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ABSTRACT

THE TECHNICAL COMMUNICATION INDUSTRY: A STUDY OF TODAY'S JOB REQUIREMENTS IN THE UNITED STATES

**by
Maria Conte**

Technical communication, “the process of gathering information from experts and presenting it to an audience in a clear, easily understandable form,” (Society for Technical Communication) has grown more popular in the last decade, even as an academic discipline (Staples and Ornatowski xi).

The growth of the technical communication profession has led to an increase in skill requirements needed to obtain a position as a practitioner.

This study, using Glaser and Strauss’ Grounded-Theory approach, identified the requirements of today’s technical communication job candidates by examining recent technical communication job advertisements in ten of the top newspapers in the United States. The four major categories of requirements for examination are experience, education background, hardware/software skills, and knowledge about general job skills.

Results from the study show that the experience requirement was found in 69.6% of the advertisements, the general job knowledge requirement was found in 50.4% of the advertisements, the hardware/software skill requirement was found in 47.59% of the advertisements, and education was only found in 37% of the advertisements.

**THE TECHNICAL COMMUNICATION INDUSTRY: A STUDY OF TODAY'S
JOB REQUIREMENTS IN THE UNITED STATES**

by
Maria Conte

**A Thesis
Submitted to the Faculty of
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In Partial Fulfillment of the Requirements for the Degree of
Master of Science in Professional and Technical Communication**

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APPROVAL PAGE

**THE TECHNICAL COMMUNICATION INDUSTRY: A STUDY OF TODAY'S
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This thesis is dedicated to
my parents
Alberico and Sandra Conte

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CHAPTER 1

INTRODUCTION

America is currently known as an Information Society, where the exchange of information is the predominant economic and social activity (Straubhaar and LaRose 4). Information workers include those practicing technical communication, “the process of gathering information from experts and presenting it to an audience in a clear, easily understandable form” (Society for Technical Communication). With this, the technical communication profession has grown very popular, especially in the last decade. According to George Hayhoe, Editor of *Technical Communication: Journal of the Society for Technical Communication*:

If [it is] assumed that membership in the Society for Technical Communication¹ reflects overall trend in [the] profession, the number of technical communicators has grown 750% between 1961 and 1998 (1).

This astounding increase in the professional organization’s membership clearly confirms the growth of the profession. Furthermore, technical communication has grown as an academic discipline with:

[...] a rapid increase in the number of courses and programs offered at two-year and four-year colleges and universities, as well as a 500% increase in the number of schools offering courses (McDowell 1).

This too, confirms the growth of the profession.

With the technical communication profession still growing, what is it that aspiring or current technical communicators need to know in order to succeed or remain successful as a practitioner in today’s workplace?

Moreover, how can one determine the requisite skills or knowledge to attain a position as a practitioner? Certainly, one indicator of hiring trends and practices in the United States is newspaper job advertisements.

Using Glaser and Strauss' Grounded-Theory qualitative research approach, this thesis presents a study of technical communication hiring trends and practices by examining recent job advertisements in ten of the top newspapers in the United States.

CHAPTER 2

LITERATURE REVIEW

A review of literature did not produce any specific studies that focused on the current hiring trends and/or current skill practices for technical communication professionals. However, there have been several studies utilizing newspaper job advertisements as indicators of hiring trends and/or current skill practices for other professions.

These studies include Raymond Papp's 1998 study of job requirements for information systems professionals in the New England region as well as Case, Price, and Rogers' 1997 study, which focused on information systems professionals in the southeastern region of the United States. These studies were similar except for their regional focus. In addition to these studies, Todd, McKeen, and Gallupe's 1995, "*The Evolution of IS Job Skills: A Content Analysis of IS Job Advertisements from 1970-1990*", and Arnett, Litecky, and Prabhakar's 1995, "*Longitudinal Analysis of Job Skill Trends in the MIS Job Market*" examined newspaper job advertisements over a period of time to identify changes in the requirements for information systems professionals.

2.1 “Technology Skills in Demand: A Survey of Job Advertisements in New England”

Raymond Papp’s “*Technology Skills in Demand: A Survey of Job Advertisements in New England*” focused on information systems job advertisements found in the five largest newspapers in the Connecticut and New England regions in addition to advertisements found on each of the five newspaper’s websites. The study was conducted in the summer of 1998 and utilized the following newspapers: the *Hartford Courant*, the *Boston Globe*, the *Worcester Telegram and Gazette*, the *Providence Journal-Bulletin*, and the New England Edition of the *New York Times*. The study was designed to discover differences, if any existed, in the job requirements in specific areas within the New England region (39-40).

Each periodical represented a specific area within the region. According to Papp, the *New York Times* and the *Hartford Courant* represented the western Connecticut and western Massachusetts areas of New England, where the *Boston Globe* represented Metro Boston and northern New England, the *Worcester Telegram and Gazette* represented central and eastern Massachusetts, and lastly, the *Providence Journal-Bulletin* represented Rhode Island and southeastern Connecticut (40).

Papp found 2,639 information systems job advertisements for this study. Though no specific research method was discussed in his writings, it appears that Papp approached his research using qualitative methods rather than quantitative methods. He extracted and coded the data categorically according to the following schema: general job skills, information system skills, programming languages, hardware platforms and

operating systems, database skills, networking topologies and structures, application packages, specialized development packages, and educational backgrounds (40).

The results revealed that the requirement greatest in demand across the entire New England region was education. Most employers called for candidates to have a bachelor's degree at a minimum (41). Differences and similarities did exist within the region. For instance, the most popular information system skill required was the same in all the regions: networking and telecommunications. However, in the general skills category, the greatest required skill was not consistent. In the Connecticut and western Massachusetts areas, interpersonal communication was the greatest skill required, but in the Boston Metro and Rhode Island areas, the greatest skill required was analytical/problem solving (41).

Papp explained the impact of his findings on curricula in the New England region. He then compared his results to Case, Price, and Rogers' 1997 study using the same research methodology but focused on the southeastern United States. Though Papp did utilize newspaper job advertisements as an indicator of current hiring trends and skill practices, his study focused only on information systems jobs in the New England Area.

