A PROPOSED TECHNICAL COMMUNICATION DEGREE PROGRAM
FOR TEXAS COLLEGES AND UNIVERSITIES

THESIS

Presented to the Graduate Council of the
North Texas State University in Partial
Fulfillment of the Requirements

For the Degree of

MASTER OF JOURNALISM

By

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Denton, Texas
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This investigation is concerned with the problem of Texas employers' inability to hire adequately trained technical communication personnel because Texas universities and colleges do not offer a bachelor's degree program for that career field. This study contains the results of five separate surveys that investigate the backgrounds and training of present technical communication personnel and the training desired by supervisory personnel.

The study also recommends a bachelor's degree program in technical communication with three technological specialties: electronics, mechanical, and chemical/petroleum. Anticipated problems in setting up such a degree program and possible solutions to the problems are discussed in the study.

The suggested freshman and sophomore curriculum could be used as a guideline for a junior college associate program.
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CHAPTER I

INTRODUCTION

In the early 1950's, there was no professional technical communication career field. Technical writers were nothing more than editors of engineering reports (written by engineers) and paper handlers for other engineering documentation. There was little need for anyone to perform a technical communication task because an engineer could communicate with associated technicians with little or no difficulty.¹

By the late 1950's, the rapid advance of technology had created a broad gap between the engineer and the technician. The engineer's language had become more technical while the technician's language remained the same. This language gap highlighted the need for someone who could communicate with both the engineer and the technician. The specific need was for someone who could translate the engineer's technical language into terms that could be understood by technicians, who worked with their hands and whose job was to build and maintain the product of the engineer's design. Thus, the

technical writing career field was established and the people who entered this new field were called technical writers.2

By 1960, the technical writer’s job was not only to interpret engineering data and write the interpreted data for the technician, but also to maintain complete editorial control through the completed product, which was generally a technical manual. With so few people entering the technical writing career field, and with the increasing need for more and better qualified writers, many companies began forming technical publications departments, where editorial assistants would take over a completed manuscript and perform the necessary editorial and production functions. This setup gave the technical writer more time to perform his intended function, which was to interpret technical data for the technician’s benefit.3

As more large corporations formed technical publications departments, a new professional career field evolved. This new career field is referred to as technical communication, of which technical writing is one of four major work areas, or divisions. The other three divisions are

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2Ibid., p. 22.

3Statement by Frank Pease, chief, Technical Publications and Training, Vought Corporation, Dallas, Texas, November 2, 1976.
administrative, editorial/production, and arts. Each area is unique and has its own unique problems.4

Statement of the Problem

The most common problem in the technical communication career field is the lack of properly trained personnel, because almost all of today's colleges and universities have failed to offer adequate curricula to prepare students for a career in that field.5

Purpose of the Study

The primary purpose of this study is to determine whether a bachelor's degree program in technical communication is needed in Texas and to recommend a curriculum that can serve as a guideline for such a program.

Questions

Questions answered in this study were: Is a technical communication degree program needed in Texas? How has industry performed technical communication tasks without employees having technical communication degrees? What impact would a technical communication degree program have upon colleges or universities? What benefits would colleges or universities derive by offering a technical communication

4Pease.

degree program? How would society and industry benefit from such a program? What types of backgrounds do technical communication personnel now have? What courses should be offered? What problems would be encountered or could be expected from offering a technical communication degree program?

Review of Literature

The literature cited in this study is, for the most part, unpublished material. The public libraries in Dallas, Fort Worth, and Waco, Texas, and the main libraries of the University of Texas, Austin; Baylor University; Tarrant County Junior College, Northeast Campus; and North Texas State University contain no literature pertaining to bachelor's degree programs in technical communication. Most literature listed in those libraries is about technical writing and is made up of textbooks for technical writing courses. Excerpts from some of these books, such as Gordon H. Mills and John A. Walter's text, are referenced where necessary to support contentions made within the thesis.

In addition to college textbooks, this study makes reference to other documents, such as papers presented to the

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international conference of the Society for Technical Communication. Several of these papers pertain to the subject of this study. Many college catalogs were reviewed to obtain information relative to courses recommended in this study. Some of the catalogs reviewed for this study were from two-year colleges, such as Mountainview College in Dallas, Texas, and Texas State Technical Institute in Waco, Texas. The remaining college catalogs reviewed were from large four-year universities offering engineering and other technical degree plans, such as the University of Texas, Massachusetts Institute of Technology, and Southern Methodist University. College catalog technical writing course descriptions and recommendations from technical communication personnel are used for recommending the curriculum of suggested courses.

Technical communication personnel were queried using the questionnaires in Appendices A, B, C, D, and E.


"A Bibliographic Review of Research in the Field of Technical Manual Usability."  

Justification

This study is important because it reflects the present needs of employers who hire personnel for technical communication positions and explores the possibilities for a four-year, college-level technical communication degree program in Texas. The study provides insight as to the type of work performed by technical communication personnel, explains how technical publications departments in large and small corporations function, and investigates the academic and practical backgrounds of personnel performing technical communication tasks in each of the four main divisions: administrative, editorial/production, arts, and writing. This information, along with the recommended academic degree program, defines most of the personnel needs in the technical communication profession and provides educators, who may be interested in sponsoring a technical communication degree program, with a starting point for their investigations.

This study could result in providing a foundation upon which a bachelor's degree program in technical communication could be established.

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Definition of Terms

The following terms and their definitions are applicable only for this study:

Administrative division.—One of four major divisions in the technical communication career field. The administrative division is concerned with the performance of such tasks as contracts negotiations, schedules coordination, and logistical provisioning.

Arts division.—One of four major divisions in the technical communication career field. The arts division's main purpose is to provide a service for technical writing personnel. The arts division is concerned with creating all artwork, such as technical illustrations and drawings, to be used in technical documents. The arts division is set up to perform photographic preparation tasks, such as toning and airbrushing, in accordance with contracted specifications.

Draft.—In a technical publications department, a handwritten manuscript of a technical document, such as a manual or proposal.

Editorial/production division.—One of four major divisions in the technical communication career field. Personnel working in the editorial/production division ensure that draft manuscripts received from different technical writers are consistent in format, language, and presentation in
accordance with governing specifications. The editorial group usually performs quality control tasks for a technical publications department. Another group of the editorial/production personnel coordinates the production processes where typewritten text and artwork for a technical document are collated, photographed, printed, and bound.

**Engineer**.--One whose technical education and efforts are of a scientific nature. Engineering efforts are primarily for design and modification of mechanical or electronic devices and equipment.

**Engineering data or documentation**.--Usually, a blueprint drawing depicting the electronic and mechanical design for a specific equipment or components of specific equipment. If the equipment is computer-controlled, the program and information pertaining to the program usually is included as engineering documentation (refer to software).

**Hardware**.--Equipment built from engineering documentation and maintained by technicians. Usually, technical manuals are written for specific hardware to cover operation and maintenance of the hardware items.

**Paper handler or paper shuffler**.--In the defense industry and in some civilian-oriented corporations, an office worker who performs menial tasks, helping more technically trained personnel.
Software.--Usually, the program and related information pertaining to the program for computer-controlled equipment are classified as software information. Sometimes, technical manuals are classified as software.

Specifications.--A set of rules with which a product must comply. In technical publications, the specifications may govern content, format, structure, type size, and other such elements for technical manuals. In the defense industry, most specifications are supplied by the military services and may be referred to as "Mil-Specs."

Technical communication.--Semi-technical career field concerned with the documentation and interpretation of technical information to promote ease of understanding by persons having less technical training than the originator of technical data. The technical communication career field is subdivided into four major divisions to accomplish its intended purposes. Refer to administrative, arts, editorial/production, and writing divisions for further definitions.

Technician.--One whose technical training and work are directed primarily toward the manufacture or maintenance of complex mechanical or electronic equipment.

Writing division.--The largest one of four major divisions in the technical communication career field. The writing division employs technical writers to produce
technical document manuscripts. Each writer usually is required to have a working knowledge in a technical specialty, such as electronics, mechanics, or chemical processes, and must be able to interpret the technical language of his specialty to audiences that are less informed in that specialty.

Limitations of Study

Although there are several generic fields in which some technical communication skills are used, this study is directed toward technical communication in engineering-related fields. Most interviews and surveys of technical communication professionals conducted for this study were from the Dallas-Fort Worth, Texas, area. According to Evan Cottrell, this area contains different types of industries that employ technical communication personnel. Cottrell said these industries include government defense contractors, civilian-oriented electronic and mechanical equipment manufacturing firms, and computer software companies.

Methodology

To establish whether a technical communication degree program is needed or would be beneficial, personal interviews were conducted with higher-echelon management from seven companies in Texas employing technical communication

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10 Statement by Evan Cottrell, group manager, Microwave Technical Publications, Collins Radio, Dallas, Texas, December 1, 1976.
personnel. The interviews were conducted for this study to obtain answers to questions contained in Appendix D. These answers provided specific information needed for this study to determine the type academic training Texas employers prefer for technical communication personnel. The answers to the questionnaire contained in Appendix D supplemented a more general nationwide survey performed by John A. Walter. Questions asked by Walter's survey are contained in Appendix E.

The results of three surveys among professional technical communication personnel were also incorporated in this study. The surveys in Appendices A and B were conducted for this study to supplement a previous survey conducted by Texas State Technical Institute, Waco, Texas. The questions asked by the survey conducted by Texas State Technical Institute are contained in Appendix C. The questionnaires in Appendices A and B were sent to personnel working in different technical communication divisions to determine the academic background and experience of those personnel and to establish a more definitive explanation of their tasks. The survey in Appendix C asked for opinions of task importance from technical communicators. The compilations of the results from all the surveys were used to verify the statement of the problem, answer anticipated questions, and justify the purpose of this study. The responses to the surveys were used, with available literature, to determine what type courses should be offered for an effective technical communication degree program.
In addition, educators such as journalism or English professors, college administrative personnel, and technical writing teachers were interviewed to determine a more practical assessment of the type of problems that can be expected and to derive solutions to such problems.

Organization of Thesis

Chapter I provides an introduction. Chapter II discusses the results of interviews and surveys, using the questionnaires contained in Appendices A, B, C, D, and E, to determine whether a technical communication program is needed. Chapter II includes opinions and desires of management and supervisory personnel regarding the need for more extensive academic training and practical experience than their present employees have. Short discussions of the tasks performed by personnel in the administrative, editorial/production, arts, and writing divisions of technical communication are contained also in Chapter II.

Chapter III discusses the academic backgrounds and practical experience of personnel working in technical communication. The academic backgrounds were categorized and evaluations were made to determine the relative success achieved by the different categories of personnel working in the four different divisions of the career field.

Chapter IV discusses special problems that may be encountered by educators sponsoring a technical communication
degree program, offers possible solutions to each type problem, and discusses benefits that may be derived from the offering of a technical communication degree program.

Chapter V offers a technical communication degree curriculum and discusses the depth into which some of the science or technical courses should be taught for technical communication students. The curriculum is presented in two parts. The first part offers a general curriculum encompassing the freshman and sophomore years of a technical communication degree program. The second part offers three technical specialties, electronics, mechanics, and chemical/petroleum, one of which may be selected by a technical communication student for his junior and senior years to complete the degree requirements.

Chapter VI contains the conclusions arrived at by evaluating the information presented in Chapters II through V.
CHAPTER II

RESULTS OF SURVEYS

The information contained in this chapter provides the statistics obtained from the surveys using the questionnaires in Appendices A, B, C, D, and E. These statistics may be useful to academic personnel who may be assigned the task of setting up technical communication courses or a technical communication degree program for their institution. The statistics can supply answers to many questions that arise during the establishment of individual course curriculum as well as an overall degree program.

Some of the surveys were directed toward, and were analyzed with respect to, the four different work divisions (administrative, arts, editorial/production, and writing) in the technical communication field. Therefore, it would be beneficial to know the type of work performed by each division before analyzing the results of the surveys. The following general information provides an abstract description of each division's personnel job assignments. A short explanation of each division's functional relationships with the other three is also given.

Most large company technical publications departments are subdivided by the career field's divisions. Although
small companies may not be structurally subdivided by the career field's divisions, the job assignments usually are distinctively a function of one division. In small companies, one person may perform more than one division function. For example, a technical writer may perform administrative and editorial/production job functions.

