Communication as Both the Ultimate Interdisciplinary Subject and a Field of Specialization Encompassing More Than Technical Writing: Communication Instruction Across Divisions

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What we got here is failure to communicate.


Both within and outside of engineering, communication is widely perceived as a problematic area for engineers. Not surprisingly, communication has also been the non-technical skill that engineering faculty most readily recognize as relevant to professional success and thus as worthy of attention in the engineering curriculum. After over 100 years of debate and experimentation, however, we are faced with the paradox we confronted at the outset: broad agreement about the importance of communication in engineering and a lack of consensus about how communication competency should be developed in the curriculum.

To be sure, technical writing instruction continues to be, as Robert J. Connors described it in his 1982 landmark essay, “The Rise of Technical Writing Instruction in America,”1 “a center of vital scholarly and pedagogic activity” (p. 173). We have not seen, however, the fruition of the progress narrative he uses to frame his essay, a narrative that begins “in a few schools of engineering [goes] through its lean times, when it was a poor cousin to literary studies in English departments [and eventually attains] eminence” (p. 173). In sum, the field has advanced, but the circumstances of many of the faculty who teach technical writing have not improved, especially with regard to professional status and opportunities for advancement. In contrast to teachers of journalism, who moved to their own departments or schools, teachers of technical writing, whether housed in colleges and schools of engineering or in English departments, still typically have peripheral positions2 (p. 148).

There are many historical and structural reasons why this should be the case, including the fact that the advancements that have occurred within the field of technical communication have been very hard to communicate outside of the field. This paper offers a historical perspective that helps explain why advancements in the theory and pedagogy of technical communication have had little effect on the dominant mental model of technical writing instruction. It also offers two exemplars of the approach described in the title for this paper: communication as both the ultimate interdisciplinary subject and a field of specialization encompassing more than technical writing. These exemplars help us understand the circumstances in which technical communication instruction and instructors have flourished.

The History of Technical Writing Instruction in America: Or, How to Get Past a Very Bad Beginning

Although a definitive history of technical communication instruction in the twentieth century remains to be written, the basic outlines of that history emerge consistently in the work of Connors,1 Katherine H. Adams,2 William H. Rivers,3 and Teresa Kynell,4 among others.
Although what we think of today as technical writing has been produced since ancient times, systematic technical writing instruction at the college level did not occur until the early twentieth century. It arose largely in response to widespread criticism from the public and the engineering profession about the illiteracy and generally abysmal communication skills of engineering graduates, criticism usually articulated as an inability to “write coherent engineering reports, or even simple business letters”\(^1\) (p. 175). Meanwhile, back in academia, the teachers of literature (themselves relative latecomers as a university-level discipline) often assumed a posture of moral superiority in relation to engineers, who returned the favor by dismissing the teachers of literature as day-dreaming aesthetes with nothing of practical value to offer engineering students.

My reading of this history suggests that these tensions and incompatible perspectives were resolved by an academic version of outsourcing in which teaching technical writing to engineering students became employment of last resort for graduate students, unemployed PhDs in English, and others who were at least marginally qualified and willing to do large amounts of difficult work for relatively little money. The underlying rationale for the outsourcing is captured in an observation from David R. Russell: “Faculty concerned with research, graduate teaching, and professional training had a license to complain about poor student writing but an institutionally sanctioned excuse for not devoting time to their undergraduates’ writing” (in Adams, p. 36). Juanita Williams Dudley described the situation of the instructors to which the work was outsourced vividly: “Frequently, the technical writing conscript regards his assignment as a humiliating, dehumanizing hairshirt that must be endured until advanced degrees and seniority confer upon him enough power to bargain for courses in literary criticism and creative writing” (in Connors, p. 190).

As it turns out, the “conscripts” had good reason for perceiving their situation this way. To begin with, their training had not prepared them to teach technical writing. Technical writing textbooks emerged not as a complement to but as a substitute for expertise on the part of the teacher. The motivation for technical writing instruction was typically articulated in terms of mastering forms (i.e., business letters and reports) and mechanical correctness; the textbooks (and by extension course designs) followed suit.

