

Source Use in Environmental Coverage of San Francisco Bay Area Newspapers

Rosalind Jackson

Abstract The mass media provide the general population with a condensed and interpreted depiction of their surrounding world. The influential role of the media is especially relevant in the case of environmental news coverage, a field with which the general public has little direct exposure. The individuals and groups that provide information used in the construction of that coverage have the ability to determine the filter through which the environmental issue is presented. The current trends toward corporatization and deregulation of the media industry have potential ramifications on the biases in source use for environmental news coverage. I used content analysis methodology to code and quantify environmental newspaper coverage from the San Francisco Bay Area. The results indicate that certain sources, specifically governmental and business interests, are cited most often in environmental news articles. Furthermore corporate source has significantly increased from 1981 to 2001, a trend that appears to be a result of a marked increase in the frequency of regional corporate source citation.

Introduction

As individuals functioning within a complex and dynamic social world, the public can only directly interact with tiny portions of their surrounding world. The mass media provide the general audience with a condensed and interpreted depiction of that social reality (Gitlin 1980). Mainstream media dominates “issue culture,” both reflecting and contributing to popular interpretation of a given issue (Gamson and Modigliani 1989, Gamson et al. 1992). Research also indicates that the further removed an individual is from the topic being reported upon, the more influential a role the media has in constructing that interpreted reality (Backes 1995). As the majority of the general audience has little if any direct contact with the scientific world, the media are especially influential over the public’s perception of environmental issues. Furthermore, E. Singer’s analysis of news coverage demonstrated that, in the process of making science “lively and acceptable,” most media reports introduce errors in emphasis, omission, or fact itself (Singer 1990). Because of this discrepancy between reality and depiction, media discourse has the ability to simultaneously create, filter, and disperse dominant concepts of environmental perception (Stallings 1990).

News sources greatly contribute to the public depiction of environmental issues. These sources are the individuals and groups that provide statements or information used in the construction of a news report. In their study of environmental news sources, S. Lacy and D. Coulson assert that, “those who have access to journalists often determine what becomes news” (Lacy and Coulson 2000). Traditional source bias in general reporting favors government, corporate and business interests, but little research has investigated this trend in terms of the specific case of environmental journalism (Hansen 1991).

Considering the relevance of news sources to the general perception of environmental issues, the current trends toward corporate dominance of the media industry are especially pertinent to understanding that news coverage. Laying the foundation for the contemporary media environment, President Ronald Reagan began implementation of an “open skies” policy in 1984 that privatized and deregulated the telecommunications industry (Thussu 2000). Continuing through the 1997 Telecommunications Act and into the current administration, the mass media in general have been subject to increasingly lax regulatory policy and legislation (Thussu 2000). The result is a contemporary media environment that is dominated globally by nine major transnational corporations: AOL Time Warner, Bertlesmann, Viacom/CBS, The Walt Disney

Company, Sony, News Corporation, TCI, Seagram, and General Electric (Thussu 2000). Below these giant conglomerates lie a second tier of about 40 corporate owners that have national or regional niche monopolies (Columbia 2002). All major newspaper publications of the San Francisco Bay Area are currently owned by this second class of media corporation (Columbia 2002). A combination of regional and national publications vie for audience readership in this area that comprises the nation's fifth largest Designated Market Area (DMA) of San Francisco, Oakland and San Jose (Case 2001). It is clear that as media companies continue to expand, a shrinking number of them shape what we view and read.

My objective is to determine if the media privatization and deregulation has significant implications for the newsgathering process in terms the selection of environmental newspaper sources. I am specifically investigating these effects in the case of the San Francisco region. Corporations are designating less time and fewer resources to their news holdings in favor of the more profitable entertainment sector (Thussu 2000). Past study indicates that source accessibility and deadline pressure have substantial influence on the selection of sources by newspaper journalists (Powers and Fico 1994). With reporters being pressed to produce stories under greater time and resource constraints, I hypothesize that governmental and corporate interests will dominate current environmental newspaper coverage based on the relative ease of seeking out these traditional sources of information. Furthermore, I hypothesize that current environmental newspaper coverage will exhibit less source evenness than pre-deregulation era news articles. My third hypothesis is that regional publications of the San Francisco Bay Area have been subject to an increased dependence upon corporate or industry source use in environmental coverage relative to national publications. This third hypothesis is founded on the observation that, as the newspapers become increasingly profit-oriented, the regional publications downsize their own newsdesks and become increasingly dependent upon nationally syndicated reporters for their articles. These hypotheses are intended to test for effects of an increasingly corporate-dominated media industry on the content and bias of environmental newspaper coverage.

