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Consulting with Technical Writers

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by Shelley Powers

Consulting on technical writing projects can make liberal arts-trained writing consultants nervous. However, technical writing is more familiar territory than we might think.

Students in the University of Texas at Austin's Electrical Engineering program sell t-shirts with the slogan "Get a real major" emblazoned on the back. That t-shirt means "We do our thing over here, and you do yours over there. You don't quantify; we do. We can prove that we have the right answer; you're hard pressed to pull that off. You don't know what I'm talking about, and I don't get you either. Please just leave me here safe." Writing consultants–especially those from humanities backgrounds –run headlong into this sentiment. The simplest and most helpful thing we can do to address it is to adapt a little. Sure, we may not be comfortable handing down The Law about language. But we can give clear guidelines that will keep the "grammar grader" from ticking three more points for mechanics from the writer's paper. We can work within the style and format guides stipulated by the writer's instructor regardless of how wacky they may appear. We can offer suggestions to make writing as rational as possible– and that is exactly what we ought to do to help writers produce good technical writing.

The following pointers relate to aspects of technical writing you are likely to encounter in consultation.

Required Materials:

A. The Entire Group
In Engineering and other places, group lab work is common. These groups often produce their written results by assigning sections of the work to different people and then giving one person the task of knitting the bits together. When we consult with only one person from the group (as is often the case), we're consulting with the knitter. For obvious reasons, this is not ideal. How effective is it to address the ESL problems of the results section writer with a knitter who's a native-speaker? Not very. If you are faced with a lone representative, invite the whole group to return to the writing center for a collective consultation.

B. The Assignment /Format /Style Guide
An engineering assignment can vary from a lab report to a memo to a formal email, but it will almost always contain a set structure and a very specific listing of points to address. Without the assignment, you're in a bad position to evaluate content. Similarly, the writer must know the style she is supposed to follow. IEEE style is very different from ASME, and they're both worlds away from MLA. Each discipline's conventions have developed over time to reflect the most common uses of its documents. Neither you nor the writer can be

expected to figure out the style logically. Having the assignment sheet and a format or style guide handy is crucial.

Aspects of the Whole Paper to Address:

A. Purpose
Technical writing almost always imparts information in an objective manner. The writer should be able to tell you, in one sentence, what the writing is supposed to do. If the writer looks at you blankly when you ask for a statement of purpose, start there. Ask what information the paper includes, how the writer came upon the information, and whether the focus is on the process of acquiring the information or the information itself.

B. Audience
As with purpose, the writer should be able to identify who his or her audience is. Often, in engineering technical writing courses, students are instructed to write for an "educated non-technical audience." In lab courses, however, the student is to write for the TA or the instructor–a technical audience. Then there's the hybrid situation: the student writes for both a "grammar grader" and a "technical grader" whose grades together make up the student's final grade. When a writer is in the split-grading situation, ask the student if he can get the rubric the grammar grader uses to evaluate the papers. The "grammar grader" label is misleading. Concerns we might consider grammatical–pronoun reference, say–make up only a portion of what the grammar grader evaluates. Students may not know this, so they may be unnaturally obsessed with modifiers. It's good to help them look at organization and logic, too. The student will feel less mystified by the grammar grade, and you will have some sense of the global concerns in the writing.

C. Clarity
In technical writing, clarity often means getting into the data as quickly as possible. It also means adhering to the appropriate style. Since these two things are particular to each writing situation, I can only mention some red flags. (1) If the writer uses a lot of negative constructions, he or she weakens the reader's confidence in his or her results. Instead of "the software is improperly installed when …," the writer should try "the software is properly installed when …" (2). Since ambiguity in engineering can have costly or even fatal consequences (space probes missing entire planets, bridges collapsing, and so forth), pronouns can be very dangerous in technical writing. Repetition of nouns to avoid ambiguous pronoun references is often a better idea by far. However, personal pronouns are okay, and for the same reasons valued in other aspects of technical writing–clarity and simplicity. (3) Headings ought to be descriptive. Think of an instruction manual. The reader wants to be able to find the section on how to assemble Part A. (4) Technical writing sentences and paragraphs are short. A technical paper often has a lot of white space and Spartan transitions. That's good. The point is the data, not verbiage. (5) Watch the emphasis: if one chart takes up a third of a page and the next one takes up three-quarters of a page, and they're both of similar complexity, the writer's trying to take the reader's suspicious eyeballs off the first chart. It won't work. Similarly, biased word choices won't work. Remind students that the grader will look for the numbers, and that they can't hide them with writing and graphic design. Bad facts often fail.

