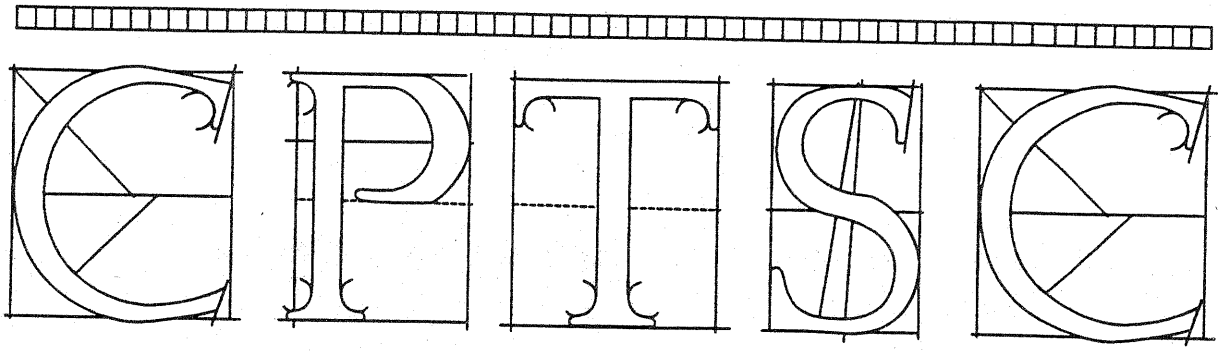

The Council for Programs in Technical and Scientific Communication

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1994

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Proceedings

The Council for Programs
in Technical and Scientific Communication

21st Annual Conference

Las Cruces, New Mexico
October 20–22, 1994

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Program

21st Annual Meeting
The Council for Programs in Technical and Scientific Communication

Host: English Department and the College of Arts and Sciences
New Mexico State University
Location: Las Cruces Hilton, Las Cruces, New Mexico
Date: October 20–22, 1994

Meeting Theme:
"Challenging Assumptions on Technical Communication: New Answers to Old Questions"

Thursday, October 20

4:00pm	Executive Board Meeting (Socorro Room)
5:30–7:00pm	Registration and Reception (Tularosa Room)
7:00pm	Opening Session (Tularosa Room)
	M. Jimmie Killingsworth, "The Prospects of Our Profession"

Friday, October 21

7:30am	Continental Breakfast (Guadalupe Room)
8:30am	Introductions and Announcements (Guadalupe Room)
8:45–10:00am	**Session 1** (General)
	Challenging Assumptions: Identity and Roles (Guadalupe Room)
	Moderator: James Zappen
	Laurie Hayes, "Multiculturalism, Postmodernism, and Radical Education: Whither Technical and Scientific Communication Programs?"
	Russel Hirst, "Challenging and Being Challenged in a Faculty Internship"
	Philip Bernick, "Student Concerns: Summary of a Current Email Conversation"
	Kenneth Rainey, "What We Can Assume About Academic Programs in Technical Communication"
10:30–11:45am	**Session 2a** (Concurrent)
	Challenging Assumptions: Curricular Issues (Guadalupe Room)
	Moderator: Katherine Staples
	Craig Hansen, "Keeping the Technical Communications Curriculum Relevant"
	Jim Henry, "Positioning Technical Writing Students as Interpreters of Workplace Culture(s)"
	Pamela S. Ecker, "What Do You Do When the Computer Takes Over the Classroom?"
	Deborah Andrews, "Short Course: Designing Information Systems for a Multinational Company"
10:30–11:45am	**Session 2b** (Concurrent)
	New Answers to Old Questions: Curriculum (Soledad Room)
	Moderator: Carole Yee
	Elizabeth Turpin, "Increasing Audience Accuracy in Student Writing"
	Nancy Allen, "Who's Your Audience? Incomplete Answers for One of Our Oldest Questions"
	Carolyn Rude, "Rediscovering Strategies for Interpretation of Data"
	Herb Smith, "Sharing Curriculum: Developing Courses for Graduate and Undergraduate Programs"
11:45–1:30pm	Lunch on your own
1:30–2:45pm	**Session 3a** (Concurrent)

Linkages and Institutional Restructuring (Guadalupe Room)
Moderator: Laurie Hayes
Ronald J. Nelson, "Adjusting a Technical Writing Program to the Demands of Restructuring and the Needs of a New College"
Nancy Marcy, "How One Two-Year College Developed a Flexible Technical Writing Program" [Withdrawn]
Deborah Bosley, "Developing Linkages with Industry"
Alice Philbin, "Career Theory and Technical Communication: Concentrating on Retention" [Withdrawn]
Jo Allen, "The Other, Other Side of the Desk: Negotiating with Administration to Get What You Want for Your Technical Communication Program"

1:30–2:45pm **Session 3b** (Concurrent)
Cross Disciplinary Efforts (Soledad Room)
Moderator: Dan Riordan
Dianne Atkinson, "The Post-Challenger Challenge: Communications for Engineering Design Curricula"
Mohsen Mirshafiei, "Cultural Implications of Ethics in Technical Writing Classes"
Celia Patterson, "Technical Writing on the Pre-College Level: An Interdisciplinary Approach"
Anthony Flinn, "Interdepartmental Curricula in Technical Communications Programs"

3:15–4:30pm **Session 4** (General)
Challenges: To the Future (Guadalupe Room)
Moderator: Sam Geonetta
Charles Campbell, "Teaching Technical Communicators the Art of Improvisation"
Bob Johnson, "Science, Rhetoric, Technique, and the Construction of Death: A Case for More Broad-Based Theory and History in Our Curricula"
Marilyn Cooper, "The Ethics Question"
Betsy Aller, "Technical Communication Programs Within the Disciplines: Challenges and Questions for Communication Academicians"

4:30pm Free time; Vans to Mesilla
6:00pm **Reception and Banquet** (Double Eagle Restaurant in Mesilla)
8:30pm **Panel Discussion**
Chris Velotta, James Zappen, and Katherine Staples
9:30pm Late night options
Mesilla
Movie: "Mi Vida Loca," Fountain Theatre
Band: "Caliente," El Patio Bar

Saturday, October 22
Breakfast on your own
9:00–11:30am **Business Meeting** (Guadalupe Room)
12:00 **Luncheon** (Opus Room)
1:30pm **STC Committee Meeting** (Opus Room)
1:30–5:00pm Recreational outings
5:00–6:30pm **Executive Board Meeting** (newly elected and outgoing members only) (Hacienda Restaurant)
6:30–8:00pm **Executive Board Dinner** (newly elected and outgoing members only)
8:30pm **Dessert and drinks**
Steve Bernhardt's house
4583 Sandalwood, 521-4961

Report of the Technical Writer, 2014: A Possible Future

M. Jimmie Killingsworth
Texas A&M University

Author's note: My task here is to ponder the next twenty years of technical communication as a way of stimulating discussion about our current values. Since I'm an historical scholar and not a futurologist, I'm going to prevail upon you to join me in a thought experiment. Instead of looking forward in the usual manner of labor department reports and trend-searching popular prophets, let's follow the practice of science fiction writers—I apologize in advance to William Gibson and other masters—and place ourselves ahead in the year 2014, then look back, beginning with our own time in 1994, writing, as it were, the history of the present.

The 1990s were good years for me. After twenty years of teaching technical communication, I published a book of theoretical studies and a book of criticism in the field. The critical book, *Ecospeak: Rhetoric and Environmental Politics in America,* won an award from the National Council of Teachers of English in 1994. Two years later, after a decade of struggling with commercial publishers whose identities kept changing through multiple buy-outs and corporate transformations—signs, I now know, of a dying industry—I brought out my textbook *Information in Action.* Within another two years, however, I had helped to make that book obsolete by participating in a project to develop hypertextual, multimedia versions of a self-paced course in technical communication. This same product reduced the need at my own university for a large cadre of teachers in technical writing, so my job as director of writing programs, which largely involved the mentoring of graduate student teachers, became unnecessary. By the turn of the century, I was at last free to do what I had always wanted to do anyway—teach and write.

My work on environmental rhetoric eventually landed me an appointment in the newly created Department of Apocalyptic Studies at Texas A&M in the year 2001. Sure, I realized that Apocalyptic Studies (or AS, as we called it) was probably a passing fad of academic life, but I couldn't resist joining a vibrant young department that included specialists in postliterate media, postmarxist and postcapitalist political theory, postfeminist gender studies, and postphysical discourse. Besides, the very existence of something called "postphysical discourse"—the study of communication that transcends the limits imposed by the body—convinced me of what Marshall McLuhan and Jean Baudrillard had been saying for decades about the passing ages of print and meaning and the onset of the age of the medium and the simulacrum. It all seemed finally to be coming true; the old world was passing away.

My colleague in postphysical discourse was a transexual named Drew who, through cosmetic surgery and careful dress, had abandoned all clear markers of gender. It was he/she who introduced me to cyberspace and the problems of adjusting to bodiless discourse in the matrix of electronic data. Though certain I was a hopeless product of what Drew liked to call "education in meat and meaning," a virtual prisoner of the body-mind nexus, he/she worked cheerfully to bring an old-fashioned scholar up to date. I caught the spirit of AS with an ease that surprised even me.

But, in 2004, to celebrate my thirtieth year of association with studies in my old field of technical communication, and to try out my new critical powers, I decided to write a retrospective essay on the history of tech writing. I reviewed the evolution of the field from its inception during the heyday of the military-industrial complex after World War II; and I showed how it gradually shifted its focus from reports, proposals, and manuals for heavy industry to user documentation for the early computers. After that, however, technical communication suffered an identity crisis as computer technology flowered into cybersystem development. I questioned the persistence of topics like audience analysis, document design, style, and genre study in commercial textbooks for an age in which audiences and authors, thanks to interactive home cyberspace units, had become increasingly hard to distinguish. This critique bothered no one really. Theory rarely makes much of a difference when meaning is in decline.

But I caused a real stir when I blasted my colleagues in the Society for Technical Communication for their overuse of paper in their proceedings, numerous newsletters, mailings to members, and sales of the mailing list to junk mail distributors in the old postal channels. I mentioned that, as a member of the program committee for the Society's convention back in 1994, I had had to recycle approximately ten reams of useless printouts sent to me by the national office—this in a profession whose members constantly decried data dumping and advocated the design of documents that allowed for selective reading. Rumor had it that, ten years later, things had not improved.

It was a reasonable argument, but now I can see I went too far. Within a week of my illustrated essay's distribution on the matrix in December 2004, the ecosystem police arrived at the STC Washington office and

confiscated the records of paper use for the last twenty years, none of which had been entered into the network, as law demands. Next day, the executive secretary and four subordinates were arrested. All were convicted of negligent fiber waste and sentenced to 20 years at the federal penitentiary for eco-offenders in Pine Bluff, Arkansas.

Though my younger colleagues applauded the result of my essay, I lost many old friends in the tech writing profession. Under the burden of the penalties incurred by the conviction, in fact, the STC crumbled, and technical communication itself suffered a black eye. It was said in progressive quarters that the organization had been a "meat-packing industry" from the 1950s on and was still in 2004 refusing to accept even disk copies of papers for conference proceedings. Worse yet, members were required to attend the conference in places like Minneapolis and San Francisco. Most with-it organizations, by the turn of the century, were holding conferences in cyberspace. The advantages in energy savings alone made this arrangement the only one really feasible—especially after matrix generation stations switched to solar energy. As much as the depletion of oil, the wide use of cyberspace deserved the credit after all for bringing our dependence on hydrocarbons to an end. Jets and autos rusting in airports and driveways around the world signaled the decline of the gray industrial technology with which technical communication continued to be identified. The very title "technical communicator" fell into disrepute and was not to be seen in job ads for several years.

I confess that, falling prey to fashion, I began to dissociate myself from the field and concentrate on Apocalyptic Studies. Not for long, though, because the state legislature gradually became disenchanted with the esoteric results of our work and its tendency toward negative assessments of our progressive society. As Armageddon stubbornly refused to happen, funding for AS dried up. The concept of tenure was of course long gone. My own tenure agreement had been revoked in 1998 when Texas A&M led the country in abandoning what everyone except for some reactionary faculty seemed to agree was an outmoded and much abused arrangement.

Thus, entering the second decade of the twenty-first century, I found myself in a tough spot. My program had been left unfunded. My old department of English was also gone, as was history, philosophy, and foreign languages—the ancient humanities block, which had been reduced to a group of aging scholars assigned to library duty for reentering the old texts in electronic form on the off chance that someday archaeologists would be interested in the performances of such heroes of the material age as Shakespeare, Byron, Whitman, Ginsberg, and Madonna.

With humble irony, I must now admit that, just as my career was saved by technical communication when there were no jobs in American literature way back in the 1970s, it was saved again by technical communication in the twilight of my career in 2010, when the university, a dinosaur collapsing of its own weight, was transformed into an information-ordering service at the disposal of the federal governments and multinational corporations. My pioneering work in reducing the need for professors by creating the computer-driven self-paced course in technical writing came to the attention of the powers that be, and I found myself appointed to the Los Alamos National Laboratory for Peace Studies and Nuclear Deconstruction. I was once again a specialist in technical communication.

Indeed, there seemed to be something of a revival of interest in the field. No one seemed to know exactly why, and it only gradually became clear to me. While I was being encoded for access—my body and conscious memory translated into coordinates for the cybersystem—I was put to work on some fairly primitive computer programs. They were what I remembered as spelling and grammar checkers. Apparently the code in the parent program had been scrambled, and except for the linguists, who were too busy developing translation programs—no one could recall the paradigms for verb formation well enough to rewrite the code. This antiquarian task, to my surprise, turned out to be a great pleasure. My advancing age must have left me vulnerable to nostalgia, for as I typed in the old irregular conjugations and snapped on the -s endings, I mistily recalled my grammar school, how the teacher had marveled when I diagrammed a sentence in English or said my declensions in Latin. I was also put to work reformatting the library of literary allusions in the North Commonwealth matrix and checking the quotation index for errors. Again the nostalgia. The lines of classical poems, essays, and speeches struck the mystic chords of memory and left me addled with sentiment.

Waiting for my permanent assignment, I began to take walks again. The mountains around Los Alamos were greener and lusher than I remembered from the time I spent there back in the era of nuclear weaponry. The sky was bluer, the rivers clearer. What I had heard was apparently true. The 98% of the people not engaged in agriculture were spending so much time in the cyberspace shopping and entertainment malls that they had all but abandoned the ecosystem. The paths in the woods had nearly grown over, and the wildlife was flourishing. I surprised deer, jack rabbits, grouse, and even an occasional bear on paths not a mile from the monorail stop near my apartment. Ironically because of technological change, the earth was recovering from the industrial ravages of my younger days. I found the mountains quiet and water-colored compared to the brightly lit stations on the information interstates.

One day I returned from a walk to find a summons to cybersystems development. Instead of jacking in and taking the cybervator, I just walked over and surprised Drew, my old colleague in postphysical studies, who had also been appointed to the lab when the university was reformatted. Overcoming a mild disgust over my physical presence, he/she seemed almost glad to see me.

Drew was facing a big problem in cybersystem design. "Being a meat-and-meaning man, you may be able to help," he/she said. "Here's the glitch: We're finding that when certain people jack in, they are confused about how they want their self-icons to appear in the grid."

"Confused?"

"Yeah, some insist on maintaining a simulation of their physical form even when offered a full menu of cyberbodies," he/she explained.

"Hmm."

"Let me show you." He/she held out the latest model of spectrodes, which I dutifully slipped over my eyes. Within seconds Drew had jacked us in, and we greeted each other across the electric blue of the matrix. He/she had already donned a sleek silver icon that resembled his/her usual appearance only in key facial features—the shape of the brow and the jawline, for instance. I appeared in my habitual state, but, for the sake of my friend, I quickly selected a black metallic icon that favorably enhanced my sagging musculature.

