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ABSTRACT

        These proceedings are based on edited transcripts of
a meeting of representatives from the Society for Technical
Communication, the National Science Foundation, the Argonne Center
for Educational Affairs, 15 universities, and two community colleges,
9-11 April 1975. In panels and conferences, the participants
discussed fund raising, the relationship of the Society for Technical
Communication to academic technical communication programs,
communication theory, articulation between four-year and two-year
programs, student recruitment, and the role of speech in technical
communication programs. At the close of the meeting, the participants
decided to form an association devoted to the nurture and support of
technical communication programs. (Author/AA)

CONFERENCE OF REPRESENTATIVES OF TECHNICAL COMMUNICATION PROGRAMS

PROCEEDINGS

Edited by

Thomas E. Pearsall
University of Minnesota

April 9-11, 1975
Boston University
Boston, Massachusetts

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Thomas E. Pearsall

INTRODUCTION

On 9-11 April 1975, representatives from the Society for Technical Communication, the National Science Foundation, the Argonne Center for Educational Affairs, 15 universities, and 2 community colleges met at Boston University for an information exchange about college technical communication programs. This Boston meeting was an outgrowth of a 1974 meeting held at the University of Minnesota. At Boston, in panels and conferences, the participants discussed fund raising, STC's relationship to academic technical communication programs, communication theory, articulation between 4-year and 2-year programs, student recruitment, and the role of speech in technical communication programs.

Some of the contributions of the panelists became fairly lengthy contributions that were taped and subsequently transcribed. The transcriptions were sent to the panelists for editing. Some of the sense of immediacy and the pungency have been lost in the editing, but coherence has been gained. These edited transcripts form these proceedings.

At the close of the meeting the participants decided to form an association devoted to the nurture and support of technical communication programs. Dues ($10/year) were decided upon and officers elected: Thomas E. Pearsall, president; David G. Clark, secretary; and Bruce Linn, treasurer. A meeting was scheduled for 1976 at Colorado State University at Fort Collins, Colorado. That date has since been confirmed as 15-16 April.

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FUND RAISING

<u>Buchbinder</u>: I want to welcome you today on behalf of two organizations:
Boston University's School of Public Communication and the National Science
Foundation. While Boston University has made its meeting rooms and its
facilities available for our three-day meeting, it's the National Science
Foundation that made the meeting possible. As all of you know, those of
you who traveled more than 200 miles were given approximately 60% sub-
sidies to enable you to attend this meeting. The National Science Founda-
tion permitted me to budget up to $3,000 from our grant funds to make this
meeting possible. That's how we decided what the percentage subsidy could
be since we spread that budget around as fairly as possible under the guid-
ance of Tom Pearsall.

Now, why would the National Science Foundation be interested in making
it possible for a group of technical communicators heading undergraduate and
graduate programs to get together at Boston University? Let me explain. The
National Science Foundation has many programs under its aegis. Our NSF grant
deals with increasing the public's understanding of science. Their goal is
not to attempt to instill in the public attitudes or opinions about any
specific scientific or technological subject. Their goal is to increase the
public's knowledge of science and technology so that a better informed
public can make more sensible and rational decisions at community, city,
state and federal levels.

To what extent should technical communicators such as yourselves be
interested in these goals and to what extent could you possibly contribute?

These are decisions that you have to make for yourself. I would like to
take this opportunity to show you how we attempt to increase the public's
understanding of science while we also increase a student's ability to
function as a science communicator--with NSF support and without NSF
support. The techniques we use may be applicable in your geographic and
skill areas. But more than that, perhaps they may form the basis for other
ideas you may think of that will enable you:

  · to increase our effectiveness as teachers in our programs,

  · and to spark us to develop other conventional or unconventional

    sources of funds for our programs and our students.

All of you represent universities with well-developed programs in
technical communications. I haven't spoken to enough of you personally to
determine how many of you couple course assignments with outside projects;
some of you may be doing some of what I'm about to describe. Perhaps the
best way to start is to explain to you some of the things we do, then how
we tie in what we do with techniques for raising funds that can be con-
sidered unconventional, or different, from how universities usually raise
funds--but just as ethical.

Our Master's program in science journalism requires the student to
complete three semesters (48 credits) plus a non-credit summer internship.
In addition to the required and elective courses described in the brochure
I passed out to you, our Science Communication program periodically offers
special courses based on student interest. Also, during the second and
third semesters, students are required to have one-to two-day working intern-
ships for which they receive no credit. However, the work they do on their
internships can be counted as part of their "homework" assignments in some
of the courses. Starting with the second and third semester, students are

not permitted to write or to make films or videotapes, or broadcast tapes
for professors' files. They must write for publication or broadcast, or
plan and shoot a film for presentation to a well-defined audience. Of
course, some of you are now, I trust, beginning to get the idea of how we
get some funds.

As you know, most graduate programs at universities offer scholarships
and fellowships to graduate students; many departments fulfill their quotas
for graduate study because they do have funds or teaching assistantships.
We have no funds we can offer our graduate students. In that sense, those
who do come into our program come in knowing that they have to support
themselves as well as pay full tuition. We benefit because students who do
come into our program certainly do so because what we have to offer them is
what they really want to do. We never worry about the possibility of a
student entering our program because we have offered more scholarship or
fellowship assistance than another university. Because most of our students
do have a B.S. or M.S. in a hard science--biology, chemistry, physics, math,
engineering--we do spend significant time with each, assuring ourselves that
our kind of program is what they want. All of them could qualify for grad-
uate work in sciences and be eligible for financial support. We do indicate
that they can earn money but only by working as interns--and we never
guarantee internships.

Our educational program correlates a good portion of our course work
in class with these outside internships and as I discuss the various tech-
niques we use, you will be able to get a better picture of how internships
correlate with the course work.

Our writing programs include many aspects of reporting and editing for
newspapers and magazines. Our lectures cover tasks assigned to reporters--

writing staff columns, feature articles, book reviews--indeed, just about everything normally handled by journalists, front-to-back page on newspapers and cover-to-cover on magazines. To give students practical experience in writing for newspapers publication, we had to find out what editors want. So we conducted a survey of over 100 newspapers in New England. We tabulated their circulation area (the local towns they covered), their competing dailies and weeklies; the local industries, the local universities, research centers and hospitals; the topics of particular interest in science and technology in which they might be interested; the desired length of their news features or news articles; their use of photographs; their interest in book reviews; the types of articles they would prefer on topics such as energy, nuclear power plants, land conservation, solid waste disposal, food additives, transportation, marine ecology, air pollution, water pollution, population control. I can give you samples of the detailed questionnaire we submitted to them if any of you are interested in more specific details.

This analysis permitted students to select topics of interest to the newspapers, contact the editor and make specific arrangements to deliver what the editor wanted. In that sense, our students functioned as stringers for the newspapers.

Of course, students prefer paid assignments. Those paid for by newspapers are the lowest, averaging between $25.00 to $75.00 per assignment. Occasionally, a student gets as much as $150.00 to $200.00 for a feature article on a subject of high interest to the newspaper.

For example, the Boston Herald paid one of our students $150.00 for a feature article on acupuncture in their Sunday issue. The Christian Science

Monitor paid a student $50.00 a week for a monthly column on the environment
or ecology. Technical newspapers in the area, such as Minicomputer News and
Computer World paid much higher rates to have students do special "interview"
articles on the design or use of computers. Fees ranged as high as $500.00
per article plus expenses if they were sent out of town.

Engineering and technical magazines pay the highest fees. We are
fortunate to have a reasonable variety of technical and engineering magazines
published in the Boston area. But we found it possible to make arrangements
with magazines published all over the country to cover specific conferences
held in the Boston area. Again, our students either covered conferences held
in the Boston area, or undertook specific feature articles for the out-of-
state publications.

Our students have had articles published in Design News, Electromechanical
Design, Digital Design, Laboratory Management, Circuits Manufacturing, Clinical
Laboratory Products, Environment Magazine, and others. Honoraria for these
articles varied from $100.00 to $500.00 per article based on the length and
complexity of the subject. In addition, the publications were willing to
pick up travel expenses, hotel bills, and meals. Of course, the extent to
which a student is able to meet the needs of the newspapers and magazine
depends upon the instructional staff's professional ability to show the
student how.

Students in our audio-visual courses get practical experience by making
films, videotapes, and displays for museums, aquariums, and engineering
trade shows. For example, two students made a film on a new surgical tech-
nique for skin cancer. Another five made a 30-minute tape, The Light Fantastic,
that introduced the lay public to the applications of lasers in medicine,
communications, computers, navigation, holography and machine tools. The film

was aired on Channel 5 in Boston. Five students completed a film for GTE Sylvania explaining to management the benefits of utilizing computers in circuit design techniques. GTE Sylvania paid each of the five students $500.00 for the film and gave them another $2,500 for expenses, equipment and materials.

Some students chose to assist a scientist in the preparation of a paper for publication in a professional journal of the scientist's choice. We then required the scientist to reciprocate by helping the student prepare an article on the scientist's area of expertise for publication in newspapers or magazines read by the lay public. The aim was to increase the public's understanding of science: what scientists working in that area of expertise are doing, why they do it, and what's in it for all of us.

Normally, scientists do have grant funds that they can use to pay the students for assistance in publication. Most scientific and professional magazines will not re-edit or rewrite a scientist's paper. Some do send suggestions on what to do to make the paper acceptable. Usually, it's a matter of style or of presenting the material in a manner consistent with the journal's standards. And we teach the students how to handle such rejections.

Many public relations and advertising agencies call us for one shot project assignments. They usually need help with an assignment in aeronautics, or materials engineering, or pharmaceuticals or mechanics and have no technically trained individuals on their staff. Many of them need data sheets, catalogs, as well as feature articles on new technical developments. In these cases, we are able to extract our highest prices since the work not only requires the writing of the article but usually the know-how in

placing it in a magazine to give their clients maximum exposure to related markets of scientists and engineers. Since we also cover this topic in class, such projects are excellent practice as well as--again--serving as the base for an article for the public on the work of scientists or engineers at that particular company.

Up until now I have described techniques we utilize to enable the students to earn sufficient funds so that they are essentially "working their way through college." We also need to raise funds for the kinds of activities normally budgeted for by the university. We utilize two techniques:

1. We sponsor a Science in New England news service that distributes news stories and articles about science and technology to the daily newspapers throughout New England. We distribute Science in New England to newspapers without charge provided they credit Science in New England and give a byline to the student. We also cover special assignments on an exclusive basis for some newspapers. After a couple of years of operating this service on a free basis, we hope to market it and use the income to support the Science Communication program. We also hope to get government support since the NSF is interested in increasing the public's understanding of science. Because of the success and the acceptance we've had by the newspapers over the past year, we're hopeful that within a reasonable period of time 20 to 30 newspapers in the area will be willing to give us a monthly sum so that we can set up a non-profit news center. A $50.00 a month charge to about 20 or 30 newspapers should give us $1,000 to $1,500 a month of income--sufficient to run the service.

2. Perhaps the most successful mechanism for raising money in
large amounts quickly is the seminars we hold for scientists
and engineers. One seminar deals with "How to Write for
Publication." It is aimed directly at scientists and engineers
who need to know how to break into print or who have trouble
doing so. We have charged $75.00 in the past and are consider-
ing raising it to $125.00 for a rather long day. We start at
9:00 in the morning and finish at 11:00 at night. The program
I've passed out to you details the entire day.

Morning sessions are covered by four editors of national pub-
lications; they tell the attendees how to go about meeting the
requirements of the magazines in which they want to be published.
Attendees have lunch with the editor of their choice--all pre-
arranged during the pre-registration period. In the afternoon
they break up into groups headed by the editor of the publication
in which they have an interest. Publication editors represent
communications, computers, machine design, aeronautics, lasers
and engineering production. All editors donate their time since
they want papers from scientists and engineers submitted to them.

Again at dinner, the registrant chooses an editor's table and
in the evening they can again choose private sessions with other
editors if they came with a paper they want criticized.

The key to success in seminars of this type is the fact that
the advertising is usually donated by the publications willing to
send an editor for the day. Thus, the publicity costs us nothing
and guarantees attendees interested in that magazine or newspaper.
We normally restrict attendance to about 100 and at that level

have thrown off a profit of about $5,500 for the day. We have

run these conferences twice a year.

Thought these conferences are normally organized for local

scientists and engineers, we find that about 75% of the attendees

come from the eastern seaboard and 25% from the rest of the

country. Attendees come from Pacific coast states, as well as the

Midwest and the South. The three seminars we've run to date lead

me to believe that an organization such as one we are considering

forming could jointly sponsor local seminars at our universities

on "How to Write for Publication." Indeed, advertisements could

be a joint advertisement in which we list the schools and list

the dates on which the seminars would be held at your universities.

Since the advertising costs you nothing, you hold the conference

if you have enough attendees to guarantee you a profit; should

not enough registrants sign up at a particular university, the

conference could be cancelled with no loss to yourselves.

You need not use the editors from the local media in Boston,

although I'm sure some would be very happy to travel to your

universities. You can contact national publications headquartered

in your regional areas. I'd be very happy to discuss the details

on how to go about arranging for their cooperation.

Other types of seminars we've run that earn money for our

division involve holding technology assessment or state-of-the-art

seminars on engineering or technical subjects. Such conferences

could be tied in with engineering professors at your universities

or they could be held without their cooperation. Most magazine

editors are happy to consider sponsoring conferences on technical subjects at universities. Editors of these magazines will undertake the responsibility for organizing the speakers and covering the conference for publication in their magazines. Seminars can be for one to three days with the attendance charge based on the meeting length. We have run seminars on printed circuits, minicomputers, digital displays, servo-systems, and similar related engineering subjects. We have also cancelled several conferences when not enough registrants signed up. In most cases, of course, all you have lost is the time and energy you have put into preparing for the meeting--and that can be considerable. But that's the only risk you're taking. At the same time, it is an activity that can bring money into your program and give your students excellent experience.

I hope the projects I've described help you generate ideas for other projects we can run separately or sponsor jointly so that we can continue to meet yearly and help each other improve our programs and the quality of the students who pass through our universities.

Patterson: I might mention that it has been an interesting experience for me being in Washington. For example, I went to the Hill recently to sit in on appropriation hearings. And I wished that a choreographer had been there to make an arrangement of the "dance." Various people came to make their presentations, various Congressional committeemen raised their questions, the discussions went forward, sometimes backward, and occasionally sideways. It was an interesting study in the process of communication!

One quick question. Where are the women in technical communications? As I look out over this audience they seem conspicuously absent.

A. (from the audience) There are a great many women in the field. Sixty-five percent of my students are women.

As far as projects, I can offer just a few brief comments. (And please recognize that these are personal observations, based on short acquaintance with NSF policy and procedures.) It does seem clear, however, that fishing expeditions don't get very far. Agencies are looking for projects that are well conceived, well thought out, well planned. Ones where the investigator has a specific objective in mind, a project that they have designed rather carefully, and one where they know precisely what they want to do and how they intend to go about doing it. One other reminder. They would like to be sure that you're not re-inventing the wheel. That you do know the field, that you know where the project you're proposing fits with what has already been done, and what needs to be done, and that you are acquainted with what has already been done in the field, any previous related studies and the like. Perhaps another suggestion would be that NSF, and I think other agencies, are looking for original ideas. They are quite open to new ideas, new approaches, new techniques. Increasingly, too, we are hearing the word evaluation. They'd like to see some form of evaluation built into a project. You propose to spend "X" number of dollars. What will you have done by the time that money is spent? Some sort of built-in way of measuring results, some kind of monitoring process.

Public understanding of science is difficult to measure certainly. But they are interested in efforts to measure the degree of interest and concern about science and its activities, and I think they would be receptive

to receiving informal proposals that might relate to these matters. I
should point out, however, that at NSF all the money has already been
allocated for this year and so for any possibilities there you would be
looking beyond the present year. But it doesn't mean that they are not
interested in proposed new projects. They are, even in an informal way.
If your proposal doesn't fit their guidelines, they might possibly have
suggestions for you of other agencies or organizations with interests
in those areas.

Money is tight, which you may have suspected. They don't know how
much money is going to be available in next year's budget. The Public
Understanding of Science budget is probably going to be slimmer than
last year's.

I can give you some idea of the kinds of projects they have funded in
the past. A number of symposia, e.g., which have brought together editors
and scientists to examine communications problems of mutual concern. They
have funded a number of museum projects, each a bit different in purpose
and approach, and a variety of exhibits, also. They have funded a number
of film projects, including the "Nova" series that you are familiar with,
and a few small projects relating to communications research have received
limited support. I think these examples will suggest to you the nature
of the projects that have received funding over the past year or so.
There is a concern with opening up communications between the scientific
community and the general public to enhance understanding and the projects
they select seem to offer the best hope for doing just that.

Robert F. Ellis
M.L. White
Richard E. Wiegand

THE ROLE OF THE SOCIETY FOR TECHNICAL COMMUNICATION

Ellis: Since most of you are aquainted with STC this will be very brief. The Society for Technical Communication is an organization of approximately 3200 members at this point. It is an international organization; we have 50 chapters in the U.S. and Canada, and some members at large in various foreign countries. Basically our membership consists of technical editors, technical writers, technical illustrators, and graphic specialists, publications managers, and educators. Our people come from industry, government, and the academic world. We operate through a Washington headquarters manned by two people. And administratively, we have a Board of Directors and some 50 operating committees.

We publish a quarterly journal, Technical Communication; we publish a bi-monthly newsletter for members, Intercom. They are developing a rather extensive publications program which I think we'll probably get into further into the discussion.

We have a number of professional programs that relate directly to this meeting, specifically those involving education and development. We have the publications program that I have mentioned, activities in intersociety liasion, and a standards council which formulates and publishes standards for the industry. Our major activity, of course, leads to an annual conference. This year our 22nd annual conference will be held at Annaheim, at the Disneyland Hotel next month. Other areas that I think touch directly on this meeting are an annual competition that the Society holds in publications and also in technical arts.

White: My topic is the matter of relationship between a group of this kind and the Society for Technical Communication. I thought to get the discussion started

it might be worthwhile to talk about some of the activities and potentials
for activities that may have some relevance to a group of people involved
in academic programs.

The first area would be the recruitment of students. I think the
Society is involved in a number of things that generally are aimed at per-
suading young people that the field of Technical Communication would make a
good career for them. STC has published a little booklet called College
Majors in Technical Communication. There is a fair amount of demand for
this from people around the country, demands registered largely at the
Washington office. This gets sent out, but the difficulty with the publica-
tion is that the number of programs developing is increasing rapidly.
Identifying them over the nation is difficult so that although the current
booklet is not quite 3 years old, it is woefully out of date in terms of
new programs. But it is something the Society is doing as a means of
encouraging and identifying programs.

The Society has also published a little brochure, Is Technical Writing
Your Career? which is made available to Chapters, 50 of them nation wide.
It also gets mailed out in reply to inquires made at the Washington office.
It is a general brochure discussing what careers in Technical Communication,
particularly Technical Writing might be like. And we have made an effort in
this brochure to list the programs we are aware of. This is the kind of thing
that I would imagine you might use in advertising your own programs. There
is also a brochure on technical illustration as a career put out by STC.
Identifying programs in technical illustration is extremely difficult, and I
do not believe that this brochure actually identifies any such programs.

Another area that the Society has gotten is to encourage local chapters
to participate in activities directed at encouraging young people to enter
the career of Technical Communication. The number of chapters that enter into

these activities is far from uniform, but there are chapters who are involved
in taking part in high school and community college career days, again trying
to encourage students to look to Technical Communication as a career. I
would suspect that if your own program is located where there are one or more
chapters you might very well, as a matter of fact, try this kind of activity.

Another activity some chapters of the Society undertake is promoting
science writing contests. This is a means, of course, of interesting high
school students, particularly, in the field.