The forms and mechanics approach may have simplified or standardized the work of teachers of technical writing, but its disadvantages outweighed its advantages. It did nothing to increase the status or decrease the grading load of the instructors, and it perpetuated a reductionist conception of technical communication that persists outside of the field to this day. Perhaps the most striking feature of the situation was described by Kynell: “A great irony in the evolution of technical communication in an engineering curriculum was the virtual second class status imposed on the discipline by [emphasis added] those who taught it” (p. 93). They accepted a position that they typically agreed was below both the teaching of literature and the teaching of engineering—and they got out of it as soon as possible, or perhaps just got used to it. Once outsourcing was established as a dominant model, it has been very difficult to dislodge, both as a practice and as a shared mental model.

What We Can Learn from the Teachers of Technical Writing Who Embraced the Task
Fortunately, there have been along the way notable faculty members who did not accept inferior status. These individuals can help us understand the success we have achieved so far and chart a clearer path for the future. Their careers endow the phrase “Engineering English” with a completely different and very positive meaning. In overview form, these are the central features of their approach:

- Treating communication, including technical communication, as the ultimate interdisciplinary subject and a field of scholarly specialization that goes beyond technical writing;
- Refusing to separate the utilitarian from the humanistic aspects of communication;
- Presenting language as a tool that could help engineers attain their professional goals;
- Respecting their students’ choice of profession combined with an interest in and appreciation for the process and products of engineering;
- Drawing on the traditions of rhetoric as a way of explaining how language works in the real world; and
- Collaborating with technical colleagues based on an understanding of engineering education as the common enterprise in which all were engaged.

Infectious enthusiasm and charisma often explained part of their success, but personality was never the whole story. Their approach allows experts in English and related communication disciplines to remain true to their discipline while also extending their discipline’s utility for engineering education. There are several individuals who have played a leadership role in developing and implementing the concepts and approach described above. I will focus on two who illustrate the approach and give a sense of the diversity within it.

The Flourisher: A Successful and Supremely Satisfied Teacher of Technical Communication

Sada A. Harbarger (1885-1942) received her Ph.D. in English from Ohio State University. Like most flourishers, she became a teacher of Engineering English by default: as a new faculty member at the University of Illinois, she volunteered to teach sections that none of her colleagues wanted to teach because those sections were populated entirely by engineering students. Fortunately for Harbarger—and even more fortunately for the many students she taught and the field she decisively shaped—“she turned ‘an educational chore’ into a career” (SPEE Chair of the English Division C. W. Park in Kynell, p. 94). As we would express it today, Engineering English became her passion, an animating interest and mission that allowed her to engage her strengths and natural inclinations and challenged her in ways that were deeply satisfying.

Harbarger’s most tangible contribution was her 1923 textbook *English for Engineers*, which went through many editions and Connors describes as “the first ‘modern’ technical writing textbook” (p. 179). Like books written at the same time, it focused on technical forms such as reports and letters, but she took an original approach by framing Engineering English as an essential asset for achieving professional success, what Kynell describes as a “workplace” or “real world” philosophy (p. 95).

But perhaps her most valuable contributions were her articulation and exemplification of the distinctive qualities of a successful teacher of Engineering English. As Kynell puts it, Harbarger
advocated for “a unique kind of English teacher for engineering students, one who had not only interest in the topic (and a passionate one), but an education in the humanities” (Kynell, p. 96). Harbarger played several leadership roles in the English Division of the Society for the Promotion of Engineering Education (SPEE) and published widely on the subject of technical communication instruction for engineers. In an article titled “The Qualifications of a Teacher of English for Engineering Students” (1920) and summarized in a June 1929 report, Harbarger delineated what might be described as a pyramid of qualifications for success as teacher of English to engineering students:

1. the personality of the teacher, which obviously affects,
2. the presentation of the material, or the project, and
3. the cooperation of the instructors of the technical subjects through their handling of their class material (in Kynell, p. 100).