Technical Communication Division Job Functions

Administrative division.--Administrative personnel conduct the normal business functions for the publications department. These personnel negotiate prices for the products (such as technical manuals), determine overhead costs, perform interface functions between the publications department and other departments, ensure that other divisions within the department have adequate personnel, supplies, and equipment to perform their necessary tasks, and coordinate task schedules among the other divisions. Administrative technical communication personnel cannot accomplish their own jobs unless they are thoroughly familiar with the operations and tasks performed by personnel in the other divisions. Administrative functions perform a valuable service for a technical communication department; therefore, it is important that anyone considering a career in technical communication be trained in the administrative job objectives.¹

¹Statement by Evan Cottrell, group manager, Microwave Technical Publications, Collins Radio, Dallas, Texas, December 1, 1976.
Arts division.—Technical communication personnel working in the arts group of a technical publications department perform a service for the writing groups. The arts division includes personnel skilled in technical illustration, drawing, photography, and other related artistic functions. An illustrator, for example, may receive a rough sketch or outline from a technical writer. The illustrator's objective is to produce a piece of art compatible to the writer's needs; however, the art work must be drawn in such a manner as to be within the limitations imposed by the specifications governing the final presentation. Specifications may stipulate the minimum typesize for lettering, line weights (heavy or light) size of the artwork, and other technical aspects for drawings. It is imperative that technical illustrators and other arts division personnel be able to communicate clearly with the technical writers with whom they work.

Arts personnel must be familiar with the reproduction processes used for incorporating illustrations or photographs into a technical manual. Because artwork costs usually are included in the total price for a technical manual, arts personnel must be able to estimate accurately all artwork for a manual before the work begins. This means that art personnel must be familiar with administrative practices within the department. Also, because artwork is incorporated into the total composition of the manual, arts division personnel
must be familiar with the editorial/production work and printing processes.  

Editorial/production division.--Editorial/production personnel perform diverse functions in the production of technical manuals. When a writer's draft is submitted for production, a complicated but efficient procedure is inaugurated for the final plan of the manual. The draft usually goes first to a group of editors who ensure that continuity is maintained throughout the manual and that the manual is consistent in format, language, and presentation with all other manuals governed by the same specifications.

Editorial/production personnel coordinate the plan for each manual to ensure that all text and artwork for the manual are incorporated in the correct sequence before printing. In large technical publications departments, as many as fifty manuals may be in process simultaneously. This coordination entails entering the text data into computer-controlled data processing equipment, scheduling reproducible text layout, quality-checking, negative making, and printing. Most large modern technical publications departments use computer-controlled, video-processing composing systems, which enable rapid changes and corrections to be incorporated into the text. The text is coded for margins, type size and font,

2 Statement by Mel Chaffee, supervisor, Technical Illustrations, Vought Corporation, Dallas, Texas, October 15, 1976.
line spacing, and other format requirements before the information is entered into the machines. When data are needed for reproduction, the machines provide the text in the final format. Assembly personnel incorporate the art with the machine-produced text; then, the assembled masters for the manual are checked manually by quality-assurance personnel.3

Quality-assurance personnel in the editorial/production division ensure against machine program or operator errors and check for compliance with printing specifications. These personnel check the final assembly against the writer's original draft to ensure that no technical presentation intended by the writer is lost or changed during the process. Last minute technical changes may be inserted into the manual by the writer at this point. Finally, the complete assembly for the manual is photographed (making litho-negatives) and submitted for printing.4

Writing division.--Personnel working on the writing usually are called technical writers. A technical writer's main function is to interpret scientific or engineering data

3Statement by Oakley A. Parker, supervisor, Technical Publications Production, Vought Corporation, Dallas, Texas, November 2, 1976.

for a specific audience of less technically trained personnel. For example, highly educated and specialized engineers usually are employed to design complicated electronic equipment, but technicians are used to build and maintain the equipment. The technicians are dependent upon some type of documentation that explains how to operate the equipment, how the equipment should work when functioning properly, and, after the equipment malfunctions, how to determine what is wrong and how to make repairs. Technical writers provide the documentation used by the technicians, usually in the form of technical manuals.5

Questionnaires to Professional Technical Communicators

The questionnaires in Appendices A, B, and C were sent to personnel who work in the various divisions of engineering technical communication. Appendix A questionnaires were distributed among technical communication personnel working in six large industrial technical publications departments in the Dallas-Fort Worth, Texas, metroplex. Each of these departments employs more than 100 technical communication personnel. Appendix B questionnaires were distributed among technical communicators in one firm, which employs about 450 technical communication personnel. Appendix C questionnaires

were distributed among technical communicators in different areas of Texas, including the Dallas-Fort Worth, Texas, metroplex. About half the respondents to the Appendix C questionnaire were from small technical publications departments, which employ fewer than fifty technical communication personnel.

Appendix A questionnaire results.--The questions in Appendix A were designed to determine the backgrounds of personnel working in the four different divisions of the technical communication career field. The questions enabled determination of relative success in each division by personnel having different backgrounds. Evaluations of personnel successes are discussed categorically in Chapter III. The discussion in this chapter provides statistics that may prove valuable to one interested in determining the academic and practical training of personnel working in the technical communication field.

If a college or university wishes to inaugurate an effective technical communication degree program, the program should include a diverse curriculum to support each of the four major divisions of the career field, as evidenced by the results in questions 1, 2, and 3. Question 1 asked, "In what area of technical communication are you now working?" Question 2 asked, "In what other areas have you worked previously?" Question 3 asked, "In which area did you first
begin working in technical communication?" (See Appendix A.)
Of the approximately 150 respondents, 13 per cent performed
administrative functions, 10 per cent worked in the arts
division, 15 per cent performed editorial/production tasks,
and 62 per cent were technical writers, as determined by
question 1. In response to question 2, 39 per cent of the
respondents worked in one other division, 14 per cent worked
in two other divisions, and almost 7 per cent worked in all
four divisions. Comparing responses to questions 1 and 3
indicated 34 per cent of the respondents work in the same
technical communication division as when they entered the
career field. Some left one division for another, then
returned to their original division.

The average experience in technical communication of all
the respondents was 10.4 years. The average technical com-
munication experience of administrative personnel was 18.3
years; of arts personnel, 11.5 years; of editorial/production
personnel, 9.5 years; and of writing personnel, 9.1 years.

Of the total respondents from all divisions, 53 per cent
had no college degree, 9 per cent had associate degrees, 36
per cent had bachelor's degrees, and 2 per cent had master's
degrees. None of the respondents had doctoral degrees. Of
the respondents having degrees, 21 per cent were technical
or science degrees (such as engineering and physics) and 79
per cent were nontechnical degrees (such as English and
journalism).
Of the respondents not having technical degrees, 50 per cent had received some technical experience or formal technical education before entering the career field; and 75 per cent, after entering the career field. Of the respondents having no degrees, 71 per cent received some technical education before entering the field; 29 per cent had not. Forty-nine per cent received some technical education after entering the field. Before entering the technical communication career field, 24 per cent of the total respondents received any writing experience or journalistic training or education.

Personnel in the administrative division had worked an average of 14.3 years for their present employer and 45 per cent had worked in technical communication at other companies. Arts personnel had worked an average of 8.6 years for their present employer and 67 per cent had worked in technical communication at other companies. Editorial/production personnel had worked an average of 7.6 years for their present employer and 61 per cent had worked in the career field at other companies. Writers worked an average of 9.2 years for their present employer and 46 per cent had worked in technical communication at other companies.

A more detailed analysis of the information obtained from questions 4 through 13 in Appendix A questionnaire is in Chapter III.
Appendix B questionnaire results.--The questionnaire in Appendix B was distributed among the employees of a single technical publications department, which employs about 450 technical communication personnel. The technical writing effort of the department primarily supports the mechanical and electronics engineering fields. Question 1 asked, "In what division of technical communication do you work?" Of the total respondents, 15 per cent were administrative personnel, 15 per cent were arts division personnel, 22 per cent were editorial/production personnel, and 48 per cent were writing division personnel.

Question 2 asked, "How long have you worked in technical communication?" Question 3 asked, "How did you come to enter the technical communication field?" The respondents worked an average of 12 years in the technical communication career field. Most entered the technical communication field by accident; that is, they were offered a job in the technical publications department after applying to the company. They indicated they accepted the job because the pay was higher than any other job offer they received. In effect, they had not chosen technical communication as a profession; the profession had chosen them. Some entered the technical communication profession by transfer into the technical publications department as a result of engineering department layoffs. The ex-engineers indicated they remained in the technical
communication field because of the job security offered by the profession.

Question 4 asked, "Did you, before entering technical communication, make any plans or in any way prepare yourself for working specifically in that field?" Of the total respondents, 74 per cent made no effort to prepare themselves for a career in technical communication before entering the field. The remaining 26 per cent had prepared themselves for a technical communication career primarily by taking various journalism and English writing courses in college and acquired a technological specialty by taking technician courses either in junior colleges or through military service technical training schools.

Question 5 asked, "Do you now consider yourself proficient in your work?" In response, 91 per cent considered themselves proficient in their work, 9 per cent did not. Those answering no to this question had indicated in question 2 that they had worked less than two years in technical communication.

Question 6 asked, "Considering your background, do you believe you are properly rewarded for your work?" In response, 78 per cent said yes. Many of the 22 per cent who indicated they were not properly rewarded for their technical communication efforts explained that they transferred into the technical publications department to avoid being laid off by their engineering department in the company.
Question 7 asked, "In comparing previous types of jobs you have had or different types of jobs you can now perform, do you believe the pay for your technical communication efforts to be poor, fair, good, or excellent?" In response, 4 per cent said poor, 24 per cent said fair, 63 per cent said good, and 9 per cent said excellent.

Question 8 asked, "If for some reason you left your present place of employment, would you consider working in technical communication for another employer?" Question 9 asked, "Would you consider leaving the technical communication field for another type of work?" In response to question 8, 89 per cent of the respondents said that, if they left their present place of employment, they would consider working in technical communication for another employer; 11 per cent said they would not. In response to question 9, 22 per cent said they would not consider leaving the technical communication field for another type of job, but 78 per cent said they would consider another profession.

Question 10 asked, "Which do you consider the most difficult, learning the technology of your specialty or communicating the technology to others who are not as familiar with that technology?" Question 11 asked, "Do you believe communication (such as writing) ability can be learned or must be developed?" In response to question 10, 30 per cent believed the most difficult part of the technical communication profession to be learning the technology of
their specialty. Sixty-one per cent considered communicating their technological specialty to those less knowledgable about the technology to be the most difficult. In response to question 11, 30 per cent believed that communicative ability can be learned (such as through academic courses); 59 per cent believed that communicative ability must be developed (as through practical work on the job). Eleven per cent of the respondents made no distinction between academic learning and practical development by either checking both answers or not checking either answer. Ninety-eight per cent believed their communicative proficiency had increased since entering the technical communication field; 2 per cent said it had not.

Sixty-three per cent of the respondents have taken academic courses since entering the technical communication field. Of this group 31 per cent took courses to improve their technical knowledge, 16 per cent took courses to improve their writing skills, and 53 per cent took both technical courses and writing improvement courses.

Eighty-three per cent of all the respondents believed a four-year technical communication degree program would be more advantageous than a two-year program, 13 per cent did not believe so, and 4 per cent did not reply to the question. Several of those who did not believe the four-year program to be more beneficial indicated in their comments that a two-year
specialized technical associate program was sufficient because writing skills could be developed on the job.

Thirteen per cent of the respondents said that they would be interested in enrolling in a technical communication degree program if offered in the local area, 33 per cent said maybe, and 54 per cent said no. Of those who checked no or maybe, 50 per cent said they would be interested in taking courses that correspond to the specific nature of their technical communication work, 29 per cent said maybe, and 21 per cent said no.

Twenty-two per cent of the respondents said they would be interested in teaching college courses in their technical specialty, 67 per cent said no, and 11 per cent said maybe. Of those who checked yes or maybe, 13 per cent gave no indication as to whether they would rather teach communicative writing courses or teach courses in their technical specialty, 33 per cent said they would prefer to teach technical courses, 47 per cent said they would rather teach communicative skill or writing courses, and 7 per cent chose either (or both) types of courses.

Appendix C questionnaire results.--The results of the questionnaire in Appendix C were used in the establishment of an associate program in technical communication at Texas State Technical Institute, James Connally Campus, Waco, Texas. In this questionnaire, respondents were asked to
rate, from 0 through 5, the importance of each item on the questionnaire. Each subject item in the questionnaire was a technical communication skill or job function.

The ability to get along well with others under changing conditions received the highest rating with an average of 4.7. The least important skills rated by the respondents were typing (which averaged 1.8), photography (2.1), and audio-visual aid preparation (2.3). Results of all items in the questionnaire are contained in Table I, below.

