

A BENCHMARK STUDY OF ELABORATION AND SOURCING IN SCIENCE STORIES FOR EIGHT AMERICAN NEWSPAPERS

By Shirley Ramsey



A content analysis of science and technology stories in eight major newspapers in the United States shows conflict and depth in stories to be significantly related to predictor variable population rank, with depth and breadth significantly related to predictor variable time (years). Organizational spokespersons were used more as sources than scientists for 1991 to 1996, even though this sample of the New York Times, Washington Post, Wall Street Journal, Atlanta Constitution, Chicago Tribune, Boston Globe, and Christian Science Monitor showed depth in stories as significantly related to use of scientists, conferences, and research reports. Scientific labeling such as "cyberpaleontology" was significantly related to conflict and story depth; breadth was significantly related to use of cognitive cues, folio, and number of attributions.

Media coverage of science and technology appears to be systematically related to social and technological development.¹ Coverage has been related to increased environmental complexity through identification of textual conflict.² Depth and breadth, concepts for levels of elaboration, have been located in coverage of innovation.³ Theory has linked organizational spokespersons with coverage of complex topics.⁴ This is a report of a content analysis of science and technology, including sourcing, in eight leading American newspapers over six years. Newspapers studied were the *Washington Post*, *New York Times*, *Wall Street Journal*, *Atlanta Constitution*, *Chicago Tribune*, *Boston Globe*, and *Christian Science Monitor*. Years studied were 1991 to 1996.

Communicative competence is a concept which has been defined as "the knowledge of appropriate communication patterns in a given situation and the ability to use the knowledge."⁵ Specifically, competence is composed of individual physiological and psychological abilities constantly interacting with and redefined by social and cultural influences. Bernstein suggested two sets of criteria for development of communicative competency for linguistic coding: universalistic/particularistic and non-specific/specific. Individuals socialized in use of a more elaborated universalistic/non-specific code, according to Bernstein, were able to recognize choice or options in life, while those socialized with more restricted linguistic coding were more limited.⁶ Culture specifies knowledge and situationally bound rules for linguistic coding.

Shirley Ramsey is a professor in the H. H. Herbert School of Journalism and Mass Communication, University of Oklahoma, Norman, Oklahoma.

J&MC Quarterly
Vol. 76, No. 1
Spring 1999
87-98
©1999 AEJMC

According to Koestler, cultural complexity takes on a hierarchical nature not unlike that of speech acquisition according to the model depicting a stepwise elaboration, articulation and concretization, of human intentions. His elaboration process would follow the treelike, multi-leveled, hierarchically ordered systems model of language put forth by Chomsky and others.⁷ In such models, increased mass leads to increased differentiation and diversity, which makes the evolved system more complex.

Goodenough relates increased complexity of cultural routines to the "recipe." As he maintains, there is a feedback relationship between recipes and the behavioral routines for executing them: people who work with one another in a number of different activities, following different recipes, are likely to carry their mutually adjusted habits in one activity over to the others. Their mutual expectations thus become generalized. As expectations are fed back into the recipes, they become standards for institutions.⁸

The media traditionally have been viewed as an institution providing a "watchdog" function in democratic society upon government and industry. Some theorists, however, in their studies of the institutional structure of the media system have come to consider the media as agents of power. Altschull, for instance, maintains that the news media are agents of those who exercise political and economic power, with the content of the media reflecting the interests of those who own and direct the press.⁹

Shepherd claims the media primarily rely upon health-science administrators or "celebrity" authorities in tangential fields, while they should make an effort to contact scientists engaged in cutting-edge research.¹⁰ Similarly, Mazur calls for widening the channel of communication between working scientists and the media; this author says the current narrow communication channel serves as a filter, selectively releasing only those stories that appeal to the media and scientific community gatekeepers.¹¹

Herman and Chomsky suggest that the media are tiered, with the top tier, along with government and wire services, defining the news agenda for the lower tiers of the media.¹² One of eight news filters outlined by Herman and Chomsky is the third news filter which is types of media sources. These authors describe public information and public affairs offices of government and business as one type of news filter. Another type of news filter, which is more indirect, is provision of corporate sources for news. Thus, corporations may co-opt an expert by putting him or her on the payroll, funding research, or by hiring them directly. In this way, these authors say, sources for issues sometimes may skew information in the direction desired by the government and the market.¹³

Media sources, along with writers, provide one of the cultural sources readers utilize to help them form ideas about science and technology. Thus sources may or may not provide input necessary for the elaboration of concepts. Two dimensions relating text to cognition that have been described conceptually are depth and breadth. Schema theory helps provide a link between textual elaboration and the need for an elaborated linguistic code.