2.2 “The Information Systems Industry: What Abilities Does It Want From Its New Hires? A Look at the Southeastern U.S.”

Thomas Case, Barbara Price, and Camille Rogers’ 1997 “*The Information Systems Industry: What Abilities Does it Want From its New Hires? A Look at the Southeastern U.S.*,” focused on discovering the skills most required by employers in the southeastern United States so as to “assist in the revision of an information systems curriculum”(146). Alabama, Florida, Georgia, North Carolina, and South Carolina were the states included in the region for the study. The periodicals utilized in this case study were major newspapers published in the major cities within these five states. They included the *Atlanta Constitution*, the *Charlotte Observer*, the *Savannah Morning News* and other major publications. The job advertisements were collected on the first Sundays in June, July, and August 1997 (147).

After finding 727 information systems job advertisements, researchers, using qualitative methods, extracted data using a schema, which:

[...] consisted of nearly two hundred distinct criteria grouped into numerous categories including general job skills, information system certifications, educational backgrounds, programming languages, operating systems, hardware platforms, network technologies, application packages, database technologies, and development tools (147).

As with the previous study, researchers here did not specify the methods of their coding except that they mimicked those of Jacobson and Armstrong in their, “What Information Systems Employers Want: A Survey of Job Advertisements in the Middle Atlantic States” (146).

Results of the study revealed that of the general job skills, project management and coordination was the top required skill, where analytical skills were least required with only 8.8% of the employers requiring it. As for information system technical skills, the top required skill was that of design and development, where operation and maintenance was the least required. Only 28% of the total job advertisements required candidates to possess a bachelor's degree, and approximately 48% of the advertisements called for candidates to have prior experience. Researchers also included the skill requirement data for the programming languages and development tools.

The study, using newspaper job advertisements as indication of trends, was initiated to use the results as a means to alter information science curriculums or recruiting efforts if focused incorrectly (146). Researchers compared their results to that of Jacobson and Armstrong, a similar study focusing on the Middle Atlantic States. According to Case, Price, and Rogers, the two regions have similar requirement trends for the information systems industry.

2.3 “The Evolution of IS Job Skills: A Content Analysis of IS Job Advertisements From 1970 to 1990”

Peter Todd, James McKeen, and Brent Gallupe's 1995 study, *“The Evolution of IS Job Skills: A Content Analysis of IS Job Advertisements from 1970 to 1990,”* examined newspapers job advertisements for knowledge and skills required of programmers, system analysts, and information system managers. The advertisements were retrieved from four major newspapers over a 20-year period, 1970 – 1990. The periodicals were, the *New York Times*, the *Wall Street Journal*, the *Globe and Mail*, (Canadian) and the

Toronto Star (Canadian). The advertisements were collected at 5-year intervals, 1970, 1975, 1980, 1985, and 1990 for a total of 1,234 advertisements (4).

Researchers extracted data from the advertisements qualitatively according to a schema including the following categories: technical, business, and systems. Each category contained additional criteria for analysis.

Results in this study revealed:

The average number of references to technical requirements more than tripled--from being the least referenced category in 1970 to being the most referenced category in 1990. Even when the data were adjusted for the increasing lengths of ads, the technical references increased from about 13 percent of the ads in 1970 to approximately 43 percent in 1990. Further, there were slight decreases in the proportion of the ads devoted to business and systems skills (8).

Researchers explained the implications that the results of the study have on information system curricula in Canada.

2.4 “A Longitudinal Analysis of Job Skill Trends in the MIS Job Market”

Bipin Prabhakar, Chuck Litecky, and Kirk Arnett’s 1996, “*A Longitudinal Analysis of Job Skill Trends in the MIS Job Market*” focused on MIS skills in demand in order to provide information science professionals with the knowledge necessary to be competitive in a competitive marketplace. Furthermore, the researchers argued that:

[...] changing job skills also hold implications for academia. Therefore, MIS curricula may need to change to reflect the changes in the MIS job market to produce graduates in high demand (338).

The study examined job advertisements retrieved from newspapers across the United States in a five-year period, 1992 – 1996. The advertisements were collected in the month of April for each year specified. The researchers used a data coding classification scheme similar to those of Todd, McKeen, and Gallupe's 1995 study, previously discussed, with the exception that additional categories and criteria were added to incorporate new technologies that have emerged since 1995 (338).

Results found that “skills demanded by the MIS job market have undergone significant changes in the last five years” and “traditional skills like mainframe computing and COBOL programming skills are being replaced by networking skills and PC skills (339). Again, researchers here discussed the implications of the results of this study on academics in the information systems discipline.

2.5 Summary of Literature Review

The search for similar studies, which used newspaper job advertisements as indicators of current hiring trends and skill practices, produced several studies in the information systems industry rather than the technical communication industry. The studies utilized qualitative research methods to answer similar research questions, such as what are the requirements for job candidacy, what is the most required skill, and/or is education background a factor? These research questions as well as the researchers' review of the periodical resources, aided in the construction of the data coding schemas used to extract the data from the advertisements. Most of the data coding schemas included categories such as education, experience, technical skills, and general job skills. Their methods

proved successful in ascertaining the data necessary for analysis in order to answer their research questions and to build theories that can be retested in the future.

With similar questions pending regarding the technical communication profession, this study was conducted in a similar fashion using the same type of categories to identify current hiring trends and skill practices in the workplace.

CHAPTER 3

METHODOLOGY

This study, using grounded theory approach, was an examination of recruitment efforts within the United States for technical communication professionals via newspaper advertisements within a one-month period in 2002.

3.1 Grounded Theory

Barney Glaser and Anselm Strauss developed the Grounded Theory approach, which is a qualitative research method. According to Glaser and Strauss, the research approach is “the discovery of theory from data systematically obtained from social research” (2).

Moreover, as Strauss later explains with Juliet Corbin:

One does not begin with a theory, then prove it. Rather, one begins with an area of study and what is relevant is allowed to emerge (23).

The decision as to whether this type of research method was appropriate for conducting this study was determined by reviewing the research question: “What are the job requirements of technical communicators in today’s marketplace?” This research question did not call for an examination of any specific theory, but rather it called for the collection and analysis of data where theories could then be postulated. This author then determined that the use of the grounded theory research method was the most suitable approach.