I'm not sure whether this next comes under recruiting of students or not,
but the Society has just completed its 4th annual scholarship awards program.
I suspect everyone here, or most of you have, I hope, encountered some mailing
from the STC concerning the program. Its a very modest one; the Society
would hope that it could become less modest in the future. But we are for the
3rd time this year awarding two five-hundred dollar scholarships for upper
division students or graduate students who will be next year regularly enrolled
in a Technical Communication program.

There are some other areas in which the Society is involved where perhaps
the chapters might very well be a help. This group was at its last meeting in
Minnesota interested, for example, in practical work internships. Working
with local STC chapters, members of this group might find an increased number
of outlets for students who want work experience. I know that when Jim Souther
and I started what is now a very modest little Technical Communication program
at our University just this year, we talked to our local chapter about it.
We haven't seen much in terms of recruiting students, but we have been
pleasantly suprised by the cooperation of some organizations and members of
the chapter in terms of work experience opportunities and a number of other
things related to that.

Employment of students is an area in which the Society could give us some help, again on a chapter or regional level. Some chapters or collection of chapters in a region have gotten themselves involved in listing employment opportunities, primarily for their own members. Its possible, I would think, that through contact with chapters or with regional organizations opening up employment horizons for our students might very well be possible.

The 50 international chapters of STC could provide certain data gathering opportunities. Dick Wiegand will discuss this point. Potentially, I think, in the Society there is a great deal of interest in the development of Technical Communication programs. Many members of the Society are eager to see more programs of the kind represented here developed. Actually the committee of which I am chairman, and more directly the sub-committee of that committee, of which Tom Pearsall is chairman, has been involved in trying to identify and locate programs. As a matter of fact, I suspect one of the major reasons for the meeting this morning is actually work done under the auspices of the Society by Tom. What we have been looking towards is some kind of proposal for a grant in order to study in depth the kinds of programs represented here--to do so not with just academic personal, but with members of the profession. And perhaps out of such a indepth study we could come up with some suggested models for programs similar to ours which then could be made available out of the national office to the large number of persons who inquire weekly in that office. How do you teach a course in Technical Comm- unication to engineers and scientists who are not perhaps so interested in that; but also how do you put together a program of this kind. Inquiries come in frequently and there would be some way in which to reasonably answer an inquiry as a result of an indepth study of this kind.

I would like to close with the note that Tom Pearsall suggested in intro- ducing the topic itself. The kind of role STC can, would, or should play in

relationship to a group of this kind will depend, of course, on the kind

of role this group wishes to play in relationship to STC.

Wiegand: We have several problems in industry when it comes to hiring
technical communicators. We must first define to prospective technical
communicators just what technical communication is. Next, we must train
the person to do the job by filling in gaps in the person's training and
experience. Finally, we must create and maintain a professional climate
to sustain productivity, decrease turnover, and maintain interest in
the field.

Let me give you a picture of one neophyte technical writer in his
first job in industry. Armed with a journalism degree from the Uni-
versity of Illinois (there is one course in technical writing at the
Champaign campus, but I didn't take it) and technical training in the
United States Air Force, I applied for a job advertised in the news-
paper as a "technical writer."

When I first talked to the people at Sundstrand, I tried to find
out just what is a "technical writer." After they gave me a definition
(writing maintenance instructions in support of hardware produced by
Sundstrand), I thought the job sounded interesting. They hired me,
and here I am today!

The first day I came to work, I was handed a pad of paper, a pencil,
a set of blueprints, and a dictionary, and was then told, "Here are your
resource materials--now write a technical manual." Since I really didn't
know what to do, I stumbled around and asked questions I thought were
"stupid." I did get my questions answered, and ended up somewhere on
the "road to success" as a technical writer.

So what am I saying? In essence, what many new technical writers
feel in their first jobs but may not be saying--inadequate training

prior to job entry causes many frustrations to employees as well as employers. Schools are failing to offer adequate training for such jobs, and industry often doesn't have the time, money, or expertise to implement an adequate training program.

After a few months on the job, I started talking to my superiors. I said we should start looking at training as a viable solution to problems of low productivity, turnover, and job dissatisfaction from some of our technical writers.

I said to myself, let's see if we can't zero in on our specific needs for technical writing at Sundstrand. The first thing I had to do was ask, just what specifically does a technical writer have to do? In our Technical Publications Department he has to write technical manuals, from start to finish, as a complete task: manager of a communication project, if you will.

There are other activities within the Communication Services Department that expand our scope of technical communication activities. Perhaps a brief explanation of our structure is in order.

I am in the Technical Publications Department, one of the three main sections in the Communication Services Department. My boss is the manager of our department, reporting to the manager of Communication Services. Other than Technical Publications, there is a Communication Design Department that creates technical advertising, public relations, trade exhibits, and so forth. We have complete production facilities in the Communication Production Department. We also have a group that prepares our product proposals.

A technical writer, as the name implies, works in the Technical Publications Department. But a communication designer works in the Communication Design Department. (Printers, photographers, plate-makers, binders, etc., Communication Production.) But titles and/or job classifications can be misnomers. All of these people are technical communicators. They just work in different media.

Overlaps? Certainly we have an overlap in these technical communication areas. When a task comes up that requires different expertise, we pull together a team of persons representing each major department in Communication Services to best complete the task.

The training program I designed was catered to meet our needs by combining textbook training with "on-the-job" instruction. I will not give you a full report on our training program, since I will be presenting our program in a paper at the 22nd International Technical Communications Conference at Anaheim this year. (I have some copies with me today, should you want one.) I thoroughly believe, however, that this is the first of its kind in the country (at least the first program of its kind set to paper).

We have yet to have a person who has graduated from a technical communication program apply at Sundstrand for a job. We do, however, have a wide variety of persons right out of a four-year or graduate program who come in and say "I want to be a technical writer--I don't know what the job is, but I want to do it!" So, we have a number of applicants with widely diverse backgrounds who apply.

Many applicants come from journalism curricula--they can't find jobs on newspapers, magazines, or in public relations activities. But they also come from elementary education, psychology, philosophy-- some even have Ph.D.s. Aside from an argument that these persons are over-educated for this job, we don't know how we can use any of these persons since they haven't the foggiest notion of what technical writing is. The training program we've established helps bridge this gap to provide capable workers for our technical writing tasks.

I feel that Sundstrand is not atypical in hiring problems when seeking competent technical writers. I feel the Society for Technical Communication (STC) and its membership can help your group in establishing a proper and adequate academic program to prepare technical communicators for jobs that exist (not in the imagination, but really exist) in industry.

A cross section of people that are members of STC in both education and industry (managers and professionals alike) could provide input to your group. My proposal to STC to accomplish this will also be presented at Anaheim this year. These are the inputs I think we should be seeking:

1. What kind of experience and training do technical communication managers seek in a person applying for a technical communication position?

2. What do professionals think about their education and training, and what would they recommend for aspiring technical communicators who are planning their academic careers?

3. Data on the future of the field--jobs, salaries, promotions,

   etc.

The mechanism of data gathering included in my proposal is to

have each STC chapter establish an education committee. Within that

committee, the goal would be to gather inputs from their chapter

membership. When all the data are collected, the STC National Edu-

cation Committee would collate data and prepare a curriculum. This

may be similar to the curricula you now have, or it may be significantly

different.

It seems to me that colleges and universities could offer technical

communication courses in addition to existing curricula with little

adaptations. And this certainly should have some effect on filling

jobs with qualified people in industry.

For example, the word I have from editors, publishers, and other

media people is that journalism majors are having problems finding

jobs. Perhaps schools that teach journalism, radio television, ad-

vertising, and public relations could offer an option in technical

communication so that students can get jobs. Some of your schools

have catered programs for these jobs, but we in industry are not getting

enough products from them. So, what we have to do is either lead neo-

phyte technical writers blindly, or develop training programs such as

ours at Sundstrand.

It is costly to bring someone in and put him through a training

program. We'd like very much to see a person walk in off the street

and say, "I'm a technical communication graduate." I think we'd just

fall all over ourselves because we've never seen this person.

The basic skills of technical writing and communication that we try to cover in our training program are basic, yes, but they zero in on the more specific training needed in our industry. This training is much more specific than a person could receive in a technical communication curriculum. But, schools should be able to provide more training in the skills of basic technical communication that can be adapted in companies like Sundstrand, American Can, Boeing, Textron, and others. I'm not opting out of training as a part of a person's adaptation to any new job. What I'm calling for is to let us in industry do just that. By catering academic training and on-the-job training to the realities of technical communication, I think two elements are enhanced that have plagued publications managers for years--increasing productivity and decreasing turnover.

We have lost a lot of people because a person doesn't really know what he's getting himself into, and becomes frustrated because he feels he is not a part of the profession of technical communication. They work at a job for some time, then move on to something else. If a person isn't motivated to do a good job, he probably won't. And he'll probably go somewhere else for some other kind of job. We want our writers to be motivated and to be productive; but without the tools, frustration sets in and problems arise.

In addition to our training program, I've also been given the green light from our management to set up a training group--a pool of technical communicators that are trained on-the-job to perform the

various technical communication tasks of our Communication Services

Department. Then, when openings arise in the various groups, a person

would transfer to that group, knowing that he has the tools to per-

form the job effectively. The supervisor is also happier since he

knows someone has been adequately trained.

An aspect of getting people into these jobs is to tell them about

what jobs a technical communicator is likely to perform. Recruiting,

then, becomes a necessity. We have done a little recruiting of our

own in Rockford. We have talked some to high school counselors and

students to give both an idea of what we do and why a student should

choose a career in technical communication--if nothing more, the

students learn that there are jobs for them if they are properly

trained.

We try to explain what a technical communicator is. We offer

tours of our plant, and particularly of our Communication Services

Department, to any organization. We would certainly like to see more

participation from high school groups.

Rockford industry, in cooperation with the area high schools, also

offer a Careers Day. We invite all high schools within a 100-mile

radius to come to Sundstrand and other industries to see what jobs

are in these various companies: engineering, marketing, contract ad-

ministration, and technical communication, to name a few. We hope to

instill a spark in some students to want to make this field a career.

One of the problems our Communication Services Department has is

informing the public just what Sundstrand is doing. Sundstrand is

the largest employer in the city of Rockford, whose metropolitan area comprises 200,000 people. The company has the reputation of being one of the foremost "military industrial complexes" (to coin an old phrase) in the area. What we try to do is not so much change the impression, but give a more realistic representation of what Sundstrand is and what it does. So we have the job of informing the public--public relations, if you will.

As far as cutbacks, I consider them a means of "getting rid of the chaff." True, some technical communication jobs are in overhead positions (not directly attributable to sales of hardware). But, people who are dedicated to their work, that are not "freeloading" can always expect to have a job.

We have the capability to serve not only our division and our corporation, but also to serve our community and really the whole part of northern Illinois. When divisional and corporate workloads go down, we go out and get business from other industries that either don't have the size group we have, or the expertise. As a result, in 1968, while other aerospace industries suffered 15 to 20% layoffs in their technical communication areas, we didn't lose a person in Technical Publications.

There is a definite need for these people. We'd certainly like to see one of your graduates knocking at our door!

Further comments by Wiegand:

The first thing we do when we make an assignment is to define very carefully who the reader is. We find out as much as we can about the

reader or user of our technical data--and not just that he is a
mechanic and works in a shop, but what kind of mechanic he is
(experience level); what kind of shop he is working in (tools and
machines he has available); and if he is involved in training others
in his skill by using our manuals.

All of the techniques of journalism are applicable in technical
writing: interviewing, research analysis, writing reports, verifying
data, observing equipment function, observing hardware in the field.
All of the elements of good journalism and communication are used.

We try to instill in our writers not only the application of
writing skills, but also understanding the thought process--the
ability to search out problems and ask questions. Before, emphasis
was only placed on writing skills (rhetoric and other methods, if you
will) in tackling a communication problem.

In our department, we ask groups within our company (engineering,
manufacturing, quality control, field service, product support, etc.)
to review the material for technical accuracy. But, when an engineer
says to take something out or to change something, we don't make the
change just because he says to. We weigh the comments and present the
material as we feel most effective for the audience--and we let them
make decisions about technical accuracy.

Another thing we've been able to do at Sundstrand, and in most
cases industry as a whole, is to upgrade technical communicators in
terms of salary and respect with scientists and engineers. It's been
a long battle, but we're getting salary levels where they should be.

But that demands quality. Once quality is there, respect will follow.
Therefore, we have a commitment from our management that says the
technical communicator is important to the company and is worthwhile
to the company's existence.

Surveys have been made and people have expressed strong comments
on both sides of the question, do you hire a technical person and teach
him to write, or do you hire someone who can write and train him in
the technology? I say we should have both, because that's what we
now have. It certainly would be nice to have a person trained in the
basics of both at school. Then we train the person specifically in
our tasks.

Jerome L. Nelson
Jan Robbins

COMMUNICATION THEORY AND TECHNICAL COMMUNICATION

Robbins: The habitual way of dealing with communication theory, research

data, and research methods in technical communication programs and technical

journalism, as well as in journalism schools and in a good many other areas,

is to establish a course or two, or three or four, in communication theory

and add it to other courses in writing, graphics and so forth. Then we

automatically assume that transfer of learning takes place from one course

to another. The fact is that this transfer doesn't occur. Part of this

panel discussion is to find an answer to the question: "How do we establish

an appropriate transfer of learning from the theory/research/data level to

the practical field.

We confront the problem at RPI because we have both Master's students

and PhD students in the same courses. Up to the present, we have not been

able to separate these two groups; and they are two entirely different

groups. The PhD students are primarily theory/research oriented and the

Master's students are mostly professionally oriented. It's been fairly

clear that some exposure to communication theory and research data has been

beneficial to the students interested in practical communications problems;

whatever use they have made of it, they have made largely on their own and

not by planning on our part.

Let me be more explicit about what I mean by communication theory.

Rather than give you a definition right off the bat, let me try to break the

problem up into three separate components. There is a level of theory and

research, the primary purpose of which is to explain how communication takes

place. This involves not only the development of theory itself, but also

the ability to predict that what we thought was going to occur is going to

occur, and then to find out if it does. How do we know public understanding

of science is being improved? Certainly not just because we're putting out

messages.

Secondly, theory and research are involved in describing what in fact

does happen, a good deal of which we don't know. There's a huge body of

undigested research data available, most of which we deal with in one way

or another in communication theory courses. Some of it we deal with ade-

quately in professional courses, but most we don't.

And at a third level there is the whole issue of methods of data

collection--how to do research. Most of these methods have been designed

primarily by physiologists, psycholigists, and people of that sort, with the

validation and reliability criteria, methodological assumptions, and so forth,

that are typical of these sciences. These tools are quite useful in trying

to establish what a message has or has not done for an appropriate audience,

and, in fact, what the characteristics of that audience are in the first

place. But the tools are not designed to be sufficiently efficient in

practical situations. Experimental design has been done primarily for people

doing experiments in very carefully controlled academic laboratories. With

slight modifications of assumptions of various kinds it is possible to

design relatively easy, inexpensive, simplified, virtually experimenter-

proof research methods that could be used, again relatively inexpensively

and quickly, for pre-testing and post-testing documents.

These are the three separate issues that, to my mind, arise under the

heading of communication theory. If we go one step farther and take just

the word "theory," I've already given you a brief notion of what I mean

by it. The attempt to explain certain phenomena such as information exchange, dissonance reduction, information seeking, and so forth. I really have doubts myself that the sheer exposition of theoretical explanation, however well verified the theory may be, is of terribly great use to the technical communicator. But there is some substantial evidence to indicate that the implications of certain kinds of theories related to communication have immense practical importance.

Let me give you just one example. You're all familiar, I'm sure, with the traditional readability formulas. Most of them were developed during World War II or shortly thereafter, and most of them have not been significantly modified since. They all deal with what in current linguistic theory would be called surface characteristics of sentences. In particular, they deal with such things as word counts, syllable counts and so forth. I don't know if you're aware of test data on readability formula, but they fall down rather drastically. They are of relatively little use in establishing the real readability of documents.

We now have something called the theory of generative transformational grammer. It provides a much deeper understanding of the structure of sentences. It has been used in numerous linguistic studies, not precisely yet to develop thoroughly elaborated readability formulas, but, that's in the works now in a number of places. But it has been used to point to such things as the fact that there are certain kinds of long sentences that are considerably easier to understand than short ones. If the sentence is short because it has many deletions in it, it is very hard to understand. My point is that you only find these things out when a theory exists that allows you to predict what you think is going to happen and what concepts are vital to this prediction. That you will hit on the right way of producing a read-

ability formula, or evaluating readability is virtually zero until you

have a theoretical explanation that will let you choose the right way.

These are some of the kinds of things that I see as potentially important,

but my trouble is in trying to teach a mixed bag of students, and doing

essentially two things at the same time: dealing with purely research data,

research methods and so forth for people who are going to go on in theory,

gather research data and use research methods on one hand, and at the same

time helping the professional communicator. I'm not sure how to bring these

two goals together.

Comment: Could you give us a kind of classical application of communication

theory?

Another comment: May I make a suggestion here. Let's talk about that segment

of theory that has to do with organizational patterns of communication.

Robbins: Do you mean communication networks? That aspect of communication

theory turns out to be important in a lot of ways. It might be of direct

interest for your students. Two things go on in groups--accomplishment of

tasks and the maintenance of emotional and social rapport. Compare the

totally open communication patterns, when everyone has equal channel access

to every other, strictly hiearchical communication patterns where messages

go from one person to two below to X number below them and to strictly

authoritarian communication patterns, one communicator going directly to

everybody down the line, with very limited interaction among group members.

Well, studies of such networks indicate that communication channel avail-

ability has a rather large impact on the success of task performance, the

success of maintenance of social rapport, and the time it takes to accomplish

either of those. Now those studies along are of primary interest within

organizational settings such as research teams. But if we generalize a

little bit we go into the area which is now called information science.

Information science is a much better term. More research has been done on

audience information use behavior there than any other place and yet it is

hard to find someone in technical communication who has been into that

literature. For example, there is a publication called The Annual Review

of Information Science and Technology. Like all annual reviews it has large

sections that review research literature on selected topics so that you can

get a nice neat summary of findings without going back and reading through

all the details of the studies. In almost every issue of that review there

is a substantial chunk, usually 80 to 100 pages, called "assessing audience

information needs and wants," 95% of which is directed towards assessing

needs and wants in engineering and science applications. Those studies allow

you, for instance, to make a number of interesting generalizations, most of

which don't come to mind at the moment. But I can tell you what they are

about, in any case. Some concern the information seeking patterns of

people in research teams or research and development teams, as opposed to

implementation teams. Some deal with individuals working alone in the

laboratory, as opposed to people working on group projects. Some deal with

people working in hiearchically structured research laboratories as opposed

to people working in so called democratic research structures. The infor-

mation seeking and use patterns differ substantially in these settings, but

differ predictably according to easily measured demographic and psychological

characteristics of people.

Jerry Nelson: There are fads in communication theory too, like everywhere

else. One is the concentration on attention to what audiences attend to.

I think that the consensus now would be that this is no longer particularly

interesting or important. Predispositional theory played a rather large

role in this. And there are some favorite hypotheses of 10 to 25 years

ago, such as the selection hypotheses. One of the things that we found is

that you can back away from the positions that were held before, for ex-

ample, trying to predict people's attention to specific messages.

Lets take a Black person's reaction to the program "Julia," of 2 or 3

years ago, in which Diahann Carroll played the role of a Black Doris Day.

You could go out and talk to Blacks and ask what they thought of it, and

almost to a person they said they resented it, and it was an unrealistic

portrayal of a Black person in society. O.K, well if we looked at that

response we would predict that they wouldn't watch the program. This

just wasn't the case; they watched it. So some other variable in a matrix

of variables was overriding that one. It turned out to be race. That's

common sense too. Incidentally this is something that I think we said,

and that is a lot of what we do: we verify common sense.

