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Excerpt from Chapter 2.

SCIENTIFIC POSITIVIST INFLUENCE ON STC

The scientific and technical communication field was initially influenced by technology and technological studies—representatives of positivist science. The reification of technology is a central focus of positivistic science (Ellul, 1964 [1954]; Heidegger, 1977 [1954]). Both Ellul and Heidegger hold positivist viewpoints whereby engagement with the social and natural world is predicated upon sensory data that can be empirically verified as technology. Their premises argue for an instrumental ideology that dictates the ordering of human activity as a component of technology. Ellul and Heidegger point out problems with technology in their critiques, but maintain a positivist view of how society may be influenced by technology. That is, they argue that humans are simply component parts of technical endeavors, and by extension, are faceless, passive, monolithic beings. Others (Winner, 1977; Feenberg, 1991; Wajcman, 1991; Selfe and Selfe, 1994; Latour, 1996 [1993]; Feenberg, 1999) argue that human connectivity must be made manifest in technological undertakings. Their arguments are that the uncertainty of technological systems calls for research and negotiation and not silence—that is, a specific humanistic application and not simply a compartmentalization of technique. The complicated nature of technology and technological advances purportedly for the benefit of human society dictates that we interrogate the purpose or use of the technology, especially when implemented in the public sphere. This interrogation reinforces the necessity of a humanistic focus, as well as the concern about the "unintended consequences" (Winner, 1977) of implementing technological applications.

Later, scientific and technical communication distanced itself from the so-called neutral, objectivist discourse of the engineering disciplines to portray itself as a more subjective and people-centered discipline. Positivist science posits that knowledge must be based on sensory data that can be empirically verified (Miller, 1979; p. 612). This premise argues for an objectivist stance that minimizes personal and social influences, leaving facts that are impartially, logically and clearly conveyed. However, the scientific and technical communication field was seeking to establish a humanistic perspective that welcomed influences from the human world. Humanism can thus be distilled as a recognition that the individual's personal experiences and societal influences impact knowledge and knowledge-making. While this concept of humanism tended to generalize individual viewpoints, it nevertheless critiqued the positivist perspective. Miller's summons for a more humanistic focus in technical writing revealed how the positivist theories of scientific research had minimized human influence in the scientific and technical communication field. She argued to make "human knowledge thoroughly relative" (615) by establishing the basis for writing through lived experiences, not theoretical studies. Miller also noted that while "[t]echnical writing is sometimes characterized by its particular concern for audience analysis, ...audience adaptation too often becomes an exercise in vocabulary" (615). She argued for "broader and more flexible methods which will permit

analysis of the relationship between the writer and the reader" (615).

Following Miller's footsteps, Dobrin (1983) argued for moving technical writing from the realm of certainty, objectivity, and perceived truth to that of flexibility, subjectivity, and usefulness. His basis for this claim was his view of language. Dobrin contends that the universalist view of language means that "a sentence can mean a particular thing and that precisely that meaning can be understood" (234). He argued for the monadist view, whereby "what someone means is indeterminate and can never be precisely understood" (234). He amplified Miller's argument of moving technical writing into the humanistic sphere by noting that it is considered as "writing that accommodates technology to the user" (242). Dobrin was concerned that the stipulation of objectivity in technical writing pretended to evoke the "voice of everyman" (245), thus making the writing uniform and interchangeable. He argues that treating technical writing as a practice means considering the writing practices of the audience as well as those of the writer. Dobrin admits this is a difficult process, for "penetrating groups which you are not a member of requires learning a new way of thinking" (248). An examination elsewhere of scientific and technical communication history further highlights this issue. [1]

SCIENTIFIC POSITIVIST INFLUENCE ON PEDAGOGY

Scientific and technical communication was initially conceptualized as engineering English pedagogy, "to make English real and valuable to the engineer" (Kynell, 1999, p. 149). Technical communication's early association with engineering English pedagogy was a way to disassociate itself from the traditional composition course in English. The early 1850 to 1950 historical overview of scientific and technical communication establishes some causal relationships. First, the genesis of the historical foundations is from the engineering disciplines. This basis no doubt constitutes the reason for the continuing positivist influences in the field. Second, in an effort to encourage engineers to embrace writing, a "real-world context" was provided. This contextual basis shapes the current academy/industry conflicts between the theoretical influences and the practical applications. Third, in considering the audience of the 1950's manufacturing workplace, it is highly doubtful that many (any?) of the technical workers employed were Black. Thus, historically, technical writing—while cognizant of the need to analyze and understand the audience for writing—was not challenged to complicate the audience along racial, gendered, or ethnic lines.

