OBJECTIVES OF TECHNICAL WRITING

Clarity
Technical writing must be clearly worded and developed to avoid confusing its audience.

Conciseness
Concise technical writing saves time for both writers and readers.

Accuracy
Avoid grammatical errors by proofreading your work so that you will communicate effectively and appear professional.

Organization
Organize your thoughts to help your readers better understand your documents.

Ethics
Technical writing entails specific ethical and legal considerations.

CLARITY
The ultimate goal of good technical writing is clarity. If you write a memo, letter, or report that is unclear to your readers, then what have you accomplished? You have wasted time. If your readers must write you a follow-up inquiry to determine your needs, this wastes their time. Once you receive the inquiry, you must rewrite your correspondence, trying to clarify your initial intentions. You have now written twice to accomplish the same goal. This wastes your time.

To avoid these time-consuming endeavors, write for clarity. But how do you do this?

Provide Specific Detail
One way to achieve clarity is by supplying specific, quantified information. If you write using vague, abstract adjectives or adverbs, such as some or recently, your readers will interpret these words in different ways. The adverb recently will mean thirty minutes ago to one reader, yesterday to another, and last week to a third reader. This adverb, therefore, is not clear. The same applies to an adjective like some. You write, “I need some information about the budget.” Your readers can only guess what you mean by some. Do you want the desired budget increase for 2005, the budget expenditures for 2000, the
allotted budget increase for 2006, the guidelines for implementing a budget increase, the budgeted allotment for travel, or the explanation for the budget decrease for training?

**Answer the Reporter’s Questions**

A second way to write clearly is to answer the reporter’s questions—who, what, when, where, why, and how. The best way we can emphasize the importance of answering these reporter’s questions is by sharing with you the following memo, written by a highly placed executive, to a newly hired employee.

**Use Easily Understandable Words**

Another key to clarity is using words that your readers can understand easily. Avoid obscure words and be careful when you use acronyms, abbreviations, and jargon.

**Avoiding Obscure Words**

A good rule of thumb is to write to express, not to impress; write to communicate, not to confuse. If your reader must use a dictionary, you are not writing clearly. Try to make sense of the following examples of unclear writing.

The following rules are to be used when determining whether or not to duplicate messages:

- Do not duplicate non-duplicatable messages.
- A message is considered non-duplicatable if it has already been duplicated.

Your job duties will be to ensure that distributed application modifications will execute without abnormal termination through the creation of production JCL system testing.

These examples were written by businesspeople who were trying to communicate something. The examples are filled with outdated terms that are difficult to understand.

**Obscure Words Alternative Words**

Aforementioned, already discussed, initial, first in lieu of, instead of, accede, agree, as per, your request, as you requested, issuance, send this is to advise you, I’d like you to know, subsequent later in as much as, because, ascertain, find out, pursuant to, after, forward, mail, cognizant, know, endeavor, try, remittance, pay, disclose, show, attached herewith, attached, pertain to, about, supersede, replace, obtain, get
Impressive writing is correspondence we can understand easily. A modern thrust in technical writing is to write the way you speak—unless you speak poorly. Try to be casual, almost conversational.

**Using Acronyms, Abbreviations, and Jargon**

In addition to obscure words, a similar obstacle to readers is created by acronyms, abbreviations, and jargon.

We have all become familiar with common acronyms such as scuba (self contained underwater breathing apparatus), radar (radio detecting and ranging), NASA (National Aeronautics and Space Administration), FICA (Federal Insurance Contributions Act), and MADD (Mothers Against Drunk Driving)— single words created from the first letters of multiple words. We are comfortable with abbreviations like FBI (Federal Bureau of Investigation), JFK (John F. Kennedy), NFL (National Football League), IBM (International Business Machines), and LA (Los Angeles). Some jargon (in-house language) has become so common that we reject it as a cliché. Baseball jargon is a good example. It is hard to tolerate sportscasters who speak baseball jargon, describing line drives as “frozen ropes” and fast balls as “heaters.”