"Take a look over there, about 24x and 14y units ahead," Drew pointed. I zeroed in on a line-up of unenhanced icons of fairly ordinary-looking people—a few teenagers with long hair and old clothes and a couple of brown-skinned agricultural types.

"These sims represent what may be an emerging political formation," said my colleague. "They insist on dwelling almost entirely in the ecosystem—a real strain on nature, let me tell you—and usually jack in only against their will, as part of ordinary surveillance requirements. The kids are covered by the police, but the ags are ours, part of an ancient federal project in ecodevelopment in the Southern Commonwealth, what you'll remember as old Costa Rica. They have decided that their project is crucial to the human race, and have convinced some politically correct elected officials. They insist that what they call "sustainable agriculture" involves not just ways of working the land, but an entire cultural construct."

"Can we talk with them?" I asked.

"I'll drag them in if you want, but they won't like it. Plus they speak Spanish."

"That's no problem. I speak it, too."

"Of course, dear meat, but regulations require that we record any forced cybersystem discourse in standard translation. My system can't support their lifelike icons, which they insist on, and the translators at the same time. Those damn linguists make heavy software, let me tell you. That's my problem."

"Then I don't see how I can help you," I said; "I don't know anything about high-level software."

"Hang on," Drew said, lifting an impressive silver paw; "We got something more primitive in mind. These ecofreaks want a writer."

"A writer?"

"Rich, isn't it?" The silver eyebrows arched. "They say that if we want to communicate with them, they require a literate transaction. According to them, writing produced by pen and ink or typed on unlinked microcomputers yields a product that keeps individual writers and readers from being incorporated into a communication network and a global society against their will. Commitment to individuals who freely form together in small local communities is essential to the success of sustainable farming, or so they say."

"No kidding," I mused. "That may be just what I'm looking for."

Drew sighed, "I was afraid you'd see it that way."

Within a week, I was standing on the hard earth of an old coffee plantation, now converted into an experimental field that mingled sorghum with other grains and native grasses of the Costa Rican savannas. Under the midmorning sun, a brown man with bright eyes was explaining to me the concept of a "sunshine farm." The design had been known for decades to sustainable agriculture but had not been widely practiced because no one had believed the predictions about the depletion of oil reserves. The projections had sounded too apocalyptic to be true. But now the oil was gone, and a few people had begun to listen even among the powers that be.

Years of energy audits taken at the Land Institute in Salinas, Kansas had proved the principle. The idea was to operate a productive farm without taking more energy from the land than the amount generated annually by solar radiation over the same territory. Good results could be achieved by combining the use of draft animals, manuring, crop mixing, and diesel tractors converted to run on vegetable oil made from the seeds of hardy perennial grasses.

The catch is that the process is labor-intensive. That means people have to work with their bodies in actual

ecospace. This requires, in turn, a mental commitment beyond the level most cyberdwellers are capable of.

Thanks to the recent linkages that Drew provided, however, the Costa Ricans found potential recruits among the so-called "new lits"—the kids whose long-haired icons Drew showed me on the matrix. The sustainable ags have now contacted them through the postal system and have learned that their main aim is to live fully in ecospace and to cultivate the traditional interests in material literacy. They actually read books, most of which they've had to scavenge from old attics and incinerator sites. The ags want to make new documents to get into the hands of this emerging meat-and-meaning counterculture. They have asked me to tell their story as a way of making an appeal for fellow workers and nature-dwellers.

With this report, then, I am formally requesting an initial dispensation for the use of 100 reams of paper, all of which will be produced on the sunshine farm according to correct principles of energy management. In 2014, the need for technical communicators is still to write. At the moment, the most pressing task is to communicate ideas about working the land in a material medium that unfolds in hands destined for labor in sun and soil. My hope is that, by continuing to work with Drew and others on the network, I will be able to mediate the commitment of the ags to their beloved ecospace with the need to reproduce that commitment by recruiting among the public at large.

In closing, I want only to warn of the danger of allowing ecospace and cyberspace to drift apart, as if in imitation of the old body-mind split that carried us almost to the brink of Armageddon at the end of the twentieth century. I know everyone doubts such apocalyptic language and, to the credit of the human race, ecodevelopment has allowed us to sidestep the final destruction again and again. We have done so by substitution and ingenuity in technology and by flexibility and diversity in social arrangements. Still we must take care, for no food grows in the blue matrix.

Challenging Assumptions: Identity and Roles

Multiculturalism, Postmodernism, and Radical Education: Whither Technical and Scientific Communication Programs?

Laurie Schultz Hayes
Associate Dean, College of Agriculture
Associate Professor, Department of Rhetoric
University of Minnesota

In their guest editorial for the February 1994 issue of *Technical Communication*, George Hayhoe, Freda Stohrer, Lawrence Kunz, and Sherry Southard raise the question, "How can we better prepare the graduates of technical communication programs for the work that industry needs them to do in the future?" (14) And they answer their own question, in part, by asserting, "Those in industry must provide input and support to our colleagues in academe, and those who teach in the programs must examine the curricula and revise them so they better correspond with the jobs technical communication graduates will fill in industry" (15).

The academic administrator in me wants to praise the practical sensibility of this request for outreach and collaboration. There is procedural tidiness in a proposal that asks for dialogue between academe and industry, that hopes to identify a body of knowledge and core skills, that wants to establish benchmarks of quality and success, and that encourages research which will enrich both teachers and practitioners in our profession.

The rhetorical critic in me, however, wants to say, "Wait a minute. What industry? Whose knowledge? Whose quality and success?" There are many terms here that are used rather easily but their meanings are not as clear as a first glance might suggest. Shouldn't we take some time to answer these questions first before we proceed?

The old arguments against industrial outreach and collaboration were the ivory tower comments of those who preferred separation from the ways of commerce. The new arguments I now raise against industrial outreach and collaboration, come not from the shadows of the nineteenth century, but from the cultural democrats racing breathlessly into the twenty-first century. Now is the time for us to ask if our current knowledge and practice privilege and exclude around the categories of race, class, gender, and ethnicity? Or, as Henry Giroux, one of the most outspoken proponents of the "critical pedagogy" movement has challenged, are we going "to uncritically serve and reproduce existing society or challenge the social order to develop and advance its democratic imperatives?" (18).

Issues surrounding the privilege of gender have received considerable attention by communication scholars. A recent essay by Mary Lay ("The Value of Gender Studies to Professional Communication Research"), concludes with an excellent list referencing much of this important gender scholarship. I will speculate that most technical and scientific communication programs now have incorporated some acknowledgement of the importance of gender as a variable in teaching, research, and professional practice.

But where are we on the issues of race, class, and ethnicity? How do they fit into our paradigm and where will they fit into our curricula in the twenty-first century? A few of our number have recently raised some multicultural questions. Emily Thrush ("Bridging the Gaps: Technical Communication in an International and Multicultural Society") and Dora Tippens ("Interculturalizing the Technical or Business Communications Course") are good examples. Their essays encourage us and our students to consider the differences that separate people and cultures. But their focus is intercultural translation; their concern for multiculturalism is to look at what can be done so that one culture can be understood by another culture.

I am asking us to go deeper than translation and to challenge the text of our "own" culture. I am asking us as academic leaders not to go to industry to take the pulse of the profession, but to think critically about *what we teach to whom* and to ask about the history of that knowledge and to question the inclusiveness of its future. Do our programs produce and legitimize Eurocentric, patriarchal, racist, and class-specific interests? If the answer is "Yes," what are we going to do about it? If the answer is "No," how does our curriculum reflect it? If we don't know, isn't it time to find out?

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Challenging and Being Challenged in a Faculty Internship in Technical Communication

Russel Hirst
Assistant Professor of English
The University of Tennessee, Knoxville

In 1991, I served a faculty internship in the Publications Office of Martin Marietta Energy Systems, Inc. (MMES) in Oak Ridge, Tennessee. This internship has significantly impacted the way I teach technical communication. Among the most valuable lessons I learned through that internship are those that concern the organizational culture and the special constraints under which technical communicators and others labor in various positions within a large corporation that is intimately tied to a large government organization (in this case, the Department of Energy). I learned that I had to modify some of my rules for effective communication based on the "rules of the game" at MMES. For example, I learned that there are situations in which greater brevity, clarity, or fuller revelation of responsibility or other facts could hurt rather than help a situation, making it harder for people to do a good job or to get jobs done on time. This reality challenged my assumption that in technical and scientific communication, "briefer, clearer, and more open" always meant "better."

Although I allowed my stance to be modified, however, I held fast to my fundamental conviction. I now maintain that "briefer, clearer, and more open" *usually* means "better." At MMES, I sometimes took this stance when challenging the assumptions of others. I suggested to people how changes for the better might be made within their organizational context by challenging certain rules, constraints, and traditions. Arguments for change must of course be backed by a demonstration of superior communication products, and I did my best to produce excellent documents for this purpose. Essentially, I argued that the technical communicators can make their work more interesting and satisfying—and add value to their organizations and enhance their careers—by educating clients and managers about the ways in which reports or any other forms of communication can become more effective. That is, I argued that technical communicators must take the initiative to demonstrate how certain changes in documentation or other forms of communication will better serve the client's or manager's interests.

The goal in making this case is not only to get clients and managers to grant more time to the technical communicator for particular projects, although that is often essential, but it is to get permission to depart from "the way it's always been done." This departure may involve extensive structural and even substantive revisions that better accommodate the range of audiences and the ways in which the communication will be used. But perhaps the most significant departure from "the way it's always been done" involves extensive stylistic changes that 1) make documents shorter and more readable, and 2) clearly reveal networks of human responsibility, opinion, and motivation.

We educators in scientific and technical communication must allow challenges to our assumptions about what makes for more effective, even more ethical communication in business, industry, and government. At the same time, we must appropriately challenge others in these contexts and equip students to do the same.

Student Concerns: A Conversation over Email

Philip Bernick and Rhonda Steele
Department of English
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Programs in Technical and Scientific Communication have as their goal the preparation of students for a variety of roles in academia and industry. Those responsible for these programs have long been interested in identifying the kinds of preparation that will best serve their students and those who hire them. The issues involved in developing these programs include questions about whether the kinds of preparation students receive will adequately prepare them for professional roles, and what relationships between academia and industry will best serve the needs of both.

A conversation that addresses these questions from the perspective of students and recent graduates from these programs is occurring over email. Participating in this discussion are undergraduate students, graduate students, and recent graduates of programs in technical and scientific communication in the U.S. and other countries.

Questions raised by participants include many that look at program requirements in terms of coursework and practical experience, and it is clear that the relationship between industry and academia is an important one, but the shape of that relationship, and how to effect it is much less certain. Students are concerned about their prospects for employment once they complete a degree program. They worry about how employers will recognize the value of a technical communicator who doesn't happen to know the intricacies of their industry, or what industry has to gain by hiring someone with a degree in Technical/Scientific/Professional Communication. In fact, there is little consensus between participants as to how to define technical and scientific communication. Often, many choose to use "professional communication" because "technical" is too narrow, but even this description, while more inclusive, has a peculiar lack of definition.

Students acknowledge a need for practical technical experience that they often don't see their programs able to provide. This suggests that ties between industry and academia are extremely important, for it is industry that can provide this practical experience.

Currently, students see this experience coming to them through internships, and they see internships as a way to strengthen ties between industry and academia. Student suggestions include encouraging departments to make internships an integral part of programs; encouraging students who complete internships to report not just to their instructors but also to their classmates, and encouraging departments to maintain close ties to their alumni as a source of future internship opportunities.

Students would like to see more assistance from within a program for making the transition from student to professional. They would like to see more structured assistance with job searches. They would like a better understanding of what the value added is that a degree in Technical/Scientific/Professional Communication confers. They would also like to see closer ties between academia and professional organizations like the Society for Technical Communication.

It is not surprising that these questions/suggestions/observations parallel those raised by program administrators trying to design courses of study for students, but the questions raised also suggest that something more fundamental may be lacking. The discussion so far seems to indicate that students attend the University and choose a course of study in order to obtain employment, but that ultimately they're not very certain of what might qualify them for employment, or whether they will possess the skills employers are looking for. More importantly, though students and faculty alike are quick to defend their programs, and the kinds of training/education they provide, it isn't at all clear that there is much agreement about what constitutes a "Technical" or "Scientific" Communicator, or what fundamental skills one ought to possess. This suggests that for students and employers programs might want to consider defining themselves a bit more precisely, i.e., program goals, and what programs have to offer to students, and what their students have to offer industry (where industry here includes academic settings as well as non).

Traditionally, universities have avoided narrow definitions of this sort because the result smacks of vocational training. Yet this seems to be what students and industry are seeking. The university wants to offer students marketable degrees, and students want training that will make them attractive in the marketplace, yet without clear definitions simply having the degree means little in the face of experience gleaned elsewhere.

Rather than try to create an environment that appeals to all students and training that is applicable to any and all industries, schools might serve both better by more narrowly defining goals for their programs. In this way, students and employers alike can make more informed decisions, which ultimately would make the ties between industry and academia stronger.

What We Can Assume About Academic Programs in Technical Communication

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Academic technical communication programs have proliferated in the past decade from some 58 or so in 1985 to about 190 in 1992. The assumption has been that the profession is expanding and that we are on our way to becoming a major academic discipline.

Is that assumption sound? One of the major conundrums in the discipline has been what we mean by the word "program." As Sam Geonetta's survey of Academic Programs in Technical Communication has demonstrated, the meaning may be as diverse as the 190 current programs. What can we assume about these programs? Can we discover a core consistency among them? What is their "health"? How well are the students and the faculty in these programs doing?

I do not propose to answer all of these questions; and I do not propose to answer any of them definitively. But based on a survey of about 50 of the 190 programs, I will identify various "trends" that have emerged. These trends will profile the "nuts and bolts" of the academic discipline. For example:

- Students: How many admissions, rejections, graduates? How many are pursuing degrees? How many are enrolled in course per quarter/semester? How many projects, internships, theses/dissertations are being produced?

- Job Placement: What percentage of students are finding full time employment in the field? How many are going on to further study? Have job opportunities increased, decreased, or remained stable?

- Faculty: How many faculty teach in programs? How well are they paid? What is their teaching load? What other responsibilities do they have? Are they compensated for extra duties? How many tenured faculty in technical communication? What kinds of degrees do faculty hold? How much research are they doing? Do they have computers, printers, access to electronic communication? Is the number of faculty increasing, decreasing, remaining stable? Is the number of tenured faculty increasing, decreasing, remaining stable? How many adjunct faculty are used, for what reasons, and how well are they compensated? To what professional organizations do faculty belong?

- Schedule: How many sections of technical communication courses are being offered? What types of schedules are being offered? How many sections are open to both graduate students and to undergraduate students?

- Library: Are books, journal subscriptions, electronic data sources in technical communication excellent, adequate, less than adequate, or severely lacking? What library services are provided? What library problems are being experienced?

- Program Support: Do programs have advisory boards? How many members? How many meetings? What are the responsibilities? Do programs have a newsletter? What is frequency of publication? Do programs have a staff secretary? How many? Do programs have a placement coordinator? Do programs have desktop publishing classrooms?

- Budget: Has program budget increased, decreased, remained stable?

- Plans: Are any TCOM programs being added? Eliminated? Are any faculty being added? Eliminated? What specialties?

Challenging Assumptions: Curricular Issues

Keeping the Technical Communications Curriculum Relevant

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For practitioners, technical communication is changing rapidly. Even a couple of years ago, most technical communicators could count on producing relatively straightforward documents that presented specialized information for non-specialized audiences—generally technical and end-user manuals, technical descriptions for marketing departments, and engineering specifications. A number of trends in the profession are changing this scenario:

Changes in Focus

Because of corporate downsizing and changes in marketing practice, technical communicators are now often asked to create brochures, data sheets, and sophisticated presentations that contain a strong marketing bent. These combine presentation of technical information with persuasive purpose; clarity and accuracy with sales hyperbole. This is a considerable rhetorical challenge and places the technical communicator in the middle of the conflict concerning product representation that often exists between marketing and engineering/development within a corporation. Also, technical communicators must be sensitive to legal issues when instilling brochures with persuasive appeal: the documents must still accurately reflect the product or service offered, as brochures for products and services have been construed as contracts with customers.