Utilizing this qualitative research method, analysis of data, as it is collected, must be completed systematically in order to accurately build theory. This grounded theory approach process is termed coding. Once the data is coded, theories can be built.

3.2 The Study

3.2.1 Defining Technical Communication Positions

The first step in the case study was defining the possible positions that technical communication professionals hold. This author found the position titles in professional journals, websites, and newspaper publications. Tables 3.1a through 3.1i contain the technical communication position titles found in the review process.

Table 3.1a Technical Communication Position Titles

Business Communicator	Multimedia Author
Desktop Publisher	Public Relations Writer
Documentation Manager	Technical Communication Specialist
Information Designer	

Source: Intercom: Magazine of the Society for Technical Communication May 2002

^a These terms were found in various articles within this specific publication.

Table 3.1b Technical Communication Position Titles

Content Developer	Technical Writer
Documentation Specialist	Translator
Instructional Designer	Visual Designer
Technical Editor	Web Designers/Developer
Technical Illustrator	

Source: Society for Technical Communication About STC Page Aug. 2002

<<http://www.stc.org/aboutus.htm>>.

Table 3.1c Technical Communication Position Titles

Copy Editor	Copywriter
-------------	------------

Source: Technical Communication: Journal of the Society for Technical Communication August 2002 Volume 49, Number 3

^a These terms were found in various articles within this specific publication.

Table 3.1d Technical Communication Positions Titles

Medical Writer

Source: American Medical Writers Association Homepage About AMWA. Aug. 2002
<<http://www.amwa.org/about/what.html>>.

Table 3.1e Technical Communication Position Titles

Course Developer	Instructional Designer
Document Developer	Marketing Editor
Graphic Designer	Marketing Writer
Graphic Illustrator	Trainer

Source: Technical Communication: Journal of the Society for Technical Communication May 2001 Volume 48, Number 2

^a These terms were found in various articles within this specific publication.

Table 3.1f Technical Communication Position Titles

Grant Writer	Proposal Writer
--------------	-----------------

Source: Job Advertisements. The Los Angeles Times Sept. 8 2002. sec. classifieds.

Table 3.1g Technical Communication Position Titles

Science Writer	Health Writer
Communication Specialist	Communication Manager
Media Writer	Media Editor
Information Specialist	Science Information Specialist

Source: Job Advertisements. The Washington Post Sept. 8 2002. sec. classifieds.

Table 3.1h Technical Communication Position Titles

Financial Reporter

Source: Job Advertisements. The New York Times Sept. 15, 2002. sec. classifieds.

Table 3.1i Technical Communication Position Titles

Clinical Editor	Proofreader
-----------------	-------------

Source: Job Advertisements. The Chicago Tribune Sept. 15, 2002. sec. classifieds.

Once the technical communication position titles were identified, the next step was to identify the newspapers to be used for the study.

3.2.2 The Sampling Plan

The Audit Bureau of Circulations² ranks newspapers by their daily circulation. (Refer to Appendix A for the top 20 newspapers.) In order to obtain advertisements that were not concentrated in one particular geographical region, this study used newspapers published in different states. Moreover, if there were two or more newspapers published in the same state ranked at the top, the higher-ranking newspaper was selected for the study. For example, the *Los Angeles Times* and the *San Francisco Chronicle* are ranked as numbers 4 and 11, respectively. These newspapers are both published in California, however, and therefore, could not both be included in the study. The *Los Angeles Times*, ranked at number 4, is larger in circulation, thus included in the study. Furthermore, if two newspapers from the same state are ranked the same in circulation, as is the case with the *Denver Post* and *Rocky Mountain News*, then the newspaper was selected alphabetically, in this case, the *Denver Post*.

Excluded from the study were the *Wall Street Journal* and *USA Today*, which are the largest publications in circulation, respectively. The *Wall Street Journal*, published in New York, was excluded because it contained a small number of advertisements for technical communicators, where the *New York Times* provided a larger number of advertisements, and therefore, was a better representation for New York. *USA Today* was excluded from the study due to their recruiting efforts being a culmination of advertisements from all Gannett, Inc. newspapers nationally (*USA Today*). With the

3.2.4 Job Advertisement Retrieval

As this author found each technical communication job advertisement, it was immediately assigned an identification number. The identification numbers assigned were a combination of the acronym for the title of the newspaper, the date of the newspaper edition, and a unique number, assigned consecutively for that newspaper edition. For example, the first advertisement assigned an identification number for the September 1, 2002 edition of the *New York Times* was labeled as NYT 9/1/02 #1 where the second advertisement for that same edition was labeled as NYT 9/1/02 #2, and so forth. Refer to Table 3.5 for the acronyms assigned for each newspaper used in the study.

Table 3.5 Newspaper Acronyms

Publication Name	Acronym Assigned
New York Times	NYT
Los Angeles Times	LAT
Washington Post	WP
Chicago Tribune	CT
Denver Post	DP
The Detroit News/Free Press	DN
Houston Chronicle	HC
Boston Globe	BG
Arizona Republic	AR
Newark Star Ledger	NSL

3.2.5 Data Coding

While completing the search for the technical communication job advertisements and assigning the identification numbers, this author reviewed the advertisements' job requirements in order to develop a schema for coding.

According to Strauss and Corbin, coding is defined as the analysis of data. They further explain that there are three types of coding: open coding, axial coding, and

According to Strauss and Corbin, coding is defined as the analysis of data. They further explain that there are three types of coding: open coding, axial coding, and selective coding (57-142). Open coding, “the process of breaking down, examining, comparing, conceptualizing, and categorizing data”(61), is the first part of the coding process. In order to clearly explain the open coding process as it was used in this study, pertinent definitions are provided in Table 3.6.

Table 3.6 Open Coding Definitions

Term	Definition
Concepts:	Conceptual labels placed on discrete happenings, events, and other instances.
Category:	A classification of concepts. This classification is discovered when concepts are compared one against another and appear to pertain to a similar phenomenon. Thus the concepts are grouped together under a higher order, more abstract concept called a category
Coding:	The process of analyzing data.
Properties:	Attributes or characteristics pertaining to a category.
Dimension:	Location of Properties along a continuum.
Dimensionalizing:	The process of breaking a property down into its dimensions.