**TABLE I**

**RESULTS OF TECHNICAL COMMUNICATION TASK ANALYSIS**

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<thead>
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<th>Item</th>
<th>Respondent Average (Rated 0 Through 5)</th>
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<tbody>
<tr>
<td>1. To be able to get along well with other persons under changing</td>
<td>4.7</td>
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<tr>
<td>conditions</td>
<td></td>
</tr>
<tr>
<td>2. To be able to organize material gathered through research methods</td>
<td>4.4</td>
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<tr>
<td>3. To be able to write well constructed paragraphs, using correct</td>
<td>4.2</td>
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<tr>
<td>grammar, punctuation, and spelling</td>
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<tr>
<td>4. To be able to rewrite or rephrase technical material for a lay</td>
<td>4.2</td>
</tr>
<tr>
<td>reader</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Respondent Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table I—Continued</td>
<td>(Rated 0 Through 5)</td>
</tr>
<tr>
<td>5. To be able to edit copy for revision or for publication, using standard proofreaders' marks, found in most collegiate dictionaries</td>
<td>4.1</td>
</tr>
<tr>
<td>6. To be able to gather technical or scientific information through office files and record research</td>
<td>3.7</td>
</tr>
<tr>
<td>7. To be able to proofread copy for conformity or for errors using standard proofreaders' marks</td>
<td>3.7</td>
</tr>
<tr>
<td>8. To be able to gather technical or scientific information through personal interviews</td>
<td>3.6</td>
</tr>
<tr>
<td>9. To be able to gather technical or scientific information through group meetings</td>
<td>3.5</td>
</tr>
<tr>
<td>10. To be able to gather technical or scientific information through library research</td>
<td>3.5</td>
</tr>
<tr>
<td>11. To be able to write context for a technical manual</td>
<td>3.4</td>
</tr>
<tr>
<td>12. To be able to gather technical or scientific information through personal observation and/or experimentation</td>
<td>3.3</td>
</tr>
<tr>
<td>13. To be able to organize and arrange the contents of a technical manual</td>
<td>3.2</td>
</tr>
<tr>
<td>14. To be able to read computer printouts</td>
<td>3.2</td>
</tr>
<tr>
<td>15. To understand and be able to use basic mathematics</td>
<td>3.1</td>
</tr>
<tr>
<td>Item</td>
<td>Respondent Average (Rated 0 Through 5)</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>16. To understand and be able to use basic electronics</td>
<td>3.1</td>
</tr>
<tr>
<td>17. To understand basic computer terminology</td>
<td>3.1</td>
</tr>
<tr>
<td>18. To understand and be able to use mathematics through algebra</td>
<td>3.0</td>
</tr>
<tr>
<td>19. To be able to gather technical or scientific information through a written questionnaire</td>
<td>2.9</td>
</tr>
<tr>
<td>20. To be able to write a technical proposal</td>
<td>2.9</td>
</tr>
<tr>
<td>21. To be able to write a normal business letter, using a well accepted form</td>
<td>2.7</td>
</tr>
<tr>
<td>22. To be able to write an article for a technical, trade, or professional journal</td>
<td>2.7</td>
</tr>
<tr>
<td>23. To be able to make an informal group talk</td>
<td>2.7</td>
</tr>
<tr>
<td>24. To be able to organize and write inquiries which deal with anticipated proposals</td>
<td>2.7</td>
</tr>
<tr>
<td>25. To understand and be able to use basic drafting</td>
<td>2.7</td>
</tr>
<tr>
<td>26. To know or be able to determine the type of audio-visual aids required for most given purposes</td>
<td>2.7</td>
</tr>
<tr>
<td>27. To understand and be able to use basic printing techniques</td>
<td>2.7</td>
</tr>
<tr>
<td>28. To understand and be able to use basic physics</td>
<td>2.7</td>
</tr>
<tr>
<td>Item</td>
<td>Respondent Average (Rated 0 Through 5)</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>29. To be able to prepare a speech (including organization of materials)</td>
<td>2.6</td>
</tr>
<tr>
<td>30. To understand and be able to use mathematics through trigonometry</td>
<td>2.6</td>
</tr>
<tr>
<td>31. To be able to utilize gathered material in writing a news article in a manner suitable for publication</td>
<td>2.4</td>
</tr>
<tr>
<td>32. To be able to prepare basic audio-visual aids (slides, overhead projections, tapes, etc.)</td>
<td>2.3</td>
</tr>
<tr>
<td>33. To be able to make a semi-formal or formal public speech</td>
<td>2.2</td>
</tr>
<tr>
<td>34. To understand and be able to use basic photography</td>
<td>2.1</td>
</tr>
<tr>
<td>35. To be able to type in excess of 25 words per minute</td>
<td>1.8</td>
</tr>
</tbody>
</table>

The overall results of the survey "strongly emphasized some facts which professionals in the field have stressed." Adequate education for technical communication personnel must include training in a technical specialty and development of writing skills. The Texas State Technical Institute survey showed that writing skills had a slightly higher overall requirement than technical knowledge. However, the

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7Robert Gentry letter.
amount of technical proficiency education desired depended
upon the technical area represented by each respondent. The
respondents were asked to list other skills not specified by
the questionnaire, but which would be beneficial to technical
communicators. Many of the respondents listed proficiency in
computer languages and equipment applications.

Results of Interviews and Surveys Among Technical
Communication Management and Employers

The results obtained using the interview and survey
questions listed in Appendices D and E provide institutions
considering sponsoring a technical communication degree pro-
gram with information that could answer many questions that
may arise during the initial setting up of the program. This
information is valuable because it reflects the desires of
employers who would hire students graduating with a technical
communication degree.

Appendix D management interview form.—Interviews were
conducted among technical communication management and super-
visory personnel of ten different firms in the Dallas-Fort
Worth, Texas, area. Because the questions in Appendix D
were open-ended, exact percentage statistics for each question
is impractical; however, general evaluations of the answers
can be provided. When applicable, differing answers were
divided by large-department (employing more than fifty tech-
nical communication personnel) managers and small-department
(fewer than fifty) managers. Overall, however, there were very few differing viewpoints among all the persons interviewed. Attribute or quotations of specific individuals interviewed are made in other sections of this paper.

The managers of small publications departments and the managers of large publications departments gave different responses when asked, "What methods do you use to recruit technical communication personnel?" All the respondents used newspaper advertising to recruit experienced technical communication personnel. However, in most large technical publications departments, technical communication personnel frequently were recruited by transferring personnel from other departments within the company. In many of the small departments, employees frequently were asked to make personal contacts to recruit experienced personnel from other companies. None of the respondents recruited technical communication personnel from colleges or universities.

Most technical communication managers believed that a balance of writing skills with training in a technical specialty to be the most desirable qualifications for job applicants. Academic achievement seemed to be more desired by small-department managers than by large-department managers. One reason academic achievement of job applicants was not given too high consideration was because there are too few applicants having college degrees that required an adequate balance of writing development and technological courses.
None of the managers had ever received an employment applica-
tion from anyone having a technical communication degree.

Generally, large-department managers believed most newly
hired technical communication personnel to be unqualified to
perform assigned tasks independently until after considerable
academic and practical training. Most small-department man-
agers admitted to hiring only experienced personnel who had,
for the most part, received the benefits of training programs
conducted by previous employers. One small-department man-
ager, who wished to remain anonymous, explained his dilemma
by pointing out that most small company budgets do not pro-
vide for personnel training programs. Therefore, smaller
companies must resort to recruiting from larger companies to
obtain experienced technical communication personnel.

All of the department managers agreed that competent and
experienced technical writers (writing division) were most
difficult to recruit, in comparison to the other three divi-
sions of technical communication. All the department managers
have hired inexperienced arts and editorial/production per-
sonnel; however, only the larger departments utilized inexpe-
rienced writing division personnel. Larger departments have
more often been faced with meeting scheduled contract dates
for technical manuals. The publication contracts often
amount to several million dollars. With such large amounts
of money at stake, the larger operations can afford on-the-
job training programs while realizing some effective
productivity from untrained personnel during the training processes.

All the managers interviewed, including the small-department managers, initiated some form of on-the-job training programs. Usually, the on-the-job training programs of the larger technical publications departments are more sophisticated or formal than the smaller departments. These larger operations generally combine practical work with seminar-type training. One large company offers a technical communication academic program in which the trainee must complete six courses to receive a technical communication certificate.

All managers agreed that an effective four-year technical communication degree program not only would be an enormous benefit to their departments, but also would upgrade the profession. The managers agreed that a two-year program, although better than no academic program, would not provide the desired amount of educational background in both writing development and a technical specialty.

All the managers said they would encourage their personnel who do not have college degrees to enroll in a technical communication degree program if offered in the area. They said they would encourage all their employees, those who have degrees and those who do not have degrees, to take courses in the degree program that pertained to the employees' individual job application.
Most managers believed that the most beneficial bachelor's degree program in technical communication should provide an even balance of technical training and communication skills development. Some believed more emphasis should be placed upon technical training, and others believed more emphasis should be applied to publications department operations, communication skills, and liberal arts. The different opinions were mixed from among managers of large and small technical publications departments.

When asked what consideration they would give an applicant with a technical communication degree with respect to other applicants, the responses were varied, primarily because no technical communication degree program exists in the Dallas-Fort Worth, Texas, area. Therefore, the managers could not make any comparison among applicants. However, most managers agreed that if they considered the technical communication degree program to be compatible with their personnel needs, they would favor applicants having such a degree. All the managers agreed that if a technical communication degree program emphasized a technical specialty, an applicant having such a degree would be favored (for technical writing positions) more than applicants having nontechnical degrees. Several managers of small departments said they might (depending upon the extent of the technical training) give equal consideration to applicants with technical communication degrees as is given to applicants with
engineering degrees. One manager of a large department said he would consider placing more emphasis upon applicants having technical communication degrees than upon applicants with engineering degrees, if he considered the technical communication degree program sufficient to meet his personnel requirements.

All of the managers interviewed related one or more ways in which their departments would benefit from a technical communication degree program. Primarily, all the managers of large departments agreed they would not have to expend so much time, money, and effort in training newly hired personnel, although some organizational training, such as teaching company policies, would still be necessary. The managers of small departments believed that such a program would enable small companies to recruit inexperienced, but qualified, personnel directly from universities and alleviate the practice of recruiting from large companies. Most all the managers were convinced that such a degree program could lessen the personnel turnover because they could hire people who had chosen the profession as a career. This alone, they believed, would tend to upgrade the technical communication profession.

All the respondents believed the technical communication profession offered a good opportunity for all college graduates, but that technical communication degree programs would provide an even more rewarding career in a professional atmosphere.
Many of the managers believed the technical communication career field to be in its infancy, as a profession. They believed that good technical communication degree programs will be required as the career field grows. Most emphasized the growth potential for technical communication and all said they would actively support such a degree program by any university in their areas.

Appendix E survey results.—The following paragraphs discuss the results of a survey conducted by John A. Walter, acting chairman, Department of English, University of Texas, Austin, Texas. Only the questions from the questionnaire pertaining to management's desired education and training for technical writers and editors are contained in this paper. These questions are listed in Appendix E. The results and evaluations were made by Walter and are repeated from a pamphlet distributed at the 1977 International Conference For Technical Communication.8

The survey questionnaires were sent to 200 companies throughout the United States that employ technical communication personnel. One hundred sixty companies returned the questionnaires, although all 160 companies did not respond to all the questions.

In analyzing the responses, Walter said that the desirable skills and knowledge that a technical writer or editor must have are:

... a thorough knowledge of acceptable current usage, backed up by a sound grasp of the rules of grammar, spelling, and punctuation. He must be adept at taking the rough copy of the engineer or scientist and turning it into readable prose ... . This skill must be buttressed by sound knowledge of the technical material dealt with so that he may not only be able to increase the readability of the paper he edits, but also catch the technical flaws ... inadvertently overlooked .... Throughout the entire activity, he will demonstrate that he is conversant with all the problems of getting the completed manuscript through production ... .

Ninety-seven of the 160 respondents answered the second question, which asked, "What training for technical writers and editors do you especially prefer?" Forty-one preferred technical writers to have a technical background with writing ability, seven preferred knowledge and experience in writing, and forty-nine preferred both a technical background with writing experience for their technical communication personnel.10

Walter's evaluations of these results were:

Judging from the numbers above, employers of technical writers are particularly interested in their employees having not only a sound technical background but also both knowledge and experience in writing. The small number that checked item b makes it obvious that writing ability alone is not enough.11

9 Walter, op. cit.
10 Walter, op. cit.
11 Walter, op. cit.
Question 3 received 131 answers from among the 160 total respondents. Forty-two preferred degree technical writing applicants to have an undergraduate major in a science with training in English (writing) as a minor. Twenty-six preferred an English degree with a science minor; 58 preferred an engineering degree with an English minor; and 5 preferred other degree plans. Walter evaluates these results as follows:

Perhaps it should be explained here that since no more than a half dozen schools at most offer an undergraduate degree program in technical writing, respondents were not given an opportunity to check whether they would prefer applicants to have such a degree. It should also be pointed out that no effort was made to determine what particular kind of engineering degree respondents would prefer.

