project. Focus on serving your reader.

Simplicity vs. Oversimplification

Designers, businesspeople, and others often refer to of the KISS principle, which is an acronym for Keep It Simple, Stupid.

As a design philosophy, Keep It Simple, Stupid makes sense. Don't create systems that are more complex than necessary. However, people mistakenly apply the KISS mantra as a filter in other fields, including political messaging, sales materials, and descriptions of technology.

Simplicity isn't always the answer. The KISS mantra can become a convenient excuse for hiding complexity that you would rather people not see, such as:

- Removing transparency from investments, because investors don't need to know the possible risks
- Not disclosing details of policies because voters won't bother with the fine print
- Not communicating to patients the complete range of treatment options available or the potential risks of a recommended course of action, for fear of delaying the preferred course of treatment.

Taken to the extreme, the KISS mantra shields us from the complexity that we *should* understand.

Certain readers crave simplistic explanations or easy answers that spare them the cognitive work of understanding things that don't hold their interest. Others, however, may suspect that you're hiding important details or talking down to them.

When explaining complicated topics, beware of the boundary between simplicity and oversimplification.

We *want* to believe that the world is simple enough for us to understand. We like to think that we don't need layers of experts arbitrating between reality and ourselves, but when we ignore the true complexity of situations, bad things can happen.

News sources pander to the narratives people *want* to hear rather than the grittier realities of the world. So-called *fake news* flourishes because the truth is often nuanced and difficult. Albert Einstein once said, "Make it as simple as possible, but no simpler." (Full disclosure of annoying details: There's debate about whether Einstein said that, or if it's a paraphrase of something else.) The advice applies well for those of us writing about complicated topics. Get to the important points. Don't lead with the gnarly details, but don't hide them, either.

When writers make things seem too simple, even with the best intentions, they can inadvertently mislead readers.

Sabine Hossenfelder has heard some pretty wild theories about physics—hypotheses that she believes arise from the oversimplification of scientific topics for the general public. Hossenfelder is a theoretical physicist at the Frankfurt Institute for Advanced Studies, and writes about physics for

publications like *Forbes* and *Scientific American*. She is also author of the book *Lost in Math: How Beauty Leads Physics Astray*.

Her insight into the dangers of oversimplification, however, arises from years spent running a "Talk to a Scientist" consulting service, which she started as a graduate student and still maintains today on her blog, *BackReaction*. For a small fee, members of the public can pose questions about physics, neuroscience, geology, and other topics, or submit their own ideas about physics. Those theories are creative, interesting, and often not grounded in scientific reality.

She blames this, in part, on the tendency of journalists covering the field to simplify the message so much that they mislead readers.

In describing the experience of running the physics help line, she reports, "The most important lesson I've learned is that journalists are so successful at making physics *seem* not so complicated that many readers come away with the impression that they can easily do it themselves. How can we blame them for not knowing what it takes *if we never tell them*?"[6]

Methods for Writers: Deciding What to Include

Deciding what to cover and what to leave out challenges everyone. Writers, speaking coaches, and others share their advice about striking the right balance.

Get guidance from outsiders