

Writing in the Disciplines

Technical Writing Interview: Prof. Ron Smith

Dr. Will Garrett-Petts and Professor Ron Smith, a specialist in business and science writing, are joined by a third-year writing class. As the interview opens, they are discussing the field of technical writing. Garrett-Petts has asked Professor Smith to talk about his background, his experience teaching in this area.

Professor Smith: Most of my early teaching experience was in Adult Education. I spent ten years teaching adults a variety of subjects, not only Political Science and History, but also English. Part of that was teaching students the field of business communication. As a teacher I've watched, even contributed to, the growth of the field of business and technical writing. Thirty years ago, or twenty-five years ago, it was only beginning to take off; it was becoming a burgeoning field.

English 309 Class: So where exactly do the sciences come in? How does writing in the sciences relate to technical writing generally?

Professor Smith: I think the sciences are an important area of communication. If I could just quote a source [Smith reads from a journal]: The National Academy of Sciences in the United States formally recognizes communication not only as necessary for the conduct of research, but also as fundamental to the scientific enterprise itself. When you think about science you probably think about nasty smells in the lab and those types of things. But those nasty smells are, or may be, the result of research that has to be translated, communicated. When you think about science being on the cutting edge of technology and research, and as we move into the next millenium, you have to think that whatever is discovered in a scientific context or in a scientific way, has to be communicated to larger audiences. Not only audiences in a specialized discipline, where research is critiqued and measured by peers, but also the general public. We all need to be aware of scientific discoveries, critically aware. In the sciences, for example, I think good writing and good communication skills are necessary. Adapting scientific information for larger audiences is an important skill. I think it's an important skill that can be taught at the undergraduate level. You have to know that those in both the sciences and technical areas do an awful lot of writing. In fact, a study at North Carolina State University in Raleigh, North Carolina, found that on an average day in their work careers scientists spend five hours a day writing, reviewing, and presenting. So even though you think about science in research context, a lot of work "science" does involves communicating.

English 309 Class: Do you find that part of the teaching you end up doing is kind of debunking the English essay style that students learn through high school?

Professor Smith: Well, for me it is. I'm an old...I guess people call me all sorts of things away from my face, as long as they call Mr. Ron in the class room, I don't really mind. One of the things I tell my students when they walk in the door, it's like I have an affinity for the old west, I have an affinity for the west and saloons. [laughter] So when students walk into my technical communication classes I ask them to check their essays at the door. I don't like to hear words like "essays" and "papers." Don't get me wrong: I think all of us need to learn how to write academically. If you're writing a paper in political science, or history, or English, or the humanities, you write a good, solid essay and it should adhere to conventions that go with it. But the same holds true in a technical communication or a science writing course. There students are exposed to different conventions. You also need to be able to understand why you write a particular way in the sciences and how you need to adapt that writing professionally. Your question was about debunking, though? I'm not interested in debunking as in rethinking: in the sciences, I ask my students to think about writing in a particular way. There are lots of conventions, ones that perhaps you wouldn't think about in a traditional essay context, that you start to entertain as a technical communicator. That's not to say, for example, that good organization, good paragraphing skills, knowing how to organize and structure a good paper-- that they're not skills that you leave outside the class in a technical communication course, but I think technical communication is different. I like to say to my students that one of the drivers, or one of the prerequisites for good technical communication, is that you think visually about your writing. Perhaps a lot of times we don't do that in a traditional or more conventional academic writing environment. In science and technical writing you start to consider visual arrangement. In traditional academic writing, you develop kind of a closed page style. When you write in a technical or scientific way, you're being exposed to, I think in a descriptive way, how to write through these conventions and, in the long term, how to apply them in a work place. You want to help your readers see--through diagrams, charts, arrangement of words on the page. So I see science writing, or technical writing, or business communication as a type of writing you'll take to the workplace. Not very many of us are going to the workplace to sit in our office and write an essay on John Locke's second treatise on civil government.

English 309 Class: I was wondering...in English studies there are different, distinct periods of writing. Has writing in science or business evolved over time?