The figures make one thing unmistakably clear: employers feel strongly that a solid technical background is important. Note that items a and c combined account for 100 of the 131 who answered this question. This would seem to suggest that suitable degree programs for careers in technical writing should find their origin in science and engineering departments, rather than in departments of English or journalism where, as a matter of fact, most of the pioneering in training for technical writing is being done. On the other hand, we must remember that respondents are giving their opinions in the light of existing degree programs. They might well make another choice if undergraduate degree programs designed especially for the prospective technical writer were in existence. But if and when such programs are put into effect, the above data strongly support the desirability of including a great deal of science and technology.\(^1\)

Concerning the desirability of hiring applicants having English or journalism degrees, 135 responded. Of those

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\(^{1}\)Walter, op. cit.
responding, 42 said they would hire English or journalism majors for technical writing positions, 30 said no, and 63 said maybe. Walter's evaluation of this response, in conjunction with the previous response, was:

One obvious inference from these figures, considered along with those given in connection with degree preferences, is that while most companies prefer to hire as writers those who have a science or engineering degree and possess some skill in communication, they have difficulty in finding enough people with this desired training. They are thus compelled to take people whose primary training has been in English or journalism. It is rather significant, I think, that only 30 of 135 companies say categorically that they will not hire English or journalism majors.1

Summary of All Surveys

The overall results from the surveys concerning the preferred or necessary training or educational background for technical communication personnel and the need for an academic program in that career field is obvious. Each separate survey from among technical communication professionals and from employers of technical communication personnel agree upon the following points concerning a technical communication degree plan.

First, an undergraduate academic degree program for that career should, essentially, maintain a balance between specialized technical training and communicative skill development.

13Walter, op. cit.
Second, an undergraduate technical communication degree program, especially in industrial areas having a concentrated number of professionals, could be successful.

Third, the technical communication career field is relatively new and offers college graduates a good opportunity for a satisfying career.

Fourth, a college or university sponsoring a degree in technical communication could rely upon industry, professionals in the career field, and the organized professional society of technical communicators for support in initiating the program.

Last, a four-year technical communication degree program is needed in Texas because no university or college in the entire Southwest offers such a plan.

Chapter III provides more detailed analyses of present technical communication personnel. These analyses utilize the survey results contained in this chapter to investigate the academic backgrounds and training of different categories of the respondents to determine relative success in the different divisions of the technical communication career field.
CHAPTER III

THE TECHNICAL COMMUNICATION PROFESSION: AN ANALYSIS
OF THE JOB OPPORTUNITIES

This chapter contains an analysis of personnel working in technical communication jobs. This information will provide insight about what the career may offer prospective graduates. Each of the four divisions of the technical communication career field is discussed separately to provide more thorough evaluations of the job opportunities offered. These discussions provide statistical evaluations of personnel accomplishment by categorizing personnel backgrounds into five groups. These five background groups are: (a) personnel having no college degree and no technical training; (b) personnel having no college degree but have had technical training; (c) personnel having technical degrees (such as engineering); (d) personnel having nontechnical degrees (such as history or fine arts); and (e) personnel having journalism (writing) degrees with extensive technical training.

Most of the information and statistics contained in this chapter were obtained from answers to questionnaires sent to professional technical communication personnel who work in large and small technical publications departments in the Dallas and Fort Worth areas. (See Appendix A.) However,
some information from the responses to questionnaires sent to technical communication personnel who work in one large publications department in the Dallas area was also used in this chapter. (See Appendix B.) Because none of the respondents indicated having technical communication degrees, the relative success of personnel having such degrees cannot be made except to analyze the success of personnel having the background such a degree program should provide.

The results in Chapter II were obtained from the responses to the questionnaires sent to technical communication personnel throughout Texas, to managers and supervisors of technical communication personnel in North Texas, and to managers of technical publications departments in different companies throughout the United States. (See Appendices C, D, and E.) These results indicated that an adequate technical communication degree program should provide an academic balance between writing skill development and technological training. All the respondents to Appendix A questions who indicated having journalism degrees, indicated having had extensive technical training. About half of those having journalism degrees indicated having had two or more years of college training toward an engineering degree. The remainder indicated having had considerable practical experience in a technical job (such as technicians) or academic training in a junior college technician training program.
Therefore, placing these personnel in a separate group, (group e) provides at least an indirect indication of the success, relative to personnel in other backgrounds, that a graduate in a technical communication degree program can expect. This type evaluation is about the only adequate method to determine the desired information for this paper. More extensive analyses can be made only after more technical communication degree programs are inaugurated and more personnel having such degrees are available in the field.

In each of the following discussions, the successes achieved by group e personnel, relative to other groups, can be compared. The salary ranges for each division can also be compared. The salary ranges are not fixed and represent only upper-limit and lower-limit averages from among several companies, most of which requested not to be cited, in the Dallas-Fort Worth, Texas, area in mid-1975. Companies providing their salary ranges are not necessarily the same companies whose employees received questionnaires to gain information for this paper nor whose employees were interviewed or quoted in this paper. It should be noted that although administrative practices among companies vary, few personnel begin near the lower figures or ever earn near the upper figures of the salary ranges within each division.
Administrative Division Personnel

Technical communication professionals working in the administrative division averaged 1.4 years before their first promotion after entering that division. Their average time between promotions was 3.9 years. Salaries ranged from $750 to $3,100 per month. However, departmental managers and other upper-level supervisory personnel were included as administrative personnel. Therefore, the upper salary figures may be misleading. One company manager, who requested not to be cited, estimated the average salary for most technical communication administrative personnel to be $1,300 per month. No salary estimates by background groups could be determined for this paper. However, the following statistics are presented to show the relative success for each group.

Group a statistics.—Of the responding administrative division personnel, 16.7 per cent had no degree and no technical training prior to entering the career field. The mean time until their first promotion was 1.5 years, with an average of 4.0 years between subsequent promotions.

Group b statistics.—Of the responding administrative division personnel, 16.7 per cent had no degree, but had technical training. The mean time until their first promotion was 2.5 years, with an average of 4.1 years between subsequent promotions.
Group c statistics.--Of the responding administrative division personnel, 8.3 per cent had technical degrees. The mean time until their first promotion was 1.0 years, with an average of 4.0 years between subsequent promotions.

Group d statistics.--Of the responding administrative division personnel, 41.6 per cent had nontechnical (excluding journalism) degrees. Many had business administration or economic degrees. The mean time until their first promotion was 1.3 years, with an average of 4.6 years between subsequent promotions.

Group e statistics.--Of the responding administrative division personnel, 16.7 per cent had journalism degrees and technical training. The mean time until their first promotion was nine months, with an average of 2.8 years between subsequent promotions.

Arts Division Personnel

Technical communication arts division personnel had an average of 1.9 years until the first promotion. After the first promotion, the average increased to 4.4 years between subsequent promotions. Salaries ranged from $790 to $2,150 per month. Area supervisory salaries were included in the range. Although no average salary was determined for each background group, the overall salary averaged $1,215 per month in mid-1975.
Group a statistics.—Of the responding arts division personnel, 31.6 per cent had no degree and no previous technical training. The mean time until their first promotion was 1.8 years, with an average of 10.0 years between subsequent promotions.

Group b statistics.—Of the responding arts division personnel, 21.0 per cent had no degree, but had technical training. The mean time until their first promotion was 2.6 years, with an average of 3.7 years between subsequent promotions.

Group c statistics.—Of the responding arts division personnel, 5.3 per cent had technical degrees. The mean time until their first promotion was 1.2 years, with an average of 3.4 years between subsequent promotions.

Group d statistics.—Of the responding arts division personnel, 36.8 per cent had nontechnical degrees. The mean time until their first promotion was 2.4 years, with an average of 5.1 years between subsequent promotions.

Group e statistics.—Of the responding arts division personnel, 5.3 per cent had journalism degrees and technical training. The mean time until their first promotion was 1.8 years, with an average of 2.9 years between subsequent promotions.
Editorial/Production Division Personnel

The editorial/production personnel in the technical communication field averaged 1.6 years until their first promotion. The overall average for all subsequent promotions was 3.4 years. The editorial/production salaries ranged from $600 to $2,150 per month. Salaries for area supervisory personnel and technical specialists (such as computer programmers) were included in this salary range. The overall division average salary was slightly under $1,100 per month. As with other technical communication divisions, salaries for each background group within the editorial/production division was not available.

Group a statistics.--Of the responding editorial/production division personnel, 33.3 per cent had no degree and no technical training. The mean time until their first promotion was 1.5 years, with an average of 4.1 years between subsequent promotions.

Group b statistics.--Of the responding editorial/production division personnel, 25.1 per cent had no degree but had technical training. The mean time until their first promotion was 1.7 years, with an average of 3.2 years between subsequent promotions.

Group c statistics.--None of the responding editorial/production personnel had technical degrees. Therefore,
average times for the first promotion and for subsequent promotions could not be determined.

Group d statistics.--Of the responding editorial/production division personnel, 33.3 per cent had nontechnical degrees. The mean time until their first promotion was 2.4 years, with an average of 2.9 years between subsequent promotions.

Group e statistics.--Of the responding editorial/production division personnel, 8.3 per cent had journalism degrees with technical training. The mean time until their first promotion was 10 months with an average of 3.2 years between subsequent promotions.

Writing Division Personnel

Technical communication writing division personnel averaged 1.9 years until their first promotion. The overall average for all subsequent promotions was 4.4 years. Writer salaries ranged from $1,050 to $2,800 per month, with area supervisory personnel salaries included in the range. The overall division average salary for a technical writer was $1,350 per month. Average salaries for each background group in the writing division was not available.

Group a statistics.--Of the responding writing division personnel, 13.5 per cent had no technical training. The mean
time until their first promotion was 1.2 years, with an average of 6.1 years between subsequent promotions.

**Group b statistics.**--Of the responding writing division personnel, 46.2 per cent had no degree but had technical training or experience. The mean time until their first promotion was 2.7 years, with an average of 5.1 years between subsequent promotions.

**Group c statistics.**--Of the responding writing division personnel, 13.5 per cent had technical degrees. The mean time until their first promotion was 3.1 years with an average of 4.8 years between subsequent promotions.

**Group d statistics.**--Of the responding writing division personnel, 21.1 per cent had nontechnical degrees. The mean time until their first promotion was 1.6 years, with an average of 3.4 years between subsequent promotions.

**Group e statistics.**--Of the responding writing division personnel, 5.8 per cent had journalism degrees and technical training. The mean time until their first promotion was 10 months, with an average of 2.6 years between subsequent promotions.
CHAPTER IV

PROBLEMS, POSSIBLE SOLUTIONS TO THE PROBLEMS, AND BENEFITS DERIVED FROM OFFERING A TECHNICAL COMMUNICATION DEGREE PLAN

Although the inauguration of a technical communication degree program would not be impossible for most colleges or universities, the tasks for setting up such a diversified degree program would be difficult. These difficulties would include, but extend beyond, the usual financial and budgeting problems encountered for setting up most new degree programs. However, once budgeting problems are solved, most other problems are not insurmountable. Some of those other problems discussed in this chapter are: recruiting qualified instructors for required technical communication courses, promotion of student enrollment in the degree program, and deciding upon an adequate curriculum for technical specialties.

Instructor Recruiting Problems

Science Courses

In all probability, most universities or colleges would have little or no difficulty recruiting qualified instructors

for most of the science courses required to support a technical specialty in the degree program. TraditionaIly, most universities offer such courses as physics, chemistry, and other physical sciences. Some adjustment may be required in the depth of instruction for this type course, depending upon the university. However, most universities have encountered and overcome this type problem. For example, a large university such as the University of Texas offers a wide range of degree programs; some technical, such as in the college of engineering; some not technical, such as in the college of humanities. Both colleges require physics and chemistry in their degree programs. However, the physics and chemistry courses required for a degree in English, for example, are not as comprehensive as the physics and chemistry courses required for an engineering degree. In many instances, physics or chemistry instructors and professors may be required to teach different level courses to support both degree programs. These same professors should have little or no difficulty teaching required science courses supporting a technical communication degree program. The relative instructional level for teaching traditional science courses required for a technical communication degree program is discussed in more detail in Chapter V.

2Statement by John A. Walter, acting chairman, Department of English, University of Texas, Austin, Texas, December 20, 1976.
**Technological Courses**

Although most universities and colleges may have little or no difficulty obtaining instructors for traditional science courses, technical courses required for a technical communication degree program may present some problems. In general, technical instruction for technical communication majors should be about as comprehensive as is taught for technicians in most junior colleges, and less comprehensive than is taught in most engineering colleges. Of course, engineering instructors would be qualified to teach technical courses at the level necessary to support a technical communication degree program; but these instructors should have considerable communicative skills. Ideally, these instructors would have some familiarization with industrial technical publications in addition to the formal training in their technical specialty.

Recruiting instructors who have formal engineering training and technical communication experience may not be an easy task. A college or university would be competing with industrial engineering departments for personnel having such a background. A university would be required to substitute for, or offer equivalent, personal benefits offered by industry. Some of the benefits offered by industry to such

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3 Statement by Evan Cottrell, group manager, Microwave Technical Publications, Collins Radio, Dallas, Texas, December 1, 1976.
personnel are stock options, above-average salary, paid medical and life insurance, and free retirement trusts. Such benefits as stock options cannot be offered by most universities or colleges, but can be substituted by other desirable personal benefits such as independence in working conditions or flexible working hours. Many engineers may prefer not to work by the sound of a whistle or striking of a clock as is common in many companies, where the traditional work time is 8:00 a.m. to 5:00 p.m. with a specific hour's time off for lunch.