Technical communicators are also becoming increasingly involved in training—in developing materials, in creating interactive exercises, and in classroom delivery. Current models for training in large organizations require that technical communicators view these information products as modular and non-linear—familiar enough for those acquainted with hypertext, context-sensitive help structures, or information data bases, but less comfortable for technical communicators accustomed to producing linear texts. The use of computer-based multimedia for training has become increasingly common, requiring another set of specialized skills of technical communicators.

Changes in Industry Culture

Many corporations assign product definition and development to small teams, often including technical communicators, that work under intense deadline pressure. Technical communicators should possess broad familiarity with business practice to participate effectively in these teams. They need to be sensitive to the functions and priorities of other participating departments—such as finance, engineering, operations, customer service—as they negotiate product features that best meet users' needs.

Similarly, a growing emphasis on quality control has sharpened interest in information product evaluation, implying a need for highly developed skills in testing. Technical communicators should be able to demonstrate how they can ensure continual quality improvement in their information products. This emphasis on quality—often expressed in quantitative terms—also affects the daily lives of many technical communicators: they may be asked to describe their product development processes in great detail and be able to quantify "acceptable" productivity and problem resolution measures.

Changes in Media

The trend from paper to digital media is long-established, even if its course has been somewhat uneven. However, the heightened expectations for multimedia—used for training, presentations, and daily interaction among employees—have created enormous challenges for practicing technical communicators. It is no longer enough to be a wordsmith or an effective editor. In creating multimedia documents, technical communicators may be expected to be familiar with video production and editing, audio production and editing, scriptwriting, advanced graphics and digitized photographic products, use of multimedia software, perhaps even hypertext programming language. In many cases, technical experts can affect what technical communicators design—but an understanding of what options exist (and their limitations) is essential and requires at least some familiarity with the areas listed.

It is important that new and existing technical communication programs identify these kinds of trends as they occur through liaisons with industry and practitioners and address these trends through curricular change. To me, it seems that education for technical communicators might need to shift from learning about technical writing supported by a technical subfield to learning centered in a more broadly-based technical communication program—a program that includes courses in business management and marketing, multimedia design and production, and adult education and training.

Positioning Technical Writing Students as Interpreters of Workplace Culture(s)

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Odell and Goswamie's *Writing in Nonacademic Settings* established a vector for research on technical writing that examines the workplace culture(s) in which such writing takes place. This research usually makes use of ethnographic methodology to describe in detail the discursive products and processes of a local culture. Having these details can help technical writing instructors impart valuable knowledge to students about "real-world" writing. Yet such knowledge must be embraced critically, for as Carl Herndl has noted, the ethnographic mode of reporting can lend itself to reproduction of workplace ideology.

Recent researchers in technical communication have suggested positioning students as analysts of workplace cultures. Jack Selzer's discussion of workplace writing and intertextuality would have us alert students to their places and possibilities among the texts of given workplace cultures; Rachel Spilka's suggestions to empower students to "influence workplace practice" assumes a similar savvy as concerns the culture in which practice takes place. Current theory on technical authorship (Slack, Miller, Doak) that recognizes meaning as socially constructed and always already dependent upon local cultural practice coincides with this direction in curriculum design: since student technical writers will someday be composing and composed by workplace cultures, it behooves us to position them as interpreters of such cultures as part of our programs in technical and scientific communication.

I have designed and twice taught a course entitled Cultures of Professional Writing in which graduate students (many of whom are active technical writers) conduct field research in the workplace and compose an ethnographic account of a local culture. These students receive instruction in methodology from an ethnographer, a folklorist, and a social psychologist. Over the semester, students make regular progress reports to the class so that they are teaching one another about the cultures they are studying.

Yet this teaching is not unidirectional. Part of my role as instructor entails regular narratological analyses of students' evolving ethnographic accounts. In class we examine narrators, narratees, implied authors, and implied readers that emerge in these accounts, and we discuss the values and ideologies we see as overt or covert in these textual phenomena. Weekly visits from lecturers from across the disciplines, each having suggested a reading on cultural interpretation, help us problematize authorship of these ethnographic accounts—which in their turn attempt to problematize the forms and processes of technical authorship in workplace cultures.

On the job, technical writers are researchers: they conduct research on their products, within their organizations, and with their ultimate users. Courses that position students as interpreters of workplace cultures formalize this formerly informal role, equipping future writers with valuable research skills in cultural analysis and contributing to the growing expertise that distinguishes technical writers as professionals.

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What Do You Do When the Computer Takes Over the Classroom?

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At the 20th CPTSC Annual Conference, several speakers emphasized the importance of integrating computers and other technological tools into technical communication curricula. Stuart Selber raised a number of important questions about "issues relating to computer technologies and technical communication pedagogy." Stephen Bernhardt reported on specific classroom methods, experiences, and strategies that "structure the learning environment so [computer] skills cannot fossilize, so that there is continuous learning across the range of situations in which students find themselves."

These questions and exhortations are fundamental to my own curriculum development efforts for students in an Associate of Applied Science degree program in Technical Writing & Editing at a community college. I agree with my colleagues that it's imperative to emphasize computer-related communication in any technical communication program. But it's also important to provide a "balanced" curriculum, with ample opportunity for reading, analysis, discussion, and practice of a wide range of knowledge and skills. (Zimmerman and Long's recent article in *Technical Communication Quarterly* is one useful framework for assessing the components of a "balanced" curriculum.)

In our associate degree technical communication program, I've noted—with frustration—that computers often seem to tilt the curricular balance. "Training" in computer techniques has become a significant portion of almost every core course, taking precious contact hours away from "teaching" other concepts that are essential to well and fully educated practitioners of technical communication.

The reasons for the imbalance include:

- Students may seem slow (as measured by computer-literate instructors) in acquiring and erratic in maintaining their computer skills. The community college student population includes some Generation X-ers who grew up with joysticks in their hands and learn to use new applications effortlessly. The student body also contains at least as many baby boomers—with varying levels of techno-phobia—and even some parents of baby boomers. These students gain computer fluency at many different speeds—some of which may not synchronize with a class syllabus that assumes computers will be used to perform course-related tasks.

- A significant portion of the community college population does not have access to computers beyond what is provided in college lab, and has only a small amount of discretionary time to spend in the lab. The lab equipment is plentiful and up-to-date, because (in Ohio, at least) the defined mission of the two-year colleges includes providing ample access to technological tools. However, many students can eke out extra time in the computer lab only when they are "off duty" from obligations engendered by work, family, and their non-computer-based academic assignments.

- When computer skills are necessary to perform class requirements, students demonstrate wildly varying competencies. In addition to the factors already cited, community college students also are likely to enter, leave, and re-enter the degree program frequently. It's common for students to ask the instructor of a computer-reliant class to provide a "computer refresher" module because the students haven't used an application in a very long time, or because they've never used the most current version of a particular application. While version changes may seem like a small impediment to those who are computer-literate, the new "bells and whistles" can be overwhelming to a student who is only a part-time, casual computer user.

- Employers of our students (in cooperative education assignments as well as full-time, post-graduation jobs) view students who have diverse, advanced computer skills much more favorably than those whose skills are less advanced or more limited. Therefore, students tend to value the acquisition of computer skills, and often insist that the course plan include time to "learn the computer."

Because of these factors—and because I believe strongly that tech communication students need to gain technological diversity—the computer threatens to take over many classes. Courses that ought to feature genuine

integration of skills and knowledge, such as our class in Online Documentation and Multimedia Production, become exhausting for students and for their instructor.

It's likely that two-year colleges will continue to be recognized as the "access point" for a wide range of students, and it's also likely that courses and programs in technical communication will continue to proliferate in associate degree-granting institutions. Therefore, the quest for "balance" between computer technology and other curricular components needs continuing examination. (And of course it needs further examination in baccalaureate and graduate tech communication programs as well.)

Future developments that may affect the relationship include:

- More standardization of computer applications. The "Microsoft-ing of the universe" is causing more similarity in the look and feel of varied applications; this means computer skills gained during one training session will be more likely to be directly transferable to other class and lab situations, with less need for refresher training.

- Better pedagogical tools to support complex computer products. Both mass-market and academic/professional publishers are expanding their lists of "computer tutorial" books. Other resources that can be adapted for classroom use (CDs, video, etc.) also are becoming more available and affordable. And of course, faculty in technical communication programs are preparing textbooks and other "courseware" that allow for appropriate synthesis of technological and traditional knowledge. My own efforts in this regard include materials for a course titled "Visual Elements of Communication" which encourages students to explore wholistically the ideas and sensations that accompany computer-mediated communication.

- More collaboration between two-year and four-year technical communication programs. Although it's necessary and appropriate for CPTSC and other associations to examine and evaluate doctoral and master's level programs in technical communication, there's at least an equal need for scrutiny of the undergraduate education of future technical communicators. In geographic locations where two-year and four-year programs have opportunities to work together, it's essential that we begin to do so. We have resources—human and technological—that ought to be shared. And we ought to have a shared interest in evaluating and enhancing the undergraduate experience of tech communication majors at our respective institutions.

Like the speakers last year, I think we're remiss in our responsibilities as technical communication educators if we don't insist that the technological portion of our curricula keep moving forward. However, as we strive to ensure that our students develop "useful computer skills," we must recognize the diversity of our student populations. Our challenge is to develop curricula that are appropriately computer-related, and suitable, and workable, for every institution and for every technical communication student.

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Designing Information Systems for a Multinational Company: A Proposed Short Course

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The Issue at Hand

A multinational company needs systems to share information, strategies, tactics, and operational procedures across several types of cultures. These cultures are, for example, those of the various locations in which the company operates and those of the different roles within the company—executive, professional, technician, operator. The communication products that codify information and systems include user interfaces, manuals, reports, newsletters, policy guidelines, and the like. Most of these DuPont communication products are developed in the U.S. and reflect U.S. assumptions, experience, perceptions, and audience analysis. They are, most often, issued in English; sometimes they are translated and localized where they are used, but often only as an afterthought. Creators of the products are frequently blind to their use in any other context than the one in which they were created at the home office, in English, by "people like us."

Such a myopic approach can reap many problems. The problems are particularly significant when the company is asking employees and business partners worldwide to accept, integrate, and effectively operate new technology that supports new information systems. This situation is increasingly common at DuPont.

A Possible Solution

As one step in bringing a global perspective to a business unit within DuPont, the External Affairs (Communications) group is proposing a short course that would alert its decision makers, system designers, technical writers, and other corporate communications people to these problems.

The course is being developed jointly with the technical communication program of the University of Delaware. It will focus on learning documents—training procedures, scenarios, and aids that help a mix of people worldwide learn new systems, policies, and procedures. Faculty and students from the university will contribute their knowledge of pedagogy, their fresh perspective, and their research on international issues; participants from DuPont will provide the content to be delivered as well as their knowledge of the business environment (including knowledge of information systems platforms, tools, and methodologies). Together, they will take a new look at old, nagging problems. Workshops will be conducted both on site at DuPont locations and through electronic conversations across the Internet.

Here is a brief overview of the approach, content, and design of the course, which was presented for review and commentary by participants at the Las Cruces conference.

Outline for three sessions (each a day in length)

Session One: What are the implications of sharing information around/across the globe? Anyone involved in developing, managing, and distributing information across regional, national, and cultural lines needs to be sensitive to regional, national, and cultural differences.

- Present examples of why we need to be sensitive to differences:
  - Show an information system strategy that works in an international environment—for example, SAP.
  - Show an information system strategy that didn't work because it didn't effectively negotiate cultural boundaries and issues.
- With these examples in mind, explore the following questions and issues:
  - What is information? Perceptions of information, region by region—continue to narrow the focus; goal is to create a shared mental model of scientific, technical, and professional information needs within a multinational corporation.
  - What is culture?
  - How do behaviors and attitudes differ among the cultures represented by DuPont's stakeholders (customers, investors, employees, neighbors, competitors, governments)?
  - How do expectations about communication (style, type, etc.) differ among DuPont stakeholders?
  - How do notions of relationships among and between DuPont stakeholders influence communications within the organization?

- Sources for session one:
  - Andrews (new text)
  - Trompenaars, *Riding the Waves of Culture: Understanding Diversity in Global Business*
  - Moemeka, *Communicating for Development: A New Pan-Disciplinary Perspective*

Session Two: How do we plan and design information that is shared around/across the globe?

- Design the information architecture needed to cross cultural, national, and regional boundaries; using case studies provided (listed below).
  - Developing information products to support the DuPont Global Transfer Data Base
  - Developing plant design and maintenance manuals for DuPont plants being built in China, India, and Malaysia
  - Developing information products to support the transformation of DuPont SBUs (through changes in individual and group work practices)
- Negotiate the information transfer from strategy to tactical decision to task to activity to interactions (using the case studies presented); explore the cultural differences (implicit, explicit, and perceived) in:
  - Learning styles
  - Personality types
  - Performance norms
- Modify and adapt tools and methods for developing the needed information products/systems
  - Needs analysis
  - User/task analysis
  - Rapid interface (document or systems) prototyping
  - Usability testing
- Exercise: take a standard set of forms for guiding a project team through the analyses and tests listed above. Give the participants the task of "internationalizing" both the forms and the approaches for using the forms. Models to use include ASTD *Info-Line* documents, Hackos's appendixes in *Managing Your Documentation Projects*, etc.
- Sources for session two:
  - Andrews (new text)
  - Trompenaars, *Riding the Waves of Culture: Understanding Diversity in Global Business*
  - Robinson, *The International Communication of Technology: A Book of Readings*

Session Three: Impact of the Internet and WWW on multinational company internal and external communications.

- As cyberspace draws us all closer together as members of a global village, will our communications (our home pages, for example) begin to homogenize? Or will cyberspace "Balkinize?"
- Exercise: review the home pages of several multinational corporations.
  - What cultural assumptions are made?
  - What does the WWW offer DuPont in terms of information distribution and systems access throughout the world with the various communities with whom we communicate?
  - How do we marry our study of international information development (the learnings we gleaned from sessions one and two of this course) to the publishing environment evolving within and around the Internet?
  - How might DuPont use WWW?
- Sources for session three—home pages on the World Wide Web
  - Fortune 500 companies
  - Small retailers
  - University programs and curricula
  - Individuals

New Answers to Old Questions: Curriculum

A New Answer to an Old Question: Increasing Audience Accuracy in Student Writing

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Trying to get students to write accurately for appropriate audiences is an old and continuing problem. Students often can and do understand the theory and concepts of applying rhetoric to audience analysis. But they just as frequently seem to have a missing link in understanding the actual "how to" of applying that intellectual information to hands-on reaching specific audiences in what they write. They often may not have the opportunity in the classroom or when they get on the job to get as much supervised, critically analyzed experience or feedback as they need from writing assignments focused on a well-defined receiver or multiple audience sequence.

For more reality, I take basic technical communication writing assignments and provide more than ordinary audience focus by giving students positions and the receivers names, positions, personalities, specific expectations, and defined authority for the written product. This can get students actually to visualize and respond to a "real" concept of audience-product interaction. Taking the audience awareness one step further, and providing a series of such audiences through which a document must pass before it reaches its final designated reader/receiver, enables students to see that audiences are real, that they have impact on documents in progress, and that the real audience having the most impact on the job may be the immediate supervisor. This approach helps students understand real world writing problems more effectively and helps them learn to focus even drafts of writing assignments much more clearly. Thus, they learn to visualize as they write how material will be received and to anticipate the kinds of alterations that might be expected before a document is completed and reaches its final, intended audience.