Methods

My investigation of environmental news source use specifically addresses coverage in the dominant newspapers of the San Francisco Bay Area. I selected seven newspapers for analysis. The four national publications, *The New York Times*, *The Washington Post*, *The Wall Street Journal*, and *USA Today*, represent the highest circulated national newspapers in the United States. These large daily newspapers vie for audience readership within the Bay Area DMA of San Francisco, Oakland, and San Jose (Case 2001). Those three major cities also maintain their own locally published daily newspapers: *The San Francisco Chronicle*, *The Oakland Tribune*, and *The San Jose Mercury News*, respectively. These three publications form the regional body of analysis for my newspaper study.

My temporal study compared data from environmental articles published in these seven newspapers in 1981 with those from 2001. Both years occurred after environmental coverage entered the sphere of mainstream media discourse, and the twenty year scale should be sufficient to demonstrate any changes in newspaper sources resulting from change toward a predominantly corporate media environment. *USA Today* was not published in 1981, but is currently the highest circulated newspaper in the nation. Because *USA Today* is a significant contemporary news source, I included it in my analysis of 2001 coverage. I randomly selected ten dates from both of these years, and the publications from all seven newspapers for each of those days forms the sample of analysis. This method generated a total of 60 publications for 1981 and 70 publications for 2001. From these 130 individual newspapers I investigated source use in any article that addresses an environmental issue in the headline or lead paragraphs of the text. An “environmental issue” was defined as any discourse that refers to the interaction of human activity and biological, geophysical, climate, or chemical systems. I applied this definition of an environmental article to the newspaper sample to generate the specific media texts for analysis. Items appearing in the op/ed or editorial sections of the newspapers were not analyzed as they do not represent the discourse of the media source themselves.

Once the sample of environmental newspaper coverage was determined, I performed a content analysis of the articles. This media studies methodology provides a means of quantification for any designated aspect of a news text (Wimmer and Dominick 1994). In my analysis I coded and counted sources cited in the environmental articles. As in the content analysis performed by Lacy and Coulson in their study of environmental journalism, the unit of

analysis was the individual source (2000). A source was defined as “an identifiable person or group that had a statement or information attributed to it” (Lacy and Coulson 2000). These sources referred specifically to the environmental issue in order to be included in the count. Using Lacy and Coulson’s findings as a model, the sources were coded into six categories: government, business, environmentalist, corporate scientist, nonprofit scientist/academic, and consumer/general public (2000). I defined these five categories as mutually exclusive, therefore each citation will be attributed to only one source. If a single source was described in terms of more than one category, only the first characterization was counted. If used for nonconsecutive citations, a single source was counted repeatedly within a single story. This accounted for the increased significance of a source that was quoted numerous times as opposed to a source that was cited only once in the media text.

Through this content analysis I determined both the total numbers and the proportions of environmental news sources by type of source and by the two independent variables of publication year and circulation range. Statistical analysis of these two independent variables addressed my three stated hypotheses regarding source type in environmental newspaper coverage. A chi-square analysis comparing the total frequencies of each source category tested my first hypothesis of government and corporate source dominance. I compared my data frequencies with a null hypothesis of equal source frequency regardless of category.

Chi-square tests of independence served as analytical tools for my second and third hypotheses as well. For the remaining statistical tests, the data was divided into two category types, corporate and non-corporate. The sum of the corporate/industry and corporate scientist categories constituted the new total corporate category. The remaining sources combined to form the new non-corporate total. The next series of chi-square tests compared the total number of corporate and non-corporate source citations from 1981 and 2001, which were then further split by regional and national circulation. These analyses tested the null hypothesis that total corporate source use is equal regardless of publication year. In splitting the analysis by the regional or national variable, the individual contributions of the different circulation ranges to any change in source use were illustrated. These chi square tests were performed on data that combined the total number of citations, thus allowing for multiple citations per article to be counted toward that total.