**Specialized Technical Communication Courses**

One of the most difficult recruiting tasks for a technical communication degree program would be obtaining instructors to teach technical communication skills and procedures. The specific aspects for this type course are discussed in detail in Chapter V. In general, the instructors for these courses must be knowledgeable in industrial technical publications department operations and responsibilities. The instructors must know the requirements for accomplishing the jobs achieved in each of the four major divisions of technical communication in addition to having a diverse background of technical specialties. In short, the instructors for such

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4 Statement by Frank Pease, chief, Technical Publications and Training, Vought Corporation, Dallas, Texas, November 2, 1976.

5 Walter.
courses should have extensive technical communication experience.

Several problems may be encountered while trying to recruit such personnel. The same problem of recruiting instructors for specialized technical communication courses would be encountered as with recruiting engineering type personnel for technological courses. That problem is having to compete with private industry. In addition, there would be relatively fewer qualified to instruct such courses because so few have technical communication degrees. John A. Walter, chairman of the Department of English at the University of Texas, summed up the problem by stating that those few qualified to teach technical communication may not be acceptable (by having doctoral degrees) to teach in most colleges and universities. Walter said that very few who have doctoral degrees have the necessary background for teaching technical communication courses adequately. Walter explains that few college instructors having doctoral degrees have worked in industrial technical publications departments nor have they had the opportunity to obtain sufficient academic training in technical communication because few colleges and universities offer the necessary curriculum.

6 Walter.
Student Enrollment Problems

One of the most practical problems to be encountered by a college or university offering a bachelor's degree program in technical communication would be to interest students in enrolling into that program. Because technical communication is a relatively new career field, many of the new students may not be familiar with the job applications. Most students probably never heard of the career field, for the term "Technical Communication" is even newer than the career field. Some students may be familiar with the term "technical writing," which, for many years, was an all-encompassing description for what is now called the technical communication career field. However, it is doubtful that many of those students know or understand the job applications of, nor the opportunities offered by, the career field.

Curriculum Problems

Deciding upon a curriculum for an effective and practical technical communication degree program will not be an easy task because of the diversity in the career field. At state universities, for example, such courses as English,

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history, and government are required by law for all degree programs; therefore, a degree program in technical communication must meet these requirements. These state-required courses generally are freshman and sophomore levels and must be integrated into the degree program with the basic courses of the degree plan. A technical communication student needs a diverse base in general communicative skills, science, and technology, and these courses should be included during his freshman and sophomore years, also.

The recommended degree plan in Chapter V shows one way that state-required courses and basic technical communication preparatory courses may be incorporated into the degree plan. Another alternative would be to include one or more summer semesters in the degree plan. However, the curriculum should first be established before deciding upon the length of the degree plan.

One of the most difficult problems in establishing an adequate curriculum is deciding upon what courses should be offered to provide a student with the necessary preparation for his career. The technical communication field requires a diversification of knowledge in addition to a technical specialty. A good summation of the problem was made by James B. Steele, assistant professor of English and teacher of upper level technical writing, editing, and technical communication courses at Metropolitan State College in Denver, Colorado. He said, "The curriculum that produces a
technical writer is not an easy ride." Steele said that, as with any publications program, "technical communication must emphasize self-motivation and intelligent planning," and, as an example, said that technical communication courses must teach the student "about technical writers and their ways, illustrator's jobs and illustrating techniques, production and printing methods, management, and work schedules."

Steele said that prospective employers should not look for specific courses, but patterns of studies that teach the basic skills necessary to perform a job.9

Possible Solutions to Problems

Instructor Recruiting Problems

As has been pointed out, a college or university that tries to compete with industry for qualified personnel in specialized technological fields must offer benefits packages that will offset the type benefits offered by industry. Usually, educational institutions, especially state-controlled institutions, are limited by statute in their salary ranges and benefits packages, whereas private industry is not. Industry's salary ranges are controlled by its budget, which may fluctuate. Colleges and universities may offer advantages not offered by industry, such as flexible work hours and a greater degree of independence. Some

technical personnel may not like the rigid work schedule that is traditional in industry. Therefore, flexibility, as well as academic prestige and freedom, may be an enticement to some. However, the best solution to the problem of having to compete with private industry is not to compete, but, rather, to work with industry.

Most company representatives within specific industries are usually willing to work with educators to help ease some of the problems faced by local educational institutions, because industry is dependent upon educational institutions to supply an educated and well-trained work force. In many instances, company representatives are willing to offer advice on setting up new courses or degree curricula, and sometimes recruit instructors for teaching specialized college courses. 10

If a college or institution needs help in recruiting instructors in some technological field, it may be beneficial for the educational institution's administrators to contact industry representatives, explain the problem, and ask for assistance. In many instances, working professionals are willing to teach part time the practical as well as theoretical aspects of their profession. 11


Another good source of supply for professional technical communication instructors would be the local chapter of the Society for Technical Communication. Society representatives usually are willing to work with educational institutions in solving technical communication curriculum problems, even to locating qualified working professionals who are willing to teach others.\(^{12}\)

Another possible solution to recruiting qualified technical communication and technological instructors is through direct contact of professionals in the field. In the survey conducted using the questionnaire in Appendix B, 22 per cent of the respondents indicated they would be willing to teach in the field of their professional endeavors. Many indicated in the comments that they would be willing to donate time and efforts at no cost to an educational institution willing to sponsor a technical communication degree program.

**Student Enrollment Problems**

Because technical communication is relatively new, many new college freshmen students probably are not familiar with the possibilities for advancement, salaries, or job security offered in the field. Even those who may have read newspaper classified advertisements for technical writers and

may be interested in the career field probably would not be aware if a degree program for the career field is offered at any educational institution. If a degree program were offered, it probably would be just another item in a university catalog listing to most students unless those students were counseled and made aware of the benefits of choosing that profession as a career. Such counseling should occur during the student's high school junior and senior years, to be most productive in soliciting applicants for the degree program.

The necessary pre-college counseling could be accomplished through the local chapter of the Society for Technical Communication. Many society members in the Dallas-Fort Worth, Texas, area, for example, have been speaking to high school, and even junior high school, students about the advantages of a career in technical communication. However, because no technical communication degree program is offered in Texas, the collective membership of the local chapters of the society have not put forth a concentrated effort to acquaint Texas high school students with the field.

If a college or university is interested in sponsoring a technical communication degree program and solicits the help of the local chapters of the Society for Technical Communication, the university should provide the society

\[^{13}\text{Blackerby.}\]
members with the details of the anticipated curriculum at least two years before the program is initiated. This would allow time for the members to arrange speaking engagements with area high school career counseling administrators and teachers. Then, college freshmen students enrolling in technical communication could enter college with some knowledge about what will be expected of them to obtain their degrees.

A technical communication degree program would not necessarily be dependent upon new students for its success. It is not uncommon for students, especially during the first or second year of college work, to change majors. Students wishing to change majors could be counseled about the opportunities offered by technical communication.

Jerry Hampton, a technical communicator who is a technical journalism graduate of Kansas State University, returned to his alma mater to speak to a class of technical journalism students about selecting a career in technical communication. He discovered that few students were acquainted with the technical communication career field. After speaking about the type work performed by technical communicators and the benefits offered by the career field, Hampton believed several in the class were interested in technical communication as a possible choice for their careers. However, because Kansas State University does not offer a technical communication degree program, those students had no opportunity to select an academic program that would prepare them for that
career field. Hampton only could advise the students who were interested in technical communication to acquire a technical specialty, such as electronics or mechanics, with their journalism degree.\textsuperscript{14}

One solution to promote student enrollment, especially during the early stages of offering a technical communication degree plan, would be to inform the technical communication personnel in the local area that such a degree plan was being offered. Colleges and universities close to large metropolitan areas would probably be more successful in obtaining the working professional students, because of more technical communication personnel working in a concentrated area. Many large metropolitan companies can be informed of the degree plan offering and be solicited to encourage their employees to take technical communication courses applicable to the employee's work. This, from business management's point of view, would upgrade the professional adequacy of the work force in those work areas. But an important question is: How many working professionals would be interested in enrolling in the degree program, or, at least, interested in taking technical communication courses? In large metropolitan areas, probably quite a few.

\textsuperscript{14}Statement by Jerry Hampton, Technical Manual Coordinator, Vought Corporation, Dallas, Texas, March 9, 1977.
For example, in the Dallas-Fort Worth, Texas, area, approximately 7,000 personnel are working in the different phases of technical communication related to engineering, with about 2,500 involved in the writing division. The results of the survey using the questionnaire in Appendix B indicated that 13 per cent of the technical communication professionals in the Dallas-Fort Worth area would be interested in enrolling for a technical communication degree, if offered. This survey indicated 32.6 per cent may be interested in enrolling for a technical communication degree if offered in the local area, and 54.4 per cent said no. However, of those who said maybe or no to enrolling in a technical communication degree program, many indicated they would be interested in enrolling in some courses.

Of those who said they only may be interested in enrolling for a technical communication degree, 73.4 per cent said they would be interested in enrolling in courses pertaining to their specific technical communication job, and 26.6 per cent again said maybe.

Of those who said they would not be interested in enrolling in a technical communication degree plan, 32 per cent said they would be interested in taking courses that pertained to their jobs, 32 per cent said maybe, and 36 per cent said no.

15 Blackerby.
Therefore, even if the survey were as much as 50 percent wrong, the figures indicate that a technical communication degree plan offered in the Dallas-Fort Worth, Texas, area would enjoy considerable student enrollment from the professionals in the field.

Possible Benefits Derived

The following paragraphs discuss some of the benefits that may be derived from offering a technical communication degree program. These discussions are based upon reasoning because actual benefits cannot be assessed until after a technical communication degree program has been set up. The paragraphs tell how the institution offering the program may benefit, how the students can benefit, and how industry will benefit.

Benefits to the Institution

If a single college or university in Texas were to offer a technical communication degree program, that institution would have the distinction of being the first in Texas and the entire Southwest to offer such a program. As other colleges or universities seek to develop similar degree programs, they might wish to take advantage of the experience gained by the first institution's initiative, thus lending prominence to that first institution's endeavors.
However, more benefits than intrinsic prominence are to be gained by an institution. As more new students become acquainted with the job opportunities offered by the technical communication field, those who wish to prepare themselves for that profession will enroll in the college or university that offers the best training in the field. If only one institution in the area offers a degree program in the field, it is logical to assume that students who desire academic preparation and degree reflecting that profession will enroll in that institution. The increased enrollment may not be significantly large at first, but any increase usually is beneficial.

If a single institution in the state offers a technical communication degree program, that institution probably will be the one to receive the transfers of students from the colleges and universities that do not offer a similar program. This, too, can not only lend prominence to the sponsoring institution, but also add to that institution's enrollment.

Benefits to Students

There is little doubt that any student who wishes to enter a career field can benefit if he has the opportunity to receive academic training in that field. If a college or university offers a technical communication degree program, a student who wishes to receive academic training in that
career field will have the opportunity to receive a degree that reflects his field. If the institution offering the degree program is in the student's home state, the student can benefit by not having to go to an out-of-state institution to receive the desired academic training, thus saving him money.

Although saving on educational costs is considered beneficial by most students, other not-immediately-apparent benefits can be derived by a student's receiving a degree that reflects his profession. For example, if a technical communication student applies for a technical writing job after graduation, his chances of being selected for the job are increased more than if he had a degree in a humanities field, such as English. This is especially true if the employer is familiar with the institution's technical communication degree program and considers the program adequate. Employers tend to favor applicants having degrees that reflect the company's job description.\footnote{Pease.} This benefit becomes more pronounced when one considers that few persons working in the technical communication career field have degrees in technical communication. In the questionnaire in Appendix A, not one respondent had a degree in technical communication.
Students who do not major in technical communication can benefit in several ways by the offering of a technical communication degree program at their college or university. A student may desire a practical minor as a back-up for his major. For example, a student majoring in computer science may wish to enhance his employability with a technical communication minor, because many employers of technical personnel consider effective communicative skills a desirable asset. This is especially true in small, engineering-related companies that have not, or cannot afford to, set up publications departments to produce formal technical documentation. In this type company, technical personnel usually are expected to produce the documentation required to support their technical endeavors.

Students not majoring or minoring in technical communication can benefit by the offering of a technical communication degree program, because such students may select practical electives that would enhance their degree program. For example, a student majoring in a nontechnical, but practical, curriculum such as journalism, may elect to supplement his education with some technical courses of about the same level as is necessary for technical communication. The journalism student may be interested in writing articles about general

technological achievement (as in science writing) instead of writing technical data (as in technical writing). Some of the basic technical courses required for a technical communication degree may offer a journalism student, interested in science writing, an opportunity to acquire a cursory technical background through the elective process.