However, more often than not, acronyms, abbreviations, and jargon cause problems, not because they are too common but because no one understands them. Your technical writing loses clarity if you depend on them. You might think your readers understand them, but do they?

**CONCISENESS**

After clarity, your second major goal in technical writing is conciseness, providing detail in fewer words. Conciseness is important for at least three reasons.

**Conciseness Saves Time**

Remember how time consuming technical writing is in the work environment? American workers spend approximately 12 hours per week writing and additional time reading and revising others’ writing. Conciseness in writing can help save some of this time. If you write concisely, you can save yourself time and take up less of your readers’ time.

**Conciseness Aids Clarity**

Concise writing can aid comprehension. If you dump an enormous number of words on your readers, they might give up before finishing your correspondence or skip and skim so much that they miss a key concept. Wordy writing will lead your readers to think, “Oh
no! I’ll never be able to finish that. Maybe I can skim through it. I’ll probably get enough information that way.” Conciseness, on the other hand, makes your writing more appealing to your readers. They’ll think, “Oh, that’s not too bad; I can read it easily.” If they can read your correspondence easily, they will read it with greater interest and involvement. This, of course, will aid their comprehension.

**Technology Demands Conciseness**

Technology is impacting the size of your technical writing. The size of the screen makes the difference, and screen sizes are shrinking. Thus, when you write, you need to consider the way in which technology limits your space. Today, more and more, effective technical writing must be concise enough to fit in a box.

Notice how the size of the “box” containing the following communication affects the way you package your content.

**Limit Paragraph Length**

Let’s look at some poor writing—writing that is wordy, time consuming to read, and not easily comprehensible.

Please prepare to supply a readout of your findings and recommendations to the officer of the Southwest Group at the completion of your study period. As we discussed, the undertaking of this project implies no currently known incidences of impropriety in the Southwest Group, nor is it designed specifically to find any. Rather, it is to assure ourselves of sufficient caution, control, and impartiality when dealing with an area laden with such potential vulnerability. I am confident that we will be better served as a company as a result of this effort.

Is that paragraph easy to understand? No, it is not. Why? What gets in your way? Do you have difficulty following it because you are an outsider and are not aware of the situation that generated it? That is only part of the problem. The reason you have difficulty understanding this paragraph is because it is poorly written. It causes difficulty for two reasons: (a) the paragraph is too long, and (b) the words and sentences in the paragraph are too long.

An excessively long paragraph is ineffective. In a long paragraph, you force your reader to wade through many words and digest large amounts of information. This hinders comprehension. In contrast, short, manageable paragraphs invite reading and help your reader understand your content.

As a rule of thumb, a paragraph in a technical document should consist of
(a) No more than 4 to 6 typed lines, or (b) no more than 50 words. Sometimes you can accomplish these goals by cutting your paragraphs in half; find a logical place to stop a paragraph and then start a new one. Even the previous poorly written example can be improved in this way.

Please prepare to supply a readout of your findings and recommendations to the officer of the Southwest Group at the completion of your study period. As we discussed, the undertaking of this project implies no currently known incidences of impropriety in the Southwest Group, nor is it designed specifically to find any.

Rather, it is to assure ourselves of sufficient caution, control, and impartiality when dealing with an area laden with such potential vulnerability. I am confident that we will be better served as a company as a result of this effort.

The writing is still difficult to understand, but at least it is a bit more manageable. You can read the first paragraph, stop, and consider its implications. Then, once you have grasped its intent, you can read the next paragraph and try to tackle its content. The paragraph break gives you some room to breathe.

**Limit Word and Sentence Length**

In addition to the length of the example paragraph, the writing is flawed because the paragraph is filled with excessively long words and sentences. This writer has created an impenetrable wall of haze—the writing is foggy. In fact, we can determine how foggy this prose is by assessing it according to Robert Gunning’s fog index.