This discussion will be illustrated by overheads showing structured diagrams of several different technical writing assignments designed for multiple, clearly focused audiences. These diagrams show how to use this method of applying specific single and multi-audience expectations to common technical communication classroom assignments.

Who's Your Audience?
Incomplete Answers to One of Our Oldest Questions

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Writers and writing instructors have been dealing with questions about audience since writing began, as they have searched for ways to write effectively for their readers. Over the years rhetoricians and researchers have developed useful alternatives to Aristotle's audience algebra; however, our audiences and documents continue to grow more complex and extend beyond our answers. Today's documents may be presented in multimedia for readers from multiple cultures who may speak any of a number of languages. The simple question "Who's your audience?" has fragmented into a complicated topic that constitutes the subject for entire graduate courses.

Though the complexities of audiences are interesting in themselves, my concern in this paper is with how we deal with audience in an introductory technical communication course that serves students from technical majors across our institutions. We want to introduce them to a complex concept of audience, but we also want to give them information and strategies that will be useful to them in the professions they will be entering.

A few years ago Paul Anderson conducted a survey to learn more about who it is that the graduates of various technical majors served by our courses write to when they enter their professions. According to Anderson, teachers assumed their students would be writing for readers inside their organizations but outside their specialty areas. Consequently teachers most often asked their students to write for an "intelligent but uninformed lay person," a reader who was much like the teacher. What Anderson found was that, although the professionals he surveyed did write for this assumed audience, they were just as likely to write for readers who were as well informed about the topic as the writer, and sometimes even more informed.

These research findings were reinforced for me recently through a discussion with a geological engineer about the writing she does for her job. Her documents are often intended for client groups, who are likely to include experts as well as nontechnical readers. She said that, in addition to gaining content information, her readers look for technical terminology and acronyms in her work as a way of keeping themselves current in the technical field.

A recent message sent to the Computer Aided Publishing List that Richard Selfe manages from Michigan Technological University illustrates how easily our assumptions about audience may go awry. The message was written by a technical communicator and concerned markup languages. Because the CAP-L discussion list is organized for advanced students who plan to join the technical communication profession and includes professional writers and writing teachers as well, the technical communicator probably felt that he was writing to members of his own field. His message abounds in specialized terms and acronyms. To many readers, even, I suspect, many of the readers on the CAP-L list, this message would seem to be in a foreign language.

What we find from research and examples such as these is that the advice to "write for your readers" is not easy to follow. Research in language and education adds two additional complications: (1) communicating effectively is highly dependent upon constraints and expectations within the particular rhetorical situation, and (2) students learn by doing. How, then, do we as teachers achieve our goals of helping students to understand modern audiences and to develop the kinds of communication skills they will need? The three-part question I believe teachers need to consider is this: *do we, can we,* or even *should we* expect to give our students experience in writing for professional audiences?

Technical audiences are often categorized by their level of topic knowledge, varying from uninformed to expert. The classroom situation presents us with a relatively uninformed audience segment by default, since the teacher and fellow students usually are neither experts nor technically trained nonspecialists. When they become professionals, our students will spend some time addressing the uninformed audience, but they will also address technical coworkers, supervisors, and clients, some of whom will expect a technically informed and efficient writing style. This situation raises several questions. Can this audience be included in basic technical communication courses? Can we, for example, deal with appropriate uses of vocabulary, jargon, and abbreviations, or do the constraints of classrooms and schedules prohibit us from tackling these complicated issues? Would some of the writing we mark as "unclear" also be unclear to a technically trained professional, or would it be exactly what they're looking for? Does the situated nature of communication prevent us from teaching writing for technical audiences in a classroom setting?

We try various approaches to deal with these issues, such as creating simulated workplace assignments, and

some teachers have been successful at involving advanced students in projects for companies and organizations. The results of these assignments, however, are evaluated by writing teachers who have their own communication perspectives that differ from those of professionals in the workplace. We might try to get responses from technical personnel, but they have little time for reading student papers from introductory courses.

To return to our three-part question for writing teachers, *do we* or *can we* include professional audiences in our introductory technical communication courses that serve technical majors? The answer to both parts seems to be "probably not," at least not in any real sense. The third part, *should we* try to include these audiences in our introductory classes, is more complex, placing us squarely in the middle of the tensions between academia and industry. To deal with this issue, we need to recognize both the practical and reflective purposes of teaching and then to find an appropriate balance. These questions need creative approaches if we are to provide students from technical majors with the rhetorical insights and experiences they need.

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Rediscovering Strategies for Interpretation of Data

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Studies both in cognition and the social construction of knowledge have challenged the assumption that a technical writer can serve as a "bridge" or conduit of information transfer. "Accuracy" and "clarity" only describe broad goals, not real possibilities. Scientific method and logic produce contextual, not universal, knowledge. Facts do not speak for themselves and must be interpreted. Yet our curricula, programs, and textbooks continue to promote the value that human judgment corrupts knowledge and that writers must pursue certainties through style and method.

Although faculty know that precision in style and scientific method guarantee neither "knowledge" nor successful "transmission," there seems to be a gap in our instruction to students about how to interpret information and to use judgment to explain and evaluate rather than to distort. Various interpretive strategies such as statistical analysis are available and respected. Especially for issues of feasibility and policy and for the genres of the report and the proposal, these quantitative strategies may not be enough. I propose that to enlarge a student's repertoire of interpretive strategies, we reconsider some familiar rhetorical strategies for making sense of data and achieving intellectual authority, specifically, comparison and classification.

Comparison and classification dredge up images of an outmoded approach to teaching writing that focused on "patterns of development," or methods of arrangement, rather than on writing that emerges from social situations or problems. We can shudder to recall the days when students were asked to write a "comparison and contrast theme." Yet, if we reconsider these methods less as patterns of arrangement than as strategies for reasoning and understanding, they can be functional again. Arrangement is not an end in itself; rather it follows from and reveals the writer's reasoning.

Facts do not speak for themselves because they are meaningful only in relationship to something. Facts need to be contextualized. Comparison and classification suggest relationships of time, space, and class—categories that organize human experience. The selection of one such category is in itself an interpretive strategy (as is selecting a bar, line, or circle graph to represent numerical relationships). The relationships among parts can be further interpreted to show a pattern according to frequency, interval, sequence, location, hierarchy, consistency, more and less, possible and impossible, advantages and disadvantages. Demonstration of a pattern through comparison or classification suggests some generalizability and thus counters the worry about individual distortion. The pattern identifies a context in which the fact may have significance. These patterns may allow prediction as well as description and evaluation and thus allow writing to be significant for the future as well as for the present and past.

To challenge the assumption that facts speak for themselves, I challenge us to redefine the patterns of reasoning and judgment that have been misinterpreted merely as ways to impose rigid form on ideas When students plan their research projects and generate "facts" through various research methods, they should be invited to compare and classify in order to explain significance. Valuing of human judgment and guidance about how to use it should be part of our curricula, textbooks, and program requirements.

Sharing Curriculum: Developing Courses for Graduate and Undergraduate Programs

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There are approximately two hundred academic programs now offering degrees (bachelor's, master's, and Ph.D.) in technical and/or professional communication. The growth in programs poses some challenging questions on the relationship between undergraduate and graduate degrees in technical communication. Southern College of Technology offers both a Master of Science in Technical and Professional Communication and a Bachelor of Science degree in Technical and Professional Communication. Our undergraduate curriculum includes a senior portfolio, a 20-hour technology package (from which students pick either 20 hours from several technical disciplines or 20 hours in one technical discipline), an optional internship, and course work in math and the natural sciences. The 20-hour technology packages were put together with the help of department heads on campus.

In addition to highlighting some of the key features of our undergraduate program, my presentation focuses on some of the questions we are facing as a department offering both a Masters degree and a Bachelor of Science degree in Technical and Professional Communication. Discussion will focus on the following concerns:

- What courses belong exclusively in an undergraduate curriculum and what courses belong exclusively in a graduate curriculum? What courses should be double listed?
- Should a graduate program in technical communication require technical courses beyond the normal technical communication curriculum?
- Should there be one advisory board for both programs or two separate advisory boards?
- How rigorous should the research component be in an undergraduate technical communication program?
- What should the difference in work load be for graduates and undergraduates taking double-listed courses?

Linkages and Institutional Restructuring

Adjusting a Technical Writing Program to the Demands of Restructuring and the Needs of a New College

Ron Nelson
James Madison University

Like many other institutions, James Madison University is in the midst of restructuring. Unlike most other institutions, Madison has recently opened a new college: the College of Integrated Science and Technology (CISAT). Although we in the technical writing program have experienced a reduction in the number of our courses as a result of restructuring, we may be able to expand our offerings in previously unforeseen ways as the new college develops.

At a time when across-the-campus contraction of 15% of courses has been mandated, we have had to delete from the technical writing concentration courses that have not drawn well. Such an action is of course intended to improve efficiency. Whether or not this administrative move will achieve its purpose remains to be seen. Meanwhile, we must make efficient adjustments. In order to offer courses that we believe are essential to our students' employability, given the present and projected demands of the marketplace, we have devised a Special Topics course that will enable us to provide courses like Medical Writing, Technical Writing for Non-native Speakers, and Proposal Writing at various points. Rather than making them a fixed part of the curriculum, however, we can offer them on an as-needed basis and so avoid having to staff them every year or every other year. This way, we can add a much-needed course like Medical Writing that is and will be in considerable demand up to at least the year 2005. Such a built-in flexibility should benefit not only students and faculty, but also those who come in contact with our graduates over the years.

CISAT, which is expected to attract 3,000 new students, offers unique opportunities for contributions to the global community. Given the radical changes in the employment scene, in which few people will be employed by the same employer for life, it makes sense to encourage students to prepare for diversity and adaptability to change. In the words of Heraclitus, "All is flux, nothing stays still" and "Nothing endures but change." CISAT plans to graduate students who have opted not to major in a hard-core science but rather to gain exposure to a number of sciences and so gear themselves to become flexible managers of technology. They will acquire expertise in such areas as information sciences, decision making, problem solving with computers, and organizational skills, including project management. Moreover, as advanced students, they will select specific problem-solving areas called "sectors" or focal points (not majors or concentrations) for their studies, for example, the environment. As seniors, they will accomplish a senior thesis (project) that will be the capstone of the program, involving teamwork and the guidance of interdisciplinary faculty. Leaders of business and industry will review the completed project. When students graduate, they should be well-grounded in fundamentals as well as flexible to the demands of government and industry.

Because of the considerable diversity involved, team teaching will be common and so provide probable opportunities for those of us in technical writing to teach students who are truly interested in science and technology but who are reluctant to commit themselves for life to a single discipline. Recently, the Health Sciences Department has also become part of the new college, thereby providing more possible connections with our technical writing program, in areas like medical writing. With its emphasis on problem solving, critical thinking, partnerships with industry, and interdisciplinary efforts, the new college offers innovative ways to connect the disciplines of science and technology with government regulations, modeling, testing, data collection and evaluation, and communicating, among other possibilities.

Developing University-Industry Linkages

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Linkages have a long history of providing mutual benefits to both academia and industry. Generally, types of linkages can be grouped into eight categories: (1) Classroom and Curricula Activities; (2) Student-Faculty On-Site Opportunities; (3) Professional Conferences and Community Organizations; (4) Employment and Alumni Opportunities; (5) Product and Data Research; (6) Corporate, Textbook, and Journal Publications; (7) Liaison Functions; and (8) Grants, Funding, or Donations.

The following are a myriad of ways that academia and industry can form such linkages. Some of these suggestions depend on the site and complexity of the city in which the university resides; other suggestions are feasible in any environment.

1. Classroom and Curricula Activities

New Course Development — industry works with the university to create a totally new course that has not ever been offered because the course teaches and/or uses new technology. Differs from curriculum development in that it is not selecting a course, but creating one.

Curriculum Development — individuals from industry work with members of academia to help develop curriculum content usually done through advisory board.

Distance Learning — interactive courses can be taught at the university, by the professor, and projected into the company's learning/video center.

Formal Reports by Students — students doing "course projects" for a company usually arranged between the students' professor and industry; write up the results of the semester in a formula report.

Semester Projects — work done for industry either by students under professorial guidance, or by the professor themselves, which may or may not have a document as the results.

Seminars — short-duration presentations, usually of one or two days, given by universities, and which may include industry personnel on the invitee lists.

Education Programs — employees from industry take courses provided by the university (e.g., regular university course offerings; special degree programs; university instructors at the industry site; videotape or satellite instruction).

Email Connections — personnel from industry and academia "chat" through the Internet or belong to lists such as COPYEDIT or TECHWR-l that span industry and academia.

Custom Courses — a university, at the request of a company, sets up a course to meet a specific and special need of the company usually done through continuing education or through credit-granting; can be given onsite or at the university.

Adjunct Professors — a professional from industry is also a part-time member of the faculty at a university, while still maintaining his or her professional position in industry ("Executive loan" is a concept very similar to the adjunct professor; "shadowing" might be another term though usually of short duration).

2. Student-Faculty On-Site Opportunities

Visiting Committees — industry professionals from companies serving on advisory boards for academic institutions, to help formulate policies in areas such as curriculum development.

Professorial Summer Study — a member of academia "trains" in an industrial environment during the summer months between semesters.

Executive Loan — an individual from industry goes to a university (in effect, "loaned") for a certain period of time. Differs from adjunct professor in that the executive is "full time" at the university during the loan period, and does not perform a function in both industry and the university at the same time.

University-Industry Equipment Access — industry personnel are allowed access to university equipment or facilities, or university personnel are allowed access to industry equipment or facilities.

Employee Rotation — an employee may rotate employment from industry to academia and back to industry, and may in fact rotate to different locations within both industry and academia . . . differs from executive loan in that the loan is a one-time discrete event, and rotation may be continuous.

Adjunct Professional — similar to adjunct professor, except full-time faculty member of the university works on an adjunct basis in industry.

Cooperative Education — students enrolled in the university work full-time at a local industry and alternate semesters with their academic work; differs from internships in that coops are paid positions.

Student Internships — students work for a company on a continuing, but not full-time basis, such as in the summers, or during the semester, while continuing their education.

Faculty Internships — similar to those offered for students, but faculty works at a company for a specified amount of time or "shadows" employees to learn new skills and to understand environment.

Consulting — usually of the type where university personnel are consultants for industry through the university's continuing education program or through individual faculty initiative; faculty who consult might join their local chamber of commerce to develop linkages.

Full-Time Employed Students — a student who is on the payroll of an industrial company goes to school full-time and gets a degree, and then goes to work for the company after completing the degree.

3. Professional Conferences and Community Organizations

Research Council — councils consisting of members from both academia and industry that meet periodically for the specific purpose of discussing and selecting important research topics.

Luncheons or Dinners — similar to breakfasts, but there may be a speaker, and more formality to the occasion.

Technical Communication Fair — invite members of the corporate community to see a display of the technical documents produced by students.

Symposium — an industrial company holds an affair to acquaint professors with its products, with the goal of gaining increased awareness and usage among those academics, and within their respective institution.

Papers — presentation of academic papers at conferences, conventions or other meetings by academics or professionals from industry, where there can be exchange of ideas.

Trade Shows — faculty attends industrial events, where papers may be presented by either industry or academic personnel.

Advisory Board — members of industry sit on panels in order to share their professional expertise with their counterparts in academia.

Special Events — on-campus occasions, such as "Parents' Day," wherein members of industry may play a part in the proceedings.

Alumni Associations — alumni from a university and who are personnel of a company within industry maintain ties with their university.

Associations — professional associations, wherein professionals from both industry and academia may be members, and share information during association meetings (e.g. STC, ASTD, IEEE).

Breakfasts — regularly-scheduled meetings (as opposed to the one-time conference or seminar) wherein information exchanges can take place between personnel from the university and industry.