Depth of cognition was viewed by Anderson and Reder¹⁴ as the abstract, symbolic properties of a concept or a cognition. Breadth of cognitions is defined as the *number* of elaborations by Anderson, while depth is viewed as the *characteristic* of the elaboration. Thus, breadth represents *quantity* while depth represents *quality*.

Depth and breadth have been related to schema by Nelson.¹⁵ This author maintained that autonomy of action required development of organizing networks permitting qualitative leaps to new levels of understanding.

She characterized such networks as *schema*, having both depth and breadth. To Grunig, Ramsey, and Schneider, deep cognitive processing means that a person develops and utilizes a semantic abstraction to organize and explain the cognitive units accrued by increasing cognitive breadth.¹⁶

In Clark and Haviland's¹⁷ definition of *given/new* contract, the part of the message the reader already knows is the "given" in the message. "New" information items evolve from what has been "given." Integration of "new" with "given" is fundamental to understanding scientific concepts.

Socioeconomic complexity and diversification are often studied in the media from textual indicators of conflict, after Tichenor, Donohue, and Olien.¹⁸ Tichenor, Donohue, and Olien viewed increased reporting of conflict as an indication of community or system change and of increased complexity. Fowler et al. observed that system or community change may be traced in the language of reporting where technological terms can be seen to be instances of new labeling.¹⁹

Previous studies had shown science writers as tending either to "nominate" scientist sources from the periphery of the science information system, where local technological change prompted reporters to pick up scientists and their work in the regional media, or to "gatekeep" from within a more centralized substrata of the science system.²⁰

Conflict has been correlated with community diversity by Tichenor, Donohue, and Olien;²¹ therefore, conflict may be viewed as an important criterion variable for community complexity. Many theorists believed that cultural complexity created an opportunity for increased diversity and broadened opportunities for elaboration. In this study, therefore, a predictor variable for conflict, breadth, and depth was national population ranking, taking into consideration any change in ranking over the six years of the study.

Hypotheses

H1: There will be significant positive correlations between conflict, breadth, and depth in stories and the social indicator national population ranking.

In addition, variables breadth and depth appeared only during later years in previous studies;²² therefore, it was assumed these variables took time to appear.

H2: There will be significant positive correlations between breadth and depth and years.

Previous studies have shown conflict, breadth, and depth in articles to be correlated with combination terms, cues, and direction of story.²³

H3: There will be significant positive correlations between conflict, depth, and breadth and combination terms, cues, and direction of story.

Scientific labeling, i.e., combination terms, appeared during later years in previous studies.²⁴

H4: There will be a significant difference for combination terms with years.

Spokespersons are viewed by Herman and Chomsky as gaining prominence for media sourcing; it was believed this might be true as well for science and technology.²⁵

H5: There will be a significant difference for organizational spokespersons' titles and years.

Previous studies on media spokespersons show sourcing as heavily weighted toward male sources, except for domestic topics or, in some cases, health and education.²⁶

H6: There will be a significance difference between male and female sources for newspapers, with there being a greater number of male sources for science information.

Methodology

A complete listing of abstracts for the six-year period, 1991 to 1996, was drawn from ProQuest,²⁷ which abstracts nine major newspapers in the United States: the *New York Times*, *Washington Post*, *Boston Globe*, *Christian Science Monitor*, *Wall Street Journal*, *Los Angeles Times*, *Chicago Tribune*, *Atlanta Constitution*, and *USA Today*. This list was provided stratified by month and by day of month of the year. A random sample was drawn from this listing, comprising a stratified random sample.

All newspapers in the listing were represented in the sample with the exception of *USA Today*, which did not have a listing in these printouts. Although the *Boston Globe* has general science days on Monday and the *New York Times* has it on Tuesday, it was decided to maintain the stratified random sample without special attention to these days.

Full text for the 90 sampled articles was pulled from microfilm files. Articles were divided among three coders. Following three training sessions on coding instructions and coding sheet, a final intercoder reliability, by Holsti,²⁸ was 94%. Coders used colored markers to identify variables in articles, then completed coding sheets.