More recent history of 1950 to 1998 seems to follow this early path of writing for an audience, but the concept of audience seems more an obligatory process to address a monolithic one rather than examining an overly complicated one. [2]
Scientific and technical communication pedagogy is influenced by scholarship initiatives of the field. In examining many of the theoretical studies (Lay, 1991; Thrush, 1993; *Technical Communication Quarterly 3*.3, 1994; Staples and Ornatowski, Part II, 1997) [3]
and much of the body of research in the discipline (Spilka, 1993; Corsini and Fogliasso, 1997; Cook, Thralls, and Zachery, 2003), [4]
much of the work that addresses audience considerations bypasses racial makeup (Reep, 1994; Anderson, 1999; Riordan and Pauley, 2002). [5]
This examination underscores a continuing absence of discussion about racial

influences in the audience. The audience analysis process can benefit from including cultural influences on the individual as revealed through racial markers of language use and visual identity.

SCIENTIFIC POSITIVIST INFLUENCE IN THE WORKPLACE

In general, scientific and technical communication was seeking to embody a perspective that reflected humanistic-influenced personal experiences and acknowledgment of societal influences on positivistic technology and technological advances. The overwhelming shadow of autonomous technology over society resulted in a sense of resignation to compartmentalization. Even so, there remains a desire to interrogate technological innovations in the human sphere through responsible and ethical technical communication. The early influences of engineering English in the 1850's to provide a "real-world context" for writing and addressing an audience saw industry workplaces becoming influential in shaping scientific and technical communication. Kynell suggests that this early technical writing "was realizing full status as a discipline because people were being hired to do it" (148), while Staples comments that "[p]rofessional technical writing organizations began to grow" (155) in the 1950's. These remarks are indicative of industry influence in the scientific and technical communication field. Dombrowski (1994) argues that humanism does not simply counter positivistic influences. His stance is that humanism is proactive in revealing human needs and not simply reactive to technological advances. Bushnell (1999) offers a pedagogical counterpoint perspective to the positivist-humanistic dichotomy in the growth of the scientific and technical communication discipline. He argues that the emphasis on the social construction of technical writing in the workplace is not to encourage "critical thinking as an approach to problem solving" (177), but to more efficiently adopt workplace paradigms—such as quickly and efficiently providing clear and concise documents to supervisors. The critical aspect of social construction has become neutralized in favor of refashioning a more complex technical communication pedagogy. This pedagogy does not critically examine and assess corporate practices, but rather promotes those same universalizing and neutral perspectives. In spite of scientific and technical communication's desire to eschew positivist, objective, and neutral ideology, Bushnell opines that the discipline teaches students "how to *be* technical writers, not how to critique the assumptions behind the entire enterprise [of the workplace]" (181, italics his). Finally, he considers how the dualism of the workplace as practiced in industry and as presented from the academy contributes to the "positivist faith in neutrality and the transparent nature of language" (177). Bushnell maintains that the industry mandate to "move forward efficiently, to get results, to realize those profits... so that a company can grow and prosper" (184) means that economically successful methods are rarely questioned. Workplace assumptions about a monolithic audience impact research studies drawn from industry, and those research studies in turn influence pedagogical applications. This project seeks to add to research efforts by addressing a raced audience within the analysis process, and ultimately impacting pedagogy.

Endnotes:

[1] In discussing the 1850 to 1950 historical context of scientific and technical communication, Kynell (1999) asserts "that history forms the foundation upon which the future will be built" (143). The historical foundation as constructed by engineering English was to provide English instruction to solve the near illiteracy of many graduating engineers (145). Kynell comments that one solution to getting engineers to embrace writing was to link "English to engineering through engineering topics…[and thus] provid[e]… a real-world context for writing" (146). She states that this task focused on the "actual writing engineers might face in their professional lives" (146). In support of this endeavor, Kynell notes that English professor Samuel Chandler Earle formulated an "early technical writing course" (146) in 1911. The purpose of Earle's efforts was that he wanted to "make English more relevant to engineers" (146) by focusing on abilities to be learned in the classroom. One of these abilities was "understanding the audience for whom a document is intended" (147). As Kynell so adroitly addresses in her overview, this "historical" audience was comprised of workers in the manufacturing industry, where advances in weapons and technology called for "writers to explain that technology to workers who lacked a technical background" (148). The limited writing skills of engineers meant that they were unable to rise to the challenge of "explaining technology to the sometimes technologically ignorant" (148). This deficiency contributed to technical writing realizing full status as a discipline "because people were being hired to do it" (148). Some of these assumptions become inherent in the discipline's later history.

[2] Staples' (1999) focus on the maturity of the scientific and technical communication discipline considers the years from 1950 to 1998. She notes that the change in college population "including an estimated 60,000 women and 70,000 African Americans" (154) and technical communication curricular interests "including architecture, pharmacy, agriculture, chemistry, and home economics" (154), sparked a change in focus for academic instruction. The shift in enrollment and instructional audience from engineering students to technical writing for a variety of fields called for a similar shift in pedagogical approach. Thus, the "rhetorical approach with emphasis on the reader" was implemented (154). The increase in domestic technologies converted from wartime technologies and other growing technologies meant that "writers were needed in increasing numbers to support both [endeavors]" (155) in industry workplaces. Staples briefly describes a "typical" technical communicator of the 1970's as "probably male, perhaps ex-military or a former technician, of middle age, and probably a long term employee of a single company" (156). While she also adds other "typical" duties and responsibilities of this individual, this "typical" technical communicator was more than likely also white. This point is crucial to grasp when assessing the influence of the workplace on academic theorizing and pedagogy, especially when considering the lack of complexity of audiences, for research studies often become a focal point for generating and implementing pedagogical applications.