Source: Strauss, Anselm, and Juliet Corbin. Basics of Qualitative Research: Grounded Theory Procedures and Techniques. Newbury Park, California: Sage 1990. (61)

This author began the open coding process with the conceptualizing of the advertisements’ job requirements data, whereby the instances or phenomena were labeled. Some of the instances found in the first few advertisements collected included bachelor’s degree, Microsoft® Word®, and job experience. Once these instances were labeled, they became concepts. Upon finding additional instances and labeling them accordingly, the properties and dimensions of the concepts were studied and compared so as to allow for categorizing, and sub-categorizing, if needed.

The categories derived from the analysis were: professional experience requirements, knowledge and abilities requirements, education requirements, and hardware/software skills requirements. As this author collected the job advertisements and assigned identification numbers, additional concepts were added each to each of these categories. In order to code each advertisement properly without confusion, the categories were assigned a color, whereby the advertisements could be coded accordingly.

As this author carefully examined the concepts and their properties, it was clear that a few of the concepts could have been dimensionalized, or broken down further. For instance, the category education requirement contains the concept associates degree. The properties of this concept can be broken down into school, major, minor, and so forth. However, the job advertisements found did not provide enough information to allow for this concept's properties or others to be dimensionalized.

Therefore, with the last step of the open coding process complete, the final coding schema was also complete. Refer to Table 3.7 for the complete data coding schema.

Table 3.7 Data Coding Schema

1. Professional Experience Requirement		
A. Industry Experience (e.g., pharmaceutical)		B. Job Experience (e.g., writing)
2. Knowledge and Abilities Requirement		
A. Industry Knowledge		
B. Deleted		
C. General Job Knowledge & Abilities		
(e.g., a tech writing position may call for knowledge of proofreader marks.)		
3. Education Requirement		
A. High School Degree/GED		E. Doctorate Degree
B. Associates Degree		F. Certification
C. Bachelor's Degree		G. Medical Doctor
D. Master's Degree		H. Juris Doctor
4. Hardware/Software Skills Requirement		
A. Bilingual (e.g., French)	AC. Cold Fusion	BE. Deleted
B. Windows OS	AD. .NET	BF. CGI
C. Macintosh OS	AE. COM	BG. IIS
D. Microsoft Word	AF. Microsoft Project	BH. PHP
E. Microsoft PowerPoint	AG. HTML Help	BI. TCP/IP
F. Microsoft Excel	AH. Docutech	BJ. J2EE
G. Microsoft Publisher	AI. Visual Basic	BK. ADABAS
H. Microsoft Visio	AJ. Deleted	BL. Solaris
I. Adobe Photoshop	AK. Core	BM. Printer
J. Adobe PageMaker	AL. Microsoft Access	BN. Deleted
K. Adobe FrameMaker	AM. InDesign	BO. CD Burner
L. Adobe Illustrator	AN. Freehand	BP. Visual Interdev
M. Adobe Acrobat	AO. UNIX	BQ. Maya
N. Quark XPress	AP. FTP	BR. Director
O. Word Perfect	AQ. WCN System	BS. Fireworks
P. Electronic Mail	AR. Perl	BT. Internet Browsers
Q. Web Authoring	AS. Deleted	BU. Corel Draw
R. Web Design	AT. AutoCad	BW. PKI
S. HTML	AU. Oracle	BX. SciTex
T. DreamWeaver	AV. Expedition	BY. VIP
U. JavaScript	AW. Microsoft FrontPage	BZ. Corel Ventura
V. Visual Basic Script	AX. ImageReady	CA. Documentum
W. ASP	AY. Deleted	CB. Digital Camera
X. CSS	AZ. Lingo	CC. Deleted
Y. XML	BA. WebVideo	CD. Harlequin
Z. SQL	BB. DHTML	CE. Deleted
AA. COM+	BC. C++	
AB. Macromedia Flash	BD. Deleted	

The second step in the coding process, of the grounded theory approach, is axial coding, which is defined as:

[...] a set of procedures whereby data are put back together in new ways after open coding, by making connections between categories. This is done by utilizing a coding paradigm involving conditions, context, action, action/interactional strategies, and consequences (Strauss and Corbin 96).

Terms related to the axial coding process have been defined in Table 3.8.

Table 3.8 Axial Coding Definitions

Term	Definition
Causal Conditions:	Events, incidents, happenings that lead to the occurrence or development of a phenomenon.
Phenomenon:	The central idea, event, happening, incident about which a set of actions or interactions are directed at managing, handling, or to which the set of actions is related.
Context:	The specific set of properties that pertain to a phenomenon; that is, the locations of events or incidents pertaining to a phenomenon along a dimensional range. Context represents the particular set of conditions within which the action/ interactional strategies are taken.
Intervening Conditions:	The structural conditions bearing on action/interactional strategies that pertain to a phenomenon. They facilitate or constrain the strategies taken within a specific context.
Action/Interaction:	Strategies devised to manage, handle, carry out, and respond to a phenomenon under a specific set of perceived conditions.
Consequences:	Outcomes or results of action and interaction.

Source: Strauss, Anselm, and Juliet Corbin. Basics of Qualitative Research: Grounded Theory Procedures and Techniques. Newbury Park, California: Sage 1990. (96)

The axial coding process involves the examination of open coding results in an attempt to relate the categories and subcategories:

[...] in a set of relationships denoting causal conditions, phenomenon, context, intervening conditions, action/interactional strategies, and consequences (Strauss and Corbin 99).

This set of relationships is referred to as the Paradigm Model, and resembles the flowchart in Figure 3.1.

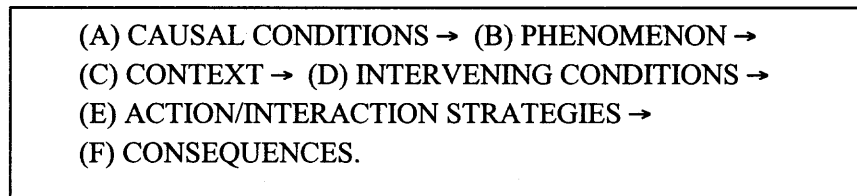


Figure 3.1 Paradigm model.