To avoid any potential statistical inaccuracies due to this degree of pseudoreplication, I converted my data from total citations to the proportions of corporate sources per article. Because of the significant number of articles with no corporate citations, the data could not be converted to approximate a normal distribution. Instead, my final series of chi-square tests compared the number of articles exhibiting no corporate source citations to those with frequencies greater than zero. A significant decrease over time in the number of articles with no corporate sources would further support my second hypothesis. A greater change in the number of such regional articles compared to the number of national articles would support my third hypothesis. The same chi-square tests for governmental citations served as an indicator of more general trends in reporting style that could confound the corporate source results. Because government officials have persisted as significant news sources, this data served as a baseline for overall citation frequency in 1981 and 2001. An unpaired non-parametric Mann-Whitney U-test analyzed the actual yearly national and regional frequencies of corporate and non-corporate sources. In this manner, the statistical methods respond to my question of how change toward a deregulated corporate media environment has altered source use in environmental newspaper reporting.

Results

The random sampling of ten dates resulted in a total of 204 environmental articles for analysis. Within the newspaper article sample, 1886 citations were coded into the six distinct source categories. As illustrated in Figure 1, regardless of year, citations were dominated first by governmental sources and second by corporate or industrial sources. The environmentalist, followed by the general public, academic scientist, and other/undefined source categories constituted much smaller portions of the total source use. Chi square analysis of the 1180 contemporary citations assuming equal expected values of 196.7 citations for each category resulted in a X^2 value of 1162.3. The resulting p-value of 3.5×10^{-30} with five degrees of freedom indicates a highly significant difference in frequency of citation based on source type.

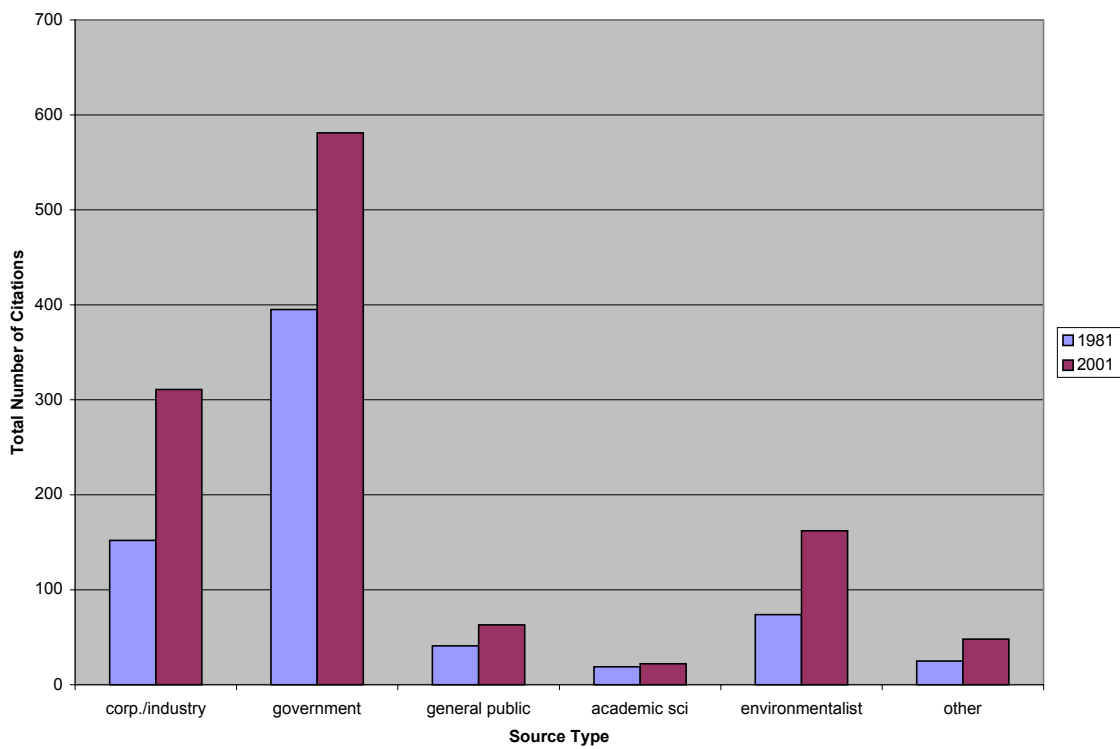


Figure 1. Total Citations of Source Types by Year of Publication

When the data is converted into corporate and non-corporate source categories, differences in relative source use based upon circulation year and range are evident as illustrated in Figure 2. While data from the national publications remained relatively constant with a slight increase in corporate citations from 25.1% to 25.9%, corporate citations from the regional publications increased from 17.9% to 26.5% of the total citations. Chi-square analysis of this corporate and non-corporate data from 1981 and 2001 produced $X^2=5.2$ and a significant p-value of 0.02 with one degree of freedom. More specific chi-square analysis of the national corporate and non-corporate data resulted in a $X^2=0.07$ indicating a p-value of 0.79 for one degree of freedom that renders the test not significant. The same chi-square test performed on the regional data resulted in a $X^2=9.0$ and a significant p-value of 0.0027 for one degree of freedom.