D. Counterintuitive Grammar
Most style manuals treat grammatical conventions in some detail. But here are

a few things to know. First, passive voice is not always bad. When a technical writer is describing equipment or materials, he or she can use the passive voice in most cases. Be sure to ask the writer how the evaluators feel about passive voice before you head for the handout. It might be okay. Second, don't get too scared about tense. Most technical writing has clear tense demands because it describes a sequence of events or actions. Outside that, just help the writer make sure the tense stays consistent within each section.

Specific Features and Kinds of Technical Writing

A. Sectional Independence
Like research papers in the natural sciences, engineering reports are typically divided into sections, including an abstract followed by an introduction, a results section summarizing important findings, recommendations for further action (if applicable), and discussion of results. All sections should be readable in isolation. Think of the last time you assembled something. Probably, you only went for the manual when Part A wouldn't stop blinking and Tab C was not at all aligned with Slot D. You didn't want to read a lengthy description of Part A. Readers of technical writing tend to want certain information at certain times. In technical papers, this means that the abstract, the introduction, the discussion, and the conclusion will probably be the most-read sections. In the context of a course, the discussion section is where the grader will try to divine whether the writer learned anything about the experiment. So, after you've knocked these sections out, go back to the statement of purpose. If the process of gathering the data is important, the account of the experiment (or whatever) is key. If the data itself is important, the results section is key.

B. Description of Mechanism
This is a wacky task that technical writers face. They'll describe the constituent elements of a mechanism, then describe the mechanism as a whole, then describe how it works. You can help them evaluate the effectiveness of this writing by trying to picture the mechanism. If you can get a sense of how it fits together in space, the writing works.

C. Instructions and Bulleted Lists
Both instructions and bulleted lists involve series of parallel items. Some instructors hate bulleted lists. Beware! If the writer needs to produce instructions or a bulleted list, however, you can help in a few basic ways. First, check for faulty parallelism and help the writer fix it. That skill alone will carry most writers through bulleted lists.

Truly silly things can happen with instructions if readers take them literally. I once had a group of students try to inflate a pool toy using another group's written instructions. The writers had forgotten to mention the location of the inflation spout, and the pool toy stayed flat. Two things can help avoid flat pool toys: consistent naming and thorough lists of materials. Make sure all the objects have the same name every time they're mentioned. Ask the writer if the person following the instructions needs any tools, or should get any specific warnings. Discuss the polite-but-firm use of the imperative mood in warnings.

Scary Moments:

A. Evaluation and Copy Editing
Because of the mystique that often surrounds the "grammar grade" in technical writing courses, students can believe that one dangling modifier will bust them down to a C. That's often why students regard writing centers as a copy-editing

service. Also, technical writers with the quantitative habit of mind can often be more comfortable with rules to apply rather than more nebulous directions. I suggest giving the writer the rules. Explain the grammar. Just let the writer know that the job of applying it consistently through the paper is his or hers.

B. ESL and unfamiliar terms
If a writer has trouble using articles, say, and is describing the parts that make up an overhead cam engine, some of us may not know what articles go with the unfamiliar nouns. This is a perfect time to teach grammar rules. Most ESL technical writers can appreciate that teaching them rules is all you can do. They know you don't know the technical terms. If you are especially nervous, though, see if the writer is a member of a study group. If so, he or she can pick out a few tricky terms and get the proper articles from a native-speaker friend.

C. Pompous Voice and "Borrowed" Text
Technical writers early in their writing careers can contort themselves into something I like to call "pompous voice." The symptoms are slightly misused words that sound impressive, clause-pile sentences, and lengthy or supposedly humorous transitions. I once saw an essay on robotics that made the transition from the description of mechanism to the results section using lyrics from Styx's "Mr. Roboto." It was cute, maybe, but also unprofessional and imprecise. Explain to the writer that technical writing is not about showboating (okay, okay, use a nicer word) but about presenting data. Ask them to restate lengthy sections in one sentence and write the sentence down for them. Ask them to explain "pompous voice" sections to you as though you were a seventh-grader. Try underlining biased word choices.

Pompous voice is often related to the problem of "borrowed" text. We all know what this looks like–one paragraph sounds like an engineering student and the next sounds like a manufacturer's website. Let the writer know that you sense something fishy. You'll find out that either the writer does not understand proper citation (do not buy any stories about different intellectual property standards in technical writing), or that the writer thought no one would notice. All you can do in this situation is notice, and notice pointedly.

Technical writers operate under different demands, yes, but they face many of the same writing troubles as the rest of us. They are trained to use a spelled-out style and often appreciate spelled-out advice on language. Like the rest of us, they want to learn the methods so they can apply them independently. For the most part, they want tools. We can give those to them.

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