Some other things, however, are not so obvious. Let's take programmed

instruction. There is a way of preparing a message such that you can, with

virtual certainty, assure that the person who receives the message will

understand it. Now one of the ways you do this is by trial and error.

Lots of us have done that. If you break the message down, however, and

deliver it to the student and force him to read the article, to interact

with the message, you can build the odds that he will comprehend it. Now

in "comprehend," what do I mean? What I mean is that he could pass a test,

I suppose. Are you prepared to find out whether he did in fact comprehend

it? The test could be, does he do what you expect him to do? When you ask

him if he knew the date of the Battle of Hastings, did he in fact know the

date of the Battle of Hastings?

Robbins: Jerry, let me make one comment about that. There is a non-obvious implication in what Jerry is saying. The idea is, given what Jerry has said, that if you break a message down into pieces of various small chunks, to each of which a response of some sort is made--an overt response, maybe a verbal or written response--that this will automatically increase learning. There are two non-obvious outcomes I'd like to articulate. One is, it turns out that if you break the message down too far, and by too far I don't really mean very far, comprehension falls apart. Longer chunks can be responded to with higher accuracy rates and longer term learning than short ones that you see in most exisitng programmed texts. And, I'm saying this with some confidence, most of the existing programmed texts you see are not as efficient as they could be, based on knowledge that we now possess.

The other non-obvious implication here is that you ought to be able to keep adding short messages in a document so that the whole document shows high comprehension. It turns out that if the document takes longer than an hour to do, retention rates begin to fall off. So small packaging of documents is much more effective in learning and retention than large packaging of documents. At least one company that I'm familiar with on a consulting basis learned this much to its dissatisfaction. The company produced a 500-page programmed text and found that it was absolutely useless.

Comment: If we could digress for a moment and talk about the lecture system. One of the things that we tell our students is to avoid, if at all possible, the question lead, particularly if the reader can answer yes or no to it. Bell labs did some research, again in the attempt to get the

audience to interact with the message. They just plugged a few questions into text. Not questions that required an answer, as is done in programmed instruction where we tell the students if they're right or wrong, but just imbedded questions in the message that alluded to the material that the person had encountered in the pages or paragraphs preceeding. Then they ran a test of comprehension. This was obviously a control message with thought questions and a test message. On a specific point about which questions were raised, the test responses improved about 40%. That's pretty good! On the whole package of information they got about 25% improvement. So there is something going on here.

What would happen in your science news stories, or in material that was included in science text publications, if you could begin to imbed questions to make sure that your readers understand what you told them? Does this have any applicability? These are some things that we're trying to do.

Nelson: I have one other example that I might bring up. We were talking a moment ago about the current vogue in linguistics of generative transformational linguistic theory. Let me tie two things together, that one and the old so-called information theory which I think most of you are probably familar with.

We teach journalism students and a good many other writers to use low redundancy in the information theoretic sense. Efficient code, O.K.? Even information theorist's cantell you that an efficient code is terribly inefficient in the presense of any kind of noise. To tie this back to linguistic theory, many of the studies going on in psycho-linguistics are studies of just how much noise of what kinds influence messages in what

ways. It turns out that in certain kinds of situations you can actually reduce the information content of a message by about 50% and still get the point across. But it also turns out that some kinds of redundancy are highly positive, and some kinds aren't. It's possible to build a general theory of redundancy, for instance, and this is being done, which allows you to predict ahead of time the kinds of redundancy in expressions that need to be built in, in situations where you can anticipate certain kinds of psychological or physical noise.

Russell Briggs
Thomas L. Warren
John F. White

TECHNICAL COMMUNICATION AND THE COMMUNITY COLLEGE

White: Thank you for the opportunity to offer some observations on

the status of Technical Communication study in the two-year or com-

munity college. I would like to offer some conjectural statements

on the future of such endeavors, and bring some word on the problems

and issues that attend the development of technical communication

programs in the community college. But before I begin to offer any

judgments I think it is necessary (given the predominant representation

of four-year and graduate institutions at this meeting) to provide a

capsule look at the major characteristics (mission, student population

served, faculty typology, etc.) of a community college.

I represent a college that professes to be "comprehensive" in its

mission to provide educational services to a population of 600,000.

Our current enrollments surpass 20,000 students, and we project growth

(ground is about to be broken for our branch campus) for the next 10

years. Educational programs are offered for those students in "transfer"

sequences, i.e., bound for senior or receiving institutions, and for

"career" sequences, i.e., electing any of 45 one-year or two-year terminal

programs. These latter options are often referred to as vocational-

technical programs, but this classification no longer does justice to

the growing academic character of the programs.

Technical Communication in a community college means many things,

some familiar, some unfamiliar to 4-year college/university representatives.

An examination of a number of basic areas might cast more light, so I

offer consideration of a number of basics.

First, What are the courses? And who teaches them? Courses in
Technical Communication in Community Colleges tend to be limited to the
two standard and traditional items-- Report Writing and Business Writing.
These courses typically provide a service basis to a wealth of programs
in the Engineering, Science, Health Sciences, and Business areas. They
are often offered as alternative steps or tracks to the usual Freshman
English sequence. The more "advanced" community colleges have taken
this core or base a bit further, and have added component courses to
help form out a technical communication program, and such courses as
Scientific Writing, Graphics Communication, Publications Management,
etc., may well exist.

What about the faculty? Any examination of the English faculty
(Business faculty at many 2-year institutions) is sure to be interesting.
Those who hold tenured positions come from a variety of professional
teaching experience backgrounds--elementary, junior and high school
teaching, junior and community college experience, and senior college
experience. In addition, many recent additions to community college
English staffs have arrived fresh from graduate assistantship experience.
All of this mix spells out not so much a diversity of approach as it
does a standard or traditional English teaching viewpoint. This factor
is important when one considers that the teaching assignment for report
and business writing classes necessarily depend on faculty who teach
basic composition classes--and usually in a traditional manner. As a
division chairman of a large number of academic departments, I am

concerned with providing the best staffing available for the individual
courses we offer. I share some of these problems with you, perhaps,
in the way in which technical writing courses are staffed, and in the
manner or style in which instruction develops. Even in the community
college, there is a tendency to give "status" to the literature course,
and to deem the bread and butter composition courses as an often burden-
some and necessary chore. It is often a difficult task in staff develop-
ment to get traditional faculty, trained in a philosophical/literary
sphere, to concede that the teaching of technical writing or business
writing (most faculty still refer to it as business _letter_ writing) has
any merit or status.

So my assessment of the faculty called upon to teach technical
writing in the community college is that (with a few exceptions) they
are "traditional" composition teachers "made over" with a new assignment.
Perhaps, and not to lose sight of the purpose of this meeting, the com-
bined efforts of the Society for Technical Communication could give
attention to the need for faculty development and professional guidance
in this area--namely the preparation of technical and business com-
munications teachers.

Second, what are the features of a career (either one-year or two-
year terminal) program? How can they be developed? A career program
(the parlance owes to the abiding emphasis on the employment realities
for community college programs) is one which may be one-year or two-
years in length and one which combines educational and training
experiences with an aim toward actual employment upon completion. Such

programs don't simply "appear," but are carefully planned by college

and community personnel. A local advisory committee of working pro-

fessionals must be able to identify manpower needs in the projected

service area for a five to ten year period before any program can be

inaugurated. In the case of technical communication at our institution,

we discovered large support from a number of large corporations in the

200 square mile district, but found trouble in gaining final state

agency approval. In the end, the program was re-titled Technical

Reporting and consisted of three course alternatives for a one-year

program. Our plans for a two-year degree program must necessarily

wait upon an initial year of program success. Typically, community

college students enrolling in technical writing or business writing

courses are doing so because they are compiling "English" credits for

any of a great number of career or job-oriented programs. The career

program in technical communication envisioned at Harper College will

build upon the well-established "service" idea, but extends it from

other departments within the college to the community at large. Indeed,

one of the unique features of Harper's program will be the projected

target learning audience. We will be developing a program for people

already possessing four-year degrees, but who desire to upgrade their

professional potential in their current employment. They are engineers,

scientists, and technical personnel in general, and will be (we con-

ceive) markedly different from those students between 20 and 28 in

age. This particular move on our part, i.e. to develop a non-baccalaureate

degree which is neither upper-division nor lower-division in the usual

sense, opens still another view of the community college--that of pro-

viding mid-career improvement possibilities for area professionals.

In plain words, our action stymies many senior college personnel who

fail to understand the community college (they continue to use the

term "junior" college) as anything but an institution which provides

freshman and sophomore courses for those students hoping to ransfer

to senior colleges and universities. Community colleges (per se) lay

heavy stress on the value of the externship experience in career pro-

grams. For example, if a student is enrolled in a career program,

there is a requirement for on-the-job experience, whether the course

is practical nursing, air conditioning and heating, or criminal

justice study. In technical communication we look with high hope to

the neighboring corporations which have volunteered assistance in

externship experiences.

The development of a technical communication program usually falls

to interested faculty and administrators and occasionally to local ad-

visory personnel who recognize a need in the community. Several steps

have to be taken: 1) A job-potential survey has to be taken in the

area. 2) Formal application for a program has to follow prescribed

internal and external steps. Internally the program must be seen as

part of the goals of the institution and follow the curriculum com-

mittee route. Externally, the appropriate state agency or higher

board must see fit to grant approval. 3) A coordinator (usually an

able faculty member) is proposed and is normally granted released

time from teaching. 4) Courses must be reviewed/projected. 5)

Periodical evaluations of the program must be planned.

Thirdly, what are the curricular problems which develop between two-year and four-year institutions? What are some possible solutions? The relationship between junior and senior institutions has an impact on the development of technical communication programs. Those faculty members and administrators from community colleges know only too well the burden of the game of course review and approval. Two-year institutions simply cannot offer any courses which are deemed upper-division or junior/senior level by the senior institutions. This set of rules is highly criticized by community college teachers. Four-year institutions thus exert much influence on the "allowable" English (and technical communication) curricula in the two-year institution. Solutions will no doubt require bending by both parties. Perhaps the role of such associations as the 4C's and STC can be that of a mediator and reconciler in such academic boundary disputes.

In summary, I have tried to present an overview of certain characteristics of technical communication in community colleges. If I have presented too much of an administrative perspective, I apologize, and it is not intended to slight the necessary day-to-day basics of the classroom teacher. I would like to close by considering the way in which the Society for Technical Communication might be able to render developmental assistance to technical communication professionals in the community college. My remarks here might well have struck a number of cooperative chords, but I would specifically call attention to three areas--1) Consideration by the Society of the problems of transfer between institutions, and specifically to deal with issues of upper/

lower division significance. This cannot be done without taking a look
at course make-up and expectations at all levels, including graduate
courses, and also not without giv.ng attention to the type of program
I have outlined here. 2) Consideration by the Society of the ways
in which courses could be encouraged, developed, and monitored in the
community colleges, especially through the means of consultants and
packets of descriptive as well as prescriptive information. 3) Con-
sideration of the development of a research impulse and a data bank
which could be utilized by all institutions. This would also assist
in trying to lay out some direction for technical communication as a
profession, or where technical writing employment possibilities would
be developing.

Briggs: Michigan now has 29 community colleges and Kalamazoo Valley
Community College, which has been operating for seven years, is one
of the younger ones. KVCC with about 5500 students serves a population
area of about 250,000. We are near Western Michigan University and
Kalamazoo College. Michigan's larger community colleges serve about
15,000 students--the smaller ones, about 1000 students.

Regarding KVCC students, we notice that the average age has been
increasing; it's now about 26. The ratio of part time to full time
has tipped rapidly toward part time. About 65% of our students are
taking less than 12 semester hours, usually 6 to 8 hours. Most students
work 20 to 40 hours weekly.

Mid-career changes have been mentioned and I'm inclined to call
it "early career" changes in respect to our students. Many students

have started in some line of work, or have been through a military

enlistment with some technical training, and now are studying in the

community college on an Associate Degree program. Others have worked

at labor or assembly-line jobs and have decided they need more education.

A relatively low percentage, less than 20%, come directly from high

school with no experience at all.

KVCC offers vocational, technical, and liberal arts (transfer)

programs. Our emphasis is on preparing students for specific occupations

and helping them to obtain employment in that field. I understand that

our batting average is good.

I'm a technical writing-business communications instructor rather

than an administrator. (All faculty are "instructors.") I have degrees

in English and Communications and 10-years experience as a technical

writer and communications analyst in the automotive engineering and

aerospace industries. Most of our faculty, incidentally, have Master

degrees and career experience in their fields.

Regarding technical communication, KVCC has a larger area called

"industrial production careers." This area comprises several industrial

applications, one of which is called "technical industrial communications."

This two-year program has two options: one leads to an Associate degree

in technical illustration, the other in computer applications. Most

students take the technical illustration route where they find employment

in graphic arts firms or departments. Some move on to further studies

in commercial art.

The computer applications program includes science and technology

courses, technical writing, speech, and a series of computer courses.
Students are trained to be communicators or liaisons with both computer
specialists and engineering people. Most students transfer to a four-
year program in computer science. Others don't complete the KVCC
program because they land jobs in the field and plan to pick up courses
in the future.

We also have many vocational-technical programs which require our
technical writing or business communication courses. And pre-requisite
to these are freshman communication courses from our general studies
area.

COMMENT: Tom Pearsall

It seems to me, then, that the junior college poses two possible
programs: one in which you train for a career and quit at the end of
two years; the other where you use a junior college as a stepping stone
to a four-year college.

Briggs: There is a third: a person may use it for upgrading in his
present line of work.

Pearsall: Well, for the sake of simplification, let's stick with those
two. It seems to me that if a person came to me out of high school
and said, "I want to go to junior college first and then come to the
University of Minnesota and into your tech comm program, and I have
the option of taking a tech comm major or a general education:" I would
say to him, "By all means take a general education--don't take tech comm--
and in your general education get as much science as you can possibly
squeeze in. Then, come here and we'll take care of the tech comm in the

last two years." I say this because, that is what our 4-year students
do. They take their general education for two years and concentrate
in the major for the last two. This may be one of those boundary areas
of dispute mentioned earlier by John White.

Warren: We are getting commitments from deans of programs in other
state colleges. For example, we've got a commitment from Brookings on
the pre-engineering. We know we're not going to get any pre-engineers
at Springfield, but if we did, we've got the dean's written commitment
that here is their curriculum for two years. Here is our curriculum,
and the mesh is made, so that the kid can come to us for two years and
then off he goes to Brookings for the final two years. Now I see
South Dakota, Minnesota and Nebraska especially are entering into
swapping agreements on out-of-state students. I agree with Tom Pearsall
that we've had some real problems in meshing. I've had to identify that
student immediately and then get on the phone to Tom and say look, I've
got a kid that wants to do two years here and then he'll come up to you.
Let's get together and look at the curriculum and see what we can do to
mesh our two programs.

Briggs: Regarding the question: what do technical writers do? I would
like to make a few comments from my own experiences in industry. Al-
though I've been out of industry five years and would like to get a
look inside again, I would say it's difficult to describe what technical

writers do. People with this title do such a wide range of things!
And their training and backgrounds vary considerably.

We had a wide variety of people working as tech writers on the
Atlas Missile program. I was on site in Nebraska with a "multiple
effectivity" program where we were writing the manuals and procedures
while they were still installing things trying to get operational with
the first ICMB's. The job was called Manual Verification. We were
looking over the shoulders of technicians and engineers writing and
rewriting procedures while they were working them out. Back at
Vandenberg AFB they were redesigning the systems and sending out
mofification kits and partially written software.

I was a salaried General Dynamics employee supervising crews of
"job shop" writers. We had all kinds; most had no English or college
background. They had eased into the tech writer classification from
technician jobs, graphic arts jobs, and a variety of support jobs
associated with the industry. They were very resourceful people. So,
this is one category of "tech writer," and you'll find these types
everywhere. They came aboard one way or another and managed to learn
by doing.

The most demanding kind of technical writing I've seen was at
Hughes Aircraft Company where the writers were responsible for the
technical content. We were writing progress and project reports on
minicomputer radar and fire control systems. The engineers had written
almost nothing yet. We worked from logic diagrams, system schematics,
specifications, and discussions with designers. We also used resource

books to build understanding of the state of the art. All writers had degrees: some in engineering, some in science, some in English with a science or technical background.

Between these two examples, my experience in several publications departments leads me to say that about half of all technical writing is a rehashing of previously written or drafted material. This isn't very difficult to do and many people after some experience is gained can handle it. Proposals are a large part of the work and little really original writing goes into most of them--mostly rewriting to fit the need. Manual and Specification writing I haven't much experience with, but this is a large part of the tech writing field. Many of these writers gravitate here from other technically oriented jobs.

Warren: The University of South Dakota at Sprinfield offers three levels of technical communication courses: beginning, intermediate and advanced. The beginning course is essentially a techniques course: instruction writing, descriptions of mechanisms and processes, summary, analysis and so forth. The intermediate course brings the various techniques together into the writing of a formal report and used consultants from the technical area for accuracy of the technical content. Most of the technical students take these two courses.

Students who wish to major in Technical Communication take both the beginning and intermediate courses and then the advanced. The first assignment in Advanced Technical Writing I is to prepare a memo

in which they describe the kind of job they want to hold after graduation. Focus in the memo is on the extent and kinds of communication skills required. The job may be as a technical writer solely, or in combination with another technical specialty (for example, 60% of working time as an electronics technician and 40% as a technical writer). Each student's syllabus in Advanced I can then be structured to fit career goals.

Advanced Technical Writing II deals with specific areas of technical writing competence: parts catalogs, manuals of several varieties, brochures, industrial film and, if there is time, semantics and communications theory. The student is then ready to meet most technical writing situations.

The students are, as you can tell, thoroughly grounded in the basics of technical writing before they take the advanced courses. This is to insure that even students not planning to major in technical writing have a good grasp of technical communication skills. The success of this ambition rests with the textbooks used. The beginning class uses Ann Laster and Nell Pickett's Writing for Occupational Education. The intermediate students use Houp and Pearsall's Reporting Technical Information, a text, by the way, written for juniors and seniors, yet used at USD/S by second semester freshman. Mills and Walters' Technical Writing is used by the advanced classes. Our library has a very good collection of technical communication materials which we use a lot.

The students do not hesitate to try to make direct applications of their technical communication skills. One advanced student is currently rewriting the operator's manual on an oscilloscope used in the Electronics Department. Another student is working on a parts catalog.

We also have the problem of boundary disputes mentioned by John White. I think one of the things that's going to have to happen is conferences like this where 2-year and 4-year people discuss their programs so that sume mutual understanding is reached about transfers. The student comes in and he says he wants a two-year technical writing program. He wants to get out and make money. So he goes through the two-year program, and he gets out just as you described. After a couple of years he finds that perhaps his career is limited or his interest has expanded. For some reason or other he wants to go on to another degree but at a bachelor's level. What we are finding is that the other state colleges in South Dakota want to errect barriers around their programs. We are currently working on agreements among the State colleges so students can easily transfer and receive full credit for their two years of work. I am concerned that similar agreements be reached with schools outside South Dakota.

Clarence A. Andrews

STUDENT RECRUITMENT

Andrews: At Michigan Technological University we are trying to build a
major program in Scientific and Technological Communication. It replaces
an older program in Technical Writing which had only six courses--it could
not be construed as a "major"-- and which attracted five or six students
a year, mostly drop-outs from other programs.

The primary goal at MTU is to produce graduates who will work in
science and technology. Our program is designed to produce the communi-
cations experts who would work alongside these people. Our students will
take 45 quarter-hours in communication skills (chosen from a larger number),
45 quarter-hours in a science or technology, and 90 quarter hours in core
studies.