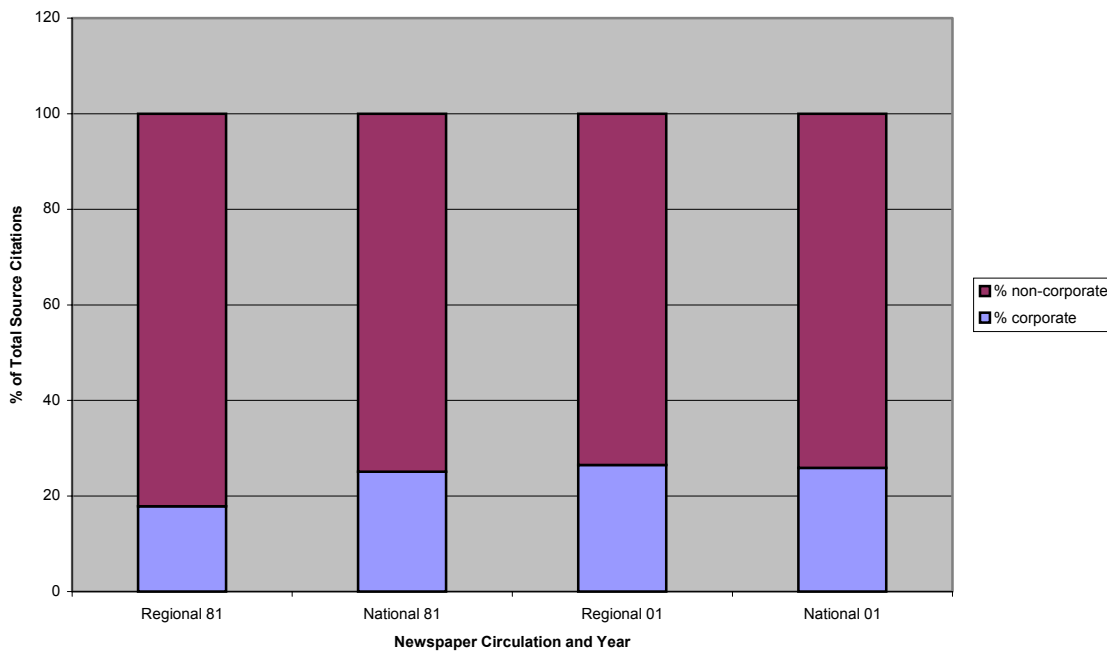


Figure 2. Percent Corporate and Non-corporate Source Use by Newspaper Circulation and Year

The next series of statistical analyses assessed the environmental newspaper source use simply in terms of the presence or absence of corporate/industrial citations. As illustrated in Figure 3, the number of articles without any corporate sources decreased for the national publications from 19 to 15 articles, or 40.4% to 31.3% of the environmental articles analyzed. Chi-square analysis of the national data resulted in $X^2=0.87$ and a p-value of 0.35 for one degree of freedom indicating no significant difference in 1981 and 2001 data. The regional publications exhibited a greater decrease from 33 to 15 articles, or 55% to 30.6% of articles with no corporate citation. Chi-square analysis of the regional numbers generated a $X^2=6.5$ with a significant p-value of 0.01 for one degree of freedom. The same measure of national and regional data for governmental sources produced a similar pattern of a decrease in the number of articles that exhibited no governmental citations. However, chi-square tests assessing the change in government source use from 1981 to 2001 produced non-significant results. In this case, the national data approached significance with $X^2=3.19$ and a p-value of 0.074, and the regional test produced a non-significant $X^2=1.47$ and p-value of 0.227.