**Omit Redundancies**

Redundancies are words that say the same thing. Conciseness is achieved by saying something once rather than twice. For example, in each of the following instances, the boldface words are redundant.

During the year of 2005 (Obviously 2005 is a year; the words the year of are redundant.)
In the month of December (As in the preceding example, the month of is redundant; what else is December?)
Needless to say (If it’s needless to say, why say it?)
The computer will cost the sum of $1,000. (One thousand dollars is a sum.)
The results so far achieved prove (A result, by definition, is something that has been achieved.)
Our regular monthly status reports require (Monthly status reports must occur every month; regularity is a Pre-requisite.)
We collaborated together on the project. (One can’t collaborate alone!)
The other alternative is to (Every alternative presumes that some option exists.)
This is a new innovation. (As opposed to an old innovation!)
The consensus of opinion is to (The word consensus implies opinion.)
Avoid Wordy Phrases

Sentences may be wordy not because you have been redundant or because you have used shun words, camouflaged words, or expletives. Sometimes sentences are wordy simply because you’ve used wordy phrases.

Here are examples of wordy phrases and their concise revisions.

Wordy Phrases

Concise Revisions

in order to purchase

to buy at a rapid rate

fast (or state

the exact speed)

it is evident that evidently

with regard to about

in the first place first

a great number of times often (or state the number of times)

despite the fact that although is

of the opinion that thinks due to the fact that because

am in receipt of received enclosed

please find enclosed is as soon as possible by 11:30 A.M. in accordance with according to

in the near future soon at this present writing now in the likely event that if rendered

completely inoperative broken

ACCURACY

Clarity and conciseness are primary objectives of effective technical writing. However, if your writing is clear and concise but incorrect—grammatically or textually—then you have wasted your time and destroyed your credibility. To be effective, your technical writing must be accurate.

Accuracy in technical writing requires that you proofread your text. In addition to all the other errors, it should be “Dog and Cat Shop,” of course. The errors make the writer look incompetent.

To ensure accurate writing, use the following proofreading tips:

1. Let someone else read it—We miss errors in our own writing for two reasons. First, we make the error because we don’t know any better. Second, we read what we think we wrote, not what we actually wrote. Another reader might help you catch errors.

2. Use the gestation approach—Let your correspondence sit for a while. Then, when you read it, you’ll be more objective.

3. Read backwards—You can’t do this for content. You should read backwards only to slow yourself down and to focus on one word at a time to catch typographical errors.

4. Read one line at a time—Use a ruler or scroll down your PC screen to isolate one line of text. Again, this slows you down for proofing.

5. Read long words syllable by syllable—How is the word responsibility misspelled? You can catch this error if you read it one syllable at a time (re-spon-si-bl-i-ty).
6. Use technology—Computer spell checks are useful for catching most errors. They might miss proper names, homonyms (their, they’re, or there) or incorrectly used words, such as device to mean devise.

7. Check figures, scientific and technical equations, and abbreviations—if you mean $400,000, don’t write $40,000. Double-check any number or calculations. If you mean to say HCl (hydrochloric acid), don’t write HC (a hydrocarbon).

8. Read it out loud—sometimes we can hear errors that we cannot see. For example, we know that a outline is incorrect. It just sounds wrong. An outline sounds better and is correct.

9. Try scattershot proofing—Let your eyes roam around the page at random. Sometimes errors look wrong at a glance. If you wander around the page randomly reading, you often can isolate an error just by stumbling on it.

10. Use a dictionary—if you are uncertain, look it up. If you commit errors in your technical writing, your readers will think one of two things about you and your company: (a) they will conclude that you are stupid, or (b) they will think that you are lazy. In either situation, you lose. Errors create a negative impression at best; at worst, a typographical error relaying false figures, calculations, amounts, equations, or scientific or medical data can be disastrous.