The problem--where to recruit students? Journalism schools and
programs in "Communication" are overflowing with students--the enrollment
is up almost 500% in the last few years, and there are no jobs for most
of these. But our program could use a hundred of these a year and we
could place many of them in industrial and institutional situations.

Most people do not think of themselves as technical communicators.
Most of us who are teaching in the area backed into it. We can't depend
on high school counselors, secondary English teachers, and such. Our
best recruiter is the secondary science teacher. We propose reaching
these people through an occasional newsletter and through a mobile "Science
Fair" which our school has developed, and which travels throughout Michigan.

We also propose reaching them through a summer workshop in technical
communication. This workshop would bring 100 secondary students a summer

to MTU. It would give them an insight into what the technical communicator does. Most of the program would consist of hands-on experiences—writing, editing, publishing, producing a radio show to be broadcast over the MTU radio station, producing television tapes, movie shorts. Their subject material would be the laboratories and classrooms on campus.

We trust also that exposure to two weeks of the Upper Peninsula of Michigan in the summer—a most delightful place, cool, the purest air in the Universe, woods and water—would persuade them that MTU was the place to matriculate.

On a larger, longer-ranging scale, there should be an attempt to develop the image of the technical or scientific communicator. Perhaps the science writers' groups, the aviation writers' group, the STC, the heads of programs such as those at MTU, Minnesota and RPI, could get together and outline an image-building campaign on a national base. The image of the newspaper reporter has been developed—through plays such as Ben Hecht's <u>Front Page</u>, through innumerable motion pictures, through summer workshops and the like. Something similar needs to be done for our people.

Moreover, the STC, at least, worries itself too much about the image of professionalism. Such an image-building campaign would help produce that status as well.

James Connolly

NON-WRITTEN TECHNICAL COMMUNICATION

Connolly: At the first conference of this organization, held in St. Paul,

there was a marked tendency to use the terms "technical communication"

and "technical writing" as synonyms. There is more to technical communi-

cation than technical writing. This paper is intended to identify some

of the other areas of communication that should be, or at least might be,

considered within the technical communication programs.

A mild disclaimer should be stated first. I have nothing against

technical writing. I'm sure that there are many interesting and exciting

things that could be learned from technical writing. Having read many

technical documents in a number of industrial situations, I see a clear

need to train people to write and edit technical material. I might even

go so far as to allow that technical writing should serve as the foundation

for an academic program in technical communication. My concern is that

it not be considered the sole content of technical communication programs.

There is an historical warrant for the appeal for broader based pro-

grams. Having served as an industry consultant for 15 years in the area of

technical communication, I have seen an incredible change in the nature of

doing business in large corporations. Originally the marketeer or sales-

man stood as the buffer between the engineer and the consumer. The engineer

was required to write only for the internal audience within his own cor-

poration and ocasionally for fellow engineers within his own discipline.

Audience factors were of minimal concern. Now I don't want to resurrect

that old battle between speech and English as to whether technical communi-

cation is written to someone or not. Experience indicates that the receiver

of information should be the prime determiner of the content of the message.
Industry is now acutely aware of this.

That one single change, among other changes is enough to justify the
consideration of three areas of communication, in addition to, technical
writing. They are 1) technical speaking, 2) technical meetings and 3)
technical graphics. As widely divergent as they may see, they are all re-
lated to a refocusing of attention on the sender-receiver relationship.

Even if one were to teach technical writing from a strong orientation
of audience awareness there would still remain two major differences be-
tween technical writing and technical speaking. The first is the question
of language. As I am writing this, I'm following the general outline of my
speech delivered in Boston. The transcript is an absurdity. My ego refuses
to accept that it reflects accurately the communication event in Boston.
I rather hope instead that it reflects the human dynamics and less formal
style of the public speaker. A well-written paper, on the other hand, when
read aloud sounds like someone reading aloud to an audience, not speaking
to the audience. I think that these differences are important and further,
should be taught to our students if they are to be equipped to do the job
when they graduate.

The second area of difference is the immediacy of feedback. An article
or paper might be written one month, edited the next, published three
months later and letters of response start arriving the following month. In
the speaking situation, a member of the audience who does not understand
something that has been communicated will immediately raise a question. The
speaker must be able to adjust or amplify on the spot if the communication
event is to be successful. Along the same lines, if the reader of a technical

report has some trouble comprehending a particularly tricky technical
process or interrelationship, he may slow down, read it again, think about
it for awhile, look up a reference in a book and finally, in his own way
and in his own good time grasp the information. The listener does not have
that luxury. If the listener doesn't get it when it is said, he doesn't
get it at all. This means that the language and the structure of the
technical speech will be different than the same content delivered as a
paper. The feedback potential will be enhanced by virture of the more
immediate relationship between the sender and receiver.

The area of technical meetings may seem to be unrelated to the kinds
of communication problems discussed at this conference, but I believe that
there is a connection. When the student leaves the womb of the academic
environment and is forced to exist in a power-structured industry or business
environment, he should be aware of some of the problems of organizational
communication. There are a number of very fine books written on organiza-
tional communication, but most of them are designed to introduce the student
to the theoretical foundations of organizational research. They don't help
the student understand the role that a technical communicator might have
to play in establishing a conference or conducting a meeting to solve a
technical problem. As a consultant I have many times been asked to assist
in teaching people how to deal with other people in the one-on-one situation.
Interpersonal communication might help but I've found that practical ex-
perience of designing, organizing, executing and critiquing problem solving
meetings to be a very effective method for teaching students about human
communication behavior in an organizational setting.

Why the technical communicator? The engineering types who are involved

in the nitty gritties of solving a problem become so data centered that

they become incapable of generalizing about the problem. The technical

communicator, trained in the structuring, simplifying and abstracting of

technical concepts from technical data can serve as a focal point in

helping the technologist to see where they are going. The very fact that

they are not a part of the design team and do not represent a specific

departmental bias can make their contribution invaluable. And industry

executivies know it. More and more, they are asking outsiders to assist in

both organizing and conducting technical meetings to minimize the biases

and wasted time that are so common.

The final area of concern is that of technical graphics. Let me share

a little background first. When I started as a consultant in 1961, the

primary tool of graphic support for the technical speaker was the flip

chart or hard chart. Most of the graphic support that I saw was extremely

busy, detailed and complex. As an aid to the speaker they were not only

not effective, they were distracting. Most of the graphics were copies of

the kinds of things that appeared in technical documents--engineering

drawings, detailed schematics, complex graphs and the like. After several

years of working with engineering types, and by leading them toward the

overhead and the 35mm slide, I have seen some improvement. The industries

began to talk about graphic support personnel and budgets for graphic

production. Today, most industries have graphics departments that employ

artists, draftsmen, and illustrators and have invested hundreds of thousands

of dollars in sophisticated equipment for the production of graphics. The

only thing missing is a knowledge of what to do with these people and the

equipment to produce graphic support that communicates a message.

This is the responsibility of the technical communicator. They don't have to know how to draw anything, they don't have to know how to operate the machinery. They don't have to know the skills of illustration. They do have to be graphically literate. I suppose some definition would be helpful. They should know the difference between a good visual and a bad visual. They should know the difference between a visual for support of an article and a visual for support of a speech. They should know when a visual is needed and what kind of a visual it should be. They should know what skills are needed to produce the art work for a good visual as well as the equipment and the processes.

Even if at this point you agree with everything that has been said there still remains the question of whether or not this is truly the concern of programs in technical communication. A great deal depends on your perception of the job market for which our majors are being prepared. My concern is that our graduates will be called upon to assist in setting up technical communication events, whether writing, meetings, or speaking, and will be expected to give knowledgeable advice and direction to the engineers and others that they will be hired to serve. They may be hired initially as writers or editors, but as their experience develops so will their scope of responsibility. I think we owe them the basic training and exposure that will give credit to our discipline title.

David G. Clark

A ROUNDTABLE LETTER

Clark: I know we've all talked about sharing things and I felt that one

possible way to do this on a more regular basis than meeting once a year,

is to begin some systematic correspondence. I've learned a lot about differ-

ent kinds of programs and would now like to see all your curricula--what

you require, course outlines, and reading lists. Once we get beyond

that there is another step that would be fairly easy. That would be to

have a round table letter, perhaps with an editor who would solicit prob-

lems or topics from us all, solicit and collate responses, and send the

results to us all. Then we would have a storehouse of our concerns through

the year. We might even do several of these in one year, and the way it

works is pretty simple. You just say this is the problem, tell us what

you do. And you sit down at the typewriter and in 10 or 15 minutes you

describe your own personal or institutional experience and then send it

in. These are collated and reproduced and sent back to us and we have what

each school does.

We can be pretty specific about what we do. And then anyone may take

this for whatever purpose, analyze it in any way, even present it to their

deans or administration. One thing we could do soon is describe what we

actually teach and get that in writing to the rest of us. What are some

of the requirements for entry into the technical communication program for

students? What do they have to have in GPA's or in courses or backgrounds?

What kinds of tests do we give? We're thinking of instituting a writing

test at our university and maybe some people have other kinds of requirements.

I'd like to know a good deal more about what you think are the require-

ments for teaching in the field. Somebody mentioned advisory committees.
I'd like to know who has one and how it works. And how do you go about
setting one up? What kinds of people do you get on it? I'd like to know
what kinds of problems people face within their own institutions, and
general ways of improving our own programs. I think this would be a good
start. It's the cheapest one I can think of, because it would mean that
we could do it with a minimum investment of our own time and paper and
probably we could rotate the chore of mimeographing and distributing the
results among us so that it wouldn't be a burden on anyone or any one
department for more than a semester or a year.

There's one other thing that I thought we could do to benefit our-
selves, and that is exchange a list of teachers available and teaching
positions available and requirements for those positions. And maybe we
could expand this to include some other things. If we worked with STC we
could certainly begin to get a better relationship with STC and with the
industry, however we define industry. Bob Ellis and I were talking a little
earlier about trying to see if there isn't some way, at least for those of
us who are stuck out 60 miles from the nearest water hole, to have visitors
from industry quite often. The Newspaper Fund in connection with the Wall
Street Journal has a Editor-in-Residence program. About 60 or 70 prominent
U.S. newspaper editors have volunteered to visit journalism schools. All
the school has to do is put them up while they're there. The newspaper pays
the expense of transportation and underwrites the editor's time off. He
comes for 2 or 3 days at a time. There are some fine things about that pro-
gram and it could surely benefit our school if we had a list of technical
editors and communicators who would be able to take off for a day or two

to come and see us so we could say to our students: Here are technical

communicators: this is what they do and this is what they look like. It

would be a good way of keeping schools up to date. We might also try

sending professors back to industry periodically, through some kind of

exchange. The ANPA has just started a program in which the editor and

the professor change jobs for about 3 days or a week and go look at what

the other does and talk to students or to the newspaper people.

I'm arguing strongly for some kind of systematic exchange of views

because I think most of us could benefit from this. Probably everybody

has thought of at least 20 other ideas.

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ABSTRACT
        Prepared by representatives of industry and the
educational community, the papers in this collection address issues
of interest in the field of technical communication. Specific topics
discussed are as follows: (1) the Resource Materials Project of the
Council for Programs in Technical and Scientific Communication
(CPTSC), (2) the relationship between the CPTSC and the Society for
Technical Communication (STC), (3) the possible certification of
technical communicators by the STC, (4) the role of the humanist in
technical communication at Rensselaer Polytechnic Institute, (5) the
criteria for appointment and promotion of teachers of technical
communication at the Massachusetts Institute of Technology, (6)
Colorado State University's program to teach the handicapped to
become technical and scientific translators, (7) the University of
Michigan's internship program in technical communications, (8)
technical advertising, (9) graduate programs in biomedical
communication at the University of Nebraska's Medical Center, and
(10) technical communication program development at Texas A&M
University. A copy of the constitution of the CPTSC is included.
(FL)

COUNCIL FOR PROGRAMS IN TECHNICAL AND SCIENTIFIC COMMUNICATION

PROCEEDINGS

Editor

Thomas E. Pearsall

April 14-15, 1977
University of Minnesota
St. Paul, Minnesota

2

Preface

The 1977 meeting held at the University of Minnesota was the
fourth annual meeting of the Council for Programs in Technical and
Scientific Communication.

Once again we had good informal discussions and formal presentations.
The formal presentations were taped and transcribed and later edited by
the speakers themselves. The edited talks form these proceedings.

At the end of the meeting we discussed needed constitutional changes
and elected officers for the following year. The new constitution that
resulted is included in these proceedings. The elected officers are as
follows:

President	Thomas E. Pearsall
Vice President	Thomas L. Warren
Secretary	David L. Carson
Treasurer	James E. Connolly
Member-at-Large	Virginia Book

The Council decided to hold next year's meeting at Rensselaer
Polytechnic Institute.

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VICE-PRESIDENT'S REPORT
ON THE COUNCIL's RESOURCE
MATERIALS PROJECT
by
Thomas L. Warren
Oklahoma State University

We are all familiar with the attitudes many schools
have about courses in technical communication. Since most
departments are faced with declining enrollments, the atti-
tude either hardens when suggestions are made to begin or
add to courses in technical communications (many senior
members fear losing students in their classes), or the de-
partment decides to increase offerings in technical communi-
cations even to the point of offering a major or concentra-
tion. Technical communication courses are beginning to be
very attractive to many schools. If you attend C.C.C.C. or
N.C.T.E. or M.L.A., you find out just how many schools are
starting courses or expanding offerings in technical communi-
cations. More and more people attend these meetings to learn:
"What do I do now? My dean (or department chairman) has
told me that I am going to teach technical communications."
Once in a while you hear someone ask how to start an entire
program in technical communications. The N.C.T.E. Committee
on Scientific and Technical Writing is working hard to help
people answer that first question. It has published one
book of essays already (edited by Don Cunningham and Herman
Estrin). I have collected a number of course syllabi[1], and
Bob Donovan of the Air Force Academy has put together an
annotated bibliography of textbooks. A collection of lesson
plans and teaching outlines is being assembled by Dwight
Stevenson. The first question is well answered. What about
the second?

Two years ago in Boston, Roland Brown from Florida came
to find an answer to that second question. I hope that he
got the information he needed. Maybe that was what gave
Tom the idea for compiling that kind of information, because,
at our Fort Collins meeting, I was asked to put together
material on establishing programs in scientific and technical
communications. I sent a letter to as many schools as I
could find who have programs beyond the service course level.
I received materials from 13 institutions[2] while 22 institutions
did not send material, or were not contacted.[3]

I gathered the materials, condensed them and prepared
folders for each school. I want to pass them to you for your
inspection. For those representing schools for which there
is not a folder, I have the forms I used and would appreciate
your completing as much as possible here. Check all the infor-
mation on the condensation for accuracy and completeness. A
status sheet asks you to respond for materials there and materials
missing. Please complete it. I will make a copy of the status
sheet for you so that you can take it home as a memory tickler.

Send me the missing materials as soon as possible so I
can get the project to the printers.

(end of session)

NOTES

[1] A collection of materials including Donovan's
annotated bibliography (59 items), a bibliography
of books in scientific and technical communication (27
pages), and course syllabi (19 schools) may be ob-
tained by writing to the OSU Bookstore. Reproduction
cost for the package will be $4.85, including postage
(check payable to OSU Bookstore). Send to: OSU Book-
store; Att: James Robinson, Oklahoma State University,
Stillwater, OK 74074.

[2] Massachusetts Institute of Technology, Renselaer
Polytechnic Institute, Illinois Institute of Technology,
Carnegie-Mellon, Michigan Technological University, Clarkson
College, Colorado State, University of Washington, Boston
University, Metropolitan State College in Denver, University
of Minnesota (St. Paul), Alderson-Broaduss College and
the University of South Dakota at Springfield.

[3] University of Nebraska, Oregon State University,
University of California--Santa Barbara, Texas A & M,
Kalamazoo Valley Community College, Florida Technical
University, City College of New York, University of Florida,
University of Utah, Iowa State University, University of
Wisconsin--Stout, William Rainey Harper College, Rock Valley
College, Arizona State University, California State College
at Fullerton, University of Missouri, Rochester Institute
of Technology, San Diego Evening College, Oklahoma State
University Technical Institute, Spokan Community College,
Texas State Technical Institute and South Dakota State
University.

RELATIONSHIP BETWEEN THE COUNCIL FOR PROGRAMS IN TECHNICAL AND SCIENTIFIC

COMMUNICATION AND THE SOCIETY FOR TECHNICAL COMMUNICATION

Myron L. White
University of Washington, Seattle

I have just seen this item on the agenda and have been caught a bit by surprise. I did come prepared to do some informal reporting about the relationship between STC and the Council for Programs in Technical and Scientific Communication. However, I had not counted on doing so under such formal circumstances.

In any event, after the Council organized itself a year ago, I wrote a short article about it for the newsletter of STC's Puget Sound Chapter. This got picked up by other STC publications around the country, and a former STC president, Mary Schaeffer, a very good friend of mine, apparently became upset over the notion that teachers couldn't find within STC an opportunity to carry on their activities. She was very concerned that the Council would become a competing organization. I don't look on it as such and was somewhat surprised that anyone else would.

Anyway, I received a request from Russ Terry, the current president of STC, to report on the Council to the STC Board of Directors when it met in Seattle with the Puget Sound Chapter last September (1976). I trust that I represented the Council reasonably well. I tried to allay any fears and suspicions which I thought the members of the Board might have and tried to justify the existence of an organization like the Council. I pointed out that teachers have special problems which most people going to STC conferences aren't excited over talking about. Nevertheless, we need and like to talk shop just as much as manual writers do. The difficulty is that there usually are more manual writers at STC conferences than teachers, and our opportunities to talk shop are never extensive enough. Consequently, an organization which does provide these opportunities is very important.

I must admit that my report on the Council got little response from the Board. As a matter of fact, the general impression I carried away was that my "command performance" had been a kind of formality, possibly to satisfy Mary. I got no hostile questions and, indeed, very little comment at all. So I'm not prepared to tell you exactly what the status of our relationship with STC is. At the same time, I'm not particularly concerned about it. The fact that so many people here are members of both organizations bears out my own belief that each organization has its unique value and that, in the long run, the relationship between the two should present no problems. It would be a mistake, of course, to compete with or cut ourselves off from STC because there's no doubt that it is the largest organization of actual practitioners in the field. I think we all recognize as

educators that we can't always agree with practitioners and their employers about what we should teach students who are going to take jobs in technical communication, but, on the other hand, if we cut ourselves off completely from the practitioners, what we have to provide our students is likely to be of little or no use to them when they start seeking jobs.

I would like to report on another matter that isn't strictly related to this agenda item. Recently, I have been using some of the STC Anthology publications as texts in courses that I've been teaching out at Washington. At first, I was concerned about their cost because I assumed that students would have to buy them at the prices for nonmembers. I investigated, however, and found that as a member of STC myself, I can order these books at membership rates and, in fact, can do so through my university's bookstore. It is necessary, however, to let the STC headquarters office in Washington know that such an order is on the way. Otherwise, it will charge for the books at the nonmembership rate, and, when you add the bookstore's markup to that, the anthologies can run pretty high.

As satisfactory as this arrangement is for me, however, I think that its availability only to classes being taught by STC members is both unfair and shortsighted. I believe that STC should have a general education discount and told the Board so at its September meeting. To my surprise, the Board needed no persuasion. It decided virtually on the spot to introduce an educational discount sometime this Spring. I'm not sure what it will be finally, but the last figure that I saw in a letter from Ron Field was 25% off the membership price for copies of five or more. Incidentally, at the moment, my students in a publications management course are buying one of the management books in the Anthology series at $6 (with bookstore markup), the price which you and I would pay for the same book as STC members.

