Technical Writing for Fun & Profit

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Introduction

The average engineering student would rather go to the dentist and have root canal than write a technical report or a memo. This is unfortunate, as a large part of a working engineer's professional life is spent in writing technical communiqués of one sort or another. Although, the widespread aversion to writing has a variety of causes, I suspect that a large part of the problem is simply not understanding the process and elements of good technical writing. And this comes as no surprise, because many students' exposure to writing comes in college freshman English, and these courses train the student to write a certain kind of critical essay that is largely useful in passing college freshman English. Remarkably few such courses expose the student to the kinds of business writing they will use for the rest of their lives.

The purpose of this paper is to partially remedy this situation by presenting the basics of technical writing in a bite-sized format. Specifically, we examine 5 keys to technical writing success:

1. The prime directive of all writing
2. The primary structure of all technical writing.
3. The technical writer's best friends
4. Summaries and conclusions: Knowing the difference
5. Heading titles made easy

In the remainder each of these is examined in more detail.

The Prime Directive

The prime directive of writing is—drum roll please—to just *write*. This sounds obvious enough, but when I watch students sitting in class, I see more crossing out than writing. As a result, the writing process becomes a tedious herky-jerky affair marked by fits and starts, but not much completed writing. This problem has been studied over the years, and elsewhere, I, too, have discussed it at some length (Goldberg, 1995). But the secret to just writing is to *separate writing from revision*. Many good writers find that they are much more productive if they can start out writing by suspending self-criticism. Simply committing oneself to writing continuously without crossing out goes a long way to speeding up the generation of significant quantities of text that can then be used, edited, and revised to form a cogent first draft.

One way to get the feeling of this mode of writing is to practice the writing exercise called *freewriting* (Elbow, 1985), where you write for a fixed period of time (three to ten minutes) without stopping and without crossing out. In freewriting, you write about whatever pops into

your head. Of course, in real writing you direct your attention to the topic at hand, but if you can learn to do it initially in a non-critical, non-judgmental mode, you can get more done in a given span of time.

3 Critical Needs: B-P-R

Once the budding technical writer learns to just write, line after line can be generated with speed, but another problem focuses on the content: What should he or she write about? In detail, this will depend upon the writer's subject, but every piece of technical writing has 3 critical needs, needs that must be fulfilled at first and then over and over again in every piece of writing.

Specifically every document, section, or major element of a technical writing must explain its

> 1. background
> 2. purpose
> 3. roadmap

At the beginning of a document—especially—and at the beginning of any section or subsection as well, the writer has a problem. At the beginning of a document the writer faces a *sharp discontinuity* in a reader's understanding. Prior to the first sentence, the reader has little or no idea of the subject of the piece, its context, its purpose, or what is to follow. It is the writer's job to fill in the gaps quite speedily at the beginning of the document and in succeeding major sections. The first task, therefore, is for the writer to provide what has been called *background*. What is the motivation for and context of the document? What were the enabling events that led to the document's needing to be written? Who are the key players? Background should be provided quickly, with only essential detail, because the clock is ticking until the writer explicitly states the purpose of the piece.

The *purpose* or *rhetorical purpose* of a piece is the objective of the *piece of writing* itself. Note that this is distinct from the purpose of the project or problem that the document may address. Sometimes students in presenting the rhetorical purpose beat around the bush or try to be subtle. Subtlety is for mystery novels, and in business writing it is better to simply come right out and blow the trumpet with phrases such as, "The purpose of this report is…" or " The goals of this memo are…." Students sometimes learn to announce their intentions more subtly in freshman English, but business people are busy. They require clear landmarks in their reading, and the wise writer will give them what they need.

Following the discussion of background and purpose, it is time to give a *roadmap* to the remainder. At the beginning of a document, this roadmap foreshadows the subject's major topics in the remainder of the document. In a section or sub-section an intermediate roadmap lays out the topics for that writing section or segment of writing.

Roadmaps are often left out by novice writers, and it shows. Giving a roadmap builds a mental model for the reader of what is to come. It gives the reader a preliminary point of view that helps create appropriate expectations for what is to follow. Without roadmaps the reader isn't sure where he is and he isn't sure where he's going, and from the reader's perspective, this is most disconcerting, like being lost in a fog. Yet, by simply handing the reader an occasional roadmap to the remainder, such discomfort can be avoided and greater clarity can be achieved.

Lists and Amplification: A Technical Writer's Best Friend

A terrific way to give roadmaps and to help otherwise organize a document or a section is the numbered or bulleted *list*. The list clearly announces the forthcoming structure, thereby alerting the reader to coming attractions. The list has two advantages:

1. It announces the items to the reader in an easy-to-grasp manner.
2. It simplifies the subsequent writing task for the writer.

Think of lists as a rough outline, and think of the subsequent paragraphs as simply *amplifying* the details of the list. This will make your job and the reader's job so much the easier. Go back through *this* paper and look at how lists and amplification were used to first highlight a roadmap and then fill in the blanks.

Be Specific

The language you use says a lot about how you think, and unfortunately by this criterion there are a bunch of fuzzy-minded student writers out there. One of the common flaws in student writing is the substitution of a high-minded, general-sounding word or phrase when a simple word would do. Buzzwords such as "areas" or "issues" will wrongfully take the place of concrete words such as "tasks" or "problems." Fuzzy-headed verbs such as "involve" or "consider" will be used in place of action words that actually describe what has taken place.

Remember, concrete language paints a picture in the reader's mind that lasts because it engages active thought.

Distinguishing Summaries from Conclusions

Two elements are needed at the end of a piece of writing, and they are usually covered under a pair of headings:

1. Summary
2. Conclusions

There is a good bit of confusion between the two, and here we examine each one and distinguish them.

A summary is concisely summarized in the advice offered to Army officers in writing their memos:

Tell 'em what your gonna say,
say it,
and tell 'em what you said.

A summary is the "Tell them what you said" part of the closing and indeed it is critical to integrating the piece of writing in your reader's mind. In a sense, a summary is a backward looking roadmap where you revisit the milestones of the piece to tie everything together.

Conclusions are distinct from the summary and to understand them, we recognize that they answer a critical question for the reader. How should the reader's thoughts or actions change as a result of having read the piece of writing? In a sense, conclusions are a call to think or act differently as a result of the material presented. Conclusions that involve largely changes in action are sometimes given the special name "recommendations." But whatever name you use, conclusions and recommendations are important because they draw out the *consequences* of what was said for the reader.

Summary and Conclusions (for this essay)

Books have been written and whole courses taught on the subject of technical writing, but in this paper we have tried to condense the subject so it might be written on the head of a pin. Specifically, we have focused on five primary areas of concern (key elements for better writing):

1. The prime directive of writing—learning to write first, criticize later.
2. The BPR method (background, purpose, and roadmaps) to introduce documents and sections of documents.
3. The technical writer's best friend, the list, to highlight the elements of a section and make it easy to fill in the blanks.
4. The use of concrete terms in place of abstract generalities and fuzzy general-purpose buzz phrases.
5. The importance of clear summaries and conclusions and the need to distinguish between the two.

Although, excellent technical writing requires a good bit more than can be covered in such a short piece as this, the student who follows this advice will be well on the road to a lifetime of effective written communication at work. And those who communicate well in business are those who influence the decisions of customers, colleagues, and bosses, and those who influence decisions are those who succeed over the long haul.

References

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