**Benefits to Industry**

Because so few persons performing technical communication functions for industry have technical communication degrees, one can only speculate upon the degree of benefits that can be realized by industry. However, one can deduce that the benefits would be far greater to industry than to any other entity. For example, the technical publications departments in many industries must train newly hired employees to perform technical communication tasks. Some companies rely upon on-the-job training\(^{18}\) while others use a combination of company-sponsored academic courses with on-the-job training\(^{19}\) to bring new technical communication employees to a productive work level. This in-house industry training would be considerably less, and thus quite beneficial if a technical communication degree program is inaugurated.

\(^{18}\) Statement by Wes Connally, supervisor, Technical Publications Department, Texas Instruments Corp., Dallas, Texas.

\(^{19}\) Pease.
Smaller companies, which cannot afford expensive training programs, must rely upon larger companies to train technical publications personnel, and then hire these personnel from the large companies. Such practice has a two-fold side effect upon the smaller companies. First, the small companies must hire personnel who have been trained for large-company operations, which usually means the personnel have been trained to perform only one specialized technical communication task. Second, considerable friction is generated between large and small companies, which can be detrimental to a small company within the same industry, because many small companies are dependent upon subcontract work from the larger companies. The inauguration of technical communication degree programs would alleviate some of these recruiting practices, especially in the technical communication field. Then, colleges and universities would provide graduates with academic training in the profession, and small companies would compete with larger companies for personnel, as is done in any other profession.

Perhaps one of the most valuable benefits to industry is that companies within an industry would be able to depend upon colleges and universities to supply a stable and versatile technical publications work force. At present, most

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large technical publications departments are comprised of personnel having a variety of experience and academic training, as evidenced by the survey results. Personnel usually are recruited for either their technical knowledge or their communicative skills. Quite often, personnel are selected to fulfill technical communication task requirements. The person selected to perform the task may not have chosen to do so. Too often, these assignments are made under the threat of discharge. The employee may agree to perform the task; but if he does not like technical communication work, he probably will apply for employment elsewhere and, when an opportunity avails, he will leave the company. If he likes the work, he may wish to stay in the field and the technical publications department will have an employee who has more technical training than is necessary to perform his technical communication tasks, but undertrained in communicative skills. An adequate technical communication degree will supply qualified and trained personnel who have chosen technical communication as their profession instead of personnel who have been chosen to work in the technical communication field.\footnote{Statement by Harry Hall, supervisor, Technical Writing Groups, Vought Corporation, Dallas, Texas, April 5, 1977.}
CHAPTER V

A RECOMMENDED CURRICULUM FOR A BACHELOR'S DEGREE
PROGRAM IN TECHNICAL COMMUNICATION

This chapter presents a recommended curriculum for a technical communication degree. The suggested curriculum is presented in college-catalog style and reflects the aggregate efforts of many professional technical communication personnel. The courses recommended to be practical courses mean that work applications, such as in a laboratory environment, should be stressed more than theory.

The suggestions were submitted to a number of technical publications department managers for comments concerning desired educational backgrounds for technical communication employees. None of the managers who reviewed the curriculum recommended deleting any of the suggested courses. Several believed a business administration or economics course should be added, either as an additional requirement or as a substitute for one of the electives in the degree plan.

The degree plan is divided into two major parts. Part one contains the recommended courses for the freshman and sophomore years and includes the usual state-required courses, such as English, history, and government. Part one of the degree plan includes the basic science and other
courses necessary to provide the prerequisite background for technological specialties that are presented in part two.

Part two contains the courses recommended for different technical specialties in technical communication. The suggested courses are for three different technical specialties: electronics, mechanical, and chemical/petroleum.

Each part of this chapter contains general discussions of the different courses or groups of courses. Because such courses as English, history, government, and basic sciences and mathematics are common to most degree plans, no discussion of this type course is contained in this paper.

Part One

Although the courses recommended in part one are designed to provide a foundation for the suggested technical communication bachelor's degree plan, these courses could constitute a curriculum for a junior college associate degree program. Frank Pease, chief of Technical Publications and Training at Vought Corporation, says the recommended freshman and sophomore courses reflect "more technical communication educational background than many technical communication applicants have at the present time from junior colleges." Pease said these courses provided a more general perspective of the technical communication career
field than his company-sponsored technical communication certificate program, which is keyed to company operations.¹

**Freshman Courses**

Table II lists the recommended freshman curriculum for both fall and spring semesters. Each recommended course is presented in semester hours.

The fall semester includes an introduction to technical communication courses,² which should be designed to acquaint the student with the technical communication career field and to provide an overall perspective view of the profession and the opportunities offered by the profession. Such a course should familiarize the student with the interaction among the four major divisions of technical communication (administrative, writing, editorial/production, and arts).

The engineering drawing and descriptive geometry course in the fall semester and technical illustrating course in the spring semester offer the student a chance to learn how engineering drawings are created; thus the student learns how to interpret engineering drawings, which is necessary after entering the technical communication profession.

¹Statement by Frank Pease, chief of Technical Publications and Training, Vought Corporation, Dallas, Texas, November 2, 1976.

²H. O. Walker, "Recommendations for a Bachelor's Degree Program in Technical Communication," unpublished paper, Department of Journalism, North Texas State University, Denton, Texas, August, 1975, p. 12.
### TABLE II

**FRESHMAN CURRICULUM**

#### Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>Algebra</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>Engineering Drawing and Descriptive Geometry</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry--inorganic</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education (Optional)</td>
<td></td>
</tr>
</tbody>
</table>
| **Total**                                       | **15**         | 1

#### Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>English II.</td>
<td>3</td>
</tr>
<tr>
<td>Pre-calculus (Analytic Geometry and Trigonometry)</td>
<td>3</td>
</tr>
<tr>
<td>Technical Editing/Production</td>
<td>3</td>
</tr>
<tr>
<td>Technical Illustrating</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry--organic</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education (Optional)</td>
<td></td>
</tr>
</tbody>
</table>
| **Total**                                       | **15**         | 1

Charles Franchina, manager of Technical Publications at Bell Helicopter, Hurst, Texas, said, "There is no better way to learn how to read engineering drawings than to learn how to create them. Reading and interpreting engineering
data is a must for a technical communicator in almost any level or position."³

The technical editing/production course recommended for the spring semester should teach the student about the editing and production division's overall responsibilities and duties in a technical publications department.⁴ The course could cover publication style, presentation, and editing methods in addition to covering most production methods, from composition typewriters and Justo-writers through computer-controlled video page-production systems.

The curriculum taught in the editing/production course should be beneficial to students taking the technical writing courses scheduled in the sophomore year.

**Sophomore Courses**

Table III lists the courses recommended for the fall and spring semesters of the sophomore year. Because writing is a major division in technical communication, two technical writing courses are suggested, one for the fall semester and one for the spring semester. Both courses should be practical⁵ and should offer the student an opportunity to learn both large-company and small-company

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### TABLE III

**SOPHOMORE CURRICULUM**

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>History I</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Government I</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Physics (Electricity and Magnetism)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Technical Writing I</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Calculus (Combined Differential and Integral)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>History II</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Government II</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Physics (Mechanics, Heat, and Wave Motion)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Technical Writing II</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Technical Publications Administration</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

Technical publications operation. Practical exercises and term projects can be incorporated as part of the assigned tasks in the curriculum. Harry Hall, supervisor of writing, Vought Corporation, said:

Such technical writing courses should be designed to teach students the practical aspects of technical writing, such as writing functions within the group, the group’s relationship with other organizations, and how and where to obtain material for assigned tasks in
the most efficient ways. Such academic training would benefit both the organization and the new employee because the employee would not be thrust into a totally strange working environment and would become productive much sooner with less training. For example, a writer who is already familiar with writing to specifications and their interpretations can work more independently than the writer who has not written to specifications. Classroom work should simulate writing to specifications.6

Familiarization with other organizations is important, Hall said, therefore, the technical publications administration course is recommended for the spring semester of the sophomore year, taught concurrently with the second technical writing course.

The technical publications administration course should acquaint the student with that technical communication division's functions within a publications department. The suggestions for the curriculum for such a course varies, depending upon organizational functions. Evan Cottrell, manager of Publications, Microwave Division, Collins Radio, suggested that the course be taught in a practical manner, teaching business techniques for obtaining publications contracts, the legal aspects of publication contracts, and how to fulfill contractual obligations.7 He suggested a practical

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6 Statement by Harry Hall, supervisor of Technical Writing Groups, Vought Corporation, Dallas, Texas, April 5, 1977.

7 Statement by Evan Cottrell, group manager, Microwave Technical Publications, Collins Radio, Dallas, Texas, December 1, 1976.
approach in teaching management principles, publications cost-estimating practices, and contract negotiations procedures.

Frank Pease, chief of Technical Publications and Training at Vought Corporation, believes that such a course should teach general business administration practices and general accounting principles, especially if a separate business administration course is not included as part of the degree plan. Cottrell's and Pease's ideas both could be incorporated into a single course. A more detailed investigation should be made before deciding upon a curriculum for the administrative course. In any event, everyone reviewing the degree plan agreed that some form of administrative course should be included during the first half of the degree plan.

Part Two

Part two provides the suggested curricula for the junior and senior years for each of three technical specialty sequences. These technical sequences are electronics, mechanical, and chemical/petroleum writing. The second part of the degree plan are for students who wish to enter the writing division, which is the most lucrative and the largest division in technical communication. The technical courses suggested for each sequence was compiled as a result

8Pease.
of studies made for the recommendations paper 9 presented to North Texas State University. The technical courses were reviewed by many technical communication managers, supervisors, and writers before inclusion in this paper. "The necessity for a technical specialty is a must for a technical writer," says Bill Roberts, manager of Technical Publications, General Dynamics, Fort Worth, Texas. 10 Roberts said, "How the technical writer receives his technical training is not so important as the fact that he does have a good technical background." However, Roberts believes that academic institutions could "provide a good sequence of technological education that could not be achieved in technician-type jobs."

Therefore, the recommended technical courses for each specialty are broad-based to provide diverse education within the specialty. This paper does not discuss each specific technological course curriculum, because considerable study should be accomplished before inaugurating these courses for a technical communication degree. Different institutions have different facilities and preparation for each course probably differs among different institutions.

9Walker, op. cit., p. 18.
10Statement by Bill Roberts, manager of Technical Publications, General Dynamics, Fort Worth, Texas,
Common Courses

Some recommended technical communication courses are the same for all the technical specialty sequences. These common courses are discussed separately, but are listed with each technical specialty degree plan.

**IPB writing.**--The course for IPB (Illustrated Parts Breakdown) writing should be an expanded course to teach parts cataloging for both commercial and military applications. Whereas IPB writing is a specialized type of writing, it is important that writers specializing in technical fields, such as electronics or mechanical writing, be familiar with the IPB writers' tasks. Specialized technical writers usually work closely with IPB writers and the parts manual is often a necessary tool used to accomplish the technical writer's task.

**Writing for military manuals.**--A specialized course should be offered to teach technical writing for military manuals. The course curriculum could include studying different specifications used by different branches of the military, how to obtain deviations to military specifications, and the study of military logistics systems. The course should include a study of different military

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11 Pease.
12 Walker, op. cit., p. 27.
abbreviations, numerical designations, and methods of documentation.  

"Such a course is almost a necessity for those technical writers who may, at some time, be working in a defense industry technical publications department," said Wes Connally, Technical Publications supervisor, Texas Instruments. "Military documentation is a multi-billion dollar per year industry. The Navy department alone spends more than one billion dollars each year on technical documentation," Harry Hall said.

Reports writing course.—Most colleges and universities offering engineering programs offer reports writing courses, these courses are designed for engineering students, not students who may be interested in technical communication careers. Such a course for technical communication students could include a term project in report writing on a technical subject, as well as practical projects, such as rewriting poorly written reports (covering a variety of technical subjects). Rewriting a poorly written report is

13 Walker, op. cit., p. 31.


15 Hall.

16 Walker, op. cit., p. 38.
an exercise that simulates a practical situation the student may encounter after graduation.

Proposal writing course.--This course should teach a positive writing style while emphasizing the importance of technical proposals in today's industry. Such a course should cover writing requests for proposals and the legalistic writing styles used in writing such documents.\(^{17}\) This course should emphasize writing for the layman, who usually knows little about the technical aspects of a subject and must be provided with considerable background about the subject.\(^{18}\)

Oral technical communication.--This course should offer practical training in oral presentation of technical information. "Oral presentation of technical material is becoming more important for technical writers in today's technical communication processes," said Pease.\(^{19}\) Charles Franchina agreed by saying that "technical instruction is presently [sic] in the process of being included as a part of the technical writer's job in many of today's larger [technical publications] departments and it is becoming

\(^{17}\)Walker, op. cit., p. 39.


\(^{19}\)Pease.
increasingly more important that all technical communication personnel be trained adequately in oral presentation and delivery."20

Therefore, based upon the future importance stressed for oral technical communication, it is doubtful that any technical communication degree plan would be complete without requiring at least one practical oral communication course.

Electronics Sequence

Tables IV and V list proposed junior and senior courses for a bachelor of technical communication degree with electronics as the technical specialty. The technical courses list provide technician-type courses, engineering design courses, and theory courses. The results of the survey discussed in the previous chapters indicate that these three types of courses are necessary for an effective degree plan in technical communication. This type of technical training was stressed during interviews with technical communication managers and supervisors.