Getting an educational discount at this time is especially important because STC probably will raise the prices of its books. Actually, the prices at which its publications are being sold now are possible only because of a very sizable subsidy from Westinghouse. Ron Field, Assistant to the STC President for Publications, can manage his budget at Westinghouse so that STC pays considerably less than cost for production of its publications. He is of the opinion, however, as I am too, that to continue to rely on this subsidy is a mistake. The Society should come closer in its pricing to the real cost of its publications. I got the impression in September that the Board of Directors was about evenly divided on the issue, but Ron and some members of the Board are pushing very hard for an increase. The increase he has in mind would raise the Anthology books from $6 to $10 for STC members and from $9 to $15 for nonmembers. I've argued against pushing the prices quite so high, but Ron's got the cost figures and I don't, so I can't argue very well.

(QUESTION: What as STC members can we do to keep the prices down? Ten dollars is awfully high. What do the Anthology volumes run, 100 pages?)

They run 100 to 150 pages. The one on publications cost management is longer, but the one I'm using now on publications management is about 100

pages. The one on cost management is meatier in some respects, but it's
rather specialized.

(COMMENT: I like to use them; I think they're really good.)

An educational discount of 25% off the new members' price would help to
keep the cost down for our students. It would lower the price from $10 to
$7.50. Adding a bookstore mark-up of $1.50 means that we're talking about
a $9 cost to our students. And, let's be fair. Textbooks generally are
going up; they're pretty expensive. At the same time, there is nothing
in the field that is comparable to some of these Anthology books. I believe
that we're going to have to get used to the fact, as our students are, that
they're going to pay a good deal more for books than they have in the past.

I did point out to the Board that textbook sales represented a rather
good market for the Society's books, provided the prices were reasonable.
But the Society has two problems. It is not selling many books now and
can only see the cost-price relationship in terms of the present sales vol-
ume. The other problem is that the Society is not really set up to handle
textbook orders, as many of you probably know. As members of STC, the best
that we can do is to persuade the Board to recognize our needs and the po-
tential market which our students offer. Perhaps some complaints will help
to keep prices down.

(Mike, I have a question which relates to the first issue you spoke of--
your presentation to the board of STC. Did you get the impression at all that
their lack of reaction was a reflection of indifference?)

No, I don't think they're indifferent. I think that those who probably
are most concerned are puzzled over why we exist. I tried to make as clear
as I could what the reasons are for an organization of this kind. Maybe my
arguments were convincing, but I'm not at all sure about that. I suspect
that they still don't quite understand. They're not quite sure what to do
about what looks to them like a splinter group. I don't feel that we are
such, of course, or that we are competing with STC in any significant way.
We're simply the result of a felt need. But whether or not I convinced
the Board of all this, I just don't know.

POSSIBLE CERTIFICATION OF TECHNICAL COMMUNICATORS BY STC

Richard M. Davis
School of Engineering
Air Force Institute of Technology

(Dick, I don't want to put you on the spot, so just say "no" if you want to, but could you follow up a little on what Mike has been saying? For about two years now, Dick has been conducting a study on certification for STC and has been gathering a lot of information. Would you tell us, just very informally, what you've been finding out?)

Certainly, I'd be glad to give you a rough idea of what we've been doing and what we've found. We have not yet submitted a report to the Board, although a draft is out for coordination now and we will be making a report to the Board in May.

Apparently there had been some rumblings of discontent and feelings here, there and the other place for some time to the effect that STC should consider the possibility of accrediting technical communicators. There had been discussion of this for some years, I take it, in several different parts of the country. There had been a semi-organized effort to develop such a program in California, and quite a bit of talk about it in other places. So about two years ago, Pete Smith, who was then the president of STC, established a committee to look into the question of certification. The committee has had various names and is presently called the Committee on Certification. Its purpose is to look at the question of possible certification of technical communicators, try to see what some of the problems might be, and make a recommendation to the Board whether or not STC should undertake such a program. It is not our charter to begin developing such a program, but only to recommend whether or not STC should do it. The committee is composed of eight people: myself, Dick Russell, Bob Weaver, Clark Beck -- these names will be familiar to some of you, perhaps not to others -- Emily Schlesinger, Stello Jordan, Walter Crites, and John Colby. Our direction was pretty simple, and the action that we took was pretty direct.

First, each of us separately drew up a preliminary position paper in which we outlined some of the things that occurred to us as considerations that should be carefully worked out before any decisions were made, and we circulated these preliminary positions among ourselves. We made them separately -- without collaboration -- and on a given day each committee member sent a copy of his own to each other committee member -- so, theoretically at least, no one was influenced by what anyone else said.

Pete Smith kicked off the committee's effort with an editorial in Technical Communication describing what we were going to do and urging the membership of STC to respond. We also had a number of articles and releases in Tieline and Intercom as the committee's work progressed.

During the first year we sent letters to all of the chapters, suggesting that certification was an issue that could be of some importance to them and to the membership and that we would like to know what their members thought about possible certification by STC. We included sample questions for discussion, issues that might be addressed, and things of that sort. Some chapters responded, but most didn't. The second year we sent a similar letter to all of those chapters that had not held meetings on the subject, and again we got a few responses. In our various releases to Tieline and Intercom and elsewhere, we also urged members to respond individually. We suggested, "If your chapter does not have a meeting, by all means send us a letter and give us your thinking. And if you can, go twist your chapter chairman's arm and get him to have a meeting, because we want to know what you think about possible certification by STC" -- the thought being that the separate thinking of thirty some odd hundred people would be much better than that of eight individuals who would otherwise be immediately accused of being an elitist group trying to run a Facist operation.

We also wrote individually to each Fellow and Associate Fellow of the Society. There are about 50 of them and we solicited their comments, quite apart from any response they may already have made either as members of chapters or as people who had sent individual comment. Only one of them had already sent comment, so there was no big problem there. After some time had passed, we send a second letter to all of those Fellows and Associate Fellows who had not yet responded and said, "Hey now, we hate to jostle your elbow, but how about it?" and we wound up with a 75% response from the group. One gentleman in this room did not respond, and I'm sure he has good reason. I won't reveal his name.

Another thing we did was to start a considerable collection of articles, brochures, and other published pieces about certification programs. As you probably know, quite a number of organizations either are considering the possibility of something like certification, have just instituted such programs, or have just decided they shouldn't for one reason or another, generally associated with the nature of the positions they would be certifying or the kinds of things their people do. So we collected quite a bunch of these, reproduced them all, and sent copies to everybody on the committee and, presumably, everyone looked them over carefully.

Well, the result of all of this was that the response from individual members of STC was abysmal. They may have been sitting out there thinking things but they sure weren't telling us. The response from the chapters was very poor. A number of them held meetings, apparently there was spirited discussion, and they sent us results of those meetings. In some cases they sent us copies of individual questionnaires filled out by the membership; in some cases we heard nothing further from them after they said, "We are now going to hold a meeting." But anyway, the response there was not much. As I have said, the response from the Fellows and Associate Fellows was pretty good, but then we had addressed individual letters to them and individual second letters to those who didn't respond to the first one, so we would have thought that we might have had a pretty fair response. The upset, as I say, was that the total response was a little bit disappointing. In all, I

suppose that we heard from something over 200 people, one way or another, and the answer to the basic question of whether STC should or should not undertake such a program was split right down the middle -- a little bit heavy on the "no, they should not" side. Maybe 55-45, something like that. Generally, the individual members and the Fellows and Associate Fellows were against it. Within the individual chapters that responded, some chapters' responses were almost entirely pro and some were almost entirely con, and this, I think, is a fine illustration of the fact that the way in which a meeting is run often determines what the result might be. Tom's chapter, incidentally, responded very well.

Our recommendation to the Board probably will be that STC should not undertake certification at this time, and we have quite a number of reasons for that. First, there was no clear evidence of interest in the membership. It may be that the members have interest, but they certainly didn't show it to us. Secondly, we couldn't see any real demonstrated need for certification. Where you're dealing with a profession which may in some way jeopardize the health or well being of the community, sure, you need some kind of certification. But we didn't see that kind of need. Further, we didn't find any evidence that employers would support or honor the folks who would be certifidd as a result of a certification program. So, we couldn't really see any benefit coming to the individuals certified in return for all of the time and effort that might be required to become certified -- beyond whatever personal satisfaction might come from having such certification. There were several other prime concerns; I'll mention just one. We saw the possibility of fairly substantial legal questions that would have to be answered. For example, what would happen if someone were denied certification and then used that as a reason for claiming that he was denied a job? Suppose he sued STC for preventing him either employment or advancement within some employment, whether it were a legitimate case or not? On the other hand, suppose some blithering idiot were certified and then made some horrible blunders that cost somebody large amounts of money. Why did we certify him and what did we mean when we certified him? Those are some things that will cause us, I believe, to suggest to STC that they should not begin a certification program at this time.

We will probably suggest several kinds of things that STC might undertake if they want to pursue further action. One would be to get a better feeling for what the membership thinks. It may be that the membership is indifferent. On the other hand, it may be that our methods of trying to plumb their thinking simply were not effective. This might be determined by including a set of boxes to check on the next STC ballot: Are you for certification or against it? A tear-out form might be included in Technical Communication with a short accompanying article indicating roughly how the committee stood, what some of the issues are, and asking the reader to tear the form out and send it in. There are a number of things of this sort that might be done to better determine the thinking of the membership.

Some action might be undertaken to find out what employers think of the possible value of certifying technical communicators. Possibly we might ask them what a communicator should be able to do and what they think the

criteria should be for judging competence. This might very well provide
some indication of potential employer interest and, at the same time, stimu-
late further interest on the part of some employers. Some might say "Yes --
who are these folks? I never know in advance whether they can do the job or
not. Yes, by George, it would be convenient to have some sort of mark beyond
the fellow claiming that he has done this or claiming he has done that or
having his pal give references which are bound to say he's a fine fellow and
an excellent communicator." At any rate, we believe that some kind of
action might be taken to determine whether employers and potential employers
of communicators feel that certification would be of any value to them. It
seems to the committee that certification has to be of value to them to mean
anything in the long run.

The report will also indicate that the legal question should be very
carefully studied. Perhaps other organizations that have recently faced the
problem of certification should be contacted and we should review with them
just what their problems were and how they were handled. I suppose many
of you know that there is a certification program in England. The folks
who developed and administer it have been very kind and have invited someone
from STC to come over and spend time with them. They will let STC go through
their records and they'll show everything they did and every move they made.
Their certification is a little different kind of thing than STC might contem-
plate, but the folks over there are very accommodating and would be glad to
help out in any way they could.

So, there's how we stand. Once the report is coordinated and any
necessary changes made, and I suppose I'll get some violent reactions from
some committee members, that's essentially what I think we'll be presenting
to the Board in May.

THE RPI GRADUATE STUDENT IN TECHNICAL WRITING, CLASS OF '77:
THE ROLE OF THE HUMANIST IN TECHNICAL COMMUNICATION

The problem in technical writing today is that it doesn't really exist, and technical writing doesn't exist expressly because no one can really define what it really is. Obviously, without a clear definition of the object at hand, we academicians, in particular, are at a loss to build a paradigm about it and thereby demonstrate its true academic character. The rest of the world may be, as Matthew Arnold wrote "Wandering between two worlds, one dead,/ The other powerless to be born," but we teachers of technical writing are just plain wandering about on the "darkling plain." Or so it would seem.

THE CHANGING NATURE OF TECHNICAL WRITING

Not that we do not conduct some of the best practical writing courses known to man, for we do this regularly, and some of us have been doing it for over three decades. Moreover, our success is aptly documented by the rush we find throughout the world to get into the business of teaching technical writing. In 1972, Tom Pearsall and I conducted a survey for the STC which showed there were only eleven colleges and universities which offered four-year programs in technical writing. Tom's most recent figures however, show that there are now at least twenty. You must admit this is excellent growth for a discipline without paradigm, and despite the pleasure we derive from watching our sometime orphan grow, we are all, I suspect, a bit uncomfortable about not being able to define what it is that we are after, any better than we can. Not that we haven't tried.

Attempting to Define Technical Writing

Some say technical writing has to do with explicating the objective world of truth. Others call it "honest writing." Many like to think of it as being

scientific writing. Still others insist upon identifying it as a branch of expository writing, or as writing whose sole purpose is to communicate clearly on a first reading. Teachers I admire insist that technical writing is expository writing without persuasion or argument. Some others call it writing for the world of work. And although it is certainly all of these, technical writing cannot be simply restricted to any single one of these definitions. Its problem, to borrow a line from Huck Finn, is that it's about as _various_ as a dead cat. This brings us to _our_ problem, which stated simply is this: "How can we develop and sustain coherent technical writing programs when technical writing, itself, is so _various_?"

The Variousness of Technical Writing

In today's world specialization within all professions seems to be an unstoppable trend, and our systems of higher education seem, more and more, willing to educate students to fit into specific niches within industry, business, the professions, and government. Interestingly, most of us once thought that the profession of technical writing was just this narrowly specialized, but as it turns out, we were wrong.

Not long ago I asked a group of my students to jot down all of the types of writing they could think of which might be grouped under the term technical writing. The results will not surprise you. When we compiled a joint list we had over a hundred types--ranging from advertising writing through insurance underwriting. At this point we gave it up as a hopeless task. Even within a single large company we might come up with thirty or forty clearly differentiated classes of writing tied to specific job descriptions, and all would be technical writing. Given this variousness, it becomes strikingly apparent that it would be impossible for any technical writing program to address such "variousness" through

specific courses. A look at some statistics drawn from Rensselaer's twenty

odd years of experience in conducting technical writing programs at the graduate

level will, I think, bear this out.

The Technical Writing Student of the Past

In 1975 Professor Jay Gould conducted a survey of our approximately 300

master's level technical writing alumni to draw upon their experience as a

guide in modifying our program to better prepare our students for the world of

work. The data is interesting.

We discover, for example, that only 30% of our former students were still

employed as technical communicators. Thirty-seven percent were employed as

managers, twenty-one percent as teachers, nine percent worked in public rela-

tions jobs of some sort and three percent were unemployed.

From its inception, the Rensselaer program had followed several basic pre-

mises. Since its first students were primarily engineers who had decided, for

one reason or another, that they would rather write than engineer, the program

assumed that the student would bring his own specialized background with him.

The program attempted, therefore, to provide the student with a broad, general

background in technical communication augmented by a career-oriented supportive

graduate curriculum in the area of the student's undergraduate major. This is

still basically true today.

The Technical Writing Student Today

The program continues to take a _liberal arts_ approach, if you will, to

technical communication. Except for required courses such as Writing and Edit-

ing, Writing for Publication, Writing in Industry, and two communication theory

courses, the student, with his advisor's approval, selects five other courses

from among the university's graduate offerings which seem most pertinent to

the student's career goals. That the program has been generally successful is

partially attested to by the fact that most of our graduates who are unemployed

are apparently unemployed by choice. Moreover, our graduates who responded to

the Gould survey were overwhelmingly positive in their assertion that the pro-

gram had prepared them adequately for the world of work. Whether the program

will be as successful in the future remains to be seen, because the students

of 1977 are quite different from their predecessors of 1967, and the class

of '67 had already moved far from the 1957 prototype of the engineer who wanted

to write. (See Table 1) For purposes of comparison, the following statistics

contrast certain characteristics of the class of 1967 with those of the class

of 1977.

The Class of 1967 vs. The Class of 1977

In 1967 40.7% of our students possessed undergraduate degrees in science

or engineering, but by 1977 this percentage had fallen to 22%. And, whereas

78% of the class of 1967 were male, 50% of the class of '77 were female. We

should note, however, that a higher percentage of the women in the class of '77

had scientific backgrounds than did those of the class of '67. At this point

it is interesting to compare some other differences in the undergraduate pre-

paration of the two groups.

In 1967 only 43% of the students with other than scientific backgrounds

had taken at least two undergraduate courses in science or engineering. By

1977 this figure had risen to 75%. In 1967 only 36% of our students with under-

graduate degrees in the sciences or in engineering had taken at least one under-

graduate course in either writing or communication. By 1977 the proportion had

risen to 100%, and 50% of the class of '77 had taken at least two such courses.

So it would appear that both groups of students are in some ways better prepared

in 1977 than they were a decade earlier, but the increasing proportion of

students with non-technical undergraduate degrees again raises the ogre of

specialization.

TABLE I

SELECTED DATA: RPI M.S. Students 1967 and 1977

Student Category	1967 %	1977 %
Non-Tech Preparation	59.3	78
Prep includes at least two courses in sciences or engineering	43	75
Science/Tech Preparation	40.7	22
Prep includes at least one course in writing or comm.	36	100*
Female	7	60
Male	93	40

*50% of the students in this category had taken at least two such courses.

Overall Sex Distribution

Female	22	50
Male	78	50

What Employers Want

Employers, in the best of all possible worlds, would like to hire bright young people with Ph.D.'s in science or engineering who also hold M.S. degrees in technical writing. And there is still a very vocal cadre of supervisors which insist it will hire only engineers or scientists as technical writers. Recently, however, I made an informal survey of a number of industries in the northeast which have employed graduates of our program. I found that 30% of the supervisors (mainly holding degrees in engineering themselves) insisted upon hiring engineers. On the other hand, 50% of the supervisors stated that several courses in the sciences usually provided sufficient background, except for a few, highly-technical positions, and 20% insisted that intelligence and aggressiveness coupled with a willingness to learn and the ability to write or edit were the only prerequisites to success in their organizations. It would appear, therefore, that about 70% of the supervisors queried would be willing to hire graduates with non-technical undergraduate degrees so long as they were capable writers and editors. And, of course, our past and current employment records bear this out.

The Need for a "Liberal Arts" Approach

In the best of all possible worlds, it would be nice in a program such as RPI's if we could take the student with a non-technical undergraduate background and recap him or her, as we would a tire, with an impressive new technical tread, but the logistics of this process are overwhelming, and I suspect that we at RPI truly have more faith in the generalist than in the specialist anyway. Flexibility and adaptability are, after all, very important attributes.

As fellow technical communicator Bob Pirsig comments upon so well in Zen and the Art of Motorcycle Maintenance, the division between technology and humanism is, finally, an artificial one, for the same thought processes are required to conceive both the camp stove and the painting, or the radar set and the poem·

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And, therefore, the dichotomy is artificially sustained. So in accepting what our experience tells us about the world of technical communication and in accepting the fact also, that it would be virtually impossible to turn out students trained to fit into the specialized niches prescribed by industry, even if we thought specialization a good idea, we are left with basically one alternative. That is that we must listen closely to what our former students say, and judiciously modify our programs to insure that we are doing the best job possible within our capabilities. And so back to the alumni questionnaire.

Adapting to Meet a Changing World

Generally, our alumni thought such courses as Writing and Editing, Writing for Publication, and Writing in Industry were the most valuable parts of our program. So we will not change them very much. Communication Theory, on the other hand, came in for a fair share of brickbats. Many of our graduates thought it too esoteric and therefore not relevant to preparing them for their jobs. As a result we are doing what we can to make our theory courses more relevant, but in no way do we intend to eliminate them. Ninety percent of our surveyed alumni insisted that a general media course would have been valuable to them. They suggested that such a course should introduce the student to audio visuals, photo and art work, printing and typesetting basics, layout, and graphics, and although we have always offered advanced courses in such things as visual communication, we will begin next fall offering a required course in media which will attempt to cover the areas just described from a general rather than from a specialized viewpoint. We do not wish to train photographers, printers, or layout men. We do wish to educate technical communicators.

Large numbers of former students suggested incorporation of a computer science course in our program, so next semester, through the good graces of our computer sciences department, we will offer a course entitled Computer Science for Communication Majors for all of our students who have no background in this area. To meet our alumni's request for formal training in oral presentation,

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we have already incorporated required formal oral presentations into three of our core courses, and to meet their requests for more liaison with the real world of technical communication, we have modified our Writing in Industry course to include eight or so guest lecturers. We have also incorporated an increased number of field trips throughout the program.