Clubs — organizations of students specializing in a particular academic area (for example, a "business communication club") who might have contacts with a similarly interested company or companies in the private sector.

Conferences — information is presented by either industry or the university, for the other party; e.g. university-sponsored conferences (or seminars) or industry-sponsored conferences (or seminars).

Volunteer Work — faculty engage in volunteer work in their community thereby increasing visibility of university or technical communication program.

Religious Institutions — members of industry and academia share a common religious meeting place, or belief, and a linkage is formed.

4. Employment and Alumni Opportunities

Hiring University Graduates — industries hire graduates of particular university, thus establishing furthering linkages.

Intradepartmental Ex-Students — former students who have a strong bond to, and maintain contact with, a particular department at a university.

Retirees — persons who after retirement still maintain ties with industry, and perhaps with the university, and can be part of a linkage between the university and industry (e.g. SCORE).

Common Alma Mater Alumni — members of industry working for the same company, who were not actively connected with their former university, but who, as a result of the synergy from two (or more) of them, form a linkage with the university.

Employment of Current Students — employment of students either in summer programs, or on a part-time basis, as they pursue their education.

Former Students Network — knowledge of a university and its capabilities gained by a student when he or she attends the university, and which later may be used by the former student when working in industry; can be set up through alumni offices.

5. Product and Data Research

High-Profile Programs or Research — at various universities — for example, superconductivity, x-ray lithography, multi-media development — may be a specialty of a university, and that may attract industry.

Special Services — services provided by the university for industry, such as specialty lab work, and that result in or furthers a linkage.

Usability Testing — university would receive prototype parts or documentation drafts from a company, perform evaluations, and give feedback to the company, as the company continues with its product development and documentation.

Library Access — the libraries of a company and those of the university have agreements to share or exchange information; most larger corporations maintain their own industry library.

Basic Research Linkages — cooperation between industry and the university for the purpose of establishing a basic research effort; can be general (open) or directed (targeted).

Data Bases — information indices types that can be accessed by both industrial and academic personnel.

Indirect Research Linkages — a company (perhaps an international concern) has a research association with a university, and a second corporate entity might gain access to technology of the first company, through its own ties to the university.

Hardware or Software Sample Programs — industry provides the university with physical parts, or software, to aid the university in teaching or research.

Patents — joint university-industry efforts for securing patents.

6. Corporate, Textbook, and Journal Publications

Annual Reports — publications from industry, published annually, which can create interest on the part of, and contact from, university personnel.

Journal Exchanges — discussions between members of industry and the university for the purpose of sharing information concerning articles written in academic or industry journals and other publications.

Research Papers — those papers appearing in academic journals or trade publications that lead to a linkage between academia and industry.

Textbook Co-Authorship — a professor writes a text for a company in private industry or co-writes a textbook with an industry person for use in university classrooms.

7. Liaison Functions

Founders — the men and women who establish companies often have a loyalty to the academic institutions where they obtained their degrees, thereby putting them in contact with corporate employees and strengthening the image of the university.

Governmental Appointments — industry and academic personnel to committees that have as their function an interface between the academic and industrial communities.

Guest Speakers — members of industry visit a university class, or club, or some organization within the university to give a presentation on the topic of their expertise.

Designated Liaison — a company appoints a person (usually, but not necessarily, an alumnus) to be the focal point for communication between the company and a particular university.

University Relations Departments — dedicated departments within organizations that are utilized to further relations and linkages between the company and universities.

State-Encouraged Linkages — mandates by state legislatures that university and industry cooperate in order to achieve the movement of knowledge from one entity to the other.

8. Grants, Funding, or Donations

Product Contests — companies solicit entries for original and unique uses of their products, and these contests are open to university students and professors, in addition to professionals in industry.

Equipment Donation — a company gives equipment to the university for use in university operations. Differs from hardware parts, in that these donations are usually larger and involve equipment worth more money.

Funding from Industry to the University — grants, research money, or other programs in which funds flow from industry to the university.

Equipment Expertise — a member of industry, or a member of a university, due to his or her particular knowledge about a certain piece of hardware, is part of a linkage to help the other entity learn to operate the equipment or keep the equipment running.

Source: Adapted and expanded from Stewart, G. Hutchinson and David V. Gibson. "University and Industry Linkages: The Austin, Texas, Study." In *Technology Transfer: A Communication Perspective.* Eds. Frederick Williams and David V. Gibson. Newbury Park: Sage, 1990.

The Other, Other Side of the Desk: Negotiating with Administration to Get What You Want for Your Technical Communication Program

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In attempting to find new answers to old questions in technical communication research, theory, practice, and pedagogy, many of our best efforts get undermined because of upper-level administrative constraints and decisions that never occur to us researchers, teachers, and program administrators.

In this paper, and based strictly on my own administrative experience on the departmental, dean, and university levels, I want to raise issues and provide pointers for technical communication teachers and program administrators that might help them succeed in shaping their courses, programs, and facilities to meet their students' needs. In particular, I offer eight tips, provide brief illustrations and examples of each, and discuss how they operate in an administrative environment (dean's level to chief academic officer's level) in a college/university setting. These pointers can be set in the context of any program, department, or school and are adaptable to a variety of management philosophies, especially the most popular current ideas of Total Quality Management:

1. Demonstrate vision: have a clear sense of what you want right now and how that request will play into the future of your courses/programs. Be especially sure, however, to situate your requests in terms of future trends.

2. Do your homework: Nothing sabotages an idea quicker than incomplete information. And nothing irritates an administrator more than faculty who do not know the basic rudiments of the power structure In a college or university. Knowing who's responsible for what decisions, along with some other important matters of "homework," will prevent your embarrassment and the administrator's irritation.

3. Go through channels: Despite the old philosophy of taking matters directly to the top, subverting the hierarchy can be a huge mistake. Give people a chance to do their jobs before you fire off to the chancellor or provost.

4. Offer a plan—in writing: Standard wisdom in technical communication tells us to document ideas. By putting your plans in writing, you can demonstrate that you have clearly thought about your request, and you can use the plan to remind you (or the administrator) of its salient features.

5. Offer substantial motivations, rationales, and benefits: Everyone in administration wants to look good; anything you can do to help them look good is a point in your favor. When making a request for your courses/programs, show the administrator how complying will improve his/her stature on the campus.

6. Consider the downside: Don't be so excited by your idea that you get blindsided by an idea you haven't considered. The basics of any good administrator's considerations for granting requests are budget, quality, fairness, short-term and long-term benefits.

7. Follow up: If you don't get an immediate response, wait patiently. But do follow up on your ideas with the administrator; provide new or updated information as a tactful way of jogging his/her memory.

8. Take the high road: In your request, in your presentation, and in your responses and followup be sure that the administrator thinks of you as reasonable, well-informed, and well-prepared. Don't cut corners; don't threaten or manipulate; don't fudge on the information; don't oversell the idea.

Cross Disciplinary Efforts

Cross Disciplinary Efforts

The Post-Challenger Challenge: Communications for Engineering Design Curricula

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Recent upheavals in engineering curricula are creating important opportunities for supporting the communications skills of technical students. The industry-fueled demand for creative and open-ended "real world" engineering problems has yielded "engineering design" as the organizing rationale for undergraduate curriculums in engineering.

Investment in engineering design displaces the post-Sputnik era emphasis on rigorous science as the engineering program core. Because so many scientific disciplines pertain to engineering applications, science centered curricula left little room for the arts or for business management course work. In contrast, recent experience with design projects in schools of engineering has led to a demand for course work in communications.

In what might be termed a post-Space Shuttle Challenger era, quality in technical communications has become a major concern. Engineering design at the technological edge is generally carried out by teams which are based in large organizations. Furthermore, design projects often entail cross-disciplinary and cross-functional collaboration. As a result, engineering students completing design projects are often asked to work together in teams beginning with the formative stages of the project, defining problems and addressing client needs. Later they must coordinate the technical components of the design and specify an optimal design. Finally, teams must persuasively present complex sets of design recommendations.

To succeed, these engineering design teams must be able to move beyond the "givens" of closed-ended deductive homework style problems, creating what did not exist before. These students must use conflict in constructive ways, work out issues of division of labor, and convey in-process work to each other efficiently and effectively. Students must make strategic choices among modes of communication at each project stage, from face-to-face informal group discussion to more formal written communications. For clients, both oral and written reports must be prepared.

As technical communications professionals we understand the complexity of these tasks and we know about the instructional investment needed to support these student efforts; however, we have to address the additional issues of program building if we are to be effective in these technical contexts.

How can we best construct an institutional interface between communications and technical areas? How can technical programs best incorporate non-technical instructional materials? How do interdisciplinary programs reap the benefits of institutionalization and yet continue to evolve? Experiences from the first two years of communications program building in a school of mechanical engineering will be used to illustrate these challenges.

Cultural Implications of Ethics in Technical Writing Classes

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Ethics has become a major concern for practitioners and teachers of technical communication. Journals and conferences have provided opportunities for discussions of the application of ethics to technical communication in industry and business, as well as in technical writing classrooms. Although major publications offer useful suggestions, their recommendations are often general and inconclusive. This paper gives a critical reviews of publications, including textbooks, on ethics and technical communication written since 1980. It also draws attention to the contributions of relevant journals and professional associations to discussions of ethics. Focusing specifically on cultural implications, the article offers suggestions for technical communicators as well as for technical writing teachers and concludes with classroom applications.

Technical Writing on the Pre-College Level: An Interdisciplinary Approach

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In May 1990 the U.S. Department of Labor formed The Secretary's Commission on Achieving Necessary Skills (SCANS) to determine whether the nation's public schools were producing graduates capable of meeting the demands of an increasingly technologized and global workplace. The Commission found that, in fact, our schools had not kept pace with workplace changes, and consequently, more than half of our students leave school without the means necessary to find and hold a good job. During 1991–1993, the Commission issued a series of reports, known collectively as the SCANS reports, recommending changes to our public school curriculum. One recommendation is that students should learn to create documents such as letters, directions, manuals, reports, proposals, graphs, and flow charts, and that these technical writing skills, like all the SCANS skills, should be taught to all students, not just to non-college bound or vocational students.

Consequently a number of schools are incorporating technical writing into their regular curricula, primarily into their language arts classes. The biggest problem for the teachers of these classes is that technical writing curriculum materials for the pre-college level are almost nonexistent. These teachers are forced to adapt college level materials and strategies and are experimenting to find out what works and what doesn't. One communication teacher, Dee Kanakis, of Carl Junction Junior High, Carl Junction, Missouri, has developed an interdisciplinary approach that could be considered a model for others to emulate. She collaborates with other Carl Junction Junior High teachers in other disciplines, including, so far, history, biology, home economics, and shop. Together the teachers design assignments that combine the content of the other disciplines with particular technical writing skills. This collaborative approach has proved successful with both the teachers and the students.

As this trend toward incorporating technical writing into the public school curriculum increases (as I believe it will), those of us on the college level will be expected to provide courses and curriculum materials for the public school teachers and their students. Although the recent trend in college level technical writing programs has been toward developing increasingly more sophisticated curricula, in the future we will be called on to develop curricula for increasingly lower educational levels. The collaborative approach is one that we should investigate and develop further.

Interdepartmental Curricula in Technical Communications Programs

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In this paper I want to straddle as gracefully as possible at least three of the five subjects comprising the theme of this meeting: "Meeting Students' Needs," "Cross-disciplinary Efforts," and "Innovative and Expanding Curricula." Specifically, I'll discuss the linked Software Development and Software Documentation classes taught each Spring at Eastern Washington University, proposing that such a cross-disciplinary curriculum can enhance students' professional preparation as well as encourage academic analyses and critiques of professional standards and practices. Though this course linkage has been quite successful, I present this collaborative model more to solicit insights on how to improve or extend it rather than to suggest that it be emulated.

The centerpiece of our cross-disciplinary collaboration is a scaled-down version of a real-world "project team," in which the software engineering students compose the design documents (functional specifications) and code the software while my documentation students write document plans and then write and publish printed and online user documentation. The project teams met once a week outside of both classes to explain the purposes and features of the software, discuss the progress of product and documentation development, and perform technical reviews. On the other hand, during the class time in my course, we focused on such issues as document design, needs analysis, procedure writing, the distinction between task- and feature-orientation, and the different requirements of print and online text. More significantly perhaps, we also spent a good deal of time evaluating the conduct and progress of the project teams, trying to devise a rhetoric of collaboration that would allow my students to secure the cooperation of the software engineers and vice versa. We examined the dynamics of interdependent efforts, the way the work of each member depends for its success on the activities of the other members, and that at the core of each project team is the paradox of necessary cooperation in the face of necessarily competing interests.

As this collaborative course has evolved, my computer science colleague and I continue to work for a balance between professional preparation and academic analysis. Each time we teach the course, however, we are reinforced in our belief that these two interests, though apparently in competition, can themselves be made mutually dependent, mutually informing.

Challenges: To the Future

Teaching Technical Communicators the Art of Improvisation

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Jazz, laments trumpeter Wynton Marsalis, is in a bad way. The schools aren't teaching much music of any kind, kids are unwilling to practice or to learn about music outside of narrowly defined forms, and they rely too much on electronic gadgets. Jazz is of course an improvisational art, depending heavily on musicians' knowledge of musical structures, rhythms, and harmonies, on their ability to draw upon a large reservoir of tunes, and on their ability to play in real time off musical ideas presented by other players in the ensemble. Those who have to play from written sheet music ("charts") and can't work from a fake book aren't really jazz musicians—they're players with a certain set of technical skills, and what they play may sound like jazz but is only its artifact.

Improvisation is an art practiced not only by jazz musicians; it is practiced constantly by technical communicators and by teachers of technical communication. It is an absolutely necessary art, because both practitioners and teachers are constantly called on to do things that could not have been foreseen when they were in school. Playing off ideas by others in the ensemble, drawing upon a wide variety of techniques and prior knowledge, putting together a new riff—that's both the challenge and the fun of the field.

This view of technical communication appears not to be widely held among students; practitioners who rely excessively on style guides and other rulebooks may not share it either. (The latter, in musical terms, want to find a chart to play from.) An illustration: last year the Technical Communication program at New Mexico Tech received a new lab with networked 486 PCs and Apollo workstations. We faculty are learning to take advantage of the lab's potentials along with the students. Many students, nevertheless, seem to think there's an evolved body of knowledge out there that we should be teaching them. And to some extent there is, but it involves learning UNIX, which is outside the fields we were trained in, and we don't have the time or budget to get systematic training for ourselves. So we improvise.

Technical communication students usually gain experience in improvising by working on projects in groups that include people in other fields. They may do this by doing group projects in service technical writing classes, by serving on crossdisciplinary engineering design teams, and by interning. Such experience is valuable, and we should encourage it.

Yet there are also dangers in overemphasizing that kind of experience. Remember Marsalis's lament that young musicians don't want to practice and disdain forms and techniques outside a limited range of experience? The counterpart among TC students, I think, is that they get some experience working with, say, nuclear chemists or business-application programmers and act as if that "real-world" experience is all they need to know. We see it in students who come back to campus from successful internships sporting an attitude that suggests "I already know everything that's important. Go ahead—just try to teach me something new."

The other complaint by Marsalis that applies to technical communication as well as to jazz is the preoccupation with electronic technology. Jazz relies on a "call and response" form, often starting with the drummer—but now musicians often use drum synthesizers, whose rhythms are mechanically repetitive. Technical communication also seems preoccupied with computer technology—using it and documenting it. (Just look at the program for the STC Annual Conference.) At the student level that preoccupation shows up when students would rather learn Aldus *Persuasion* than rhetorical persuasion.

The remarks of Wynton Marsalis were reported by columnist William Raspberry, who saw parallels to the teaching of writing in the public schools: "First learn the rules, the devices, and the conventions, then go creative. And practice."