Professor Smith: That's a really good question, and it has. One way of considering the evolution of technical communication and science communication is to look at its role, I think, in a teaching context. For a long time English departments saw this form of writing as something outside the traditional cannon--I guess you could say as outside the primary interests of the English department. In many cases it was restricted to a technical institute or the training environment because it has this strong connection to applied research or applied study. So it really didn't fit the traditional academic English environment. In the early 1900's and through the 1920's, probably up to the mid 20th century, technical writing and technical communication had to fight very, very hard to establish an air of legitimacy. But in the last 25 or 30 years or so, there's really been an explosion of research and publication in this area. I think you can see that connected to interest in (and the influence of) computers, and technology, and research, and now an emphasis on technical communication has become a full-fledged part of most university

programs. In the United States there are lots of universities that offer a doctorate in technical and professional communication. You can think of schools like Texas Tech university, which has an outstanding technical and professional writing school. There's the Rensselaer Institute of Technology in New York State. There's the University of Michigan. I like to name drop. [laughter] But there are all these schools that provide the doctorate in technical communication. In Canada there are schools, for example, such as the University of Waterloo, that offer solid writing and research programs and technical communication. And even a school like the University College of the Cariboo, which we think of as a four-year undergraduate teaching school. When you look at large universities in Canada, for example, you look at the number of technical or career-oriented writing courses that are offered here. There are about 30 technical communication courses that are offered over the course of the year in the Trades and Technology, and Careers area. So U.C.C. is doing quite well.

English 309 Class: How does taking the Business and Science writing course help students in other classes like English, History, and Anthropology, say?

Professor Smith: Well it really goes back to what I said earlier about writing in the workplace. You're not going to write a history essay in the workplace unless you're doing research in history, perhaps in the library. I think you need to know how to write to survive in a work-related environment. There are lots of studies that indicate that most professionals spend some time writing. You can think about the type of writing that you'd probably do in the workplace: you'd write memos, informal reports, letters, and in-house communication. You're all certainly comfortable with, or familiar with, e-mail. You'll probably at some point have to write a formal report. You'll have to apply for a grant. You may want funding to do some research. You may want to go to a conference. You may have to report back on a conference that you've been to. That requires a specific type of writing skill. I think it requires knowing how to organize visually. It requires knowing how to present information quickly. And you always adapt for your audience; so you develop skills, I think, in adapting your writing to fit particular types of outcomes.

English 309 Class: Is your focus on a more practical end of writing?

Professor Smith: Well I think it is. I mean there's nothing deep or philosophical about business or technical writing. I try very hard to make it theoretical, but I always come up a little bit short. It's applied writing. It's practical writing. Having said that, though, it's commonsensical writing too, because you want to get things done. It's action-oriented writing. It's problem-solving in action. But, surprisingly enough, it takes some practice and some skill development. I find in a first-year technical communications course, as in probably any type of writing course, I'm being confronted with convoluted paragraphing and dense prose fostered in large measure by the expectations of other academic courses. And so we have to try and get the students past that. How do you speak precisely, and how do you write precisely? How do you communicate with precision, clarity? I think that goes in any type of academic, or any type of writing environment, but particularly so in technical and business communication.

English 309 Class: What do you think is the most tedious part of writing an article? Would it be the research, or finding the special graphics?

Professor Smith: Technical writing is also a creative exercise, particularly in a visual sense. So if you're doing research, or writing an article. I like to do research and I like to read in all sorts of things, so collecting the data is exciting. You spend time researching, but it need not be tedious. Writing?...well some people write better than others do. Some people have a natural gift, and perhaps some things come easier. But I've always found writing, trying to put my ideas on a screen or on paper, to be challenging too, because one of the important skills in business and technical communication is editing, and reviewing--looking at your document and seeing ways in which you can improve it. So just like in any type of writing exercise, I think you're challenged to look at your writing in a recursive sort of way. And you go back and you change fonts, and you look at placement of text, and you talk about graphics and where you place graphics. You have to think about whether you've referenced those graphics properly, and whether or not you've announced that there are going to be graphics, for example. Students, a lot of time when they're confronted with using graphics in a report, for example, forget that the graphics are there for a purpose. They fail to announce them, or say that they're going to show up on "page seven." They make that announcement on page six in their text -- then have the graphics show up on page four. [laughter] If you're not comfortable with, or you don't anticipate the visual orientation of the reader, and you haven't analyzed your audience, you're going to be confronted with a lot of problems. Personally I don't find technical writing or business communication boring or tedious. I think it's a challenge. With a computer, and with the different types of programs available to help you write as technical and academic writers, I find it a challenge. There's some excitement there. Maybe I need to get another life, but I find it exciting and challenging. [laughter]

English 309 Class: If you're writing an article then would you go and use somebody else's graphics, or would you create you own then?