**ORGANIZATION**

If you are clear, concise, and accurate, but no one can follow your train of thought because your text rambles, you still haven’t communicated effectively. Successful technical writing also must be well organized.

Here is an analogy to explain the importance of organization. Most artists cannot just dip a brush in paint and then splatter that paint on canvas. People want to make sense of what they see, and splattered images cause confusion. The same applies to technical writing. As the writer, you cannot haphazardly throw words on the page and expect readers to understand you clearly. In contrast, you should order that information on the page logically, allowing your readers to follow your train of thought.

No one method of organization always works. Following are five patterns of organization that you can use to help clarify content.

**Spatial**

If you are writing to describe the parts of a machine or a plot of ground, you might want to organize your text spatially. You would describe what you see as it appears in space—left to right, top to bottom, inside to outside, or clockwise. These spatial sequences help
your readers visualize what you see and, therefore, better understand the physical qualities of the subject matter. They can envision the layout of the land you describe or the placement of each component within the machine. For example, let’s say you are a contractor describing how you will refinish a basement. Your text reads as follows:

At the basement’s north wall, I will build a window seat 7’ long by 2’ wide by 2’ high. To the right of this seat, on the east wall, I will build a desk 4’ high by 5’ long by 3’ wide. On the south wall, to the left of the door, I will build an entertainment unit the height of the wall including four, 4’ high by 4’ wide by 2’ deep shelving compartments. The west wall will contain no built-ins. You can use this space to display pictures and to place furniture.

Note how this text is written clockwise, uses points of the compass to orient the reader, and includes the transitional phrases “to the right” and “to the left” to help the reader visualize what you will build. That’s spatial organization.

**Chronological**

Whereas you would use spatial organization to describe a place, you would use chronology to document time or the steps in an instruction. For example, an emergency medical technician (EMT) reporting services provided during an emergency call would document those activities chronologically.

At 1:15 P.M., we arrived at the site and assessed the patient’s condition, taking vitals (pulse, respiration, etc.). At 1:17 P.M., after stabilizing the patient, we contacted the hospital and relayed the vitals. By 1:20 P.M., the patient was on an IV drip and en route to the hospital. Our vehicle arrived at the hospital at 1:35 P.M. and hospital staff took over the patient’s care.

Chronology also would be used to document steps in an instruction. No times would be provided as in the EMT report. In contrast, the numbered steps would denote the chronological sequence a reader must follow.

**Importance**

Your page of text is like real estate. Certain areas of the page are more important than others—location, location, location. If you bury key data on the bottom of a page, your reader might not see the information. In contrast, content placed approximately one-third from the top of the page and two-thirds from the bottom (eye level) garners more attention. The same applies to a bulleted list of points. Readers will focus their attention on the first several points more than on the last few.
Knowing this, you can decide which ideas you want to emphasize and then place that information on the page accordingly. Organize your ideas by importance. Place the more important ideas above the less important ones.

ETHICS

Here is the scenario. You are a technical writer responsible for producing a maintenance manual. Your boss tells you to include the following sentence:

**ONOTE:** Our product has been tested for defects and safety by trained technicians. When read literally, this sentence is true. The product has been tested, and the technicians are trained. However, you know that the product has been tested for only 24 hours by technicians trained on site without knowledge of international regulations.

So where’s the problem? As a good employee, you are required to write what your boss told you. Right? Even though the statement is not completely true, legally you can include it in your manual. Correct?

The answer to both questions is no! Actually, you have an ethical responsibility to write the truth. Your customers expect it, and it is in the best interests of your company. Equally important is that including the sentence in your manual is illegal. Although the sentence is essentially true, it implies something that is false. Readers will assume that the product has been thoroughly tested by technicians who have been correctly trained. Thus, the sentence deceives the readers.

Knowing this, however, does not make writing easy. Ethical dilemmas exist in corporations. The question is, what should you do when confronted with such problems?