Only time will tell whether our efforts to be responsive to the needs expressed by our former graduate students without offering narrowly focused trade-school courses will work, but I am inclined to believe that they will. If they do our Class of '78 will be more than good enough to function success- fully, if selectively, in the world of technical communication. After all, if technical writing is so <u>various</u> that we cannot yet define it among ourselves, we would probably be remiss in becoming overspecialized in our approaches to education for the field. Writing, finally, is still a humanistic discipline in that its purpose is to convey ideas efficiently to other human beings, and the technical writer more often than not is a humanist-generalist who lives comfort- ably between the worlds of technology and humanism, linking the two together, whatever the writer's undergraduate preparation may have been.

The Role of the Modern Technical Communicator

As I see it, the technical communicator's role in the twentieth century is, in part, to resolve the problem of the machine in the garden. For the machine is here to stay, and the generalist working as a technical communicator may be better prepared than almost anyone else to insure that we make the best of the machine without letting it destroy the garden.

So I feel comfortable with the concept of generalist as technical communi- cator, for I believe that only through the general approach can we adequately address the <u>variousness</u> of technical communication. And although some might say that without definition technical writing cannot possibly exist, the discipline's formlessness may be a sign of its mixed humanistic/technological heritage. Un-

definable and, therefore, indistinct as Ralph Ellison's Invisible Man, technical writing is, nevertheless, alive and well today.

* *

DISCUSSION

Chair-- Thank you Dave for a very fine talk. It will, I am sure, inspire some interesting discussion. Are there any direct questions for Dave?

Q-- You mentioned throughout your paper that the dichotomy between humanisim and technology was artificially sustained. Could you speak to that a little bit? Who sustains it? How is it sustained?

A-- The parties in both camps sustain it, although the humanists probably sustain it a little harder, if you will. Those of us who live solely in the humanist camp still tend to look at the twentieth century and the changes it has made in human existence from a nineteenth-century belles-lettristic point of view. That is to say, with horror at "some rough beast slouching toward Bethlehem."

The scientists and engineers, on the other hand, in pursuing so-called scientific truth or the doctrine of getting most material comfort for the fewest dollars, see the humanist as performing a rather minor service role in the scheme of human existence. In its most virulent form this attitude would have it that pictures are to hang on walls to brighten up rooms, or that books, novels, are to read when one cannot possibly find anything else to do.

Of course, these are sterotyped descriptions, perhaps caricatures would be more apt, but as Ralph Ellison says, behind every stereotype there is a very large kernel of truth.

Actually C.P. Snow deals with this much better than I could possibly do, and so does Bob Pirsig in Zen and the Art of Motorcycle Maintenance.

Q-- Sir, please, you should recognize the engineering mind in the humanities department which is worse than the engineering mind in the engineering department.

A-- I think I know what you mean, and I think you're probably right.

Q-- I recall a survey which showed that the kind of people who go most frequently to the symphony, to art museums, to plays come predominantly from the sciences, business, or engineering. I vaguely recall reading another survey which sustains the arts. Maybe it's because the humanist who works with these things constantly wants to get away from it sometimes; doesn't want a busman's holiday. But it is interesting that they support us more than we apparently support them.

A-- Well there are more of them than there are us, and most of them make more money than we do, and besides even if one does think that hanging pictures on walls is only to brighten up rooms, one does, after all, feel obligated to hang the pictures anyway. Perhaps it's a very involuted form of reverse snobbery.

Q-- I'm sitting here like a man in depression which I can't pass up the opportunity to discuss--privately. I'd like to relate a personal anecdote. Would you turn off the recorder?

* *

Q-- Just what is communication theory?

A-- I'm not sure I know, never having had a course in it. It is very difficult to pin down. First because different experts in the field disagree as to what it is, and second because it has changed so much in the past ten years that what it was a decade ago is barely recognizable as a distant cousin of today's version. But communication theory attempts to treat, generally from a social sciences approach, the theorhetical underpinnings of the entire communication process. As such it tends to be highly esoteric and highly abstract, and

as a result it tends to scare off traditionalists in the communication arts--
which is to say English teachers. I suspect that the discipline of modern
communication for the most part came out of colleges of education where there
was a felt-need--note that educationist jargon--to study the learning process
using the tools of educational psychology and empirical sociology. And I most
definitely think that we as teachers of writing ought to become familiar with
what is going on in communication theory, because I suspect that until we do
we will never get to know any more about the process of writing than we now do.
If we don't, the communicologists will do it for us, and I think such analyses
could benefit greatly through being leavened by our attitudes and by the ex-
perience we could bring to the task.

However, I must say that many of our graduate students strongly resist
learning anything about communication theory.

Q-- Well, as an old RPI guy, let me say that communication theory may be
more important to them than they think. As a student, however, I didn't like
it and thought the whole thing was a waste of time. But not long ago, I encoun-
tered a problem which I couldn't solve. So I finally started to plug the problem
into comm theory. I found the loophole, and solved the problem. So I think
it's very important that students continue to learn comm theory, and I think it's
very important that they be told of its valuable applications. One of the prob-
lems is that you have to learn the theory before you can begin to visualize its
possible applications, and learning it, so to speak, in the blind is a hard
and very frustrating task.

Q-- I'm still not sure what communication theory is.

A-- Me neither. But I guess maybe I ought to try to define it operatively.
Communication theory attempts to understand the human communication process through

eclectic methods--using bodies of knowledge from any relevant disciplines,

such as psychology, sociology, educational psychology, anthropology, literary

criticism, linguistics, physics, et cetera. It often uses mathematical and

statistical analyses to reach its conclusions, and, therefore, it is essentially

applying scientific methods to problems once thought to be solidly the purview

of the humanistic disciplines. So, a lot has happened since Shannon and Weaver.

Q-- But how does it apply to the teaching of technical writing?

A-- Well, as I implied before, we know a great deal, intuitively about

the writing process, but we don't know exactly why it is that the process works

in the way it does. We don't know much about how thinking works either, and

thinking and writing, as we have told our students many times, are very closely

related. After all we, when we write, transfer ideas from an amorphous conceptual

world to a linear code for the purpose of communicating those ideas to the

conceptual worlds of other people. As you know this is an exceptionally complex

process which I think is related somehow to Kant's and Coleridge's attempts to

define two types of knowing--a surface or linear knowledge on the one hand and

a deeper understanding on the other.

If it is true, as many say, that most of today's crop of college graduates

can't write, the responsibility partially lies with those teachers of writing

whose intuitive perceptions of the process are inadequate to the task. And

although we as teachers of technical and professional communication generally

employ methods which produce more satisfactory results for students, than some

other writing teachers, we too go after it largely from the intuitive standpoint.

It would be nice if we could all come to know more cognitively about what makes

writing function.

We have some Ph.D. candidates, for example, who are interested in doing

studies in socio-linguistics, in readability in applying the techniques of the

social sciences to the process of writing in attempts to learn what is is

that makes good writing function efficiently. Dick Davis, who is here in

this room with us today, had done some pioneering research along these lines

and this is the direction, I think, in which we ought to be going.

When you think about it, we haven't advanced much beyond Aristotle

or Horace. Don't you think it's about time we did?

by
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CRITERIA FOR APPOINTMENT AND PROMOTION OF TEACHERS
OF TECHNICAL COMMUNICATION

Robert R. Rathbone, Professor of Technical
Communication, The Writing Program, M.I.T.

INTRODUCTION

Purpose of Talk

The purpose of my talk is to get your reaction to and ideas on
the criteria we are beginning to adopt for appointment and promotion
in the Writing Program at M.I.T. In a few weeks we will be developing
guidelines to distribute to our staff, so we welcome the opportunity
to hear outside voices before the policies and procedures become fact.

Criteria for hiring and promotion (or firing, for that matter)
normally are influenced by external conventions as well as internal
ones. How one college or university develops its criteria is largely
determined by what the current practices are nationwide (or at least
at sister institutions). Internally, the criteria for a specific
program also are influenced by the practices held by the departments
within a given college and, in fact, by those other sections within
the same department. Further, guidelines for hiring and promotion of
teachers of technical communication often follow those already
established for teachers of creative writing and freshman composition.
For these reasons, I believe that we need to take a hard look at the
book of rules on personnel staffing to determine if changes aren't in
order. I hope that my review this morning will aid in the investigation.

Summary of Current Practices

Briefly, the criteria traditionally applied to appointment of
teachers of literature and freshman composition to an assistant professor-
ship in a four-year college or university include:

1. A doctorate degree.
2. Three or four years' teaching experience at the college level.
3. Some publication in the literature of the profession.
4. Participation in a professional society or similar organization.

Promotion to associate professor adds:

1. Original research in the professional field.
2. Extensive publication.
3. National recognition of competence by the candidate's peers.

Awarding of tenure and promotion to full professor requires:

1. International recognition of competence by the candidate's peers.
2. Publications of major importance and scope.
3. Exceptional service to the academic community.

Questions Raised by These Practices

When we examine the criteria as they relate to the appointment and promotion of teachers of technical communication, the question of the Ph.D. is the first to arise. Should the degree be a standard requirement for a teaching appointment in technical communication? If so, in what professional field or fields should it be awarded? Are there sufficient degree programs offered in these fields to accommodate those who wish to find positions in the profession? At what level (instructor, assistant professor etc.) should the requirement begin?

The criterion of previous teaching experience also raises some questions. How much college teaching experience should the applicant have for appointment as an assistant professor? Should teaching outside the field of technical communication count? If so, what fields? Should practical experience as a technical writer or editor count? What about in-plant teaching?

What should be considered as "scholarly research" for an applicant for a technical communication teaching position? Should research con-

ducted while working as a tech writer or editor qualify? Should we think of the people we wish to hire as being primarily teachers rather than scholars?

The Regular Academic Ladder

If we relate these questions to appointments on the regular academic ladder for full-time faculty (assistant professor, associate professor, and full professor) we find that, based on current practices of hiring at a majority of universities,

> 1) A Ph.D. would be required of the applicant, no matter what subject he or she teaches.
>
> 2) Teaching experience at a reputable college in the discipline for which the opening exists is required.
>
> 3) Published works of scholarly research are "highly desirable" (which means "required" --especially in the higher ranks).

But suppose we have an opening for a teacher of technical writing at the rank of assistant professor and we receive an application from a candidate with the following credentials:

> --A B.S. in electrical engineering and an M.S. in technical communication.
>
> --Two semesters as a teaching assistant in an E.E. lab course.
>
> --Two years experience as an instructor, teaching expository writing to undergraduates in the Engineering College of a large university.
>
> --Three years experience as a technical writer for a large electronics firm.
>
> --Publication of three journal articles on some phase of technical communication, in addition to the reports, manuals, brochures, etc. produced as a technical writer.
>
> --Currently preparing, in his own time, a style guide for making video tapes for classroom instruction.
>
> --Membership in the Society for Technical Communication.
>
> --Recipient of these honors and awards: 30
>
> STC award for the best article written

by a student.

The John Doe medal for excellence in teaching
awarded each year to a member of the junior
faculty at XYZ University.

<u>If We Followed the Current Practices for Hiring as Stated in the
Policies and Procedures of Most Colleges, We Would Have to Pass up This
Applicant.</u>

This is not to say that another candidate with equal credentials,

plus the Ph.D., might not come along. But the hypothetical case study

does imply, and rightly, that there is the danger of good (and sometimes,

exceptional) talent being overlooked.

I am not suggesting that we advocate dropping the Ph.D. require-

ment for college teaching. I do think we should point out, rather

strongly, however, that an alternative route should be available for

teachers of technical and scientific communication.

Many of you probably work at Institutions that already have special

provisions for hiring teachers of music, art, drama, and foreign languages.

Isn't it reasonable, then, to include teachers of writing in this category?

THE M.I.T. LECTURER/SENIOR LECTURER PROGRAM

At M.I.T. the department of Humanities has recently adopted a Lecturer/

Senior Lecturer Program for hiring and promotion, to serve as an alternative

to the regular Institute procedure. We think that it has promise. I would

appreciate having your reactions to it and also hearing about any schemes

your institutions may be trying. In the past, many posts in technical

writing at M.I.T. have been filled by hiring people part time. I dare say

you have followed this stop-gap measure too and you will agree, I hope, that

it is not the best solution for developing a sound, imaginative writing program.

The Lecturer/Senior Lecturer program now in effect offers a career plan

for young teachers already employed at M.I.T. as instructors who do not hold

a doctorate and might otherwise have to terminate their services. It also

provides the administration with a means of hiring any exceptional new

talent at a higher professional level who otherwise would not qualify for

a teaching position because of the lack of a doctorate. In brief, the

lecturer position covers the assistant/associate professor levels; the

senior lecturer level is equivalent to the full professor level. To

quote our policies and procedures document:

"The Senior Lecturer appointment is intended for those whose

maturity and professional stature are equivalent to those of full

professor."

Main Advantages of the Scheme

1. A Ph.D. is not a prerequisite for appointment in either the lecturer/senior lecturer grade. Teaching experience and experience as a writer replace it.

2. The salary range for hiring a lecturer is wider than that for an assistant professor, permitting the employer to offer pay commensurate with credentials. For example, it is possible for a Lecturer to receive an Associate professor's beginning salary.

3. A teacher with a Ph.D. who was hired as a lecturer, let's say, because no openings existed on the regular faculty ladder, can apply for appointment as an assistant or associate professor later if an opening arises. The appointment is NOT automatic, however. This teacher would have to go through a review and evaluation, just as a new applicant would.

4. Research is not a required function of the lecturer. No 'Publish or Perish". And it is optional for the senior lecturer (but certainly looked upon favorably). Teachers in these ranks, therefore, can devote more time to teaching.

Disadvantages

The major disadvantage in the lecturer/senior lecturer sequence, of course, is that tenure is not awarded. But this is not meant to label the teacher as second-rate.

You will have to look to the tenure policy at your own institutions to evaluate just what this loss means. There are some places where tenure is just a name.

32   Another disadvantage, or perhaps I should say "difference", is that lecturers have a greater teaching load than their colleagues in the

faculty ranks. (At M.I.T. this amounts to three sections vs. two, or nine hours/week vs. six hours of classroom time.) Another possible negative aspect of the lecturer/senior lecturer plan is the bias that a minority of scholars have in this country about sharing the academic scene with non-scholars. This bias often is noticeable in a scenario that casts professors of literature and lecturers of writing in the same department, competing for students and promotions. The confrontation can produce constant bickering and sometimes hostility, but can be avoided, or at least lessened, by an alert administration.

Criteria for Appointment to Lecturer

Initial appointment to lecturer in technical communication is for two or three years. Positions are filled by the Head of the Department of Humanities, upon recommendation of a search and evaluation committee. Criteria for appointment are drawn up by the senior staff member in technical communication (in consultation with the committee.) The following criteria are currently being used:

1) Since the basic responsibility of a lecturer is undergraduate teaching, an applicant for this position must have at least two years of outstanding teaching of technical writing, scientific writing or expository writing at the college level.

2) An academic background that demonstrates general competency in understanding technical subjects and singular competency in communicating about them. This requirement could be satisfied by successful completion of

   --Undergraduate courses in the physical and life sciences and/or engineering.

   --Undergraduate or graduate courses in technical writing, scientific writing or expository writing, OR courses in which major writing projects are required. (Bachelor's or Master's theses could satisfy this requirement.)

Desirable, but not required:

   --Some work (could be part time) or summer employment as a technical writer in industry, government, or business.

   --Published work at the journal article level.

   Normally, the maximum term of service for a lecturer is six years. Reviews for reappoint-

ment as lecturer are conducted the second
and fourth years.

A review at the end of the sixth year is
to determine whether or not to recommend
the individual for promotion to senior
lecturer.

Criteria for Senior Lecturer

Initial appointment to senior lecturer is for a maximum of five years.
Appointments and reappointments are reviewed in a manner similar to tenure
and promotion reviews for faculty members, i.e., they are subject to
judgment by outside experts and the approval of the School Council and
the Academic Council.

The following criteria for appointment and reappointment are used:

1) Outstanding ability as a classroom teacher, not
   only of undergraduate subjects, but also of ad-
   vanced graduate subjects.

2) Publication of research on some aspect of tech-
   nical or scientific communication, or publication
   of creative writing OR some creative activity
   other than publication that demonstrates sub-
   stantial intellectual and creative interests and
   capacities.

3) Outstanding professional contributions to the
   Department, the Institute, and the academic
   community at large (e.g., service on committees,
   administrative positions, contributions to pro-
   fessional societies.

Quoting from MIT's Policies & procedures:

Promotion to senior lecturer from lecturer is
granted only to exceptionally well qualified
and successful teachers, normally after 6 or 7

years as lecturers. Departmental recommendations
for reappointment as senior lecturer are formally
reviewed by the School council and the Academic Council.
The judgment of outside experts (nationally and inter-
nationally) in the field of technical communication
is considered essential to this review.

In closing, I want to pass out an advertisement we have just cir-
culated nationally. It calls for applicants to fill a teaching position
in technical communication. You will note that the position is open to
either an assistant professor or lecturer.

D I S C U S S I O N

Q. Your lecturer position is somewhat parallel to that in our university.
We have Agriculture Journalism, Information Services and some of the
people teach, but for the most part they produce brochures, fact
sheets and those kinds of things. And because they are in an academ-
ic setting most of them over the years have had academic rank, which
includes tenure. Now the thought is that there is some pressure to
accept what is known around here as E-track. The pay would be just
as good, in some cases better, but they would lose tenure and there
is no way that anyone so far has figured out how to keep them from
receiving that second-class status. They simply say if we are as
good as a professor, then we should have tenure.

A. This is indeed a problem, but could be worse if the salaries weren't
equivalent. I asked the chairman of my department, before I left,
to give me a ball park figure for the salary that might be available

for this position we're advertising. The appointment salary
for assistant professor and lecturer are the same: $15K for about a
nine-month appointment. I might add that there are many oppor-
tunities in consulting to supplement the base salary for teachers
of technical writing. Literature teachers and teachers of creative
writing do not get these extras.

Q. What kind of courses come under the category of teaching technical
writing?

A. We have one elective course, offered each semester. We had three
sections this semester, and probably we will have four sections next
fall and spring. In addition, we work in a co-op program with the
Engineering Departments, giving writing instruction to under-
graduates as an integral part of engineering subjects. In the
fall of 1978 we will begin a pilot program with graduate students.
The mechanical engineering graduate program is going to petition
the faculty for permission to drop the foreign language require-
ment. They feel that one year of foreign language doesn't do
enough for a student and that maybe a year of writing would do more.
Mechanical engineering has about 100 students coming into the
master's program each year. Of those, maybe 30 will be foreign
students. Of the 70 remaining, we estimate that half may need
some form of writing instruction.

Q. In your regular courses, do students learn how to use the library
sources?

A. The people from the various libraries handle that. All incoming
freshmen go through an orientation session on the use of the
libraries and again when they select a major. This is another
one of the things that the departments handle; we don't do it

ourselves. For example, electrical engineering has its own library, and there is also a general engineering library, a science library, a humanities library, etc.

Q. What type of academic schedule does MIT run?

A. MIT operates on a semester basis: a fall semester and a spring semester, with an independent activity period in between. The month of January is devoted to change-of-pace activities. We have courses in belly-dancing, wine-making -- you name it. This arrangement also means that final exams are over before the Christmas holidays and students can relax.

Q. Have you offered any writing courses to the faculty at MIT?

A. I offered a seminar in teaching writing for faculty members. I sent around a questionnaire first saying what I would like to propose and asking for responses. I had 200 positive responses but only 15 people showed up for the seminar. Actually, I'm told that my percentage of return was rather good!