Professor Smith: We're talking about writing. And I tend to think about technical writing in a larger context. I think of it as technical communication, which both suggests that you write and you "present" as well. Choosing to adopt someone else's graphics or make your own will be guided by your purpose and the needs of your audience. It always think that audience is important in deciding when and whether you can you adapt what you're seeing in another medium, for example, to fit your own type of purpose in your writing. If you use graphics from another source then you'd have to acknowledge your sources.

English 309 Class: You're talking about charts and graphs. Are these really the focal point of the writing...

Professor Smith: In technical communication?

English 309 Class: Yes.

Professor Smith: No. I think you use them. Because research requires, perhaps in many ways, using primary or investigative research, you're probably going to develop a lot of figures and tables and charts to support your research. I think they're crucial. And these visuals, of course, you would design yourself--often using graphics software packages. When you use graphics in a technical or business report, you probably use them to enhance the overall readability and comprehension of the study. So there has to be a strong connection between what you're writing and explaining in a written context, and the use of graphical information. You always explain the purpose of your graphics, and you always interpret your graphics in a written context. Technical communication, and I mentioned this at the outset, is a visual medium as well. It's important that you think about how you shape documents visually: how you use white space, how you develop paragraphing sequences. You think about how long those paragraphs should be. It's not like reading Dickens: "It Was the Best of Times, It Was the Worst of Times." [laughter] It would be the best of times and the worst of times, probably, if you looked at the range of technical communication that I get in any given class. It will either be very, very good because it enhances and uses all of those visual communication tools, or it will be very similar to an essay, or a traditional piece of writing. Someone not well schooled in technical writing doesn't use headings or bold face type, or italics. What differentiates technical communication from traditional types of writing is the use of format--not only learning how to use the right format, but learning how to present research in the format best suited to your purpose and audience.

English 309 Class: How much room is there for personal engagement?

Professor Smith: Creatively?

English 309 Class: Yeah, of putting in yourself into the paper.

Professor Smith: Well you think about science writing...and that's an excellent question...and you have to think about science writing in that regard, perhaps more than technical communication. I teach a course called "English 230," "Critical Thinking in Writing for Science and Technology." This is a course for science students, and they probably think initially in terms learned by coming in contact with certain science genres or disciplines. And they're really attuned to the scientific methodology. We use an acronym called "IMRAD," and you're probably familiar with that. That's the traditional, investigative, methodological framework that you'd use in a report (the introduction, method, results, discussion), and all that goes with an investigative study. But science writers have to adapt, in many cases, their research that is driven by peer journals, by doing research at a high level. They have to engage that information at another level, with general audiences. So if you were doing research on stomach bacteria--"hyliobacterplyora" is one that I remember from the studies in our course. This year, two researchers by the name of Marshall and Warren were engaged in ulcer research...and what they found in their study was that it had nothing to do with stress; it had to do with bacteria in the stomach. Initially they presented all of their findings to their peers. Of course their peers received the information in a conventional manner, questioning the way that they developed their research. They questioned a lot of things. What Marshall and Warren did is they went

outside the traditional vehicle for communicating new ideas (peer journals) and presented this information in a public forum. They adapted their research for a more generic audience and published it in the...I think it was published in either *Scientific American* or *Science*, which is more of a journal oriented toward general readers. So what they did is they adapted this very scientific study to a different audience. So they ended up using lots of figurative language. And they were using metaphors and analogies and all sorts of literary devices to make the writing more connected to everyday communication. Their writing now moved into the realm of popular culture. So when you read the article on scientific research on bacteria in the stomach, you find them calling the bacteria "a predator," and using all sorts of interesting language-- which is where I think you're original question began: such scientific writing is highly creative, and working scientists are often looking for other ways of getting their ideas across. So, yeah, I think there is lots of room for creativity in science writing. But again, I think it's driven by your audience. And I think that's an important facet of technical communication as well.