Variables were operationalized as follows (please see Appendix for examples):

- **Depth:** Depth was operationalized as theoretical explanation of scientific concepts. Explanation of theory which permitted a broader application than only the most immediate one was coded for depth.
- **Breadth:** Breadth was operationalized as new behaviors, actions, or options as a result of scientific breakthroughs.
- **Conflict:** Indicators of system change were tabulated as reporting of conflict and as combination terms, believed to be a measure of relexicalization.
- **Cognitive cues:** Transitional items that "point" and serve as mental road maps for explanation were coded as cues.
- **Sourcing:** Sources providing different textual elements were coded, as were sources of information for the article.

TABLE 1

Correlation of Predictor Variables: Years, Percent Change, and Population Rank with Criterion Variables: Conflict, Breadth, and Depth (n=90)

Criterion Variables	Years		Percent Change		Population Rank	
	Coefficient	Probability	Coefficient	Probability	Coefficient	Probability
Conflict	-.064	.551	.046	.666	.262	.013*
Breadth	-.268	.011*	-.046	.667	.038	.722
Depth	.365	.000***	.095	.374	-.159	.133

$p < .01^*$; $p < .001^{***}$

• Finally, coders identified byline, dateline, slant, coded as positive, neutral, or negative, number of attributions, and main topic. Editorial emphasis was coded in square inches and folio placement.

For societal indices, changes in population rank and percentage change for the cities where the eight newspapers published were obtained from the Statistical Abstract of the United States.²⁹ Percent change in population was calculated by obtaining the difference between 1980 to 1990 and 1990 to 1994, which entailed the years of this study, and cities were then ranked. National rankings, according to the statistical abstracts, were obtained for 1991, 1992, and 1994; these rankings were fed into the computer in reverse order to provide an appropriate weight to the higher ranked cities; any change in rank was input as well. Statistics were obtained from the Statistical Package for the Social Sciences, Version 7. Spearman correlation coefficients were used for data in Tables 1 and 2, chi-square for Table 3.

Results

Predictor Variables. Data displayed in Table 1 comprise the results of correlation of the variables conflict, depth, and breadth upon predictor variables. Change in years, population, and national rankings are considered predictor variables and conflict terms, depth, and breadth are considered criterion variables.

Table 1 shows conflict significantly correlated with change in population rank ($p < .01$). Post hoc analysis of variance using harmonic average of groups produced an F probability of .2627 for *breadth* and an F probability of .0278, or $p < .05$, for *depth*. The latter statistic would appear to be more in line with the numbers of stories in the sample for various newspapers and represented cities. Therefore, H1 is considered supported for *conflict* and for *depth*. The variable *breadth* also appears closer to significance in the post hoc analysis.

H2 called for correlation of *breadth* and *depth* with the predictor variable "years." While *depth* is significantly positively correlated with years ($p < .001$), *breadth* is significantly correlated ($p < .01$) but is not positive. Therefore, H2 was partially supported. Percentage change in population was not considered an important predictor variable in this study, since there

TABLE 2
*Correlation of Conflict, Depth, and Breadth with Selected Study Variables
 for Eight National Newspapers over Six Years (N=90)*

	Combination Terms	Cues	Direction	Folio	Number of Attributions
Conflict	.050*	.027*	.014**		
Depth	.007**				
Breadth		.000***		.009**	.032*

	Research Report as Source	Scientist as Source	More than Three Sources	More than Two Sources	Year
Conflict					
Depth	.056	.009**	.026*	.001***	.000***
Breadth					.011**

* $p < .05$; ** $p < .01$; *** $p < .001$

was only one city in the study that experienced any change in population and that was a minimal reduction.

Criterion Variables. Conflict terms, depth, and breadth were then correlated with other study variables. Correlations showing significance are displayed in Table 2. Table 2 provides support for the third hypothesis, where relationships were predicted between the three anchor variables, conflict, depth, and breadth, and other study variables.

Conflict may be seen to be related to an increased need for explanation; thus additional cues may become necessary. Also, conflict is logically tied to whether the article is viewed as more positive, neutral, or negative.

Depth is shown to be tied to combination terms and to sourcing. Important in developing depth is shown as use of research reports, scientists, more than three sources; this is descriptive with year. Breadth also changes with years but is more related to use of cues, placement in the newspaper, and total number of attributions.

H4 to H6 are addressed by data in Table 3. There is a significant difference for combination terms with years ($p < .001$) supporting H4. Also shown here, depth is consistently significant over years ($p < .05$).