Source: Strauss, Anselm, and Juliet Corbin. Basics of Qualitative Research: Grounded Theory Procedures and Techniques. Newbury Park, California: Sage 1990. (99)

The axial coding process is designed to identify the causal condition(s), or events leading to the phenomena or concepts derived from the open coding process. This area of the coding was difficult in that the phenomenon or concepts being observed were not events, feelings, actions, or behaviors where causal conditions exist, but merely objects or subjects not capable of being related to their category in this manner.

The next and final step in the coding process is Selective Coding, which is defined as:

[...] the process of selecting the core category, systematically relating it to other categories, validating those relationships, and filling in categories that need further refinement and development (Strauss and Corbin 116).

Terms related to this type of coding that will be used throughout the remainder of this section are defined in Table 3.9.

Table 3.9 Selective Coding Definitions

Term	Definition
Story:	A descriptive narrative about the central phenomenon of the study.
Story Line:	The conceptualization of the story. This is the core category.
Core Category:	The central phenomenon around which all the other categories are integrated.

Source: Strauss, Anselm, and Juliet Corbin. Basics of Qualitative Research: Grounded Theory Procedures and Techniques. Newbury Park, California: Sage 1990. (116)

The selective process is the final analysis of all the coded data so as to allow for a postulation of a grounded theory. The steps contained in this process are contained in Table 3.10. It should be noted that these steps are not listed in any particular order, nor need they be carried out in any particular order.

Table 3.10 Selective Coding Process

Step	Action
1	Explicating the story line.
2	Relating subsidiary categories around the core category by means of the paradigm.
3	Relating categories at the dimensional level.
4	Validating those relationships against the data.
5	Filing in categories that may need further refinement and/or development.

Source: Strauss, Anselm, and Juliet Corbin. Basics of Qualitative Research: Grounded Theory Procedures and Techniques. Newbury Park, California: Sage 1990. (117-118)

The postulation of grounded theory for this study is discussed in the Results chapter.

CHAPTER 4

RESULTS/DISCUSSION

This author found 622 technical communication job advertisements in the ten newspaper periodicals selected for this study. Of the 622 advertisements, the *Washington Post* produced the most with 232, and the *Detroit News* produced the least with 4. Refer to Table 4.1 for details regarding the number of job advertisements found weekly per periodical.

Table 4.1 The Collection of Technical Communication Job Advertisements

Periodical Name (Region)	9/1/02	9/8/02	9/15/02	9/22/02	9/29/02	Number of Ads	Percentage of Ads
New York Times (E)	8	14	22	23	20	87	14%
Los Angeles Times (W)	3	16	9	7	12	47	7.6%
The Washington Post (E)	29	69	44	44	46	232	37.3%
Chicago Tribune (N)	11	14	14	19	13	71	11.4%
Denver Post (W)	2	5	10	4	8	29	4.7%
Detroit News (N)	0	1	3	0	0	4	.6%
Houston Chronicle (S)	6	5	8	4	10	33	5.3%
Boston Globe (N)	5	7	5	4	5	26	4.2%
Arizona Republic (S)	11	10	13	4	5	43	6.9%
Star Ledger (E)	7	11	12	16	4	50	8%
United States	82	152	140	125	123	622	100%

The eastern region of the United States boasted the most job advertisements with 369 advertisements. The northern region produced a total of 101 advertisements, where the southern and western regions, each having two newspapers representing them, produced 76 advertisements each.

Refer to Table 4.2 for details regarding the collection of job advertisements found weekly per region.

Table 4.2 Collection of Job Advertisements Found Per Region

Region	9/1/02	9/8/02	9/15/02	9/22/02	9/29/02	Number of Ads	Percentage of Total Ads
North	16	22	22	23	18	101	16.24%
East	44	94	78	83	70	369	59.32%
South	17	15	21	8	15	76	12.22%
West	5	21	19	11	20	76	12.22%
United States	82	152	140	125	123	622	100%

Though there are a different number of advertisements for each region, one may surmise that it is not appropriate to compare the regions. However, this author used each region's advertisement total as the denominator when calculating percentage so as to allow for fair comparison (North = 101, East = 369, West = 76, South = 76, United States = 622). Therefore, it was accurate to postulate theories regarding the requirements of technical communication job candidates in the United States because of the methods used to calculate the percentages within the regions

4.1 Professional Experience Requirements

Of the 622 job advertisements found, 314 required candidates to possess job experience, where 128 required candidates to possess industry experience. Combined, 71.1% of the advertisements in the study required candidates to possess some form of experience. Regionally, the south, more than any other region, with 75% of its 76 job advertisements, required candidates to possess prior experience. The eastern region, with only 69.6% of

its 369 advertisements, required experience from its candidates the least. Refer to Table 4.3 in for additional details regarding the experience requirements per region.

Table 4.3 Professional Experience Required

Region*	No Experience	Industry Experience	Job Experience	Total
North	29 (28.7%)	37 (36.6%)	35 (34.7%)	101 (100%)
East	112 (30.4%)	61 (16.5%)	196 (53.1%)	369 (100%)
West	20 (26.3%)	14 (18.4%)	42 (55.3%)	76 (100%)
South	19 (25%)	16 (21.1%)	41 (53.9%)	76 (100%)
United States	180 (28.9%)	128 (20.6%)	314 (50.5%)	622 (100%)

* Each region's advertisement total was used as the denominator when calculating percentage so as to allow for fair comparison. (North =101, East = 369, West = 76, South = 76, United States = 622)

Job experience, with 50.5% of the advertisements requiring it, was more required than industry experience with only 20.6% of the advertisements calling for it. In addition, job experience was more popular in all the regions, except for the north where industry experience was more popular at 36.6%, though job experience was close behind at 34.7%. Currently, according to this study, prior experience is necessary in attaining a position in the technical communication field with more than half of the job advertisements requiring candidates to possess some form of it.