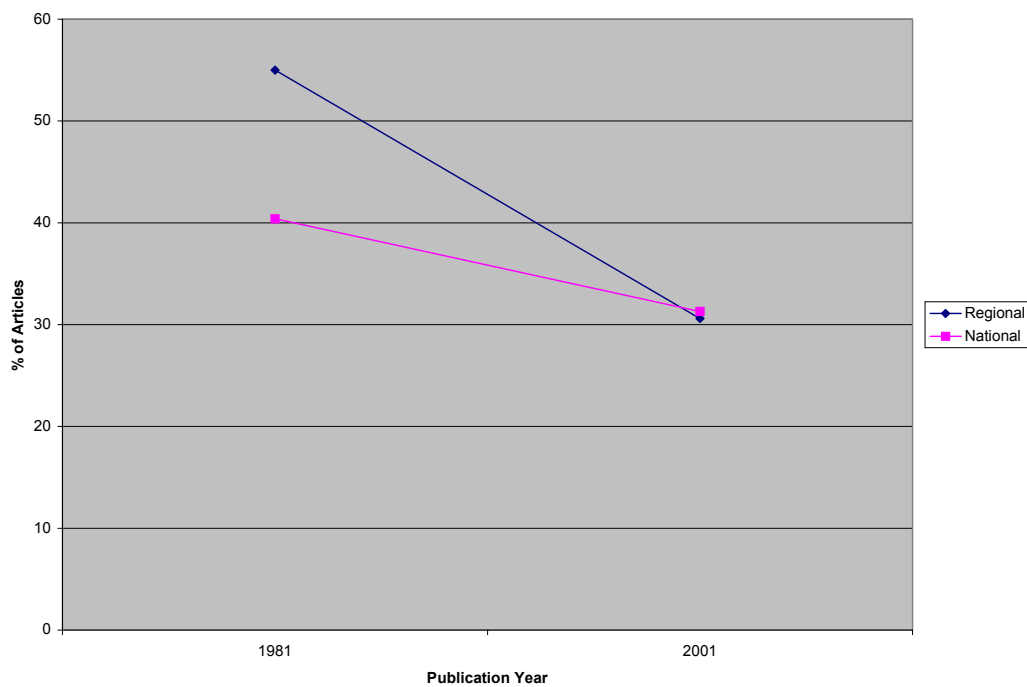


Figure 3. Percentage of Newspaper Articles with No Corporate Citations

Descriptive statistics for the actual frequency of corporate/industrial sources per article for circulation range and year follow a similar pattern to the previous analyses. While national articles maintained a relatively steady percentage, varying from a 26% mean in 1981 to 22.3% in 2001, regional samples increased their frequency of corporate sources from a mean of 16.7% to 21.6%. A Mann-Whitney U Test of the national frequency data resulted in $U=1127$ and a p-value of 0.99 indicating no significant difference between 1981 and 2001. The same statistical test of the regional frequency data approached significance with $U=1193$ and a p-value of 0.078.

	Mean	Median	Std. Dev.
National 1981	26	16.7	29.9
Regional 1981	16.7	0	23.7
National 2001	22.3	22.5	22.6
Regional 2001	21.6	16.7	22.7

Table 1. Descriptive Statistics for Percentage of Corporate Source Use per Article

Discussion

Results of this study indicate a significant difference in the relative frequency of different source types for environmental coverage in these seven sample newspapers. The dominance of government and business citations in the contemporary reporting conforms to patterns of

traditional journalistic source biases (Hansen 1991). Because government and corporate/industrial sources are the traditional primary sources for reporters, support for this initial hypothesis alone provides little significant evidence for any trend in environmental news coverage.

My second hypothesis of an increase in the relative frequency of corporate sources in articles from 2001 as compared to 1981 aims to investigate those broader trends. The results of the chi-square test assuming no variation between 1981 and 2001 indicates significant difference in corporate and non-corporate source use for environmental newspaper coverage based on year. This overall increase in corporate/industry source use in that 20-year span indicates a general change in journalistic biases across the highest circulated newspapers of the San Francisco Bay Area, a sweeping statement that ignores the relevant details of that general trend.

Further results illustrate those specific patterns of change in source use. When analyzed independently, national data does not affirm a significant change in corporate and non-corporate source frequency. The significant increase in corporate source use in the regional articles suggests that these latter newspapers might be driving the overall change in environmental citations. These findings generally support the third hypothesis that the significant difference in data based on year is a result of significant differences in source use in the regional and national newspapers.