Spokesperson titles are significantly different over the years ($p < .05$), supporting H5. Gender is significantly different for newspapers ($p < .05$), supporting H6.

Cognitive variables appeared consistently throughout the study: depth (41.1%), breadth (67.8%), combination terms (such as "microbiology"-74.4%), conflict terms (56.7%), cues (heuristic linkages between ideas-73.3%), direction (positive 52.2%, neutral 25.6%, or negative 22.2%), theme ("given" or the presence of utilitarian redundancy-95.6%) and new information (the "new" in the "given/new" formula-60%). There were no significant differences

TABLE 3
*Percentages and Significance (Chi-Square) for Elaboration and Source Variables
in Eight American Newspapers, 1991 to 1996 (N=90)*

	%	Newspapers		Year	
		Value	(DF=7) Sig.	Value	(DF=5) Sig.
Elaboration From:					
Conferences	2.2				
Research reports	3.3				
Scientists	12.2				
Organizational Spokespersons	28.9				
Cognitive Variables:					
Depth	41.1			12.608	.027*
Breadth	67.8				
Combination Terms	74.4			21.894	.0005**
Conflict Terms	56.7				
Cues	73.3			20.675	.0009**
Direction	52.2 Positive 25.6 Neutral 22.2 Negative				
Theme	95.6				
New Information	60.0				
Sources					
Conferences	2.2	14.889	.037*	12.696	.026*
Research Report	3.3				
Scientist	12.2	14.687	.040*		
Organizational Spokesperson	28.9				
Other (Student, Parent, and Other)	18.9				
Email	4.4	23.435	.001**		
WWWWeb	2.2				
More than 1 source	54.4				
More than 2 sources	32.2				
More than 3 sources	14.4	14.683	.040*		
No attributions	80			13.156	.021*
	1 to 5				
	20				
	6 to 10				
Spokesperson Characteristics:					
Gender (1=F, 2=M) (DF=14)	13.3 F 65.6 M 21.1 Not Clear	24.966	.034*		
Race	44.4 Anglo 5.6 Asian 3.3 Hispanic 5.6 other				
Title (DF=25)	26.7 Spokes 14.4 Chief, Director			42.157	.017*

Table 3 cont. p. 94

Table 3 cont.

	%	Newspapers		Year	
		Value	(DF=7) Sig.	Value	(DF=5) Sig.
Science, Technology Placement Characteristics:					
Square Inches (DF=49)	5.6	65.786	.054*		
	1 to 10				
	26.7				
	11-20				
	26.7				
	21-30				
	16.7				
	31 to 40				
	11.1				
	41 to 50				
	8.9				
	51-60				
	2.2				
	more than 61				
No. paragraphs: (DF=45)	10 front page			69.421	.011**
	10 pg 1 section				
	17.8				
	Special sec.				
	62.2				
	Within paper				

* $p < .05$; ** $p < .01$

between newspapers for these variables. It is interesting to note, however, that 24.3% of all depth coverage in the sample came from the *New York Times*.

Sources were as follows: conferences showed up as only 2.2%, and research reports as 3.3% of sources throughout the study, with scientists as sources a respectable 12.2%. Organizational spokespersons were sources for 28.9% of sample, and technology "users" such as teachers, students, parents, etc., were sources for 18.9%. While 14.4% of the stories utilized more than three sources, more than half—54.4%—utilized as few as two sources. Thus the more traditional scientist source was utilized less in this sample than were organizational sources, and fewer sources were utilized.

Significant differences between newspapers appeared for use of the scientist as source ($p < .05$) and for use of the conference as source ($p < .05$). There were also significant differences between newspapers for use of more than two sources ($p < .05$) or for use of more than three sources ($p < .05$).

Research reports were used as sources for 50% of the *New York Times* articles and 75% of *Chicago Tribune* articles, while 51.6% of *Christian Science Monitor* articles used research reports.

There was emphasis upon the organizational spokesperson as source: 25% of "CEO" titles were in the *Washington Post* articles, while 25% of

"Director" titles were in the *Wall Street Journal* and *Atlanta Constitution* articles; "scientist" as title was in 26% of the *New York Times* and 50% of the *Chicago Tribune* articles; 75% of the CEO title for spokesperson were in *Christian Science Monitor* articles. Herman and Chomsky's prediction of increased utilization of organizational spokespersons as media sources was confirmed by this study

Female spokespersons in this sample were used only for topics that have traditionally gone to females in media: health, home, or education. The *Atlanta Constitution* (with 16.7% use) and *Chicago Tribune* (25%) were the only newspapers in the sample with more female than male spokespersons in articles. In addition, spokespersons were predominantly Anglo (44.4%, with 5.6% Asian, 3.3% Hispanic, 5.6% other, and 41.1% unclear). The *Christian Science Monitor* had the most equitable spread across race of all newspapers in the sample.