For technical communicators, we might extrapolate, the rules, devices, and conventions are learned by reading good writing in a wide variety of fields, from Greek drama to cognitive psychology to molecular biology. And by writing in a variety of forms—not just the generic forms of technical writing, but essays and poetry. And by speaking about what they've learned. And by observing form and proportion in the visual arts, and by learning to treat text as a visual form. And, yes, even by listening to and experimenting with different forms of music.

Students who lack such breadth will be like those musicians who have to play from charts. Technical communicators with similarly narrow skills may also produce artifacts of communication—dead stuff that doesn't communicate much, like so much of today's online documentation. On the other hand, students who have that kind of depth and breadth in their preparation will be able to improvise, in the best sense, the future of technical communication.

Science, Rhetoric, Technique, and the Construction of Death: A Case for More Broad-Based Theory and History in Our Curricula

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According to my title, the subject matter that I want to address appears to be quite complex, or at least more than can be handled in a short presentation such as this. I admit that I am guilty of the latter—that I cannot do justice to the breadth of my topic in this proceedings. However, the basis of my position is simple and straightforward: I am calling for more broad-based implementation of theoretically and historically-based curricula in technical and scientific communication programs. I will make the case that scenarios such as the one presented below are replete with theoretical, historical, and political matters that directly affect the practices of students in technical and scientific communication programs, and eventually their professional life. I contend that students can use such "tales" to:

- explore systematic knowledge in scientific or technological endeavor,
- critique the problems of constructing "reality" through scientific "facts,"
- examine the role of political, economic, or ideological factors in techniques,
- apply what they learn to their everyday practices as technical or scientific communicators.

In short, I suggest that students who are grounded in theoretical and historical concepts of technical communication will be better able to work as ethical, active and productive members of public and/or private institutions.

To exemplify this large issue, I will draw on the following scenario of Philadelphia medical examiners during the heat wave of July 1993.

In the heat wave of July 1993, a City of Philadelphia health examiner was called to the low-income high rise apartment of an elderly woman who had been found dead. The body had already gone into some early stages of rigor mortis, and thus such information as the body temperature at time of death was impossible to ascertain. The examiners problem: What was the cause of death?

To determine the cause of death, the examiner was required to follow a procedural technique, and then make a good guess based upon medical "facts." The technique called for the examiner to use only the information that was verifiable — therefore, a guess at body temperature was not allowed because the person had been dead too long. Thus, in many instances if the examiner used the required technique, the determined cause of death was likely to be other than heat because only those "facts" which were "true" or verifiable were admissible as evidence in determining the cause of death.

In 1993, however, the chief examiner of Philadelphia decided to "bend the rules" and use information that was not usually part of the normal procedure. For example, he asked his examiners to "act like detectives" and collect information that went beyond the prescribed procedure. For instance, they found similarities in a number of the cases:

- the outside temperature had been well in excess of 90° Fahrenheit,
- the apartment temperature was also high — about 86°,
- there was an air conditioner in the room but it had not been turned on,
- the windows had been sealed shut, possibly to deter burglars,
- the person lived alone, and was found because a manager checked.

As a result, the City of Philadelphia reported a much greater instance of death from heat than any other major city in the US (118 during a ten day period, while New York and Washington D.C. had about 10 each). The Philadelphia examiner was heavily criticized for the increased numbers, and in particular he was accused of violating accepted scientific methods of determining "cause of death." However, after a year of investigation by the Disease Control Center in Atlanta, it was concluded that indeed the Philadelphia examiner was justified (or at least not "wrong") in his new procedures. This tale, of course, has not been totally told yet. The old procedure must be reviewed, there will be much debate, and maybe something will change (already the Philadelphia authorities are making fans more accessible and are discussing how to revise the definition of "heat emergency").

What could technical communication students learn from such a "tale"? How might the use of scenarios and stories like this enrich what we do in the classroom—both practically and theoretically? To begin, students could be

introduced to the concepts of social constructionist theories and methods. It is clear from the Philadelphia tale that the definition of death, or at least the cause of death, is mutable. What was a cause of death for one city was not for another. Thus, the definition of death was shaped by context, and the result of the Philadelphia definition took on greater consequences, and eventually broader action (such as making fans more accessible).

Second, the use of historical examples can enliven the writing class in ways that I do not think we are prone to do now. Few disciplines tell so little history of their field to their students as we do in technical and scientific communication. For example, in the 1950's, engineering programs were concerned about similar issues of history and theory—the result was at least a small level of support by integrating some history of engineering into the curricula. These attempts in engineering schools were not without problems, of course, as many schools merely enacted service courses that glossed the history of the profession in superficial (and, I'm sure, boring) ways.

In technical and scientific communication curricula, however, we have a more promising opportunity as we often teach students who are making the artifacts of their profession: they are actually creating the products of their "trade." Consequently, the students can engage first-hand with the theoretical concepts and historical scenarios as they create their communication products. Also, they can draw analogies to the actions of other technicians or scientists—like the medical examiners who were told to alter their strict scientific practices and, instead, "act like detectives." Technical writers working in usability situations, for instance, often act like detectives, but I'm not sure that they often think of their actions in this way. Instead, they, like the traditional medical examiners, probably act in less flexible, more rule-bound procedural ways.

Finally, and maybe most importantly, the study of technical communication history and theory will call for (and eventually create) reflective students: students who can make ethical and practical judgments with a well-formed base of knowledge about what it means to create and disseminate technical and scientific communication. In the case of the Philadelphia health department, I believe technical communicators can see themselves rewriting policy and procedures that actually will have an effect on the public sphere (like compelling authorities to provide more fans for the populace that needs them). Also, students might be able to perceive ethical problems as more than two-pronged dilemmas that compel an individual to always carry the burden of "whistle blower." Instead, they might see their role as communal actors in a larger scenario of actions that can, at times, offer alternatives to the "whistle blower/not whistle blower" dichotomy we so often promote in our treatment of ethics.

In conclusion, I would like to return to my somewhat apologetic beginning by saying that the problem of enriching our curricula with history or theory is not a simple problem. At the same time, however, it is one that is clear and straightforward. Therefore, my purpose has not been so much to provide a concrete answer, but instead to open the discussion of how we can provide more depth and breadth to our students. We owe them, and the profession we are a part of, the opportunity to complicate, and in turn expand, the study of nonacademic communication.

The Ethics Question

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Although everyone agrees that the inculcation of ethical behavior should be part of technical communication courses and programs, the question of how and where and to what extent ethics should be taught is a perennially thorny one. Most often, discussions of teaching ethics focus on the domain problem: can and should instructors who are outside the technical disciplines legitimately critique the ethics of the technical and business community (see Russell, 1993)? Much less discussed but equally important is the scale problem—how can an individual technical communicator have any effect on the ethical practices of a large corporation?—and it is on this problem I want to focus.

Looking at the ethics question from the perspective of scale also suggests another refocusing effort. Instead of seeing ethics in terms of crisis, life-or-death situations such as the Challenger or Three Mile Island disasters, I want to focus on the ethics of daily practices, what I will call microethics. Considering ethics only in terms of large-scale crisis situations leads students to think that making ethical decisions on the job is a no-win situation, that, faced with questions such as what to say about the reliability of o-rings under freezing conditions, they have no hope of having any impact on the final decision and, in addition, they will probably lose their jobs if they insist on what is (with hindsight) the "right" course of action. As a result students tend to see the ethics question as an occasional problem they simply hope to avoid facing on the job.

What I propose instead is a perspective on ethics that encourages students (and everyone) to take responsibility for the ethical implications of the everyday practices they engage in on the job. Microethics assumes that ethical decisions are being made all the time in everyday practices, and that everyone is responsible, and that, furthermore, if everyone takes on this responsibility, with all the perspectives and complexities that will be brought into the discussion as a result, good ethical decisions are more likely to occur (though, of course, they are not assured). Two principles underpin this conception of ethics: first, that practices are made and remade continually in everyday work; and, second, that practices always have ethical dimensions that can and must be attended to and that ethical decisions entail linking everyday practices with the good of the larger community, a community that includes but goes beyond the immediate work situation.

In defining practices in this way, I draw on Pierre Bourdieu's notion of *habitus*, which he defines as "systems of durable, transposable *dispositions* . . . principles of the generation and structuring of practices and representations" (p. 72). The habitus of a culture is built up over time and, significantly, is naturalized; that is, it is so well accepted that these dispositions, though they are continually (but gradually) changing, appear to be simply the only way to behave. Habitus is the regulating principle of a culture; it is the culture's *doxa*, or as Bourdieu calls it, "the universe of the undiscussed" (p. 168), that which is never questioned; it is the phenomenon others have sought to capture in the notion of discourse community. The advantage of the notion of habitus, however, lies in Bourdieu's emphasis on these dispositions as incremental accretions of individual practices rather than as prior or external decisions. Though they *appear* to be relatively stable and resistant to change (due to the process of naturalization), they in fact do change all the time, especially when a new perspective exposes the arbitrariness of seemingly natural dispositions or practices or when outsiders or newcomers enter a culture or when an underclass struggles to remake the habitus. Thus, unlike the notion of discourse community, the notion of habitus accounts for not only stability in practices but also changes in practices. Bourdieu says, "revolutionary action is constituted in the dialectical relationship between a habitus and an objective event" (pp. 82-83).

From this perspective, ethics becomes a matter of questioning, when necessary, the habitus of a community, of adjusting the dispositions that structure everyday practices in line with new situations and the good of the whole community; it is a matter, as Bourdieu puts it, of "pushing back the limits of *doxa* and exposing the arbitrariness of the taken for granted" (p. 169). Similarly, Carolyn Miller proposes that practical rhetoric is "a matter of *conduct* rather than of production, . . . a matter of arguing in a prudent way toward the good of the community rather than of constructing texts" (p. 23). As she points out, it is "through praxis we make ourselves and each other in interaction" (p. 23); it is through the initiation and repetition of everyday practices on the job that ethical behavior and the ethics of a group however large or small is built up and remade continually. Bourdieu also notes the immense load of values even the most mundane practices embody and enforce:

> If all societies . . . set such store on the seemingly most insignificant details of *dress*, *bearing*, physical and verbal *manners*, the reason is that, treating the body as a memory, they entrust to it in abbreviated and practical, i.e. mnemonic, form the fundamental principles of the arbitrary content of the culture. . . . nothing seems more ineffable, more incommunicable, more inimitable, and, therefore, more precious, than the values given body, *made* body by the transubstantiation achieved by the hidden persuasion of an implicit pedagogy, capable of instilling a whole cosmology, an ethic, a metaphysic, a political philosophy, through injunctions as insignificant as "stand up straight" or "don't hold your knife in your left hand." (p. 94)

The notion of technical communication as practical rhetoric has the advantage of bringing the ethical question down to size, but still of connecting decisions made about everyday practice with the good of the community. As Miller explains: "An understanding of practical rhetoric as conduct provides what a techne cannot: a locus for questioning, for criticism, for distinguishing good practice from bad. That locus is not the individual or any particular set of private interests but the human community that is created through conduct . . . . While the good that praxis . . . creates may include the interests of individuals and industry, it is larger and more complex; the relevant community is not the working group or the corporation but the larger community within which the corporation sells its products, pays taxes, hires employees, lobbies, issues stock, files lawsuits, and is itself held accountable to the law" (p. 23). Thus, what is good practice has to do not only with what is cost-efficient but also with how it contributes to or is destructive of the community, and the relevant community includes the whole society and, in many cases today, the entire global economic/political/environmental system.

To see how microethics works out in real situations, I offer the following example, which shows how ethics is sometimes (though not always) linked with resistance and critique. Carl Herndl and a colleague at New Mexico State University studied the work of the chief wildlife biologist in the environmental safety office of White Sands Missile Range over the course of a year. They hypothesized that this situation "seems especially suited to represent a clash of values, interests, and cultural positions" (p. 4), and they were not disappointed. In her work, the wildlife biologist found that the expected "objective" style of the reports she had to write, a style that required her to reduce complex systems to quantifiable data and present them as bulleted items, "made it all but impossible to acknowledge the complexity of environmental problems" (p. 8). The clash of cultures reveals the practice of these reports as not natural but the production of the military culture; the required objectivism is a "cultivated disposition" of the military culture which engenders the practice of the reports (see Bourdieu, p. 15). From the perspective of the wildlife biologist, the practice needs to be adjusted to include the environmental concerns she was hired to protect and, further, the practice is destructive to the good of the larger community by restricting the ability to examine the possible effects of missile testing on the environment. The wildlife biologist decided to attempt to modify the practice of the reports to bring it more in line with the changing conditions of society that are represented in the establishment of the environmental safety office at the base: when faced with this situation, she writes her report in the expected style but accompanies it with a longer and more detailed report. She explains: "And I send it to a position of authority saying, based on all this stuff, these are my recommendations and I sign it as a Wildlife biologist and ranger staff specialist. This person now is supposed to take that and do something with it; that's his job" (quoted in Herndl, p. 10). As Herndl says, "once her documents are signed and become part of the official record, she has set precedent and forced the institution to recognize if only temporarily something of her environmental agenda" (p. 11). Her action is also an example of microethics in that she has taken responsibility for the ethical implications of the practices of the military culture and changed those practices, if only slightly and temporarily. It is also important to note that in taking such actions she has sometimes been reprimanded for insubordination, but she has not lost her job.

Microethics allows technical communication students to see how their everyday actions contribute to the building up of the ethical practices of the company they will work for and the society they inhabit; they learn that ethics is a matter of incremental changes in practices and everybody's responsibility. Training in microethics should also enable them to be more valuable workers if, as Robert Reich and others have noted, what is needed in the current postindustrial economy of global capitalism is flexibility, the ability to adapt to the ever changing and multiple demands of a market and customers who can no longer be seen as homogeneous.

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Technical Communication Programs Within the Disciplines: Challenges and Questions for Communication Academicians

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One of the assumptions about technical communication programs is that they should be located in communication, humanities, or English departments and should be taught by those specifically trained in technical communication pedagogy. Associated with this assumption are others about what those who teach, research, and administrate in such programs can expect—from their department. their colleagues, their students, their field, and their tenure board.

However, as the influence of the writing across the curriculum (WAC) movement continues, and as industry demands for improved communication skills in all workers escalate, we are likely to see another sort of technical communication program develop. Encouraged by the success of their WAC activities, and increasingly convinced (by industry, ABET, alumni, and their own experience) of the inseparability of communication from technical work, engineering and science departments may now move toward greater control and become owners and operators of their own technical communication programs. These discipline-specific programs may be in lieu of a technical communication program already on campus, or they may be a new emphasis within the discipline. Either way, many of us are likely to be involved in some manner by this trend, and those who are may need to rethink our expectations.

What I'd like us to consider as a group are the issues that arise for those academicians who are associated in some way with technical communication programs being operated from within the disciplines. Specifically, how will this location challenge our expectations and our success—as teachers, as scholars, and as administrators'? With the limited time available, I will simply raise here a few of the issues or questions we may wish to consider and discuss together.

Teaching technical communication within a discipline-specific program presents several challenges. First, how might our pedagogical goals and approach differ from those typical in that department'? Will our methods engender criticism? discussion? learning on both sides? What will be our status among department teachers? (This is especially of concern in engineering departments, where technology is often privileged over the humanities.) And how well will we be paid, especially if we are located in departments where research dollars are an important component in teachers' salary competition?

As scholars, too, we face several issues when we spend much of our time in "other" departments. We may acutely feel the loss of peer contact and scholarship, as we share coffee with folks discussing innovations in, for example, distillation columns rather than the current research in our own field. We may find the research we undertake dismissed or misunderstood by, for example, engineering colleagues. On the other hand, we may be thrilled to find ourselves in what we consider a new discourse community and, thus, a research-rich environment. We may see opportunities to examine the relationships between disciplines, to bridge gaps, and to challenge assumptions about different academic fields and those who occupy them.