This pattern of environmental source use is further supported by the apparent trends in the numbers of articles citing any corporate source. The substantial number of articles with zero corporate citations makes that information another relevant indicator of source use trends. The overall decrease from 1981 to 2001 in the percentage of environmental articles that avoid any reference to a corporate source indicates an increase in corporate citation. The results of the non-significant national and significant regional analyses point to two distinct patterns of change. Again, the presence of corporate sources in the national newspaper articles has apparently remained constant. The significant change in corporate source use seems to result from the regional coverage, which has increased to approximate the higher national levels.

This trend could be explained by an overall increase in total citations rather than a newsgathering bias toward corporate source use. However, national and regional governmental source use seems to negate this alternate explanation. Although both circulation ranges exhibited an increase in the number of articles citing governmental sources, chi-square analyses produced

non-significant results for those changes. While the national data approached significance, the regional results were definitely non-significant, illustrating a noteworthy departure from the pattern seen in corporate source use. A larger sample size might produce stronger evidence for these trends. Using governmental sources as a baseline for comparison, the change in regional corporate citation appears to be caused by a specific journalistic bias rather than an overall increase in citations per article.

Although less significant, the Mann-Whitney U test examining the frequency of corporate citations per article hints at the same trend. While the national results are definitely not significant, the regional analysis produced a p-value of 0.078 that approaches significant evidence of change from 1981 to 2001. Again, these results indicate that a larger sample size could produce a significant statistic for this test.

Based on the total count, overall presence and relative frequency of corporate citations, the results point to national newspapers' sustained dependence on business interests in their coverage of environmental issues. Furthermore, the results indicate an increased reliance of regional environmental articles upon those corporate and industrial sources, a pattern that could be further supported by an increased sample size.

This study does not address whether these results are a direct consequence of media deregulation and corporatization or a result of some other socioeconomic process. But, regardless of the mechanism, the data indicates a probable trend toward increasing business and industrial influence over the mainstream news coverage of environmental issues. Media research affirms the importance of such information sources in shaping the news frame, illustrating the potential of those source inequities to affect the presentation and subsequent interpretation of environmental issues by the general public (Lacy and Coulson 2000). If regional reporters are increasingly relying upon industrial sources and business connections in their newsgathering, contemporary environmental journalism is progressively structured around corporate interests rather than issue experts, a trend with detrimental implications for the quality and impartiality of environmental news.

Acknowledgements

I would like to thank the ES research project advisors, Matt Orr, John Latto, and Manish Desai for their help with the specifics of my project, Professor Jean Retzinger for her instruction in mass communication theory and research methods, and my family and friends for their support.

References

- Backes, D. 1995. The Biosocial Perspective and Environmental Communication Research. *Journal of Communication* 45: 147 – 164.
- Case, Tony. 2001. Dailies' Circulation Still Struggling. *Mediaweek*: 42.
- Columbia Journalism Review. 2002. Who Owns What? <http://www.cjr.org/owners> (3-16-02).
- Gamson, W. A., D. Croteau, W. Hoynes, and T. Sasson. 1992. Media Images and the Social Construction of Reality. *Annual Review of Sociology* 18: 373 - 394.
- Gamson, W. A. and A. Modigliani. 1989. Media Discourse and Public Opinion on Nuclear Power. *American Journal of Sociology* 95: 1 - 38.
- Gitlin, T. 1980. *The Whole World is Watching: the Making and Unmaking of the New Left*. University of California Press, Berkeley, CA.
- Hansen, K. A. 1991. Source Diversity and Newspaper Enterprise Journalism. *Journalism Quarterly* 68: 474 - 483.
- Lacy, S., and D. C. Coulson. 2000. Comparative Case Study: Newspaper Source Use on the Environmental Beat. *Newspaper Research Journal* 21: 13 - 26.
- Powers, A. and F. Fico. 1994. Influences on Use of Sources at Large U.S. Newspapers. *Newspaper Research Journal* 15: 87 - 95.
- Singer, E. 1990. A Question of Accuracy: How Journalists and Scientists Report Research on Hazards. *Journal of Communication* 40: 102 - 117.
- Stallings, R. A. 1990. Media Discourse and the Social Construction of Risk. *Social Problems* 37: 80 - 96.
- Thussu, D. K. 2000. *International Communication: Continuity and Change*. Oxford University Press, Inc., New York, NY.
- Wimmer, R. D., and J. R. Dominick. 1994. Content Analysis. Ch 8 *in* *Mass Media Research: An Introduction*. 4th ed. Wadsworth Publishing, Belmont, CA.