4.2 Education Requirements

Only 37.1% or 231 employers required candidates to possess an education background. Of these 231, 86.58% required a bachelor's degree. Regionally, the northern United States' advertisements were ranked the highest in requiring that candidates have an education background with 55.44% of their 101 advertisements. These results further support Papp's study where it was found that education was the number one requirement

of its employers in the New England region. The southern region required an education background the least (27.63%). Refer to Table 4.4 for additional details regarding the education requirements per region.

Table 4.4 Education Requirements Per Region

Education	North	East	West	South	United States
None	45 (44.6%)	244 (66.1%)	47 (61.80%)	55 (72.4%)	391
High School/GED	1 (1%)	2 (.5%)	0 (0%)	2 (2.6%)	5
Associates	0 (0%)	2 (.5%)	1 (1.3%)	0 (0%)	3
Bachelors	50 (49.5%)	106 (28.7%)	26 (34.2%)	18 (23.7%)	200
Masters	4 (4.0%)	10 (2.7%)	2 (2.6%)	1 (1.3%)	17
Doctorate	1 (1%)	1 (.3%)	0 (0%)	0 (0%)	2
Medical Doctorate	0 (0%)	1 (.3%)	0 (0%)	0 (0%)	1
Juris Doctorate	0 (0%)	3 (.8%)	0 (0%)	0 (0%)	3
Total	101 (0%)	369 (100%)	76 (100%)	76 (100%)	622

* Each region's advertisement total was used as the denominator when calculating percentage so as to allow for fair comparison. (North = 101, East = 369, West = 76, South = 76, United States = 622)

4.3 Professional Experience and Education Requirements

Only 37% of the job advertisements in the study included an education background requirement, where experience was required from approximately 71% of the advertisements. The percentage of jobs that required both education and experience was 31.67%, where the percentage of jobs that required neither an education nor prior experience was 23.47%. Refer to Table 4.5 for a look at the collection of data.

Table 4.5 Education vs. Experience in the United States

Region*	Ads With Education Required	Ads With Experience Required	Ads With Both Required	Ads With Neither Required	Ads With Education Required, But Not Experience	Ads With Experience Required, But Not Education
North	56 (55.4 %)	72 (71.2%)	47 (46.5%)	20 (19.1%)	9 (8.9%)	25 (24.7%)
East	125 (33.8%)	257 (69.6%)	102 (43.9%)	89 (38.3%)	23 (6.2%)	155 (42.0%)
West	29 (38.1%)	56 (73.6%)	28 (36.8%)	19 (25.0%)	1 (1.3%)	28 (36.8%)
South	21 (27.6%)	57 (75.0%)	20 (26.3%)	18 (23.6%)	1 (1.3%)	37 (48.6%)
United States	231 (37.1%)	442 (67.8%)	197 (31.6%)	146 (23.4%)	34 (5.4%)	245 (39.3%)

* Each region's advertisement total was used as the denominator when calculating percentage so as to allow for fair comparison. (North =101, East = 369, West = 76, South = 76, United States = 622)

The biggest gap between education and experience is in the southern region. This region required education the least and experience the most. Perhaps this is due to the type of industry recruiting for positions, e.g., oil. Employers recruiting for this industry may find it less difficult to train a new-hire with an oil background than a new-hire without this background. Therefore, the recruiting effort in this region simply emphasizes the experience rather than the education. The eastern region had the highest percentage of advertisements without an education or experience requirement (38.3%). This is due to the many advertisements recruiting for entry-level positions and those simply stating the name of the technical communication position, hardware/software skills required, and the employer contact information.

4.4 Knowledge and Ability Requirements

Of the 622 advertisements, 314 required knowledge of general job skills, such as proofreading, and/or those requiring knowledge of a specific industry. Research found that advertisements called for more candidates to possess knowledge about general job skills rather than the industry in which the candidate would be working. According to the study, only 15.1% of the 622 advertisements required candidates to possess knowledge of a specific industry, where 47.6% required that the candidate possess knowledge of general job skills. Regionally, the northern region advertisements most required candidates to possess knowledge of the industry with which they would be working. Western region advertisements least required candidates to know about the industry. However, this region most required candidates to have general job skills (51.3%). The southern region, at 38.2%, least requires candidates to possess knowledge of general job skills. Refer to Table 4.6 for details regarding the knowledge and abilities requirements.

Table 4.6 Knowledge and Abilities Requirements

Region*	Knowledge of Industry	Knowledge of General Job Skills
North	24 (23.8%)	49 (48.5%)
East	49 (13.3%)	179 (48.5%)
West	7 (9.2%)	39 (51.3%)
South	14 (18.4%)	29 (38.2%)
United States	94 (15.1%)	296 (47.6%)

* Each region's advertisement total was used as the denominator when calculating percentage so as to allow for fair comparison. (North = 101, East = 369, West = 76, South = 76, United States = 622)

4.5 Hardware/Software Skill Requirements

According to this study, over 50% of the advertisements did not require any specific knowledge of or experience with any one hardware or software tool. The south region ranked highest with more than 63% of its advertisements requiring job candidates to possess specific hardware and/or software skills. Perhaps this is related to its high requirement for experienced candidates. Ranking in at the lowest was the eastern region with only 40.9% of its advertisements requiring hardware/software skills. Refer to Table 4.7 for a detailed look at the hardware/software requirements in the United States.

Table 4.7 Regional Advertisements with Hardware Software Requirements

Region	Number of Ads With Hardware/Software Requirement	Number of Ads Without Hardware/Software Requirement	TOTAL
North	59 (54.6%)	42 (41.58%)	101
East	151 (40.9%)	218 (59.08%)	369
West	38 (50.00%)	38 (50.00%)	76
South	48 (63.15%)	28 (36.84%)	76
United States	296 (47.59%)	326 (52.41%)	622

* Each region's advertisement total was used as the denominator when calculating percentage so as to allow for fair comparison. (North =101, East = 369, West = 76, South = 76, United States = 622)

In this study, the most required tool was Adobe Photoshop®, with 36.49% of the advertisements requiring knowledge of the tool. There were over 50 tools that were found as requirements in researching the advertisements. (Refer to Appendix B for the table and figures of all the hardware/software skill requirements.) Refer to Tables 4.8a – 4.8d for the top ten technical skills required in the United States and per region.