Staples also notes that not only did the pedagogical approach in technical writing change with the shift from engineering to technical communication students, but the focus of academic programs also changed (157). She attributes the resultant disciplinary conflict as a "schism between theory and practice" (159). However, in her assessment of the "polarization of the technical communication discipline into two groups" (158), she addresses a gender issue. Staples remarks that the " 'old guard' [were]…chiefly men, and 'young turks' [were]…chiefly women" (158). She quotes John Harris (1985) in differentiating between the two groups as "learn[ing] technical writing from…practice in the field" and graduates of new doctoral programs "with their own ideas and career ambitions" (158). Even so, while Staples commends the shared academy/industry goals in the technical communication field, she also notes that Miller (1989) argued that "existing practice does not necessarily reflect *best* practice" (159, italics hers). As Staples takes a look at the contemporary technical communicator of 1998, she notes that this individual "is more likely to be female than male and is in her late thirties. She has worked at several companies or as a contractor, …and works… with an increasingly wide and sophisticated range of communication technologies" (160). Finally, Staples argues for a research agenda that embraces industry practices while "connecting it to inquiry (162), in preparing students for "workplace responsibility with integrity as well as knowledge and skill" (161). Here, Staples' technical communicator has now changed in gender only, in that this individual is a white woman. The opportunity or expectation that the technical writer could be a racially-constituted individual does not seem to be considered. This assumption could be driven by the reality of membership in scientific and technical communication professional organizations.

Staples states that as industry needs for technical writers grew, so did professional organizations (155).

One of these professional organizations that she discusses is the Society for Technical Communication (Society), which is now one of the largest professional technical communication organizations (156). The Society has grown into one of the largest professional organizations for technical writers, with over 18,000 members today. Because of membership size, its influence is substantial and necessarily impacts academic research agendas. While the Society tracks gender as a salient characteristic of its membership ("Profile 92 STC Special Report;" "[2000] Technical Communicator Salary Survey;" "[2001] Technical Communicator Salary Survey;" "2002 Technical Communicator Salary Survey;" "2003 Academic Salary Survey;" "2003 STC's Independent Contractor/Temp Agency Employee Survey;" "2003 Technical Communicator Salary Survey;" "2004 Technical Communicator Salary Survey"), it does not identify ethnicity or race. In the academic discipline's efforts to better prepare students for the workplace, it has undertaken research studies of "typical" technical writers by addressing their job duties and responsibilities. Some of these research studies are focused on member respondents to the Society's surveys, and thus are narrowed in focus when considering how to broaden the need for audience analysis.

If the Society is to be viewed as a catalyst for enabling technical communicators to undertake an ethical responsibility within the social community, the current narrow focus on gender needs to be expanded to include race.

[3] see also Allen, 1991; Bosley, 1993; Lay, 1993; Allen, 1994; Blyler and Thralls, Part II, 1993; Dautermann, 1993; Kent, 1993; Rymer, 1993; Thrush, 1993; Bosley, 1994; Dombrowski, 1994; Griffeth et al, 1994; LaDuc and Goldrick-Jones, 1994; Scanlon and Coon, 1994; Viega, 1995; Hurley, 1997; LaDuc, 1997; T. Weiss, 1997; Duin, 1998; Longo, 1998; Sutcliffe, 1998; Tebeaux, 1998; E. Weiss, 1998; Barker and Zifcak, 1999; Hausman, 2000; David, 2001; Petit, 2001; Anschuetz and Rosenbaum, 2002; Smith and Thompson, 2002; Warren, 2002; Albers, 2003; Durack, 2003; Lippincott, 2003; and Warren, 2004.

[4] see also Doheny-Farina, 1992; Subbiah, 1992; Lauer and Sullivan, 1993; Barton and Barton, 1993; Olsen, 1993; Sullivan and Porter, 1993; Thralls and Blyler, "Research," 1993; Dombrowski, 1994; Hopkins and Hopkins, 1994; Kossek and Zonia, 1994; Hurley, 1997; Staples and Ornatowski, Part II, 1997; Thrush, 1997; Lutz and Storms, 1998; and Rainey, 1999.

[5] see also Kalmbach, 1988; Doheny-Farina, 1992; Allen, 1993; Blyler and Thralls, Part II, 1993; Greene and Ripley, 1993; Paré, 1993; Spilka, 1993; Spilka, "Influencing," 1993; Thralls and Blyler, "Pedagogy," 1993; Little, 1997; McKenna and Thomas, 1997; Staples and Ornatowski, Part IV, 1997; Subbiah, 1997; Warren, 1997; Boiarsky and Dobberstein, 1998; Longo, 2000; James, 2001; Markel, 2001; Bernhardt, 2002; Blakeslee, 2002; Borland, 2002; Dicks, 2002; Carliner, 2003; and Hayhoe, 2003.