Q. Have you had many takers for the senior lecturer position yet?

A. Not in our department. We don't have lecturers who are that far advanced. We will have some who will qualify before long, but they're not ready at the moment.

Q. Do you have any teachers without Ph.D.'s who are in the academic track?

A. Yes, we have someone, an assistant professor without a Ph.D., who has been promoted to associate professor. This person probably will not get tenure though.

Q. He may remain as associate professor without tenure or switch over?

A. Probably not. Anything's possible, but the administration does not want the senior lectureship to be a repository for associate

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professors who don't make tenure.

Q. If they choose the academic track at the beginning and don't make tenure, then they're out?

A. Yes, that is correct.

Q. Is there a difference in requirements between the lecturer and senior lecturer position -- both of those positions obviously require writing?

A. Yes. Publishing is required by the senior-lecturer. The lecturer is not required to publish.

Q. Yet one of the criteria that you are looking for in the lecturer in tech. comm. is that he publish.

A. For appointment but not to hold the office.

Q. Once he is there he can stop?

A. We hope not. It is not required. If we are going to insist that this fellow teach three sections and not have any time available to do research - then we won't require him to publish.

Q. That's my point. The lecturer could do things like, for example, technical writing, reports - etc. How about your professorial line - is that supposed to be scholarly research? Let me give you an example of a friend of mine, some of you will recognize. When he left the Air Force Academy back in the late 60's he had published two very fine books. One was the Life of Amelia Earhart, the other one the Joint Lives of Nordhoff and Hall. He was looking, of course, to the scholarly professorial rank and he ultimately got very well placed. But he was refused at several institutions because these two books, which were both well received, and required enormous re- search, were not scholarly. An article in PMLA would have done him more good than two biographies. Now how would you fit into that?

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A. I would say they <u>would</u> count, if this person were teaching writing.
    I would think it very unfair if they didn't.

Q. We had for instance, the novelist Gladys Schmidt, who had only a
    BA degree from the University of Pittsburgh. She got tenure, of
    course, and was a full professor and occupied a chair actually
    before she died.

Q. At RPI we had a similar system, but it's "de facto" rather than
    formally arranged. We were in the same predicament that you found
    yourself. Early on the Department of Language and Literature and
    now Communications was considered as a service department, and a
    Ph.D. was not considered necessary. What they felt they needed
    were good teachers. They didn't care whether anybody had a Ph.D.
    so we're in a predicament now where we essentially have two tracks.
    We have people who've been around for a long time who do not have
    Ph.D.'s and now the new people coming in must have Ph.D.'s. They
    must publish or perish, whatever. Tenure is tough, and the way
    RPI has handled it is with contracts. We don't use the title
    lecturer-senior lecturer, it's messy, but as long as the person
    continues to be a good teacher he can pretty well stay. He has in
    a sense "de facto tenure". The thing that worries me about
    these kinds of systems is -- O.K. we give these people contracts,
    without tenure, and they're subject to the whims of changing ad-
    ministrations. What does a teacher do when he is age 55 and he's
    got a wonderful record and we get a new department head who doesn't
    like him?

A. I think the only way that you can look at it is to say that without
    the second track he wouldn't be able to teach at RPI or, perhaps, at
    many other places. So one has to make a choice about one's career.

Whether you want to stay in teaching or not.

Q. What is the size of the courses lecturers teach?

A. We try to get each section down under 20 and keep it at 15 if

possible. It doesn't always happen, but we like to keep class

size down to 15 if we can. We get enrollment figures for the

chairman to look at and show that over the past ten years the

enrollment has grown, and that the trend says we are going to

have this many more people next year. We try to figure ahead

of time what enrollments for new courses will be and then present

the case to the chairman of our department.

Q. Tell us more about the Writing Program at M.I.T.

A. Our writing program at M.I.T. includes writers in all areas.

The creative writers, the poets, the people who teach the

short story and the novel, the people who teach science writing

and technical writing are all in one large group called "The

Writing Program". They number about 15. The program was started

as a pilot program so that it could be evaluated by a group of

people from outside. They took a whole year to do this evaluation,

and they came up with a written report to the dean of the school

making recommendations on the program. One of the recommendations

was that they felt the writing program should be taken out of juris-

diction of the Department of Humanities and be given an independent

status under the dean of the school. We have a lot of centers at

M.I.T.; they are groups that grew too large for an individual de-

partment and became separate entities, usually under the dean of a

school. One of the recommendations of this evaluation was to take

the writing program out of the Department and make it a writing center.

The Center for Writing Programs or whatever. That recommendation was

not followed. The Writing Program is still under the Department of Humanities, and I guess it will stay there for the foreseeable future.

Q. Does this bother you?

A. It doesn't bother me. I have always worked in the Department of Humanities, and I have always had good relations with the head of the department. But I represent just one phase of the writing program; some of the creative writing people have not had good relationships with the head of the department. Probably, some of them will be leaving. In any event, I think it makes sense to put people who are creative writers, technical writers, science writers together. They should be able to exchange ideas: I might have some things that might help you, and you have some things that will help me - why separate us? We are all trying to teach people to write. Why not consolidate?

A PROPOSAL FOR PLANNING AND ACHIEVING A PROGRAM FOR EDUCATING
HANDICAPPED TO BECOME TECHNICAL AND SCIENTIFIC TRANSLATORS

by
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ABSTRACT

The twin problems of rewarding education for the handicapped and the growing need for competent scientific and technical translators are attacked by combining them into this educational program for teaching the blind, the deaf, the dumb, in the skills and knowledge necessary to perform effectively in the modern international scientific and technical community.

Problem

The problem is two-fold, but fortunately a single solution is available. The first problem is that very few really rewarding jobs are available to the handicapped--the deaf, the dumb and the blind. The second problem is that really competent technical and scientific translators are a rarity, although very badly needed and highly paid.

Objectives

The objectives are to plan in detail, collect and prepare the many special materials which the plan might require and to educate deaf, dumb, and blind people to become scientific and technical translators: the deaf and dumb to specialize in written translation; the blind to specialize as oral translators at international scientific and technical events. There is some reason to suspect that the "handicaps" of the student translators may in fact be advantageous in the proposed context.

Procedures

The basic procedure is simple in outline, but the details will require careful, extensive and expensive planning and preparation.

In outline it is to educate handicapped students by appropriate language skills, scientific and technical vocabulary and background as well as general college subjects, leading to a Bachelor's degree in Technical Communications-Foreign Language.

The details are more complex and it is to resolve these that some of the funding is being requested. It is estimated that it will take four experts a year to plan the required curriculum and prepare the language tapes and programs which will be required during the four-year course. This seems expensive

and time-consuming. However, a makeshift program will bring no real relief to the problem, but a well-prepared one will, on the other hand, have a lasting and continuous effect with long-range savings.

Evaluation

Final evaluation of the program will, of course, be the ability of its graduates to perform satisfactorily as scientific and technical translators. They are needed--the jobs are there. Interim evaluation will depend on student feedback progress and performance in internships that the program will arrange.

Facilities

The Colorado State University will provide the basic educational facilities. Additional specialized equipment such as study tapes and computer program, books and materials will have to be purchased. Exactly what these will be, however, will have to await the results of detailed planning.

Personnel

The faculty of Colorado State University will provide the basic personnel. In addition, during planning, four additional full-time people will be necessary. During the teaching phase, it is expected that two additional people will be required. However, if the program proves successful and becomes popular, additional faculty will have to be added to maintain educational standards.

Dissemination

Much of the success of the program will depend on informing prospective students of its existence. Doing this will be an essential part of the planning phase. Announcements should be national and extensive to all agencies, institutions and associations in a position to encourage students. After the first students have graduated, or before that, if required or appropriate, reports will be made to interested agencies of progress and evaluation, as well as to communications to educators and professionals via journal articles and conferences.

Budget   (1 year planning and 4 years execution)

Salaries

Program Manager	$64,000	*
Program Planners	48,000	*
Program Faculty	128,000	*
Graduate Assistants	48,000	
Work Study Students	20,480	
Secretary	35,000	*
*PERA at 10.64% of * on $275,000	29,269	
Total	$372,740	

Materials

Office Supplies	$5,000
Duplicating Material	5,000

Mechanical-Electronic Supplies

Tape Recorders	1,000
Translator Boxes	3,000
CRT Terminals	6,000
Tape Punchers	3,000
Special Typewriters	5,000
Tapes (Magnetic and Paper)	2,000
Total	$30,000

Travel

Professional Meetings	$10,000
Consultation	10,000
Subsistence	5,000
Total	$25,000

Other Direct Costs

Computer Use	$400,000
Publications	10,000
Outside Consultants	20,000
Service Contracts	5,000
Alterations, etc.	10,000
Instructional Materials	12,000
Scholarship Fund	128,000
Communications	5,000
Final Report	1,000
Total	$591,000
Grand Total	$1,018,740
Indirect Costs and Overhead	$265,018
	$1,283,758

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Conclusion and Request

Although the cost is initially high, it must be remembered that it is spread over a five-year period, so the annual cost is reduced to $256,752. Moreover, much of the expense is a one-time investment and the continuing expense of the program, should its continuation after the trial period is over be desired, will be approximately halved. Also the cost is almost independent of the number of students (up to the point of facilities and faculty saturation-up to about 20 students). Therefore, if 20 students are educated during the four-year trial period, the total cost per student would be about $14,750 per year.

It is suggested, therefore, that an initial grant be made the academic year 1977-78 for $103,000 to fund the planning stage. Then if the plans are acceptable, an educational grant of $1,180,758 be committed at the rate of $295,190 per year, for the succeeding four years before which time, the decision will be made to continue the program or not, depending on results.

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INTERNSHIP PROGRAMS IN TECHNICAL COMMUNICATIONS

FOR THE TECHNICAL STUDENT

by Leslie A. Olsen
University of Michigan

Those of us teaching in technical communications programs
try to prepare our students to do well the kind of writing re-
quired of practicing engineers, scientists, or technical writers.
Unfortunately we find little support or reinforcement for such
a goal in the traditional academic setting. On the job, the
professional writes from a position of relative knowledge to one
of relative ignorance (the writer knows more than the audience).
Further, the professional writes to a diverse multi-person
audience including managers with business or financial back-
grounds and experts in particular technical fields. In contrast,
the student in an academic setting usually writes from a position
of relative ignorance to one of relative knowledge (the audience
knows more than the student). Further, the student usually
writes not to a diverse multi-person audience, but to a homo-
geneous single-person audience, the professor. Thus, to give
students a more "real" professional environment, many institu-
tions have set up internship programs which place students in
local government or industrial settings. These programs
expose the students to many of the audiences and communication
situations they will later encounter as practicing engineers,
scientists, or technical writers.

My purpose here is to describe the variety of internship
programs we have developed in the Humanities Department at The
University of Michigan and to suggest some ways in which our
programs do not duplicate other internship programs.

COMMUNICATIONS OPTION IN THE INTERDISCIPLINARY ENGINEERING PROGRAM

Our most ambitious internship program occurs in the communi-
cations option of our interdisciplinary engineering program. Let
me first describe the program and the students and then describe
how the internship fits into the program. Students in the inter-
disciplinary program pursue an engineering degree, a Bachelor of
Science in Engineering (BSE) in Communications. This degree
deals with the interface between public systems management and
engineering and the communication problems that arise there.
Students pursuing a BSE in Communication write about public
systems engineering, environmental impact issues, urban planning,

or technology assessment. In short, such students are interested in scientific and technical communication in the political arena. Such students take courses in many different areas. They first complete the rigorous series of basic math, science, and engineering courses required of all Michigan engineering students. Then they elect courses from such relevant areas as business administration, law, and journalism, as well as courses in technical communication and communication theory. A typical curriculum might include courses in human behavior and organization, organizational theory, interpersonal dynamics and management, introduction to computers and communication, elementary programming concepts, and programming languages and algorithms. As is evident in this list of courses, the focus in this program is on functioning professionals in various professional fields, not on people who are specifically interested in technical writing or even in teaching technical writing.

Students in the BSE Program, Communications Option

We want to recruit students for our BSE program who are different than students in some of the other technical communications programs. We do not want students who are primarily English or journalism majors hoping to become technical writers, but students who have advanced technical training in a variety of backgrounds--engineering, law, forestry, or urban planning. We would like them to have the equivalent of the bachelor's degree or to be pursuing a bachelor's degree in their own technical field. And we'd like them to be good in that field; we are not interested in the failed engineer or urban planner.

We are interested in these non-traditional communications students because we expect them ultimately to become organizational managers rather than professional technical writers. We are trying to train technical communicators, not technical writers.

One intern who has already gone through the program is a good example of the type of student we're seeking. This student has a very strong background in mathematics and engineering. During her internship she worked as a technical writer for a sub-contractor for General Motors and helped produce a manual for putting transmissions into trucks. Now (two years later) she is a project engineer at General Motors--an engineer rather than a technical writer. She is the type of person we ultimately see our program as producing.

Obviously such a person needs many skills in addition to communication skills. This person must be able to interface between engineers, lawyers, sales people, and managers; must be able to deal with these people; must be able to read blueprints; and must know something about the technical areas under consideration. We want students who have the background to do that.

Internships in the BSE Program, Communications Option

The internships for students pursuing the Communications Option of the Bachelor of Science in Engineering occur near the end of the students' programs and, as do most internships, provide "real" situations in which the students practice and refine what they have learned. So far, our internships have usually occurred in host institutions involved in computers and computer programs or in medical technology. (These fields are heavily represented in Ann Arbor, where we are located, and firms in these fields seem especially interested in our interns.) Interns in chemical engineering and science writing have also been requested.

Interns in our host institutions have generally participated in two different types of activities. They have either evaluated and rewritten existing documentation or they have created new documentation. They have been more than just technical writers or just technical editors; they have been writer-editors competent to evaluate the adequacy of the technical content.

INTERNSHIPS IN ACADEMIC SETTINGS

Since relatively few students can participate in off-campus internships, we sought to provide a kind of internship experience to the many more students remaining on campus. These "internships in an academic setting" again focus on the technical student (as opposed to the English or journalism student) and involve seniors or graduate students.

"Internships" in Technical Courses

One way we involve a relatively large number of students in "real" communication situations is by tying our communication courses in with specific technical courses. We offer a series of mini-courses, for instance, affiliated with engineering design courses. In these design courses, the students design some item and produce a design proposal. We go into such a course and give a one-unit mini-course on the design proposal tied to the particular engineering project. The completed design proposal is then submitted to some appropriate funding source or external examiner for evaluation. In a variant of this approach, we offer a several hour, non-credit "consultation" to various design courses to help with the design proposal. We also offer a mini-course in oral technical presentations which can be tied in with any particular project or design proposal.

As a variant on the internship programs in which students work in industrial settings, this "academic internship" has one unusual and useful feature. It helps to make the engineering professors

more aware of the complex audiences their students will face as
professionals and encourages the creation of more "real" design
situations in technical courses.

"Internships" in the Library

Another way we have involved a large number of our students
in "real" communications situations on campus is to offer two
different orientations to information resources to our technical
writing students. Why have we done this?

When our students in technical subject areas graduate, they
are usually well prepared to do the calculations and laboratory
procedures required by them in their jobs or graduate school
school careers. Unfortunately, these same students are infinitely
less well prepared to keep up with the many changes occurring in
their fields or to do even the most elemental information research
on a topic they may be assigned the day they report for their
first post-graduate job. Both of these inadequacies may destroy
their authorial credibility as report writers. The real disparity
between a student's undergraduate preparation and his professional
demands appears in the following set of quotes.

Senior #1: "For your information, I've never set foot
            in the Engineering Library. It hasn't been
            needed yet."

Senior #2: "I have used these references at my place of
            employment but not for classes."
            Applied Science and Technology Index
            U.S.Monthly Catalogue of Government Documents
            U.S. Government Reports Announcements & Index
            Selected Rand Abstracts
            U.S. Department of Defense, Index of Specifi-
              cations and Standards
            InterDok: Directory of Published Proceedings

Student #1's lack of preparation is by no means unique. A
recent survey of 167 seniors in engineering revealed that only
about 8% of the seniors had ever used or even looked at the
basic research tools in their fields. This is especially critical
in such quickly developing fields as engineering where most of the
necessary material is not available in books (which are relatively
easy to find) but in journals, reports, patents, conference pro-
ceedings, catalogues or other non-library sources—all of which
may be very difficult to find. It is also critical for student
and professional report writers whose authorial credibility
depends at least partly on the thoroughness of a literature
search. If a writer cannot find any of the previous work on a
topic, his/her discussion of the "Background" or "Previous Work"
will necessarily be sketchy.

Thus, we have two different approaches or "internships" at the University of Michigan's College of Engineering for providing instruction and "real" practice in the use of information resources. Both approaches were developed through the cooperation of technical librarians and technical writing teachers.

Overview of Library Resources

In the first approach or "internship" an overview of relevant library resources is given to all students in a senior-level technical writing class just before they are to write job letters and résumés and their first technical reports. This overview deals with the following topics:

1. The information on a card in the card catalogue and the use of the shelf list and serials records which allow a student to discover which copies of a book or issues of a journal the library holds.

2. Description of several major indexing and abstracting tools, including Applied Science and Technology Index, Engineering Index, and Chemical Abstracts.

3. An overview of government document and technical report literature and the use of Government Report Announcements and Index.

4. Brief mention of patents literature, major business and technology reference works such as handbooks and encyclopedias, and U.S. standards and specifications including those set by OSHA and Underwriter's Laboratories.

In the technical writing class, the students are asked to use and cite library resources where relevant. For instance, when they are preparing job letters and résumés, they use several major business resources to find information about their prospective employers such as:

Standard and Poor's Register of Corporations to learn about major product lines, officers, locations, and subsidiaries.

Funk and Scott's Index to locate news articles about the company from such sources as the New York Times, Business Week, and The Wall Street Journal.

At other times, students are asked to find relevant material for a report using several of the sources described in the overview lecture.

"Internship" Course in Library Resource Materials

In the second approach, an "internship" course in using resource materials was developed by the author (a technical writing teacher) and a librarian. To assure maximum benefit from the course, a student is allowed to enroll only if he/she has a current research topic either for a technical course, for thesis work, or for a project arising out of part-time employment. The course meets for one two-hour session per week for eight weeks. The course covers:

I. Books: a discussion of publishers and publishing patterns in technology, bibliographic tools such as Books in Print and Forthcoming Books, and the use of the card catalogue.

II. Journals: a discussion of types of university presses, scholarly and popular publishers, Ulrich's International List of Serials, national union lists showing the journal holdings of many institutions, etc.

III. Indexes and Abstracts: organization and use of subject indexes (e.g., Applied Science and Technology Index) and multi-approach abstracting services listing by subject, author, and sometimes by chemical formula, patent number, and author's corporate or institutional affiliation (e.g., Chemical Abstracts, Computer and Control Abstracts.)

IV. Conference Proceedings: indexing and bibliographic control of conferences via such sources as InterDok: Directory of Published Proceedings, Proceedings in Print, and professional associations.

V. Documents and Technical Reports: review of government, university and corporate publishing and distribution of their reports via Superintendent of Documents and its Monthly Catalog, the National Technical Information Service (NTIS) and its Government Reports Announcements and Index, and private mailings, etc.

VI. Standards, Specifications and Patents: history and development of voluntary and mandatory standards and specifications from American National Standards Institute (ANSI), professional societies, International Standardization Organization, and the U.S. Government. Procedures for obtaining a patent and use of the literature through searching.

VII.   Reference Sources Outside the Library: discussion
       of directories for locating "experts" (e.g.,
       Encyclopedia of Associations, Directory of
       Industrial Research Laboratories), use of yellow
       pages, city and state offices, direct mail
       advertising, etc.