Benchmark newspapers put stories on the front page 10% of the time, page one in a section 10%, in a special section 17%, and inside 62% of the time. Months were about equal throughout the sample, as were days of the week, with the exception of Tuesday which was favored. Clearly there was an increase over the six years of the study both in square inches of copy and in paragraphs for science and technology. In these, number of paragraphs was significant over the six years ($p < .01$) and square inches showed significance between newspapers ($p < .05$). Of the newspapers in the sample, however, only the *Christian Science Monitor* and the *New York Times* published science and technology articles consistently over the six years of the study.

Newspapers such as in this benchmark sample have greater resources and thus have the capability to increase science and technology coverage and to use various sources. But as this random sample shows, increased resources do not ensure increased elaboration or use of a variety of sources.

In this study organizational spokespersons as sources were many times substituted for more traditional sources such as scientists, research reports, or scientific conferences. Yet depth was related to use of combination terms and to sources, especially the more traditional sources such as scientists. Organizational spokespersons were utilized extensively, often without the accompanying credibility of scientists or reports.

One might predict, since these flagship newspapers use spokespersons more often for science and technology, other media across the country may do so. Interestingly enough, the only significant correlation for "topics" was with organizational spokesperson ($p < .05$).

A review of the raw content showed that many of the companies the organizational spokespersons worked for, were cooperating in studies with major research centers or universities. This may be providing the authority for the story in the media's view. This could be viewed as a growing "halo effect" of cooperative ventures between business and research centers.

Examples of topics could serve as a trend study in editorial interest: most covered was technology transfer, whether between countries or organizations. Teaching science was second in interest, high-tech in business third, while education and computers ranked fourth. Remaining topic areas ranged from artificial intelligence, to nanotechnology, to "precision farming."

Combination terms provide powerful metaphoric connections. Examples: "bionarcissism," "aeronauts," and "cyberpaleontology." By the

Discussion

time such implied comparisons reach the press they usually have become “labels,” passed down from the scientific community through the press. The metaphoric combination term “cyberpaleontology,” for example, implies an already evolved field of study.

In sum, the basic assumption of the study, that elaboration elements in stories about science and technology are related to environmental complexity, was supported. *Conflict*, *Breadth*, *Depth* in science articles were related to predictor variables. Depth was also correlated with scientist and research reports as well as with more than one source. Thus the more traditional utilization of scientists and reports would tend to support the development of depth in articles.

Writers in the sample employing depth in their articles, in combination with use of scientist sources and research reports seemed to be more in line with Authority Brokers or gatekeepers of information emerging from the science system. Writers employing only organizational spokespersons as sources seemed to be operating more like Information Brokers, nominating topics and sources to the system but being fairly noncritical of the authenticity of the research. Many of these writers may have assumed the “halo effect” of cooperative research would provide credibility for the story.

APPENDIX

Following are operational definitions and examples of study variables taken from one article in the sample:

Theme (given information from the lead): scientific manipulation of matter by molecule and by atom.

New Information (derived from the lead but provides new cognitive input): that ability might allow the building of unimaginably small electronic circuits and machines.

Depth (theoretical explanation of scientific concepts): ... have synthesized a molecule in which a ring of atoms moves back and forth between two positions on a molecular string.

Breadth (new behaviors or actions possible and explained as a result of scientific discoveries and breakthroughs): tiny machines controlled by nanocomputers and powered by nanomotors will one day swim through the blood vessels fighting viruses, or grab chlorine atoms out of the sky to protect the ozone layer.

Combining forms or combination words (new labels as a measure of relexicalization): nanotechnology, nanomachines, nanocomputers, nanomotors, micromechanics.

Conflict terms (terms denoting clashes of interest, showing change and strain in the system): strikes many as science fiction; some say idea will never work because of thermal vibrations, etc.

