REVIEW:

NEW ESSAYS IN TECHNICAL AND SCIENTIFIC COMMUNICATION: RESEARCH, THEORY, PRACTICE

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Anderson, Brockmann, and Miller have compiled an anthology\(^1\) of essays devoted to research in technical and scientific communication that should be read by any professional writing teacher who hopes to maintain a career in this field and by graduate students who are contemplating applied communication as an area of concentration. While the editors have not dealt with the pragmatic reasons for doing research (prefering to stress the scholarly motives), this anthology could well be subtitled "How to Write for Promotion and Tenure if You Teach Technical Writing in an English Department." For technical writing teachers facing the publish or perish mandate in English departments, the essays exemplify the kinds of research that will help one survive amid literature-oriented colleagues who often think that technical writing teachers have nothing to publish or teach that has any depth or value. The essays, 12 in all, cover five currently popular main research areas in scientific and technical communication: empirical studies, review and evaluation of research related to professional communication topics, rhetorical and theoretical analyses of different aspects of professional communication, historical studies dealing with the history of scientific writing, and the continuing attempt to define accurately what is meant by the term "technical" communication. Each essay is fully and carefully documented, and these sources should provide background reading for readers interested in pursuing additional study in these topics.

The essays fulfill the needs outlined by the editors in their introduction—to show the kinds of research that can be done in technical communication—but the editors and some of the authors seem to have forgotten the most basic rationale for technical communication, i.e., to improve, either by teaching or by practice, the writing done in business, science, government,
The point is not made that technical communication has experienced phenomenal growth because the "real world" wants employees who can write and speak well. Declining literacy during the past 15 years occurred just as technology was producing an information explosion, much of it verbalized in the form of bad writing and gobbledegook that none could understand, least of all the intended users. In a sense, technology outgrew language capabilities as well as accepted, traditional methods of presenting information. Technical communication courses have showed astounding enrollments for two reasons: word has spread that to succeed, one must speak and write well; technical communication courses have been seen as an effective means by which students can be prepared to communicate successfully on the job. Without this enrollment growth, technical communication would not be attempting to organize as a discipline. The crux of the matter is this: as professional communication teachers, our main commitment must be to find new and better ways to communicate information in scientific, business, and industrial settings. If we are going to succeed as a new discipline, we must never fail to keep our eyes on that goal. We must be sure that our teaching and research works toward that goal. Otherwise, there is little to separate us from standard rhetoric, and our students may leave our courses without either knowledge or skills to enable them to communicate in a constantly changing work place. Research, therefore, should show us what we should teach in technical communication courses and how (as practitioners) we can improve actual writing in the work place. Because technology is continually changing the contexts and methods by which employees communicate, these two research fields will continue to change and demand our continued effort to define them. Of the 12 essays, all but two seem to be aware of the importance of keeping the functional, changing nature of technical communication clearly in view.

"Studying Writing in Non-Academic Settings" (Odell, Goswami, Herrington, Quick) analyzes writing done in a county bureaucracy. Their goal was to determine if theory and teaching procedures (about audience, purpose, persona) in technical writing classes are consistent with what writers do. In other words, how realistic is our instruction in pre-writing? "Revising Functional Documents: The Scenario Principle" (Flower, Hayes, and Swarts) and "Topical Focus in Technical Writing" (Faigley and Witte) are equally useful and germane to the central
rationale of our discipline. "Revising Functional Documents" shows clearly how scenarios have been developed and used to clarify dense writing characteristic of regulations. The authors' recommendations in the final section, "Practical Revision Strategies," provides extremely useful advice for teaching either definition or revision. Research by Faigley and Witte has important implications for teaching effective development of sentences and paragraphs: "Consistent assignment of a particular topic to the grammatical subject position does influence what readers perceive as the topic of a passage. . . . The implication for writers of complicated texts is clearly that the dominant subject matter should be kept in the topical focus as the grammatical subject of the main clause."