For example, Roger Crouse, Technical Manual coordinator for Vought Corporation, said, "Because electronics technicians rely upon our manuals in the performance of their jobs, we must know the tools of their trade, how to use these tools, and when to use them. The technical writer is

\[20\text{Franchina.}\]
## TABLE IV
### JUNIOR CURRICULUM—ELECTRONICS SEQUENCE

#### Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Electronics Maintenance (Technician. Course)</td>
<td>3</td>
<td>3 (lab course)</td>
</tr>
<tr>
<td>AC-DC Circuits Designs</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IPB Writing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Writing For Military Manuals (Philosophy of Military Logistics, Military Symbology, etc.)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elective (Technical)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

#### Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Physics (Electricity and Magnetism)</td>
<td>3</td>
<td>3 (lab course)</td>
</tr>
<tr>
<td>Analog Computer Circuits</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Digital Computer Circuits</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Proposal Writing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elective (Nontechnical)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

---

responsible for telling the technicians [in manuals] which tool to use for a specific task, how the tool is to be used, and what to expect when the tool is used.\(^{21}\) Therefore, a

TABLE V
SENIOR CURRICULUM--ELECTRONICS SEQUENCE

Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Logic Design I</td>
<td>3</td>
</tr>
<tr>
<td>Writing Commercial Manuals</td>
<td>3</td>
</tr>
<tr>
<td>Manufacturing Processes--Electronics Components</td>
<td>3 (lab course)</td>
</tr>
<tr>
<td>Basic Computer Program Languages</td>
<td>3</td>
</tr>
<tr>
<td>Elective (Technical)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Logic Design II</td>
<td>3</td>
</tr>
<tr>
<td>Computer Software Writing</td>
<td>3</td>
</tr>
<tr>
<td>Engineering Reports Writing</td>
<td>3</td>
</tr>
<tr>
<td>Oral Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>Elective (Nontechnical)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

good electronics maintenance course is recommended to acquaint the student with the tools of the electronics technicians' trade.

However, for a technical writer to tell an electronics technician when to use a specific tool and what to expect when the tool is used, the technical writer must understand
the engineering data that must be interpreted for the technician. "This requires good electronics theory background and a thorough understanding of the engineering design," Crouse said. As a result, it is recommended that a major portion of the technical communication degree plan in the electronic sequence contain courses ranging in complexity from individual circuit design to circuit applications.

**Mechanical Sequence**

Tables VI and VII list the recommended courses for the junior and senior years in a proposed technical communication degree with a mechanical technical specialty. The same philosophy applied to the electronic specialty is applied for the mechanical specialty. That is, a writer must know the tools of the mechanic's trade before he can tell a mechanic how to use the tools and must understand the theory and application of engineering mechanical design. Therefore, a variation of mechanical design courses should be included as a major part of the mechanical sequence in the degree plan.

Harry Hall, whose degree is in mechanical engineering, suggests that a technical communication degree in mechanical technology include a variety of mechanical courses including hydraulics, pneumatics, engine mechanics, metallurgical processes, aerodynamics, machinery, and stress and strain analysis. None of these courses should be too comprehensive, he
says, but should be designed to acquaint the student with
the mechanical engineer's design methods and terminology. Many of the respondents' comments in the questionnaires in Appendices A and B suggested similar subjects.

Therefore, these subjects have been included in the suggested degree plan for the junior and senior years for a technical communication degree with a mechanical specialty. If a college or university wishes to sponsor a technical communication degree program with a mechanical specialty, certain adjustments in the curriculum can be made to be compatible with the institution's facilities. For example, the suggested curriculum lists a foundry metallurgical processes course with a laboratory giving one semester hour credit for the Fall semester in the senior year. If the sponsoring institution does not have a furnace or other facilities for making castings, it may dispense with the laboratory and include the processes as part of the curriculum in the class and make the course four semester hours instead of three.

Chemical/Petroleum Sequence

Tables VII and VIII list the junior and senior courses recommended for a technical communication degree with a chemical/petroleum technical specialty. Some of the courses are listed as special courses for technical communication

21 Hall.
TABLE VI
JUNIOR CURRICULUM—MECHANICAL SEQUENCE

Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Mechanics (Technician's Course)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Engine Mechanics (Combustion, Turbine, Rotary, Jet)</td>
<td></td>
<td>3 lab 1</td>
</tr>
<tr>
<td>IPB Writing</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Writing for Military Manuals (Philosophy of Military Logistics, Military symbology, etc.)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective (Technical)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Physics (Heat, Mechanics, Wave Motion, Optics)</td>
<td></td>
<td>3 lab 1</td>
</tr>
<tr>
<td>Commercial Refrigeration Systems Designs</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Proposal Writing</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Hydraulic/Pneumatic Systems Designs</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective (Nontechnical)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

majors because the theoretical curriculum taught to technical communication majors should not be as comprehensive as for science majors (such as in chemistry).

---

### TABLE VII

**SENIOR CURRICULUM—MECHANICAL SEQUENCE**

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing Commercial Manuals</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Electro-Mechanical Devices Designs</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Foundry Metallurgical Processes</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Mechanical Devices and Machine Designs</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective (Technical)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress and Strain Analysis</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Oral Technical Communication</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Aerodynamic Principles</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Engineering Reports Writing</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective (Nontechnical)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

A technical writer at Vought Corporation, says, "Science courses, such as advanced chemistry for technical writers, should be taught with practical applications in mind rather than theoretical, although some theory could be useful. Generally these type courses should be product oriented."

Most practical courses recommended for the degree plan are for support of the petroleum industry. "With today's
TABLE VIII

JUNIOR CURRICULUM--CHEMICAL AND PETROLEUM SEQUENCE

Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Inorganic Chemistry</td>
<td>3 lab 1</td>
</tr>
<tr>
<td>(For Technical Communication)</td>
<td></td>
</tr>
<tr>
<td>Industrial Chemistry and Petroleum Writing</td>
<td>3</td>
</tr>
<tr>
<td>Chemical Plant Processes</td>
<td>3</td>
</tr>
<tr>
<td>Physical and Historical Geology</td>
<td>3 lab 1</td>
</tr>
<tr>
<td>(For Technical Communication)</td>
<td></td>
</tr>
<tr>
<td>Elective (Technical)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Organic Chemistry</td>
<td>3 lab 1</td>
</tr>
<tr>
<td>(For Technical Communication)</td>
<td></td>
</tr>
<tr>
<td>Petroleum Distillation Procedures</td>
<td>3</td>
</tr>
<tr>
<td>Proposal Writing</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Geology for Technical Communication</td>
<td>3 lab 1</td>
</tr>
<tr>
<td>(Covers Stratigraphy and Structural Geology)</td>
<td></td>
</tr>
<tr>
<td>Elective (Nontechnical)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

energy shortages, one may expect that the petroleum industry will be placing more emphasis upon technical communication," said Harry Hall. "Even now, electronic and mechanical
### TABLE IX
SENIOR CURRICULUM--CHEMICAL AND PETROLEUM

#### Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical Inorganic Chemistry</td>
<td></td>
<td>4 lab 1</td>
</tr>
<tr>
<td>(Combined Qualitative and Quantitative)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minerology (Rocks and Minerals)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Petrology</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Writing Commercial Manuals</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective (Technical)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

#### Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invertebrate Paleontology</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Optical Minerology</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Engineering Reports Writing</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Analytical Organic Chemistry</td>
<td></td>
<td>4 lab 1</td>
</tr>
<tr>
<td>Oral Technical Communication</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Engineering firms are having to compete with oil and gas industries for technical communication personnel, and the competition is increasing," he said.

Therefore, with the increasing trend of the petroleum and chemical industries to rely upon technical communication processes, it can be expected that more technological
training in that field will be required. Because of the close relationship between the chemical and petroleum industries, a combined chemical and petroleum technical specialty is recommended for technical communication students whose technological interests lie in those fields. Perhaps, later, separate chemical and petroleum technical specialties may become practicable.
CHAPTER VI

CONCLUSIONS

Based upon the responses to the survey questionnaires in the appendices and the analyses of the surveys in the previous chapters, the following conclusions are made:
(1) a bachelor's degree program in technical communication is needed in Texas; (2) some unusual problems may be encountered in setting up a technical communication degree program, but these problems are not insurmountable; (3) an adequate degree program in technical communication must provide a balance of training in writing development and a technical specialty; (4) a university sponsoring a technical communication degree program does not necessarily have to sponsor engineering degree programs; and (5) a technical communication degree program will benefit students, the university, and industry.

A Technical Communication Bachelor's Degree Program Is Needed in Texas

At the present time, no university or college in Texas, the Southwest, or the South offers a degree program in technical communication. Texas industries must rely upon their own (or others') in-house educational programs to provide training for personnel working in corporate technical
publications departments. A technical communication degree program offered by a Texas college or university would enable Texas industries to recruit competent personnel who require minimum orientation before becoming productive in technical communication tasks.

Problems in Setting Up a Technical Communication Degree Program Are Not Insurmountable

Some problems that can be expected in setting up a technical communication degree program are in the areas of: (1) recruiting instructors for technical or specialized technical communication courses; (2) student enrollment; and (3) determining a curriculum for specialized courses. Solutions to all of these problems should begin with educators working with professionals in the field and with members of the professional organization, the Society for Technical Communication. Working professionals can be relied upon to help in the solution of these problems: to teach technical communication courses; to speak to high school students, encouraging graduating seniors to consider technical communication as a career field; and to work with educators in deciding upon a curriculum. The willingness of working professionals to help is, in itself, a giant step toward lessening or solving problems that may be encountered by a university or college in setting up a technical communication degree program.
A Technical Communication Degree Program Must Provide a Balance of Writing Development and Technical Specialty Courses

To be trained adequately for technical communication tasks, a student must be able to interpret engineering documentation in such a manner that personnel who have not received engineering training can understand the technical aspects of the documentation. To achieve this requirement, the student must be taught a technical specialty so that he will understand scientific data. The student must be taught how to present such data in a manner that persons who have had less academic training in that technology can understand the technical aspects of the data. In short, a technical communicator's training should enable him to understand technical data well enough to enable him to interpret the data into layman terminology.

An Engineering Degree Program Is Not a Requirement For Sponsoring a Technical Communication Degree Program

Although a technical communication degree program should include training in an engineering technical specialty, almost any major university or college can sponsor a technical communication degree program. The university or college does not have to offer an engineering degree program. The technical specialty training for technical communication students should not be as comprehensive as is required for students in most engineering degree programs. Naturally, colleges offering engineering degrees would have less
difficulty in obtaining instructors for, or setting up, technical courses required for a technical communication degree plan. However, other colleges can provide adequate support for technical communication technological specialty courses through their science departments. Colleges or universities having no engineering degree programs could work with junior colleges or technical schools that offer technical courses, and allow transfer credit of technical courses from other schools to apply toward meeting technical communication degree requirements.

A Technical Communication Degree Program Will Benefit Students, the University, and Industry

Offering a technical communication degree program is beneficial to students because such a program provides training in a relatively new and expanding career field. Students who major in technical communication can look forward to a rewarding career after graduation. The career field is rewarding not only in economic stability, but also in work achievement. A technical communication graduate can expect frequent promotions and increasing responsibilities during his professional working life.

The university that offers a technical communication degree program will benefit by having more industrial representatives interview their graduates. This is especially true if only a few universities offer such a degree program. At present, industrial representatives of Texas companies
must leave the state to recruit graduates with academic training in technical communication.

As more students become acquainted with the technical communication profession, those who desire to enter that career field will go to the college or university offering a degree program in the field. This will result in greater enrollment in that college or university.

Industry will benefit greatly when a college or university offers a technical communication degree program. If large companies can hire college-trained technical communication personnel, the companies will not be forced to hire experienced personnel from other companies or hire inexperienced personnel which have to be trained on the job. Small companies will benefit, perhaps even more than large companies, by not being compelled to recruit experienced personnel from the larger companies. The small companies can rely upon universities and colleges to provide educated technical communication personnel, rather than rely upon the specialized training given to personnel recruited from the larger companies.