English 309 Class: What would be the difference between lower-level and upper-level teaching of that course?

Professor Smith: That's a really good question, too. Excellent questions. [laughter] The trouble is I don't have all the answers. I think in the first and second year you're trying to deal with the technical and scientific writing in a descriptive mode, where you're looking at science described in an applied context. I think at the upper level there's room to develop technical and scientific communication in a more theoretical and philosophical ways. I think there are challenges out there in technical communication--internationally, for example. I've spent some time in the last two years in the People's Republic of China looking at technical writing in China, learning how we have to adapt our international communication skills and business communication skills in different cultural contexts. I think there's room for discussion of such matters at the graduate school level. I would think that in a third-year or fourth-year course here you'd want to touch on those things. I don't know if you want to get into those matters in first and second year. I think first and second year courses are more applied. By the way, I brought along this journal. This is a technical communication journal, which is published by The Society For Technical Communication. Oh my heavens! [laughter] It just so happens that the page just opens up here on page 36 and it says, "China is hungry: Technical Communication in the People's Republic of China." This is published in last month's journal. I'm one of the co-authors of this journal article. [laughter] This is a descriptive study of what we did in China. If you look at this journal there are interesting studies. "Conflicting Tales of Transition" is one title. "The Logical and Rhetorical Construction: A Procedural Discourse." That's pretty heavy duty. It says here in the summary, it explains "the rhetorical implications of actions of states and various models of procedural discourse and specific writer strategies considers more flexible alternatives to the streamline step model." So what I'm suggesting to you is that when research occurs in scientific and technical communication, you are pushing the envelope. And you're into an area of discipline that you were probably exposed to in English 309, and other courses in the third and fourth year, where probably the focus of the course is more theoretical and philosophical. The pieces about technical writing sound more like essays, while technical writing itself leads you away from the essay form.

English 309 Class: Do you find that you have a broad range of students coming in? Like people from all different areas within the disciplines of sciences and business? And does that affect how you teach them?

Professor Smith: We do offer English 229 at the second year, which is geared for students in both the sciences and humanities, and the social sciences. So you get students from business, you get students from history majors, and political science majors. Because they're studying political science or history doesn't mean that eventually they're not going to have to be able to write work-related documents. So those skills are transferable. I think you have to be able to write well in the workplace. Writing and speaking in the work environment are important skills. Think about it. You're a practicing professional. You may give a paper at a conference. You may be giving a seminar to a public audience. Those activities require certain skills. Probably a good place to learn those skills or become exposed or acquainted with those skills is in a technical or business or science communication course. I don't just see it as a matter of writing, though writing is a crucial component. I see it in a much broader context than that. I see it as communication. So, yeah, it's useful.

English 309 Class: In the workforce do you document your research? In what type of documentation forms or styles?

Professor Smith: Yes. It depends. In science we tend to use superscript. You might look at it and say that's Chicago style, but I don't want a pizza. [laughter] You use kind of a numerical superscript. We still use parenthetical referencing. You're probably familiar with the American Psychological Association and MLA. Parenthetical referencing in the text and using work cited in references at the end of a report are probably fairly conventional still in business and technical communication. Knowing how to document is an important skill. Particularly in the sciences where you're doing a lot of research. What you find in the sciences, perhaps more so than in other disciplines, is that you do a lot of literature reviews. Knowing how to write a good literature review in the scientific area and perhaps in some topical areas too, in other courses, requires that you know how to document and you know how to use the literature to build the case for your research, or to write a solid base for further research. Documentation is extremely important, and the actual styles differ from area to area.

English 309 Class: Is research one of the fundamental parts of science and business or in any discipline?

Professor Smith: In any discipline, when you are on the cutting edge, you're probably doing investigative and your doing a lot of research. But, again in your reference to science, scientific discovery has to be what? It has to be recorded. It has to be presented. Not only to professionals but eventually to other audiences. How many times have you watched the news or listened to the news at night and found there was a study in the Lancet or in The New England Journal of Medicine And you're finding all of these studies are now in the public realm? But first of all they had to be published, and they had to be communicated, and they had to be

documented. You'll find that most discoveries begin as peer-driven research, where you publish in professional journals; before it becomes accepted it has to be scrutinized by peers, by other researchers in the field. So being able to communicate clearly is important. So, as I mentioned earlier, you have to adapt it to a more general audience. You have to have a composite sort of writing persona. You have to be able to do all of these things.