Other issues concern those administering a discipline-specific technical communication program. Where will our funding come from and where will it stand in the budget hierarchy? Will our program be seen by the humanities departments (or wherever technical communication has been housed) as a threat, and will we be viewed with suspicion? Where will our program stand in the campus hierarchy, and who will support/oppose it? And, finally, the implications of these programs for our tenure are significant, introducing concerns about split appointments, evaluation of scholarship and teaching, committee work, appropriate publications, and so on.

As "writing in the disciplines" continues to evolve, we can expect to see technical communication programs begun or annexed by those disciplines, and many of us will (or do) find ourselves involved in these programs. Let's think, and talk, then, about how such work may differ from expectations, how we can minimize any potential damage, and how (if) we can seize the opportunity to enhance our teaching, scholarly, and administrative lives.

Current Research in Technical and Professional Communication: What It Is and Is Not Telling Us

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A decade of research in technical and professional communication has left us knowing far less than we thought we knew ten years ago. A decade ago we could say with some confidence that we knew what to tell students about writing for audiences in technology-based organizations, based upon both our experience in business and industry (Mathes and Stevenson) and our knowledge of research in cognitive psychology, linguistics, and other disciplines (Flower, Hayes, and Swarts; Huckin; Olsen and Huckin, *Principles*). Today research in technical and professional communication is challenging most of what we once thought we knew and is giving us in place of apparent certainties results that are often conflicting, contradictory, and confusing. So while the research is telling us much more than we ever hoped to know about technical and professional communication, it is also telling us a great deal less than we can affirm among ourselves, much less pass along to our students, with any degree of confidence. This research thus presents some questions and problems for teachers and administrators in technical communication, first, because we no longer can be quite so certain as we once were about the advice offered in the textbooks and, second, because we cannot be very much more certain about research that is so frequently self-contradictory.

Teaching versus Research

We cannot be as certain as we once were about the advice offered in the textbooks because we can no longer be as certain as we once were that the cognitive principles that still dominate the textbooks are really good advice to offer to our students. The cognitivist literature advises us, for example, to design texts for optimal readability—to state our purpose clearly; to use headings, subheadings, and topic sentences; and so on (Huckin 101)—and the textbooks urge us to pass this advice along to our students (Anderson; Olsen and Huckin, *Principles*; Olsen and Huckin, *Technical Writing*). The literature that adopts a social perspective on technical and professional communication, in contrast, tells us that we should attend not so much to the text as to the social (that is, disciplinary or organizational) context within which the text is written (Blyler and Thralls; Odell and Goswami; Spilka). That is, we should study the "discourse convention," the norms and practices that govern the uses of language, within particular "discourse communities" (Faigley 236-41; Thralls and Blyler 11-12), and we should help our students to learn and to prepare to adopt these conventions. For example, since one of the most common writing practices in organizations is collaboration, we should help our students to learn more about collaborative writing processes (Morgan; Rymer).

Research versus Research

We need to be cautious about adopting this research, however, since we cannot hold with certainty research that is so frequently self-contradictory. From the very outset, researchers advocating a social perspective cautioned against adopting what is actually done in business and industry as opposed to what in our best judgment ought to be done (Odell 278). More recently, researchers have given us results that are sometimes flatly contradictory, sometimes conflicting, and almost always confusing. For example, if we take the social perspective seriously, and if we decide to try to help students to learn the collaborative writing processes common to many disciplines and organizations, then we quickly encounter contradictory results on which processes we are supposed to teach. On the one hand, feminist scholarship tells us that women are likely to be better collaborators than men because they seek to maintain relationships and resolve conflict via compromise and mutual accommodation (Lay 362-66). On the other hand, research on collaboration tells us that substantive conflict is a functional and productive component in collaborative writing processes (Burnett; Karis). So as teachers and administrators responsible for developing courses and programs in technical communication, we are caught on the horns of a dilemma: should we teach men students to be more accommodating so that they can become more effective collaborators, or should we teach women students to be more assertive so that they can contribute to productive conflict and so—we are assured—become more effective collaborators? In either case, should we teach cynically, asking our men students to be more accommodating so that they can "get along with" increasing numbers of feminists in contemporary organizations and asking our women students to be more assertive because, after all, "it's still a man's world"? Or should we try to teach less cynically, and, if so, what should we teach?

Again, if we take the social perspective seriously, and if we decide to teach students the discourse conventions of any particular discipline or organization, we encounter contradictory results on which conventions we are supposed to teach. We are told, for example, that some one set of conventions may dominate a particular discipline or

organization, as the biomedical model of diagnosis dominates psychiatry (McCarthy), but we are also told that this one set of conventions may exclude another set of conventions of equal or greater legitimacy and utility, as the biomedical model excludes the alternative interpretive model in psychiatry, and we are encouraged to research and teach these alternative discourse conventions (Herndl).

If, on the other hand, with increasing numbers of researchers, we begin to question the social perspective on technical and professional communication, then we are led into logical or ideological conflict with that perspective. Logically, we can reject the very idea of a discourse community and its conventions in favor of the "paralogic hermeneutic" view that humans make meaning within particular interpersonal and social interactions rather than find meaning already made within the norms and practices of existing discourse communities (Kent, "Formalism"; Kent, "On the Very Idea"; Kent, "Reply"; Schiappa). Ideologically, we can accept the idea of the discourse community and its conventions but question the communal norms and practices, most especially "the ethic of expediency," that have given us not only efficient forms of technical communication but also such technological and human tragedies as Nazi Germany and the Ford Pinto (Katz, "Aristotle's Rhetoric"; Katz, "Ethic of Expediency").

Questions for Teachers and Administrators

Are we, then, to teach and design programs on the basis of the textbooks or the research, and if we are to rely upon the research, are we to adopt a social perspective or some logical or ideological alternative? That is, are we to prepare our students to adopt the norms and practices of the disciplines and organizations within which they are going to work, are we to prepare them to make their own meanings in concert with others with whom they will live and work, or are we to prepare them to view their own disciplinary and organizational affiliations and allegiances within the larger social and human contexts within which we all live? Can we do all of the above without feeling hopelessly schizophrenic? Surely we will be forgiven if we feel confused by the proliferation of contradictory and conflicting claims in recent research in technical and professional communication. I do not propose to say or do anything on this occasion to allay this confusion. Rather, I want to suggest, in the manner of the Socrates of the early Platonic dialogues, that anyone who does not feel confused by this research has probably not reflected sufficiently upon the questions and problems—and also the extraordinary challenges and opportunities—that it presses upon us.

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21st Annual Business Meeting

Business Meeting Agenda
Council for Programs in Technical and Scientific Communication

Las Cruces, New Mexico
October 22, 1994

1. Request for Approval of Minutes of the 1993 Business Meeting (Steve Bernhardt)
2. Vice-President's Report (Dan Riordan)
3. Secretary's Report (Steve Bernhardt)
4. Treasurer's Report (Laurie Hayes)
5. Report from the Ad Hoc Committee on the Program Development Advisory Board (Sam Geonetta)
6. Report from the Ad Hoc Committee on Archives (Laurie Hayes)
7. Report on Registration Fee for the STC Annual Conference (Jim Zappen)
8. Selection of Site and Dates for the 1995 Annual Meeting
9. Report from Nominating Committee/Announcement of Election Results (Sam Geonetta)
10. New Business

The Council of Programs in Technical and Scientific Communication

Minutes of the 21st Annual Business Meeting
October 22, 1994
Las Cruces, New Mexico

The business meeting was called to order by Jim Zappen at 9:00 a.m. at the Hilton Hotel, Las Cruces.

1. **Organizational History:** Sam Geonetta provided a brief history of the organization for the benefit of new members.

2. **Approval of Minutes:** The minutes were distributed, read, and approved upon a motion from Katherine Staples, seconded by Sam Geonetta.

3. **Secretary's Report:** Steve Bernhardt noted that he would be editing and printing new stationery, brochures, and envelopes.

4. **Treasurer's Report:** Laurie Hayes reported good financial health and presented a budget summary (attached). The budget was approved unanimously upon a motion from Sam Geonetta with a second from Herb Smith.

5. **Ad Hoc Committee on the Program Development Advisory Board:** Sam Geonetta reviewed the ideas behind our initiative to support both established and developing programs through offering the services of an Advisory Board. Ken Rainey reported that the idea of certifying programs in technical communication, though temporarily put aside, was still being discussed within STC. Pam Ecker moved, with a second from Katherine Staples, "to form the Program Development Advisory Committee to assist in the development and evaluation of new and established programs and to promote exchange of information between CPTSC and interested parties." The motion passed unanimously. Jim Zappen asked those with an interest in serving on this new standing committee to alert him.

6. **Report from the Ad Hoc Committee on Archives:** Laurie Hayes reported that the University of Minnesota was willing to store our archives and put forward a resolution for their formal establishment: "Resolved, that The Council for Programs in Technical and Scientific Communication (CPTSC) initiate an archive of organizational materials, dating from its origins to the present, with the University of Minnesota Library. CPTSC authorizes Laurie Hayes to arrange for the initial deposit in 1994 and agrees to take responsibility for annual deposits beginning in 1995." Laurie Hayes' resolution was seconded by Sam Geonetta and passed unanimously.

7. **Report on STC Registration Fee:** Jim Zappen noted that our appeal to STC to provide reduced conference fees to academics was politely declined. Ken Rainey noted that those who present research under an STC grant can budget conference costs to present their research at the STC meeting. The consensus of the group was that it would be best to wait a year or so before making further moves on this issue, especially since at least some STC board members are sympathetic with our position.

8. **Location, Format, and Theme of 1995 and 1996 Annual Meetings:** As voted last year, Michigan Tech will be the site of the 1995 meeting, on September 28–30 in Houghton, America. On a motion from Jane Allen with a second from Deborah Bosley, the meeting dates were unanimously approved. A discussion of themes and meeting structure generated ideas for the Executive Committee's consideration. It was then moved by Mary Coney with a second from Betsy Aller to hold the 1996 meeting at Miami University of Ohio, September 26–28. The motion passed unanimously.

9. **Nominating Committee:** Sam Geonetta noted the good work of the nominating committee, which he chaired and which included Carol Lipsomb, Mary Coney, and Russel Hurst. A full slate and a return of 39 of 70 mailed ballots resulted in several close tallies, with the following outcome:

President	Dan Riordan
Vice President	Marilyn Cooper
Secretary	Steve Bernhardt
Treasurer	Henrietta Shirk
Member at Large	Deborah Bosley
Member at Large	Carolyn Rude
Member at Large	Katherine Staples

10. **New Business:** Ken Rainey noted STC's support of research and called attention to the newly published report on the value of technical communications within industry. The STC scholarship committee was successful in adding two new scholarships to the existing twelve, and STC Austin is promoting a faculty internship program for June 1994 (information available from the Austin Chapter, Katherine Staples).

    Some discussion focused on the desirability of archives of materials on technical communication in general, and Jonathan Price, Karen Schriver, Sherry Little, and Bob Johnson agreed to pursue this idea.

    Laurie Hayes distributed information on the National Council on Undergraduate Research, calling attention to the special funds available to students of color and noting it as a likely place for involvement among technical communication students. Write to Laurie for details.

    The Council expressed its sympathy with Dan Riordan, our new President, on the death of his mother and authorized a gift in the organization's name, to be chosen and sent by Laurie Hayes.

11. **Thanks:** CPTSC extends its gratitude to New Mexico State University at Las Cruces for serving as host institution for our annual meeting; to the English Department and the College of Arts and Sciences for their generous support; to Katherine Staples for chairing the program; to Steve Bernhardt and Katherine Durack for conference arrangements; to Rensselaer and especially to Susan Katz for support of CPTSC; and to those in Dan Riordan's department at the University of Wisconsin-Stout who helped with publications. CPTSC extends a special thank you to Jim Zappen for two years of outstanding service as President of the organization.

The meeting was adjourned at 11:30 a.m.

Respectfully Submitted,

Stephen A. Bernhardt, Secretary

Note: These minutes are written, submitted to the Board, and printed in the Proceedings in draft; they are approved at the annual Business Meeting the following year.

attachment: Financial Report, Sept. 30, 1993-October 18, 1994

CPTSC Financial Report
September 30, 1993 to October 18, 1994

BALANCE FROM SEPTEMBER 30, 1993

CREDITS/INCOME			$6011.63
Interest on checking account (9/93 through 9/94)		47.42	
Donation		20.00	
Memberships – 1993 (16 individuals)		320.00	
Memberships – 1994 (91 individuals)		1820.00	
(1 corporation)		100.00	
Additional Registrations – 1993 Annual Meeting		995.00	
Registrations – 1994 Annual Meeting		2730.00	
Sale of *Proceedings*		72.00	
	total:	$6101.42	+6101.42
DEBITS/EXPENSES			
1993 Annual Meeting			
hotel	2351.56		
lunches on Saturday	393.12		
van rentals	40.77	2839.79	
program committee	54.34		
Newsletter – Fall 1993			
printing	52.86		
Newsletter – Spring 1994			
printing	78.27		
postage for Fall & Spring	109.51	240.64	
Proceedings – 1993			
printing	603.42		
mailing	321.90	925.32	
Executive Committee meeting – 1993		291.34	
Archives			
supplies		234.62	
Miscellaneous administrative costs			
membership list	61.67		
postage (membership list, 1994 renewals, Zappen follow-up letter)	111.16		
checks/deposit slips	10.75	183.58	
	total:	$4715.29	-4715.29
BALANCE			$7400.76

Respectfully submitted,

Laurie S. Hayes, Treasurer
October 18, 1994

Executive Committee Meeting

CPTSC
Minutes of the Executive Committee Meeting
October 22, 1994
Las Cruces, NM

Present: Katherine Staples, Deborah Bosley, Marilyn Cooper, Steve Bernhardt, with Jim Zappen present for consultation. Joining the Board for dinner were outgoing board members Mary Coney, Chris Velotta, Sam Geonetta, and Laurie Hayes. Absent: Dan Riordan.

The newly elected CPTSC Executive Committee met at the annual CPTSC meeting in Las Cruces at 5 p.m. on October 22, 1994 at the Hacienda Restaurant in Las Cruces.

1995 Meeting

It was decided the theme of the 1995 meeting would be "Going to Extremes" and that papers would be solicited that offered position statements on theory, training, liberal arts, and technology. Deborah Bosley and Carolyn Rude have the job of developing a call for papers and defining the theme and areas of interest.

Policy Decisions:

It was decided to establish as policy regarding the annual meeting the following:

1. All attendees at the annual meeting must register and pay the registration fee.
2. Presenters must be members of CPTSC.
3. A paper can only be delivered by the person who proposed it.
4. Only those papers presented at the meeting will be eligible for publication in the proceedings.
5. The meeting should have a $10 fee increment for registrations at the door to encourage early registration.

These policies should be stated in materials sent to proposers from the program planners. Presenters should be encouraged in corresponce with program planners to register early to help with program planning.

Task List

Most of the discussion centered on the tasks of the officers. Everyone should review job descriptions and send corrections to Jim Zappen. Specific tasks identified at the meeting include the following:

Dan Riordan–President

Keep everyone on task.

Marilyn Cooper–Vice President

Marilyn's first act was to chair the meeting in Dan's absence. Marilyn will brief Dan on our meeting.
Issue first newsletter with call for papers during November/December.
Issue second newsletter in April/May with call for papers.
Publish *Proceedings.*
Nail down arrangements for meeting in Houghton and circulate information on dates, times, costs so members can plan to attend.

Steve Bernhardt–Secretary; Meeting Host 1994

Send minutes from Las Cruces meetings to Executive Board members.
Square accounts from Las Cruces meeting with Laurie.
Send meeting thank-you information to Jim.
Send abbreviated minutes and digital photos from Las Cruces meeting to Marilyn for newsletter by early November.
Update and print brochures, letterhead, and envelopes, and distribute to board members.
Send planning materials for annual meeting to Marilyn.