Table 4.8a Top Ten Technical Skills Required in the United States

Rank	Hardware/Software Skill	Number of Ads With Required Skill	Percentage of Total Ads in the U.S.
1	Adobe Photoshop	108	17.4%
2	Adobe Illustrator	96	15.4%
3	Quark XPress	95	15.3%
4	Microsoft Word	93	15%
5	Microsoft Excel	66	10.6%
6	Microsoft PowerPoint	64	10.3%
7	Macintosh Operating System	61	9.8%
8	Microsoft Access	51	8.2%
9	Windows Operating System	46	7.4%
10	Hypertext Markup Language (HTML)	37	5.9%

Table 4.8b Top Ten Technical Skills Required in the Northern Region of the U.S.

Rank	Hardware/Software Skill	Number of Ads With Required Skill	Percentage of Total Ads in the Region
1	Adobe Photoshop	15	14.85%
2	Adobe Illustrator	19	18.81%
3	Quark XPress	17	16.82%
4	Microsoft Word	20	19.80%
5	Microsoft Excel	15	14.85%
6	Microsoft PowerPoint	11	10.89%
7	Macintosh Operating System	9	8.91%
8	Microsoft Access	13	12.87%
9	Windows Operating System	7	6.93%
10	Hypertext Markup Language (HTML)	6	5.94%

Table 4.8c Top Ten Technical Skills Required in the Eastern Region of the U.S.

Rank	Hardware/Software Skill	Number of Ads With Required Skill	Percentage of Total Ads in the Region
1	Adobe Photoshop	60	16.26%
2	Adobe Illustrator	45	12.20%
3	Quark XPress	56	15.18%
4	Microsoft Word	44	11.92%
5	Microsoft Excel	32	8.67%
6	Microsoft PowerPoint	36	9.76%
7	Macintosh Operating System	36	9.76%
8	Microsoft Access	25	6.78%
9	Windows Operating System	25	6.78%
10	Hypertext Markup Language (HTML)	18	4.89%

Table 4.8d Top Ten Technical Skills Required in the Western Region of the U.S.

Rank	Hardware/Software Skill	Number of Ads With Required Skill	Percentage of total ads in the Region
1	Adobe Photoshop	15	19.74%
2	Adobe Illustrator	14	18.42%
3	Quark XPress	13	17.11%
4	Microsoft Word	16	21.1%
5	Microsoft Excel	9	11.84%
6	Microsoft PowerPoint	11	14.47%
7	Macintosh Operating System	8	10.53%
8	Microsoft Access	7	9.21%
9	Windows Operating System	9	11.84%
10	Hypertext Markup Language (HTML)	6	7.89%

Table 4.8e Top Ten Technical Skills Required in the Southern Region of the U.S.

Rank	Hardware/Software Skill	Number of Ads With Required Skill	Percentage of total ads in the Region
1	Adobe Photoshop	17	22.37%
2	Adobe Illustrator	18	23.68%
3	Quark XPress	9	11.84%
4	Microsoft Word	13	17.1%
5	Microsoft Excel	10	13.16%
6	Microsoft PowerPoint	6	7.89%
7	Macintosh Operating System	8	10.53%
8	Microsoft Access	6	7.89%
9	Windows Operating System	5	6.58%
10	Hypertext Markup Language (HTML)	7	9.21%

4.6 Knowledge and Ability and Hardware/Software Skill Requirements

According to the study, just over a half of the advertisements required that candidates know how to perform their job, while just below half of the advertisements required that candidates have hardware/software skills. Regionally, the south required more technical skills, while the west more frequently required candidates to know about their job. Refer to Table 4.9 for additional details.

Table 4.9 Hardware /Software vs. Job Knowledge Requirements

Region	Ads With Hardware/Software Required	Ads With Job Knowledge Required
North	59 (54.6%)	50 (49.50%)
East	151 (40.9%)	190 (51.49%)
West	38 (50.00%)	42 (55.26%)
South	48 (63.15%)	32 (42.11%)
United States	296 (47.59%)	314 (50.48%)

* Each region's advertisement total was used as the denominator when calculating percentage so as to allow for fair comparison. (North =101, East = 369, West = 76, South = 76, United States = 622)

According to this study, technical skill requirements are ranked similarly with general job knowledge skill requirements. However, once again, the biggest gap belongs to the southern region, with 63.15% of its advertisements requiring technical skills, the most of all the regions, and then only 42.11% of its advertisements requiring general job knowledge, the least of all the regions. Perhaps, this too, is due to the type of industry for which the advertisement was recruiting, e.g., oil. If the tools required to perform the job are specific to that industry, the employer may simply choose to emphasize that requirement more so than proofreading. Moreover, some employers may not specify general job skill requirements at all simply because it assumed that the technical communication job candidate possesses these skills.

CHAPTER 5

CONCLUSION

Results from the study show that the experience requirement was found in 69.6% of the advertisements, the general job knowledge requirement was found in 50.4% of the advertisements, the hardware/software skill requirement was found in 47.59% of the advertisements, and education was only found in 37% of the advertisements. Refer to Table 5.1 for details on the how the categories of required skills ranked in the nation in this study.

Table 5.1 Requirements Category Rankings

Rank	Category	Percentage
1	Experience	69.6%
2	Job Knowledge and Abilities	50.4%
3	Hardware/Software Skills	47.59%
4	Education	37%

According to this study, is experience valued more than education? Absolutely not! These advertisements did not contain the employers' values of skills, but merely the representation of the current requirements for that position, at that time. Perhaps some organizations recruiting for positions in management assume that experienced candidates will possess a degree, therefore, find it needless to place emphasis on that requirement in an advertisement where its cost is based on the length of text. Therefore, it is impossible to know what value is placed on these skills from this study.