VIII. Business Sources and Updating Skills: Business
       Periodicals Index, Standard and Poor's Register of
       Corporations, Thomas's Register of Manufacturers,
       Funk and Scott's Index. Techniques for keeping
       current or learning about new fields, looking for
       general scientific periodicals such as Science,
       Scientific American and American Scientist.
       Discussion of publication from various professional
       societies (IEEE, SAE, etc.); use of industrial
       libraries.

IX.   Future Information-Handling Technologies: Video-
       tape on the advantages and limitation of computerized
       bibliographic searching.   On-line computerized
       bibliographic search through The Lockhead Dialogue
       or SDC Orbit systems for each student.   (The data
       bases include on-line files of approximately 50
       printed sources including Chemical Abstracts,
       Engineering Index and technical report literature
       from the National Technical Information Service.)

      In addition to lectures and supervised work on the resources
cited, the "internship" course includes the definition and comple-
tion of a term project which would be useful for or similar to one
a practicing professional engineer or scientist would produce on
the job.

      More information about these courses in available from Leslie
A. Olsen (Department of Humanities) or Maurita P. Holland (Head,
Technology Libraries, Engineering-Transportation Library)--both
at the University of Michigan, Ann Arbor, Michigan 48109.

CONCLUSION

      This overview of our internship programs has tried to des-
cribe some of the ways we in the University of Michigan's
Humanities Department have viewed the internship in technical
communication. We have tried to provide internships mainly for
students highly trained in a technical discipline such as
engineering, natural science, or urban planning. We have tried
to provide a variety of internship experiences to a wide range
of students. And we have developed a series of on-campus
"internships" aimed at students traditionally denied "real"
world perspectives of their disciplines.

TECHNICAL ADVERTISING - CLASSES THAT WOULD HAVE HELPED

Karen Bunting - The Trane Company

I'm afraid a lot of what I'm going to say is going to
be an echo of the previous talk, but... I'm working
at The Trane Company in La Crosse, Wisconsin. We
manufacture air conditioning, heating and ventilating
equipment. My title is Catalog Coordinator. I started
as a copywriter and have been sort of half-assed promoted -
excuse the adjective. So now, I'm supervising two
other copywriters and I report to the Manager of Sales
Promotion. We're part of the Advertising Department
but it is technical advertising. It's not normal
consumer advertising.

When I started out, I can't honestly say a lack of
any classes kept me from getting certain jobs,
because, honest to goodness, the job market did that
itself. It was impossible. It took me about four
and a half months to find a job. In fact, the job
I now have was my first interview - and when they offered
me the job I grabbed the opportunity.

I did find three major disadvantages in the classwork
I had. As has been said before - production. I didn't
know keyline, galley, velox or PMT. I had no idea what
any of these things were. I knew an editor used a blue
pencil, but I didn't know why it had to be blue.
Proofreader's marks - I knew some of them but really
very few. In other words, I really think a production -
course is needed. Not only, in my case, for my benefit,
but because I schedule everything from the conception
of a project to the very end - when it's mailed to the
field. To do so I have to know how long these processes
are going to take and I also have to explain them to
the engineers - because they think it's magically going
to appear in print the minute I get it into my hands.
So a production course is very definitely needed.

Secondly, I didn't have any industrial marketing or
advertising background at all. I wasn't familiar with
technical magazines (not technical journals). I also
wasn't familiar with the kinds of advertising that
industry uses - bulk postcard mailings, inserts - the
whole bit. Direct mail? I had no idea how important
that is in industry, nor did I know the importance
of catalogs - which are really the backbone of any

industrial advertising. I just had no idea about any
of these. Maybe a technical writer per se doesn't have
to know these things, but I think the majority of us
who graduate in these programs aren't going to end up
purely technical writers - there just isn't the market.
So I think a technical advertising class is important.

Before I get to the last thing, I just want to mention
some of the good classes I had. Principles of
Language Development. Mainly because I am now able
to see a Latin or French word and immediately get it
down to the Anglo-Saxon - and that really irritates
the engineers. They just love to be pompous, and they
don't appreciate my "little words". So, it's helped
me in that respect - just because I can make things
much more clear.

All my writing classes helped a great deal, but there
is one problem. You never edit someone else's work.
If you're going to become a tech writer, that's all
you're going to do - at least for the first few months.
In my job, for example, this was the first engineering
bulletin I did. In our company, an engineering
bulletin is written on something very technical and it
goes to our field sales force - which are, by the way,
all degreed engineers. This engineering bulletin was
30 pages long when I got it. It's called "Centrifugal
Fan with Scroll Bypass Damper". I looked at this thing.
I read it four times. It made no sense. The fifth
time I outlined it - and finally realized it was just
in a screwy order. So I kind of fixed it (remember -
it was my first try at this kind of thing). But I
had never before had to rewrite, let alone edit,
anyone else's work - and it is so foreign until you
learn how to do it.

There's a whole book of etiquette that could be written
on editing other people's work. There are so many things
to learn about it that I think if there were some way
of getting ahold of rough drafts of, in my case it
would be engineering material, and having classes sit
down and be responsible for putting this out in a
finished form - I think that would just be great!

I asked my boss for some recommendations - what else
should I have had experience with that I didn't. First
of all, he thought maybe if we had a minor of sorts -
not really a minor but some specialty that interfaced
with our major. For example, we would be in technical
communications with an audio visual specialty - or

graphics or advertising – something on that order.
Some small thing that can make us a little more
specialized when we hit the job market. A tech com
major, you can spread out in so many directions – which
is part of the joy of it, but it also can hinder you
some.

His second suggestion was office psychology. I don't
know how you're going to teach that ever, but he felt
it would be an important thing. Learning how to get
along with engineers and now learning to supervise
my own people – it's not covered in any course that
I know of.

I thought I'd bring along some of our literature –
I'll just throw these things out. These are technical
and yet are sales literature too – so it's kind of a
nice marriage between the two for me.

Now, to recap. A class on production techniques,
one on industrial advertising (maybe an option),
experience in editing someone else's work – an absolute
must – and my boss's suggestions – a minor to interface
and office psychology. Are there any questions?

GRADUATE PROGRAMS IN BIOMEDICAL COMMUNICATION

Kenneth L. Kuczynski
University of Nebraska

I first would like to thank Dr. Pearsall for inviting me to speak to you on behalf of Reba Bonschoter, Director of Biomedical Communications, University of Nebraska Medical Center. Due to schedule conflicts Reba could not attend this council meeting.

This afternoon I would like to discuss the role of the Biomedical Communicator as it applies to a medical center setting, the Biomedical Communications Division and the graduate level program in Biomedical Communications offered through the University of Nebraska.

The rapid increase of knowledge in the health sciences has made the eduction of health professionals a particularly challenging field. To help meet this challenge, a new type of professional, the Biomedical Communicator, is being called on to assist educators in training more health care personnel more efficiently than ever before.

The Biomedical Communicator specializes in the planning, production, utilization and evaluation of today's audiovisual teaching tools--television, films, slides, overhead transparencies, charts, manuals, pictures, programmed texts, videotapes, audio tapes, models and scientific exhibits.

Biomedical Communicators can be found in a variety of health and educational settings, including medical and nursing schools, university extension programs, allied health training programs, large hospital systems, pharmaceutical firms and medical continuing education centers. They work independently or as members of a communications staff, all with the same goal in mind--the transfer of knowledge.

The University of Nebraska Medical Center is a complete health education and care center located in Omaha. The Medical Center is made up of seven components: the College of Medicine and School of Allied Health Professions, the College of Nursing, the College of Pharmacy, Nebraska Psychiatric Institute, Meyer Children's Rehabilitation Institute, the Eppley Institute for Cancer Research, and University Hospital and Clinics.

These components are dedicated to the Medical Center's basic goals: education of health care professionals, service to patients, research, and extension of resources into Nebraska communities.

The Biomedical Communications Division has evolved from the Communications Division of the Nebraska Psychiatric Institute, first established in 1957 by Reba Benschoter. This division is responsible for the production and use of audiovisual materials throughout the Medical Center.

Long recognized as a leading maker of 16mm mental health films, the Communications Division has pioneered in other areas as well. The Department of Psychiatry (Nebraska Psychiatric Institute) was one of the first to use a telephone network for academic lectures

transmitted to Nebraska's three state mental hospitals. The
Department also has been using closed circuit television in teaching
and research for twenty years.

In 1964 the Communications Division established the first two-
way closed circuit medical television system in the country between
the Medical Center and the Norfolk State Mental Hospital, 112 miles
away. A second two-way network is operating, linking the Medical
Center with the Omaha, Lincoln and Grand Island Veterans Adminis-
tration Hospitals. This two-way connection also includes the
University of Nebraska College of Dentistry and the Creighton Univ-
ersity School of Medicine teaching hospital.

The Biomedical Communications center offers a variety of
services to its cusomers from media production in all formats,
to a media library information and retreival network.

Virtually all phases of media production are carried out
within the BMC Department. This includes scripting, medical writing,
medical photography, graphic arts, video and audio recording.
All these activities support the educational goals of the Medical
Center.

The internship program in Biomedican Communications requires
at least 36 hours of graduate credit through courses at the
University's Medical Center, Lincoln and Omaha campuses, plus a
rotating internship experience during a 12-mongh period. Students
receive a minimum of 80 hours training and experience in each of
six areas important to biomedical communications. The areas of
internship are: closed circuit television, cinematography, hardware
and software resources and administration, graphics, learning
resource center, and photography.

My position within the department is that of Resource Manage-
ment Assistant. This includes assisting Reba with the cinema-
tography phase of the student internship program. My primary
function has been to assist the art department by working on some
of the daily graphic requests that come into the department. From
time to time I also fill in as a departmental representitive on
various committees throughout the Medical Center. These include
PR, Human Relations and Safety.

Dr. Pearsall asked that I describe my background, education
and what prompted me to choose this career.

I graduated from a junior college in Michigan in 1968 with an
Associate of Arts degree in Commercial Art and Graphic Design.
For about a year and a half I worked for a subsidiary of General
Motors as an automotive illustrator.

In 1969 I joined the Air Force. During my tour of duty I
occasionally worked as an illustrator but my primary function was
aircraft refueling. About the time of my discharge I began to plan
my educational future. In my mind I listed those things I liked
and tried to match them to existing programs. I eventually narrowed
the field down to medical communication.

I enrolled at Minnesota taking general college courses in
science, math and English. I knew where I wanted to go but my problem
was getting there. I was familiar with Reba's BMC graduate program
having read about it in Biomedical Communications. The counselors
could only suggest journalism as a possible major for me, which
meant a long waiting list to enter the program.

One day a friend, who was taking a class at the St. Paul Campus,
described to me a display he had seen in the Student Union. The
display consisted of magazine cover relating to various areas of

of Technical Communication. I immediately contacted Dr. Schuelke and together with him and Dr. Pearsall I devised a program of study in the area of Biomedical Communication. My course work included communication theory, writing, video production, and several journalism classes to name just a few. I also developed my science background and even took an anatomy and physiology course. To gain insight into the health care field I worked as a hospital orderly and ambulance attendant.

That pretty much covers my background; are there any questions?

Q. What did you see as your biggest obstacle in going through the Tech Comm Program?

A. I think the biggest problem with the Tech Comm program is the fact that were not able to take a lot of the offered classes on the main campus. For example, journalism and speech communication offered an enormous number of classes beneficial to the tech comm student who is unable to take them basically because of the amount of people in both those programs, so we had a waiting list situation. This made it difficult to plan your schedule and plan your classes, because there are a lot of courses you want to take and may never get a chance to take them. I think I'm still on a waiting list for a photography class. I think that for the future I would like to see tech comm become a part of the university setting. People working in the biological sciences, veterinary science and medicine should be made more aware of the tech comm program, its students, and what they are doing and what they can do for these areas. I also think that the students should begin in their freshman or sophomore years to definitely enroll in either medicine, biology, veterinary medicine or business administration, as background classes for their area of interest. I found that it was really beneficial to have this basic background in the sciences because a lot of the students that are in the graduate program at Nebraska, have no medical or science background. Mention neurology and they're lost. They have no idea what neurology is.

Q. May I interrupt you—where do most of the students in the BMC program come from?

A. They come from all over the United States. This year we have one student from Nebraska who is a teacher. She taught one year in secondary education and wanted to work in adult education. We have a gentleman who's from Detroit who worked for several years in a hospital doing photography and video productions, who also worked for Channel 7, an ABC affiliate. We also have two communications majors. They're not all communication majors and they're not all medically orientated. (The students from a lot of programs, for example, would perhaps fit in this type of program, no matter what.) Right, the only drawback is that we only allow six students into the program so students are closely screened.

Q. Do you have any idea how many programs are all like this?

A. I don't know off hand, but I understand there are only 5 or 6. (You have one and Rochester Institute has one). Right, I think that Ohio State may have one and Texas has a program. (We're working toward starting one and I don't know what form it's going to take.) The BMC Program at Nebraska has been in existence for 5 years and each year it develops more and more as the program picks up momentum. Graduates seem to have no problem finding employment. They can work at most medical centers. . . or if they're interested in some other area of communication.

Q.   How many applicants do you have?
A.   Students are selected by their graduate entrance exam score,
interviews and a graduate student-selection committee.
Q.   What has happened to those who graduated?
A.   Quite a few of the graduates to into the different aspects of
education. We have one female graduate working in patient education.
She works with the nurses and the physicians in the community de-
veloping patient education materials. Biomedical communication
right now is not an accepted term. It's acceptance is growing as
it gets out into the medical profession and into the other science
areas. I think it's one of the big problems in our field. People
aren't quite sure what a biomedical communicator is. The same holds
true for technical communication. I think the tech comm program
needs a PR campaign to get its message to everyone; hospitals,
pharmaceutical firms, publishing firms and anyone else who has a
communication function. They need to know what a tech comm major
can do for their instititujon.
Q.   You mentioned the value of your communication theory courses.
Could you exemplify that at all?
A.   I began by taking the undergraduate courses in the program,
business and management communication, interpersonal communication
and several others. I also took some of the graduate level communi-
cation courses as a senior and found those very helpful. Theory is
very important and I feel that the courses here on the St. Paul campus
are really great in that they provide a good background for the
communicator.
Q.   Do you have any idea what the basic budget would be?
A.   That I don't know. I do know that the cost per student is
$2,500. That covers the expenses of the film and processing and
art materials and wear and tear on the equipment plus the graduate
school tuition.
Q.   What proportion of your time is spent in writing?
A.   I would say I spend probably anywhere from 4 to 8 hours a week.
Not a lot. It depends on what I'm doing. When I was researching
the different evaluation forms I did a lot of writing and rewriting
of the evaluation form, especially the student evaluation forms. I
also worked as an assistant editor for our newsletter. I dig up
news stories in the area of communication and report on what our
department is doing for various people in the university setting.
Q.   Who wrote this little thing?
A.   Sandy Benson. She's one of our chief writers. She's been
with the department for 4 or 5 years. She is an English major and she's
working towards her masters in adult education as are several other
people: I would say that we have, out of a department of 30, at
least 20 that are college graduates. The rest are recent high school
graduates.

New Program Development at Texas A&M

Merrill D. Whitburn

At Texas A&M we are beginning to see the fruits of our work in three important areas for program development in technical communication.

All indicators suggest a strong demand for technical writing teachers in the future. We have introduced a course in which 12 graduate students are currently preparing to teach technical communication in community colleges and universities. The course is designed to inform students about the current state of research and development in technical communication and the day-to-day progress of our standard undergraduate technical writing course. Current research projects, some of them involving teamwork, include an annotated bibliography, the impact of science on seventeenth-century prose style, cooperative education and technical writing, the foreign student and technical writing, and the technical writing introduction. We are currently working on a Ph.D. writing emphasis with a strong technical writing component.

There continues to be a need for professional writers in business, industry, and government. To meet this need, we have designed an undergraduate writing specialization. The specialization consists of four core courses in English and sets of satellite courses from other departments. The courses in English focus on audience analysis, technical writing, editing in business and industry, and the writing of technical speeches and other presentations. A typical set of satellite courses focuses on news writing and layout and publications production. The specialization has been approved

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at the department level and must yet be approved at the college and

university levels.

With students from various departments becoming more aware of the need

for technical communication skills in their future professions, enrollments

in our current courses for non-specialists are expanding, and we have been

asked to introduce new courses. Our graduate course in "Technical Writing

for Publication" has continued to grow each semester until we are offering

two sections this semester. At the request of students, we are now pre-

paring a graduate course in "Technical Editing" and expect to add other

courses in the future. Our standard undergraduate technical writing course

has about 1500 students each year and is projected to increase to 2000 in

the next few years. Heads of other departments have indicated that they

will make individual courses in our writing specialization required for their

students, and we expect a number of students from other departments to join

students from English in obtaining the specialization certificate. With the

growth of our technical writing staff, we have instituted workshops in the

Fall and Spring where we share ideas about the teaching of technical writing.

Central to program development in all three of these areas is close

contact with business, industry, and government. We recently sent letters

to 300 employers in Texas to explore their attitudes about the communication

skills of college graduates, curriculum development, and interest in closer

contact with us. We have begun a cooperative education program in an effort

to give students intending to become teachers and professionals full time

technical writing experience for a semester or more. We are working on a

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continuing education program to bring the teaching of technical communi-

cation into employer offices.

Detailed articles about several of these developments will be completed

within the next few months.

CONSTITUTION

ARTICLE I
NAME:

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

ARTICLE II
PURPOSE:

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 of new programs in technical and scientific communication, and (5) promote exchange of information between this organization and other professional organizations 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. 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 one-year term of office.

The duties of the officers shall be:

President: 1) preside at the annual national convention of the organization.
2) represent the organization at official functions.
3) serve as chairman of the executive committee.

Vice President: 1) perform all the duties of the president in the event of the president's absence.

Secretary: 1) maintain all records of the organization including matters of correspondence.

Treasurer: 1) handle all financial matters of the organization including the receiving and recording of dues and payments and paying the bills of the organization.
2) maintain an up-to-date membership list.

The president, vice president, secretary, and treasurer, plus the immediate past president and one member-at-large, elected by the membership, shall serve as an executive committee. The executive committee shall have the right to act on the behalf of the organization at such times as the organization is not meeting in full assembly 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 III hereof.
No substantial part of the activities of the organization shall
be the carrying on 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(c)(?)
of the Internal Revenue Code of 1954 (or the corresponding pro-
vision of any future United States Internal Revenue Law).

ARTICLE VI
MEETINGS:

The organization shall meet in full convention annually. The
location of the annual meeting shall be determined by vote of
assembly at the preceding convention. The approximate date of
the meeting shall also be established.

Special meetings of the organization may be held at need as
determined by the executive committee.

ARTICLE VII
FINANCES:

The dues for the organization shall be $15.00 per year
payable prior to or upon registration at the annual meeting.

ARTICLE VIII
ELECTIONS:

The election of officers and members-at-large to the executive
committee shall be held at the annual meeting. The existing
executive committee shall each year nominate a slate of
officers and a member-at-large and have this slate in the
hands of the membership 30 days before the annual meeting.
Nominations will also be allowed from the floor at the annual
meeting. Elections shall be by written ballot.

ARTICLE IX
CONSTITUTIONAL
AMENDMENT:

This constitution shall be amendable by a two-thirds vote of
the assembly present and voting at the annual meeting. Proposed
amendments to the constitution must be in the hands of the
members at least two months in advance of the annual meeting at
which the vote is to be taken.

ARTICLE X
  DISSOLUTION:

Upon the dissolution of the organization, the Board of Directors shall, after paying or making provision for the payment of all of 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 organization or organizations organized and operated exclusively for charitable, educational, religious, or scientific purposes 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 Board of Directors shall determine. Any such assets not so 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 Standard Code of Parliamentary Procedure by Alice B. Sturgis. The presiding officer shall appoint a parliamentarian to advise the assembly at each annual meeting.