Jack Selzer's essay "What Constitutes a 'Readable' Technical Style?" reviews research on readability and clearly assesses problems in developing a formulaic definition of what is readable and not readable. Huckin's essay "A Cognitive Approach to Readability" complements Selzer's by reviewing the cognitive approaches used to determine readability. Using cognitive research, Huckin formulates tentative guidelines for improving readability. The interesting point is that these guidelines are already familiar, standard tools for experienced teachers, but Huckin has used cognitive research to show us their validity.

Charles Bazerman's essay "Scientific Writing as a Social Act: A Review of the Literature of the Sociology of Science," provides invaluable information for those who teach writing for publication to science students. Barzeman discusses the perspective that guides the development, acceptance, and (at last) the publication of scientific papers. Any student in science who anticipates a career where publication is required will benefit from Bazerman's findings and suggestions for designing scientific papers. For example, most science students have not considered that their writing and their documentation must work persuasively and not just "objectively."

The essays under Historical Perspectives—"Style as Therapy in Renaissance Science" by James Stephens and "Bacon, Linnaeus, and Lavoisier: Early Language Reform in the Sciences" by James Paradis—demarcate the evolution of concepts on which modern technical communication rests. Both provide enriching information for teachers who need to know the history of our discipline. These two essays are particularly valuable for graduate students contemplating dissertations in the history of technical communication, an area that is just
beginning to receive attention. Both essays exemplify methods for examining, from a historical perspective, the use and purpose of rhetoric in scientific writing.

David Dobrin's essay "What's Technical About Technical Writing?" provides a fitting conclusion to the anthology. Dobrin, in contrasting the universalist and the monadist views of language, illustrates clearly that "technical" writing may never be irrevocably defined. Dobrin reviews past attempts at definition and suggests that "Technical writing is writing that accommodates technology to the user." In discussing the problems inherent in understanding language, Dobrin also considers the effect that technology has had on our knowing what we are trying to do when we teach technical writing.

In their introduction, Anderson, Brockmann, and Miller state that the essays are meant to lay the groundwork for future investigations. And each essay does, depending on the reader's interests and perspective. For example, in considering "readability," some readers may find the quest for a formula enticing. Since Plain English laws depend on some means or standard by which "plain English" may be measured or defined, what methods could possibly be developed to determine "readability" more precisely and accurately? Victoria Winkler's essay, "Role of Models in Writing," seems to me to need more explanation about how to use the invention model. But having to dig through Young, Becker, and Pike to understand her point has helped me come up with a working example on my own.

Like most anthologies, some essays are better than others, depending on the reader's perspective. Zappan's and Harris's essays seem to me the least satisfactory in the collection because they lack functional application. Context-oriented rhetoric, such as Toulmin's, offers little help in either teaching, writing, or consulting. Semiotic-based discourse theory does not begin to deal with the problems that procedure writers must overcome to develop effective "How to" discourse. Procedure writing—What are the linguistic and rhetorical components of effective procedures?—certainly needs to be determined. Procedures, in anybody's survey, are one of the most frequently written forms, but they are also some of the worst, as suggested by the plethora of bad documentation and computer user manuals. What is needed, I suggest, are not studies of "how to" writing as a broad category using standard rhetorical theory. Instead, we need answers to questions like the following: What composing process is used by experienced, successful procedures writers? What
are the characteristics of procedures found to be clear, usable, and "readable" by those to whom the procedures were written? If we gathered a large collection of effective procedures, could we find similar rhetorical, organizational, or stylistic elements? In short, (to borrow a phrase from the opening (by Odell et al.) "Are my theory and teaching procedures consistent with what writers actually do? If I analyze written products and composing processes, do I find corroboration of my theoretical assumptions and classroom practices?" In short, technical writing is constantly changing. If our teaching is to be consistent with practice, then, as teacher-researchers we would do well to see that our research broadens our knowledge as it strengthens the accuracy of our teaching.

Again, Anderson, Brockmann, and Miller are to be congratulated on developing an anthology of essays that define and exemplify kinds of research that may be pursued by technical writing teachers trying to justify the importance of their work in belletristic departments of English. As Dwight Stevenson recently noted in his survey of technical communication faculty, most technical writing teachers are over worked, but they are also effective teachers. New Essays in Technical and Scientific Communication clearly shows that one can teach technical writing and pursue useful, significant research.

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