Future research regarding technical communication skills should include additional resources as well as newspaper advertisements. Many employers are moving their recruiting efforts to their websites and/or online recruiting agencies, and this makes it necessary to incorporate these changes into future studies. In addition, other criteria should be added to the industry and job knowledge and abilities categories to allow for closer examination of the required types of knowledge such as, proofreading, writing, and color separation as well as research of other position titles that may have been excluded from the study due to lack of advertisements for that position or that this author simply did not find it in the research process. Future research should also include other regions of the United States such as the southwest, southeast, northwest, and northeast to allow for deeper comparisons and discoveries, if any, within all the regions and the United States as a whole.

These results are based on one month's worth of advertisements in ten newspapers and cannot be interpreted as an outline for one's education or career path. This study merely offers guidance to assist potential technical communication job candidates in being more marketable. More importantly, it is not the contention of this author to deter one from furthering their education based on the results of this study. However, it is suggested that these results could aid in the selection of courses, whether for degree or professional training purposes. After all, if knowledge about general job skills is important to most employers, it should be noted that much of that knowledge can be and is attained in formal education environments.

- ¹ The Society for Technical Communication (STC) is the largest professional society for technical communication practitioners. For more information, please refer to their website: <<http://www.stc.org>>.
- ² The Audit Bureau of Circulations is the leading third-party auditing firm in the United States. For more information regarding the organization and its audit practices, please refer to their website at <<http://www.accessabc.com/>>.

APPENDIX A

AUDIT BUREAU OF CIRCULATIONS' TOP NEWSPAPERS

Table A.1 contains the Audit Bureau of Circulation's top twenty daily newspapers in the United States ranked by circulation size. This ranking was used as a tool in the selection process for the ten newspapers used in this study.

Table A.1 Audit Bureau of Circulations' Top 20 Newspapers

Rank	Publication Name	City, State	Daily Circulation
1	The Wall Street Journal	New York, NY	1,791,027
2	USA Today	Washington, DC	1,716,448
3	New York Times	New York, NY	1,122,391
4	Los Angeles Times	Los Angeles, CA	1,045,532
5	The Washington Post	Washington, DC	786,032
6	New York Daily News	New York, NY	714,280
7	Chicago Tribune	Chicago, IL	665,675
8	Denver Post/Rocky Mountain News	Denver, CO	615,867
9	The Detroit News/Free Press	Detroit, MI	602,865
10	Long Island Newsday	Long Island, NY	575,978
11	San Francisco Chronicle	San Francisco, CA	557,629
12	Houston Chronicle	Houston, TX	549,440
13	The Dallas Morning News	Dallas, TX	497,968
14	New York Post	New York, NY	492,356
15	Chicago Sun Times	Chicago, IL	474,533
16	Boston Globe	Boston, MA	465,813
17	The Arizona Republic	Phoenix, AZ	464,541
18	Newark Star Ledger	Newark, NJ	407,725
19	Philadelphia Inquirer	Philadelphia, PA	396,668
20	The San Diego Union Tribune	San Diego, CA	374,856

APPENDIX B

HARDWARE/SOFTWARE SKILLS REQUIREMENTS

Table B.1 contains the hardware/software skill requirement rankings across the nation.

For the purposes of the study, only the top ten were closely examined.

Table B.1 Hardware/Software Skill Requirements

Item	Name of Skill	Number of Ads With Required Skill	Percentage of Total Ads
1	Bilingual (e.g., French)	24	3.9%
2	Windows OS	46	7.4%
3	Macintosh OS	61	9.8%
4	Microsoft Word	93	15%
5	Microsoft PowerPoint	64	10.3%
6	Microsoft Excel	66	10.6%
7	Microsoft Publisher	1	.2%
8	Microsoft Visio	4	.6%
9	Adobe Photoshop	108	17.4%
10	Adobe PageMaker	32	5.1%
11	Adobe FrameMaker	5	.8%
12	Adobe Illustrator	96	15.4%
13	Adobe Acrobat	11	1.8%
14	Quark XPress	95	15.3%
15	Word Perfect	6	1.0%
16	Electronic Mail	4	.6%
17	Web Authoring Tool	5	.8%
18	Web Design Tool	11	1.8%
19	HTML	37	5.9%
20	DreamWeaver	18	2.9%
21	JavaScript	20	3.2%
22	Visual Basic Script	3	.5%
23	ASP	12	1.9%
24	CSS	5	.8%
25	XML	6	1.0%
26	SQL	12	1.9%

Table B.1 Hardware/Software Skills Requirements (Continued)

Item	Name of Skill	Number of Ads With Required Skill	Percentage of Total Ads
27	COM+	1	.2%
28	Macromedia Flash	18	2.9%
29	Cold Fusion	6	1.0%
30	.NET	1	.2%
31	COM	1	.2%
32	Microsoft Project	2	.3%
33	HTML Help	2	.3%
34	Docutech	1	.2%
35	Visual Basic	3	.5%
36	Core	1	.2%
37	Microsoft Access	51	8.2%
38	InDesign	5	.8%
39	Freehand	8	1.3%
40	UNIX	5	.8%
41	FTP	3	.5%
42	WCN System	1	.2%
43	Perl	3	.5%
44	AutoCad	4	.6%
45	Oracle	5	.8%
46	Expedition	1	.2%
47	Microsoft FrontPage	7	1.1%
48	ImageReady	5	.8%
49	Lingo	1	.2%
50	WebVideo	1	.2%
51	DHTML	2	.3%
52	C++	1	.2%
53	CGI	2	.3%
54	IIS	1	.2%
55	PHP	2	.3%
56	TCP/IP	1	.2%
57	J2EE	1	.2%
58	ADABAS	1	.2%
59	Solaris	1	.2%
60	Printer	1	.2%
61	CD Burner	1	.2%

Table B.1 Hardware/Software Skills Requirements (Continued)

Item	Name of Skill	Number of Ads With Required Skill	Percentage of Total Ads
62	Visual Interdev	2	.3%
63	Maya	1	.2%
64	Director	1	.2%
65	Fireworks	3	.5%
66	Internet Browsers	5	.8%
67	Corel Draw	2	.3%
68	PKI	4	.6%
69	SciTex	1	.2%
70	VIP	3	.5%
71	Corel Ventura	1	.2%
72	Documentum	1	.2%
73	Digital Camera	1	.2%
74	Harlequin	1	.2%
75	Linux	1	.2%
76	TOTAL	296	100%

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