She encouraged engineering students to think of themselves as “salesmen of their own ideas” (in Kynell, p. 95) and of English as a tool that they could use to achieve professional success and personal satisfaction. She warned teachers of Engineering English against “cultural obsession,” her terminology for misdirected efforts to “ennoble” engineers by exposing them to literature. She believed that the technical and humanistic aspects of technical writing did not have to be and should not be separated—and that Engineering English must be connected to engineers and engineering education. She was able to cooperate with engineering faculty without losing her identity as a humanist, and used rhetoric to bridge the gap between the utilitarian and the humanistic aspects of communication.

Intellectual Integrator and Curricular Innovator

Frederick Newton Scott (1860-1931) received his PhD in English from the University of Michigan and spent his entire career there as a faculty member, first in English and then in a separate Department of Rhetoric in which he was the driving force. Scott played a very different role than Harbarger, yet one that was quite complementary to hers. Scott was a curricular innovator at both the graduate and undergraduate levels, and a very prolific writer. Perhaps his greatest contribution, as described by Adams in A History of Professional Writing Instruction in American Colleges (1993) was “specialized professional education in writing for undergraduate and graduate students” (p. 64). This included a course on teaching composition and rhetoric at the college level, specifically designed to prepare English PhD students to teach.

His most significant contribution, however, was what his biographers, Donald and Patricia Stewart, describe as a “vision of education [that] extended beyond the confines of his own professional career in rhetoric” and “saw a world that integrated all areas of human knowledge, each supplementing and complementing the other” (p. 1). Writing shortly after Scott’s death, his student and colleague Louis Abraham Strauss described Scott’s intellectual orientation as follows: “Dr. Scott’s conception of rhetoric was catholic in the extreme; it was limited only by the range of his own personal interests, which really means that it was not limited at all [emphasis added]” (Strauss in Adams, p. 65). Beyond the mastery of rhetoric in all its facets, including its history, Scott’s interests included art, painting, and music; ancient and modern literatures; philosophy, including aesthetics; and many of the sciences.
Scott offered special graduate seminars each year on topics whose range helps illustrate the breadth and evolution of his interests: “the origins of prose; the nature and origin of the leading types of discourse; the psychology of figures of speech; the rhythm of prose; the sociological basis of the principles of usage; the origin, development, and laws of the process of communication”2 (p. 64). Strauss, himself a Michigan English PhD, played a leading role in the formative years of the Department of English within what eventually became the College of Engineering at the University of Michigan. In collaboration with Scott, Strauss and his colleagues “offered courses on scientific literature, commercial correspondence, technical journalism, technical exposition, and contracts”2 (p. 65). Scott seems to have excelled at interdisciplinary collaboration, and his integrative approach was both inclusive and inspiring. Rather than providing a template for subsequent faculty to follow, he provided a model for intellectual and curricular synthesis and innovation.

Conclusion: Problems of Communication as Much More than Problems of Individual Ability

As the history of technical writing instruction demonstrates, the outsourcing-forms and mechanics model was not an instructional approach designed thoughtfully by experts in technical communication and pedagogy. It was, rather, an ad hoc approach that responded to the demands of external stakeholders for communication skill development in engineering graduates. The approach endured (and appealed to deans and other administrators making decisions about investments in engineering curricula) because of its apparent efficiency and because it did not significantly impede the goals of English departments and schools and colleges of engineering as they developed research and graduate teaching programs.

The flourishers and the integrators—including the two individuals discussed above—have appreciated the importance of individual skill but also recognized that successful communication is the result of much more than individual skill and that no attempt to communicate can be fully understood apart from its organizational, technical, and cultural contexts. The pages of scholarly journals such as Technical Communication, the Journal of Technical Writing and Communication, IEEE Transactions on Professional Communication, and The Technical Writing Teacher; the growing body of monographs and edited collections on technical communication; and, increasingly, journals such as Technology and Culture and Science, Technology, and Human Values attest to both the universal relevance of technical communication and to the wealth of pedagogical approaches available. Nonetheless, we continue to face organizational and cultural obstacles to putting that knowledge to work. This paper has attempted to describe those obstacles and how individuals have on occasion overcome them. As John Durham Peters claims in Speaking to the Air: A History of the Idea of Communication7 (1999) reaping the fruits of effective communication “can never be easy or formulaic; so much depends on dumb luck, personality, place and time” (p. 30). This may be the place and time. Who knows?

References