English 309 Class: For the research itself, though, especially in the sciences, is there a certain level of professionalism that they expect in a paper? Does it have to be in a certain thing before they'll accept it as true research and of reliable source?

Professor Smith: Let's begin by asking, Where do you publish your research? Not in a generic, newspaper article, or in a public type of magazine or journal (Scientific American or example). You may, if you march to the beat of a different drummer, you probably will engage your audience in a refereed professional journal that is peer driven. If you're doing research on *heliobacter clostridia*, you'll probably submit that in a bio-medical type of journal. It will be, first of all, reviewed, and it will be published, and disseminated in that professional community. Serious research gets tested in a number of ways: you'll present that paper, perhaps at a professional conference of doctors or bio-chemists, or what have you, and once it has sort of met its mark there, it's been challenged, you may go back and so some revisions. Ultimately it will be accepted or rejected. A good example of that question occurred in 1989 at the University of Utah in concert with or conjunction with some research that was being done in Brigham Young University about cold water fusion. I don't know if you remember that study. There was a good deal of press about cold water fusion. The researchers presented their information in an unconventional way. They didn't document the study to the degree that they should have. In other words, they didn't do their written or public communication homework. And they were ripped to shreds by members of their own community. And you haven't heard much about cold water fusion since. The research just hasn't progressed any further. They handled it poorly. In fact, they suggested to their audiences that they had reached a pinnacle point in the research when, in fact, they were nowhere near closure on it. Yet it was communicated in all the scientific journals. But they were nailed right away. They were nailed by their peers for not doing enough research. For not presenting it in a conventional fashion. They were unable to respond to questions about their documentation. There are other factors that impact on whether or not your research is accepted or not. This comes back to the types of things that we teach in a science writing course. We talk about ethics in communication, and authorship, and whether or not your research is documented. We talk about the social responsibility of communicating scientifically. It's not all just writing reports and doing scientific studies. It's a matter of learning the accepted genres and entering--becoming a member of--the technical writing or scientific community.

Garrett-Petts: In closing, maybe we should give a little insight to your future technical communication students. When you are grading papers submitted to you, what do you look for and what should your students be aware of?

Professor Smith: I don't want to give away my trade secrets. [laughter] I think if you go back and look at what we've talked about this morning, I think writing is hard work. Writing is physical. It's just like physical labour. Good writing is like laying pipe. After a hard day of writing you're probably fairly tired. You're tired in the sense that it has called on you to think about your writing--organizationally, visually, compositionally-- whether or not you write concisely, and precisely. You need to consider whether you have good sentence structure, and you have good paragraphing. Let's say I get a student proposal for a major report or I look at your formal report. I'll look at your composition, and I'll look at grammar, and whether the syntax is correct-- whether or not the work is written in a straightforward manner. I'm not impressed if the idea presented are buried in convoluted, really dense, prose. Just like any other instructor, I look at paragraph length. In the sciences we're talking about crisp paragraphing, seven to eight sentences. My students generally know that if they turn in a report with two pages of uninterrupted prose or text, I'm going to be an unhappy camper, and psychologically they've screwed up big time and they better go back and put in some headings. And again, I'm also looking at the visual quality of their report: whether or not there is a nice balance of text and white space; whether or not they use headings; whether their heading levels are logical; whether or not they are opening up their discussion; whether there are places where they can use list information, as opposed to present information in paragraph form. In most of my courses, when my students do a formal report--and we haven't talked about oral communication to any great degree this morning--I won't allow them to read from a manuscript. So they have to find ways of communicating visually without reading from 5 by 8 cards and 3 by 5 cards. They have to speak for 20 to 25 minutes. So it's a challenge for them to take their written research and apply in a more visual sense (via visual aids and physical presentation) in a professional environment--but it's a necessary challenge, because those people are going to be presenting professionally as engineers, and scientists, and arts graduates.

Garrett-Petts: My thanks to Ron Smith for sharing his insights into science writing, and into business and technical communication. [applause] Thanks also to the English 309 class for your questions.