1. A grant from the University of Oklahoma Research Council provided a research assistant, coders, and subscription to ProQuest for this study.
2. Phillip Tichenor, George A. Donohue, and Clarice N. Olien, *Community Conflict and the Press* (Beverly Hills: Sage Publishers, 1980).
3. Ramsey found increased conflict, depth, and breadth in media coverage of an innovative area; Shirley Ramsey, "Expanded Science Coverage," *Southwestern Mass Communication Journal* 5 (fall, winter 1989): 33-40.
4. Edward S. Herman and Noam Chomsky, *Manufacturing Consent: The Political Economy of the Mass Media* (New York: Pantheon Books, 1988).
5. Ralph E. Cooley and Deborah A. Roach, "Theoretical Approaches to Communicative Competence," in *Competence in Communication: A Multidisciplinary Approach*, ed. Robert N. Bostrum (Beverly Hills: Sage Publishers, 1984).
6. Bernstein maintained linguistic coding was what enabled society to exercise control, in terms of "boundary-maintaining procedures." Bernard Bernstein, *Class, Codes and Control* (London: Routledge & Kegan Paul, 1971).
7. Arthur Koestler, *The Ghost in the Machine* (London, 1967).
8. Ward H. Goodenough, *Culture, Language, and Society*, 2d ed. (Menlo Park, CA: The Benjamin/Cummings Publishing Co., Inc., 1981), 86.
9. J. H. Altschull, *Agents of Power: The Role of the New Media in Human Affairs* (New York: Longman, 1984).
10. R. Gordon Shepherd, "Selectivity of Sources: Reporting the Marijuana Controversy," *Journal of Communication* 31 (spring 1981): 129-37.
11. Allan Mazur, "Media Coverage and Public Opinion on Scientific Controversies," *Journal of Communication* 31 (spring 1981): 106-115.
12. According to Herman and Chomsky in *Manufacturing Consent*, the twenty-four top media companies mostly have assets in excess of \$1 billion with the median size \$2.6 billion.
13. Herman and Chomsky, *Manufacturing Consent*, 23.
14. John R. Anderson and L.M. Reder, "An Elaborative Processing Explanation of Depth of Processing," in *Levels of Processing in Human Memory*, ed. L.S. Cermak and F. Q. M. Craik (Hillsdale, NJ: Lawrence Erlbaum, 1979), 385-403.
15. Katherine Nelson, *Structure and Strategy in Learning to Talk*, Monographs of the Society for Research in Child Development, no. 149 (Chicago: University of Chicago Press, 1973), 1-135.
16. James E. Grunig, Shirley Ramsey, and Larissa A. Schneider, "An Axiomatic Theory of Cognition and Writing," *Journal of Technical Writing and Communication* 15 (October 1985): 95-130.
17. H. H. Clark and S. E. Haviland, *Content Analysis of Communications* (New York: McMillen, 1977).
18. Tichenor, Donohue, and Olien, *Community Conflict and the Press*.
19. Robert Fowler, B. Hodge, G. Kress, and T. Trew, *Language and Control* (Boston: Routledge & Kegan Paul, 1979).
20. Shirley Ramsey, *Communicative Competence for the Science Interview: Information Brokers and Authority Brokers*, Journalism Monographs, no. 107 (Columbia, SC: AEJMC, October 1988). Authority Brokers were more likely to utilize elaborated styles of writing in presenting their stories about science than were Information Brokers. Also, Authority Brokers appeared to be more centrally placed in terms of systems development than were Information Brokers. Innovation or change appeared to accelerate nominating behavior

of writers and sources, while maturity in the system tended to encourage gatekeeping behaviors of writers.

21. Tichenor, Donohue, and Olien, *Community Conflict and the Press*.

22. Ramsey, "Expanded Science Coverage."

23. Ramsey, "Expanded Science Coverage."

24. Shirley Ramsey, "Science and technology: When do they become front page news?" *Public Understanding of Science* 3 (January 1994): 71-82.

25. Herman and Chomsky, *Manufacturing Consent*.

26. Misha Nedeljkovich and Shirley Ramsey, "Issues in International TV-News: Gender Competency in Spokespersons" (paper presented at the annual meeting of the International Association for Mass Communication Research, Sydney, Australia, August 1996).

27. *ProQuest* (Ann Arbor, MI: University Microfilm, Inc., 1991-1996).

28. Ole R. Holsti, *Content Analysis for the Social Sciences and Humanities* (Reading, MA: Addison-Wesley, 1969).

29. U.S. Bureau of the Census, *Statistical Abstract of the United States* (Lanham, MD: Bernan Press, 1995).