One way to solve this dilemma is by checking your actions against these three concerns: legal, practical, and ethical. For example, if you plan to write operating instructions for a mechanism, will your text be

1. Legal, focusing on liability, negligence, and consumer protection laws?
2. Practical, because dishonest technical writing backfires and can cause the company to lose sales or to suffer legal expenses?
3. Ethical, written to promote customer welfare and avoid deceiving the end user? (Bremer et al. 1987, 76–77)

These are not necessarily three separate issues. Each interacts with the other. Our laws are based on ethics and practical applications.

Legalities

If you’re uncertain, that’s what lawyers are for. When asked to write text that profits the company but deceives the customer, for instance, you might question where your
loyalties lie. After all, the boss pays the bills, but your customers might also be your next-door neighbors. Such conflicts exist and challenge all employees. What do you do? You should trust your instincts and trust the laws. Laws are written to protect the customer, the company, and you—the employee. If you believe you are being asked to do something illegal that will harm your community, seek legal counsel.

**Practicalities**

Even though it might appear to be in the best interests of the company to hide potentially damaging information from customers, such is not the case. First, as a technical writer your goal is candor. That means you must be truthful, stating the facts. It also means you must not lie, keeping silent about facts that are potentially dangerous (Girill 1987, 178–79). Second, practically speaking, the best business approach is good business. The ultimate goal of a company is not just making a profit, but making money the right way—“good ethics is good business” (Guy 1990, 9). What good is it to earn money from a customer who will never buy from you again or who will sue for reparation? That is not practical.

**Ethicalities**

As a technical communicator, I am the bridge between those who create ideas and those who use them. Because I recognize that the quality of my services directly affects how well ideas are understood, I am committed to excellence in performance and the highest standards of ethical behavior.

I value the worth of the ideas I am transmitting and the cost of developing and communicating those ideas. I also value the time and effort spent by those who read or see or hear my communication. I therefore recognize my responsibility to communicate technical information truthfully, clearly, and economically.

My commitment to professional excellence and ethical behavior means that I will

- Use language and visuals with precision.
- Prefer simple, direct expression of ideas.
- Satisfy the audience’s need for information, not my owned for self-expression.
- Hold myself responsible for how well my audience understands my message.
- Respect the work of colleagues, knowing that a communication problem may have more than one solution.
- Strive continually to improve my professional competence.
- Promote a climate that encourages the exercise of professional judgment and that attracts talented individuals to careers in technical communication.

Guide for Ethical Standards

Use language and visuals with precision. In a recent survey comparing technical writers and teachers of technical writing, we discovered an amazing finding: professional
technical writer’s rate grammar and mechanics higher than teachers do (Gerson and Gerson 1995). On a 5-point scale (5 equaling “very important”), writers rated grammar and mechanics 4.67, whereas teachers rated grammar and mechanics only 3.54. That equals a difference of 1.13, which represents a 22.6 percent divergence of opinion.

Given these numbers, would we be precise in writing “Teachers do not take grammar and mechanics as seriously as writers do”? The numbers accurately depict a difference of opinion, and the 22.6 percent divergence is substantial. However, these figures do not assert that teachers ignore grammar. To say so is imprecise and would constitute an ethical failure to present data accurately. Even though writers are expected to highlight their client’s values and downplay their

Ethical Principles for Technical Communicators

As technical communicators, we observe the following ethical principles in our professional activities.

Legality

We observe the laws and regulations governing our profession. We meet the terms of contracts we undertake. We ensure that all terms are consistent with laws and regulations locally and globally, as applicable, and with STC ethical principles.

Honesty

We seek to promote the public good in our activities. To the best of our ability, we provide truthful and accurate communications. We also dedicate ourselves to conciseness, clarity, coherence, and creativity, striving to meet the needs of those who use our products and services. We alert our clients and employers when we believe that material is ambiguous. Before using another person’s work, we obtain permission. We attribute authorship of material and ideas only to those who have made an original and substantive contribution. We do not perform work outside our job scope during hours compensated by clients or employers, except with their permission; nor do we use their facilities, equipment, or supplies without their approval. When we advertise our services, we do so truthfully.