Henrietta Shirk–Treasurer and Membership

Get briefing from Laurie Hayes and take over accounts and membership files.

Katherine Staples–Member at large; Program Planner

Pass program materials along to Deborah and Carolyn.
Handle publicity for the coming year.
Get announcements of meeting in Houghton to journals. Include an announcement for TETTYC (*Teaching English in the Two Year College*) helping them understand CPTSC and welcoming their participation. Post notices on appropriate e-mail conferences.

Deborah Bosley and Carolyn Rude–Members at large

Plan program for 1995, working in conjunction with local hosts.

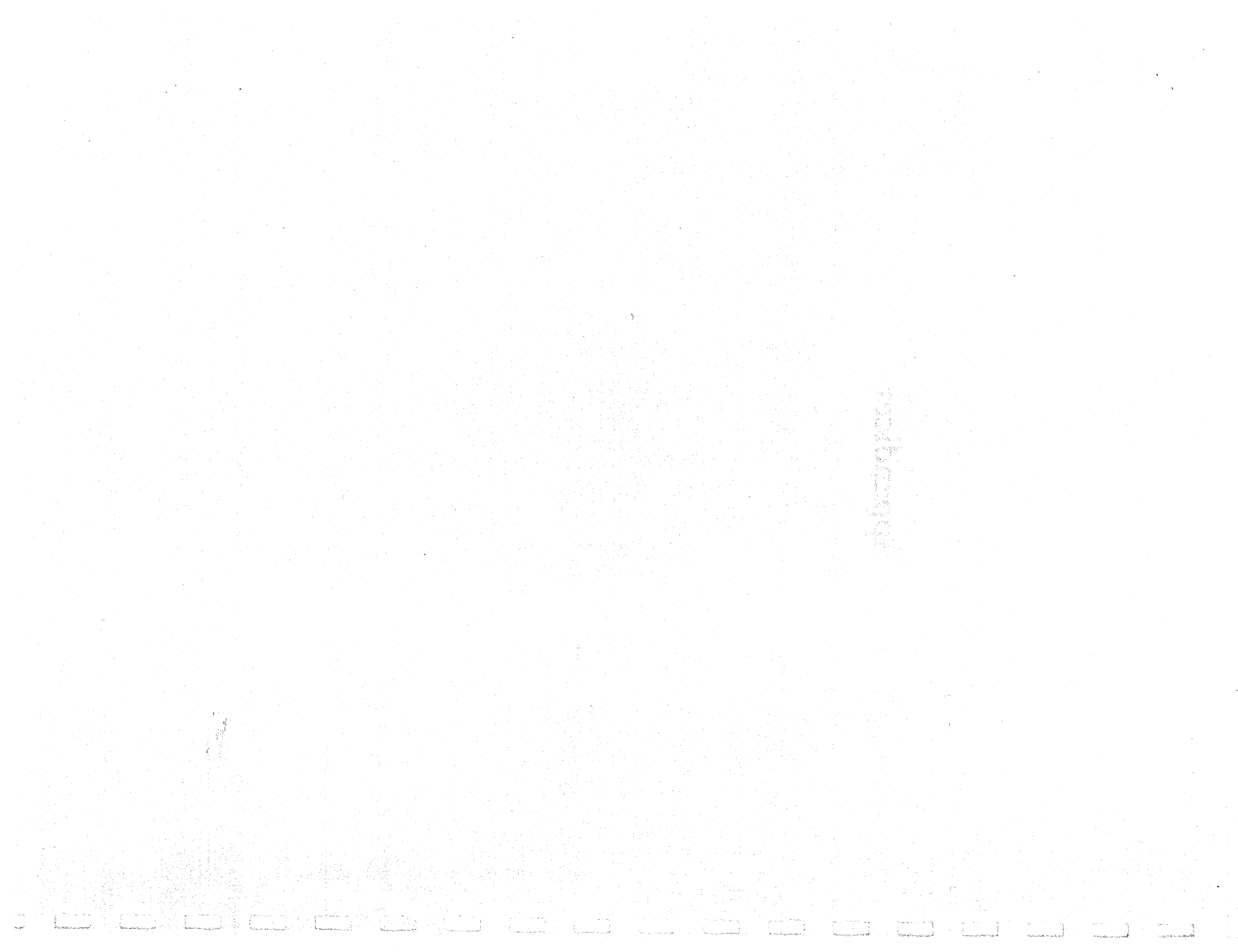
Jim Zappen-Immediate Past President

Send thank you's for Las Cruces meeting.
Update job descriptions and pass along file to Dan.

Respectfully submitted,

Stephen A. Bernhardt

Appendices



Appendix A

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Appendix B:

Annual Meetings, Sites, and Dates

1st	University of Minnesota	St. Paul, MN	1974
2nd	Boston University	Boston, MA	1975
3rd	Colorado State University	Fort Collins, CO	1976
4th	University of Minnesota	St. Paul, MN	1977
5th	Rensselaer Polytechnic Institute	Troy, NY	1978
6th	Oklahoma State University	Stillwater, OK	1979
7th	University of Central Florida	Orlando, FL	1980
8th	University of Washington	Seattle, WA	1981
9th	Carnegie-Mellon University	Pittsburgh, PA	1982
10th	University of Nebraska	Lincoln, NE	1983
11th	La Fonda	Santa Fe, NM	1984
12th	Miami University	Oxford, OH	1985
13th	Clark Community College	Portland, OR	1986
		Vancouver, WA	
14th	University of Central Florida	Orlando, FL	1987
15th	University of Minnesota	Minneapolis, MN	1988
16th	Rochester Institute of Technology	Rochester, NY	1989
17th	San Diego State University	San Diego, CA	1990
18th	University of Cincinnati	Cincinnati, OH	1991
19th	Boise State University	Boise, ID	1992
20th	University of North Carolina-Charlotte	Charlotte, NC	1993
21st	New Mexico State University	Las Cruces, NM	1994

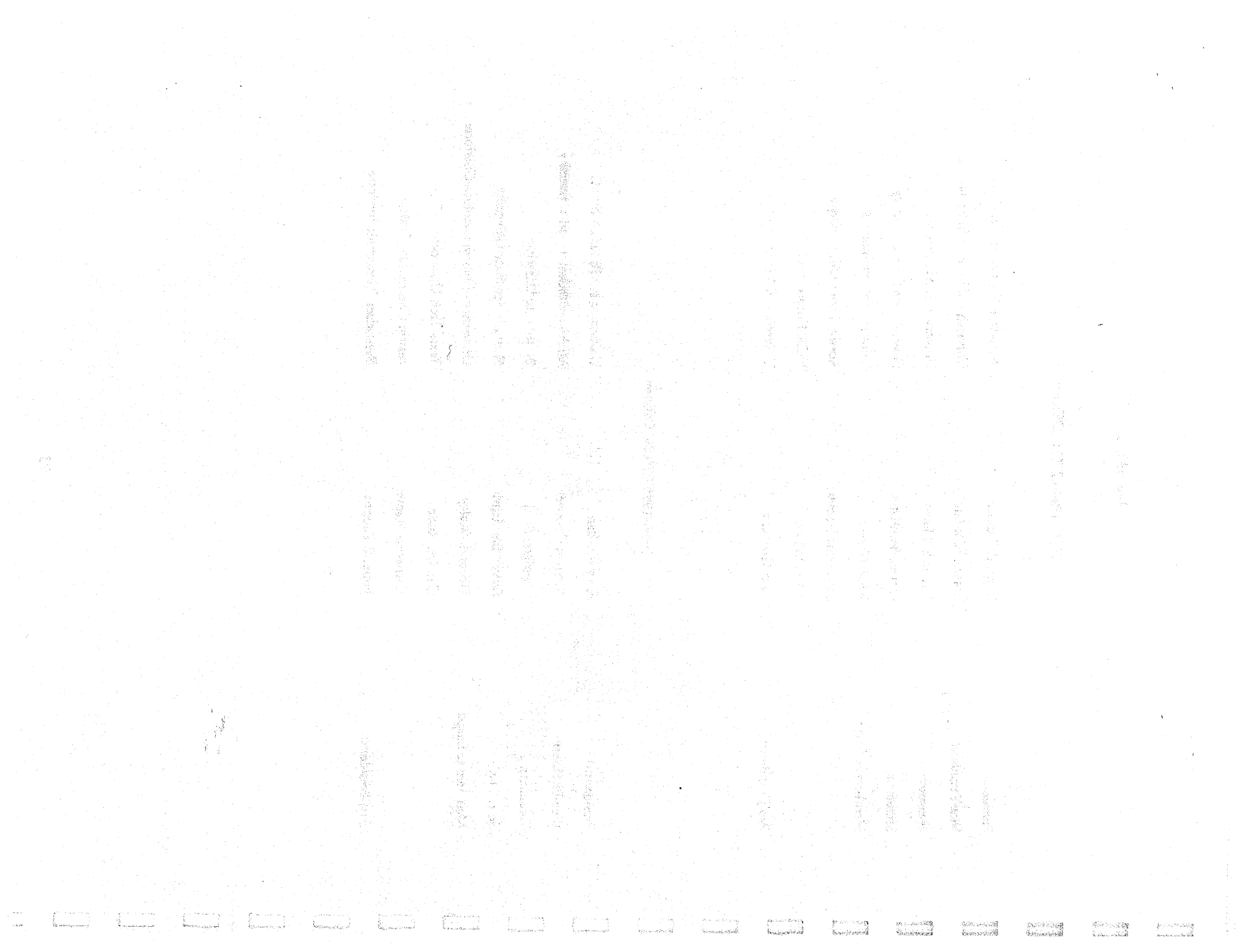
Appendix C

1993–1994 CPTSC Officers

President:	James P. Zappen	Rensselaer Polytechnic Institute
Vice-President:	Daniel Riordan	University of Wisconsin-Stout
Treasurer:	Laurie S. Hayes	University of Minnesota
Secretary:	Steven Bernhardt	New Mexico State University
Members at Large:	Mary Coney	University of Washington
	Katherine Staples	Austin Community College
	Chris Velotta	NCR Corporation
Past President:	Sam Geonetta	University of Cincinnati

1994–1995 CPTSC Officers

President:	Dan Riordan	University of Wisconsin-Stout
Vice-President:	Marilyn Cooper	Michigan Technological University
Treasurer:	Henrietta Shirk	Boise State University
Secretary:	Steven Bernhardt	New Mexico State University
Members at Large:	Deborah Bosley	University of North Carolina-Charlotte
	Carolyn Rude	Texas Tech University
	Katherine Staples	Austin Community College
Past President:	James P. Zappen	Rensselaer Polytechnic Institute



Appendix D

The Council for Programs in Technical and Scientific Communication

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The Constitution of the Council for Programs in Technical and Scientific Communication

(as amended by mail ballot Spring 1992)

Article I

Name: The name of the organization shall be the Council for Programs in Technical and Scientific Communication.

Article II

Purposes: The primary purposes of the organization shall be to (1) promote programs in technical and scientific communication, (2) promote research in technical and scientific communication, (3) develop opportunities for the exchange of ideas and information concerning programs, research, and career opportunities, (4) assist in the development and evaluation of new programs in technical and scientific communication, if requested, and (5) promote exchange of information between this organization and interested parties. Said organization is organized exclusively for educational purposes.

Article III

Membership: Membership shall be open to any individual or institution interested in supporting the purposes identified in Article II. Individuals or institutions whose primary responsibilities or functions are education shall be designated *Regular Voting Members.* Others shall be designated non-voting *Special Advisory Members.* Membership shall be open to any person without regard for race, age, sex, or religious affiliation.

Article IV

Officers: The officers of the organization shall be president, vice-president, secretary, and treasurer, each to be elected for a two-year term. The duties of the officers shall be:

President:

(1) preside at the annual meeting or special meetings of the organization.
(2) represent the organization at official functions.
(3) serve as the chairperson of the executive committee.
(4) designate others to perform duties.

Vice-President:

(1) perform all the duties of the president in the event of the president's absence.
(2) serve as managing editor of all publications.

Secretary:

(1) record all official minutes of all meetings.
(2) maintain an up-to-date membership list and mailing lists.
(3) oversee correspondence.

Treasurer:

(1) handle all financial matters of the organization including the receiving and recording of dues and payment and paying the bills of the organization.
(2) transmit current membership information to the secretary on a regular basis.

The president, vice-president, secretary and treasurer, plus the immediate past president and three members-at-large, elected by the membership, shall serve as the executive committee. The executive committee shall have the right to act on behalf of the organization at such

times as the organization is not meeting at the annual meeting or at special meetings, except to change the constitution or carry out elections.

Article V
Limits:

No part of the net earning of the organization shall inure to the benefit of, or be distributable to its members, trustees, officers, or other private persons, except that the organization shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the purposes set forth in Article II hereof. No substantial part of the activities of the organization shall be the carrying out of propaganda, or otherwise attempting to influence legislation, and the organization shall not participate in, or intervene in (including the publishing or distribution of statements) any political campaign on behalf of any candidate for public office. Notwithstanding any other provision of these articles, the organization shall not carry on any other activities not permitted to be carried on (a) by a corporation exempt from Federal income tax under section 501 (c) (3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States Internal Revenue Law) or (b) by a corporation, contributions to which are deductible under section 170 (e) (2) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States Internal Revenue Law).

Article VI
Meetings:

The organization shall convene an annual meeting. The location and approximate date of the annual meetings shall be determined by vote of members present and voting at an annual meeting. Special meetings of the organization may be held as needed and determined by the executive committee.

Article VII
Finances:

The dues of the organization shall be $20 per year for Regular Voting Members and $100 per year for non-voting Special Advisory Members. Memberships shall be based on a calender year, and dues shall be payable in January.

Article VIII
Elections:

(1) The election of officers and members-at-large to the executive committee shall be by written mail-in ballot. The ballot will have a list of candidates who are members presented by the nominating committee, and all nominations will have secured permission. There will be at least one candidate, but not more than three candidates, as well as provision for writing in at least one additional nominee for each position open.

(2) The Immediate Past President shall chair the nominating committee and shall appoint, in consultation with the executive committee, four additional members: one from the executive committee and three from general membership, and shall announce committee membership at the annual meeting preceding elections.

(3) The nominating committee will have a slate of officers and members-at-large mailed to the membership no later than 60 days prior to the annual meeting. Ballots must be returned no later than 15 days before the start of the annual meeting.

(4) Results of the election will be announced at the business meeting of the annual meeting.

Article IX
Constitutional Amendments:

Proposed amendments to the constitution must be in the hands of the members at least 60 days in advance of the annual business meeting at which the vote is to be taken. The constitution shall be amendable by a two-thirds vote of those present and voting and the ballots mailed in to the secretary or proxy ballots from members unable to attend the annual business meeting accepted up to the opening of the annual business meeting.

Article X
Dissolution:

Upon the dissolution of the organization, the executive committee shall, after paying or making provision for the payment of all the liabilities of the organization, dispose of all of the assets of the organization exclusively for the purposes of the organization in such manner, or to such organizations or organizations organized and operated exclusively for charitable, educational, religious, or scientific purpose as shall at the time qualify as an exempt organization or organizations under section 501 (c) (3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States Internal Revenue Law), as the executive committee shall determine. Any such assets not disposed of shall be disposed of by the Court of Common Pleas of the county in which the principal office of the corporation is then located, exclusively for such purposes or to such organization or organizations, as said Court shall determine, which are organized and operated exclusively for such purposes.

Article XI
Parliamentary Authority:

All official meetings, of the organization, shall be conducted according to the most current edition of the *Standard Code of Parliamentary* Procedure by Alice B. Sturgis. The presiding officer shall appoint a parliamentarian to advise the assembly as each annual meeting.