Summary

Eventually, some Texas university or college will offer a degree in technical communication. Such action becomes more inevitable as the profession expands and salaries of those who work in that profession increase. To prove this
point, one only has to look in the classified advertisements of the major newspapers in the state. Each year, more companies are establishing technical publications departments and are trying to hire personnel who can perform technical communication tasks. As more students learn that technical communication is a rising and lucrative profession, more students will enroll in technical writing or similar courses, perhaps to complete their elective requirements. Some of these students may well be accepted into technical communication, regardless of their degrees. Eventually, some Texas university or college will offer a bachelor's degree in technical communication. Insofar as industry, the universities, and students are concerned, the need is now.
APPENDIX A

QUESTIONNAIRE DISTRIBUTED AMONG TECHNICAL COMMUNICATION PERSONNEL WORKING FOR DIFFERENT COMPANIES IN THE DALLAS/FORT WORTH, TEXAS AREA

1. In what area of technical communication are you now working?
   Administrative   Arts   Production   Writing
   ___Administrative   ___Arts   ___Production   ___Writing

2. In what other area(s) have you worked previously?
   Administrative   Arts   Production   Writing
   ___Administrative   ___Arts   ___Production   ___Writing

3. In which area did you first begin working in technical communication?
   Administrative   Arts   Production   Writing
   ___Administrative   ___Arts   ___Production   ___Writing

4. How long have you worked in (all areas of) technical communication (total years)? ____________________________

5. What level of formal education have you received?
   High   Associate   Bachelor's   Master's   Ph. D.
   School   Degree   Degree   Degree   Ph. D.
   ___School   ___Degree   ___Degree   ___Degree   ___Ph. D.
   In what major did you receive your degree?________
   Minor?_________ If no degree, how many years
   college?_________ Major?____________________
6. Did you receive any technical experience or formal technical education before entering the technical communication career field? Yes __ No __

If yes, what technical experience or formal education have you had?

7. Have you received any formal technical education or training after entering the technical communication career field? Yes __ No __

8. Have you had any professional writing experience, journalistic training, or journalism education before entering technical communication? Yes __ No __

9. For what company are you now working? ____________

How many years have you been with that company? __

10. For what other companies have you worked in technical communication and how many years with each? ____________

11. After entering technical communication, how long before your first promotion? ____________

12. How many (total) promotions have you had since entering technical communication? ____________

13. Please make any comments you wish regarding your career in technical communication, such as why you entered this career field, do you enjoy working in this career field, or what advice you would give to any young person considering the technical communication profession for his career. ____________
APPENDIX B

QUESTIONNAIRE DISTRIBUTED AMONG TECHNICAL COMMUNICATION PERSONNEL WORKING IN TECHNICAL PUBLICATION DEPARTMENT OF A LARGE COMPANY IN DALLAS, TEXAS

1. In what division of technical communication do you work?
   Administrative  Editorial/ Production  Writing
   __________________________________________

2. How long have you worked in technical communication (total years in one or more divisions)?
   _______ years
   __________________________________________

3. How did you come to enter the technical communication career field? (Please explain briefly.)
   __________________________________________

4. Did you, before entering technical communication, make any plans or in any way prepare yourself for working specifically in that career field?
   Yes  No
   If yes, what action did you take? __________________________________________

5. Do you now consider yourself proficient in your work?
   Yes  No

6. Considering your background (experience, education, etc.) do you believe you are properly rewarded for your work?
   Yes  No
7. In comparing previous types of jobs you have had or different types of work you can now perform, do you believe the pay for your technical communication efforts to be

__Poor  __Fair  __Good  __Excellent

8. If for some reason you left your present place of employment, would you consider working in technical communication for another employer?

__Yes  __No

9. Would you consider leaving the technical communication field for another type of work (assuming pay, working conditions, etc. were the same)?

__Yes  __No

10. Which do you consider the most difficult:

__Learning the technology of your specialty?

__Communicating the technology to others who are not as familiar with that technology?

11. Do you believe communication (such as writing) ability

__Can be learned?

__Must be developed?

12. Do you believe your communication proficiency has increased since entering the technical communication career field?

__Yes  __No

13. Since entering the technical communication career field, have you taken any academic courses related to your job?

__Yes  __No

14. If answer to question 13 is yes, were these courses to

__Improve your technical knowledge?

__Develop your communication (writing) skills?

__Both
15. Do you believe a four-year technical communication college degree program that teaches a technological specialty and develops writing skills would be more beneficial than a two-year associate program?

   Yes   No

16. If a degree program were offered by one of the area colleges, would you consider enrolling in the program to obtain a technical communication degree?

   Yes   No   Maybe

17. If the answer to question 16 is no or maybe, would you be interested in taking one or more courses that may pertain to your present job?

   Yes   No   Maybe

18. Would you be interested in teaching college courses in either your technological specialty or in communication skill development?

   Yes   No   Maybe

19. Before entering the technical communication career field, in what type work were you engaged?

   

20. Please feel free to make any comments or suggestions you may have concerning a technical communication degree program (associate, bachelor, either, or both).
APPENDIX C

QUESTIONNAIRE DISTRIBUTED BY TEXAS STATE TECHNICAL INSTITUTE TO TECHNICAL COMMUNICATION PERSONNEL EMPLOYED BY DIFFERENT COMPANIES THROUGHOUT TEXAS

Rate the importance of each task item from 0 (lowest rating) through 5 (highest rating).

<table>
<thead>
<tr>
<th>Task Item</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To be able to get along well with other persons under changing conditions.</td>
<td></td>
</tr>
<tr>
<td>2. To be able to organize material gathered through research methods.</td>
<td></td>
</tr>
<tr>
<td>3. To be able to write well constructed paragraphs, using correct grammar, punctuation, and spelling.</td>
<td></td>
</tr>
<tr>
<td>4. To be able to rewrite or rephrase technical material for a lay reader.</td>
<td></td>
</tr>
<tr>
<td>5. To be able to edit copy for revision or for publication, using standard proofreaders' marks found in most collegiate dictionaries.</td>
<td></td>
</tr>
<tr>
<td>6. To be able to gather technical or scientific information through office files and record research.</td>
<td></td>
</tr>
<tr>
<td>7. To be able to proofread copy for conformity or for errors, using standard proofreaders' marks.</td>
<td></td>
</tr>
<tr>
<td>8. To be able to gather technical or scientific information through personal interviews.</td>
<td></td>
</tr>
<tr>
<td>Task Item</td>
<td>Rate</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>9. To be able to gather technical or scientific information through group meetings.</td>
<td></td>
</tr>
<tr>
<td>10. To be able to gather technical or scientific information through library research.</td>
<td></td>
</tr>
<tr>
<td>11. To be able to write context for a technical manual</td>
<td></td>
</tr>
<tr>
<td>12. To be able to gather technical or scientific information through personal observation and/or experimentation.</td>
<td></td>
</tr>
<tr>
<td>13. To be able to organize and arrange the contents of a technical manual.</td>
<td></td>
</tr>
<tr>
<td>14. To be able to read computer printouts.</td>
<td></td>
</tr>
<tr>
<td>15. To understand and be able to use basic mathematics.</td>
<td></td>
</tr>
<tr>
<td>16. To understand and be able to use basic electronics.</td>
<td></td>
</tr>
<tr>
<td>17. To understand basic computer terminology.</td>
<td></td>
</tr>
<tr>
<td>18. To understand and be able to use mathematics through algebra.</td>
<td></td>
</tr>
<tr>
<td>19. To be able to gather technical or scientific information through a written questionnaire.</td>
<td></td>
</tr>
<tr>
<td>20. To be able to write a technical proposal.</td>
<td></td>
</tr>
<tr>
<td>21. To be able to write a normal business letter, using a well accepted form.</td>
<td></td>
</tr>
<tr>
<td>22. To be able to write an article for a technical, trade, or professional journal.</td>
<td></td>
</tr>
<tr>
<td>23. To be able to make an informal group talk.</td>
<td></td>
</tr>
<tr>
<td>24. To be able to organize and write inquiries which deal with anticipated proposals.</td>
<td></td>
</tr>
<tr>
<td>Task Item</td>
<td>Rate</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>25. To understand and be able to use basic drafting.</td>
<td></td>
</tr>
<tr>
<td>26. To know or be able to determine the type of audio-visual aids required for most given purposes.</td>
<td></td>
</tr>
<tr>
<td>27. To understand and be able to use basic printing techniques.</td>
<td></td>
</tr>
<tr>
<td>28. To understand and be able to use basic physics.</td>
<td></td>
</tr>
<tr>
<td>29. To be able to prepare a speech (including organization of materials).</td>
<td></td>
</tr>
<tr>
<td>30. To understand and be able to use mathematics through trigonometry.</td>
<td></td>
</tr>
<tr>
<td>31. To be able to utilize gathered material in writing a news article in a manner suitable for publication.</td>
<td></td>
</tr>
<tr>
<td>32. To be able to prepare basic audio-visual aids (slides, overhead projections, tapes, etc.).</td>
<td></td>
</tr>
<tr>
<td>33. To be able to make a semiformal or formal public speech.</td>
<td></td>
</tr>
<tr>
<td>34. To understand and be able to use basic photography.</td>
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<tr>
<td>35. To be able to type in excess of 25 words per minute.</td>
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<tr>
<td>36. What other skills do you feel desirable or necessary for performing technical communication tasks?</td>
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APPENDIX D

INTERVIEW QUESTIONS ASKED MANAGERS AND SUPERVISORY PERSONNEL OF TECHNICAL PUBLICATIONS DEPARTMENTS IN DIFFERENT COMPANIES IN NORTH TEXAS

Background Information

Name_________________________ Title_________________________

Company______________________ No. Personnel Supervising____

Type Degree___________________ From________________________

No. Years in Technical Communication________________________

Questions

1. What methods do you use to recruit technical communication personnel?

2. What qualifications (from applicants) are given most consideration (academic achievement, technical training, developed writing skills, etc.)?

3. Do you feel most newly-hired personnel are qualified to work in technical communication? If yes, to what do you attribute this? If no, why do you feel this way?

4. Have you at any time had difficulty in hiring experienced technical communication personnel? What kind of difficulties? How did you overcome these difficulties?

5. In which division (arts, writing, etc.) have you had the most difficulties hiring experienced/qualified personnel?

6. Have you ever hired inexperienced personnel to perform technical communication jobs? If so, what made this necessary?

7. What methods does your organization use to train inexperienced personnel for technical communication?
8. Do you believe a four-year college degree program in technical communication (in your firm's engineering specialty) would benefit your department?

9. If a technical communication degree program were offered in this area, would you encourage your employees who do not have degrees to enroll in the program? Would you encourage all personnel, even those who have degrees in other disciplines, to take courses that may pertain to specific job specialties?

10. What do you believe should be emphasized in such a program (writing skills development, technical training, balance of both, etc.)?

11. If an adequate technical communication degree program were offered, what consideration would you give an applicant having such a degree (with respect to other applicants)?

12. In what ways would your organization benefit from such a program (a technical communication degree program)? What other benefits do you believe would be derived?

13. Do you believe future technical communication efforts will offer an opportunity for a college graduate to have a rewarding and satisfying career?

14. Do you have any additional comments regarding the need for or desirability of a technical communication college degree program?
APPENDIX E

QUESTIONNAIRE DISTRIBUTED BY JOHN A. WALTER TO DIFFERENT COMPANIES' TECHNICAL COMMUNICATION DEPARTMENT MANAGERIAL PERSONNEL THROUGHOUT THE UNITED STATES

1. What skills and knowledge are desirable in a technical writer or editor in your employ?

2. What training for technical writers and editors do you especially prefer:
   a. Technical background plus writing ability?
   b. Knowledge and experience of the craft of writing?
   c. Both?

3. Would you prefer a basic technical writer or editor to take an undergraduate major in:
   a. A science (physics, chemistry, mathematics, biology, etc.) with English (training in writing) as a minor?
   b. English with a science as a minor?
   c. Engineering with English as a minor?
   d. Some other kind of training?

4. Would your company consider hiring applicants with degrees in English or journalism (if the applicants have taken advanced courses in technical writing and editing?)
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Walker, R. O., "Recommendations for a Bachelor's Degree Program in Technical Communication," unpublished report, Department of Journalism, North Texas State University, Denton, Texas, August, 1975.

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Interviews


Chaffee, Mel, supervisor, Technical Illustrations, Vought Corporation, Dallas, Texas

Connally, Wes, supervisor, Technical Writing, Texas Instruments, Dallas, Texas

Cottrell, Evan, group manager, Microwave Technical Publications, Collins Radio, Dallas, Texas

Crouse, Roger, Technical Manual Coordinator, Vought Corporation, Dallas, Texas

Franchina, Charles, manager, Technical Publications Department, Bell Helicopter, Hurst, Texas

Glasser, Jim, Senior Technical Writer, Vought Corporation, Dallas, Texas

Hall, Harry, supervisor, Technical Writing Groups, Vought Corporation, Dallas, Texas

Hampton, Jerry, Technical Manual Coordinator, Vought Corporation, Dallas, Texas

Moss, Mike, manager, Technical Publications (1965-1968), Recognition Equipment Company, Dallas, Texas

Parker, Oakley A., supervisor, Technical Publications Production, Vought Corporation, Dallas, Texas

Pease, Frank, chief, Technical Publications and Training, Vought Corporation, Dallas, Texas

Reid, Mark, manager, Technical Publications, E-Systems Inc., Garland, Texas

Roberts, Bill, manager, Technical Publications Department, General Dynamics, Fort Worth, Texas

Walter, John A., acting chairman, Department of English, University of Texas, Austin, Texas

Woods, June, supervisor, Technical Publications Editing and Quality Assurance, Vought Corporation, Dallas, Texas