Confidentiality

We respect the confidentiality of our clients, employers, and professional organizations. We disclose business-sensitive information only with their consent or when legally required to do so. We obtain releases from clients and employers before including any business-sensitive materials in our portfolios or commercial demonstrations or before using such materials for another client or employer.
Quality

We endeavor to produce excellence in our communication products. We negotiate realistic agreements with clients and employers on schedules, budgets, and deliverables during project planning. Then we strive to fulfill our obligations in a timely, responsible manner.

Fairness

We respect cultural variety and other aspects of diversity in our clients, employers, development teams, and audiences. We serve the business interests of our clients and employers as long as they are consistent with the public good. Whenever possible, we avoid conflicts of interest in fulfilling our professional responsibilities and activities. If we discern a conflict of interest, we disclose it to those concerned and obtain their approval before proceeding.

Professionalism

We evaluate communication products and services constructively and tactfully, and seek definitive assessments of our own professional performance. We advance technical communication through our integrity and excellence in performing each task we undertake. Additionally, we assist other persons in our profession through mentoring, networking, and instruction. We also pursue professional self-improvement, especially through courses and conferences.

Strategies for Making Ethical Decisions

a. Define the problem. Is the dilemma legal, practical, ethical, or a combination of all three?

b. Determine your audience. Who will be affected by the problem? Clients, coworkers, management? What is their involvement, what are their individual needs, and what is your responsibility—either to the company or to the community?

c. Maximize values; minimize problems. Ethical dilemmas always involve options. Your challenge is to select the option that promotes the greatest worth for all stakeholders involved. You won’t be able to avoid all problems. The best you can hope for is to minimize those problems for both your company and your readers while you maximize the benefits for the same stakeholders.

d. Consider the big picture. Don’t just focus on short-term benefits when making your ethical decisions. Don’t just consider how much money the company will make now, how easy the text will be to write now. Focus on long-term consequences as well. Will what you write please your readers so that they will be clients for years to come? Will what you write have a long-term positive impact on the economy or the environment? e.
Write your text. Implement the decision by writing your memo, letter, proposal, manual, or report. When you write your text, remember to
• Use precise language and visuals.
• Use simple words and sentences.
• Satisfy the audience’s need for information, not your own need for self-expression.
• Take responsibility for your content, remembering that real people will follow your instructions or make decisions based on your text.
• Respect your colleagues’ confidentiality, be courteous, and abide by copyright laws.
• Promote professionalism and good judgment.

CHAPTER HIGHLIGHTS

1. If your technical writing is unclear, your reader may misunderstand you and then do a job wrong, damage equipment, or contact you for further explanations.

2. Use details to ensure reader understanding. Whenever possible, specify and quantify your information.

3. Answering who, what, when, where, why, and how (the reporter’s questions) helps you determine which details to include.

4. For some audiences, you should avoid acronyms, abbreviations, and jargon.
5. Words that are not commonly used (legalisms, outdated terms, etc.) should be avoided.

6. Write to express, not impress—to communicate, not to confuse.

7. Avoid passive voice constructions, which tend to lengthen sentences and confuse readers.

8. Writing concisely helps save time for you and your readers.

9. Shorter paragraphs are easier to read, so they hold your reader’s attention.

10. When possible, use short, simple words (always considering your reader’s level of technical knowledge).

11. Apply readability formulas to determine your text’s degree of difficulty.

12. Proofreading is essential to effective technical writing.

13. Well-organized documents are easy to follow.

14. Different organizational patterns—spatial, chronological, importance, comparison/contrast, and problem/solution—can help you explain material.

15. Consider whether or not your technical writing is legal, practical, and ethical.