How science information reaches the public: A content analysis of elite newspapers to compare coverage of the news values for two science conferences

by

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CHAPTER 1: INTRODUCTION

Science is important to people. Lives of Americans are structured by science and technology that developed into "necessities" of everyday life.

A list obviously includes electricity, motorized transportation, plumbing, preserved food, telephones, and medicines. Computers are becoming necessities.

In addition to private impact, science and technology permeate the public arena. Related issues include nuclear power and waste, chemical warfare, disposal of agricultural chemicals, air pollution and its effect on the environment, and salt in preserved foods and its effect on health.

People's interest in science follows the impact of science on their lives.

Science News and the Public

Individuals and groups privately and publicly make decisions about the use of science and technology. Where do they get information to make these decisions?

Adult Americans get much of their science information from the mass media. Earlier in life, the education system supplied science information. But beyond their formal schooling, most citizens depend primarily on mass media to learn about science and technology (Schramm, 1962).

However, it was not merely higher education, but specific course work in the sciences that seems to predict a life-long interest in science (Davis 1958).

In order to raise their level of scientific knowledge, adults read science information in mass media.

Krieghbaum gives three reasons for the apparent linkage of readership and knowledge with education in science:

> 1. Those who study science have some of the background needed to understand it when they use the mass media. In other words, science courses probably build a 'science literacy.'
> 2. Science education provides a bridge for relating scientific developments to public affairs and is a step toward better social conditions.
> 3. Science courses probably stimulate a life-long interest in and a respect for the subject (1967, p. 151).

Krieghbaum suggests that:

> Science writers may have to become the high school science teachers to the adult population (1960, p. 25).

Reporters and editors cover science because the audience is interested in science and technology. In recent decades, more favorable public attitudes exist towards greater understanding of science. Grunig (1980) says that audience studies generally have shown that survey respondents claim they like science news and that they would read more science if it were available.

Specific Problem Explored

The specific problem explored in this thesis is how science news generated at science conferences gets to the public through newspapers.

For this study, two science conferences that were held at Iowa State University, Ames, Iowa, will serve as the reference science conferences. They are the World Food Conference of 1976 and the First International Conference on Iceberg Utilization, held in 1977.

These two conferences had many similarities: partial funding from the U.S. government, international scope, location of both meetings at the Iowa State Center, and significance to the citizens of the world since each considered one element basic to human survival--food and water.

Even so, mass media coverage for these two conferences varied considerably. The World Food Conference of 1976 received little coverage, while the First International Conference on Iceberg Utilization reaped much mass media mention. In this study, the newspaper output from the two conferences will be analyzed according to news values.

Objectives

The objectives of the study are (1) to examine how the two conferences were organized for coverage through public relations efforts; (2) to analyze aspects of coverage for both conferences including quantity of coverage and how coverage relates to news values; and (3) to explore the implications of the findings of (1) and (2) above.

The implications will be explored on two levels: (1) what do the findings say about newspaper performance and (2) what do the findings

say to someone who would organize a science conference, in an effort to have the science conference serve as a source of science information to the public.

Science writers and science conference planners would be able to use the findings of this study to gain insight into criteria that mass media employees use to decide what science news is reported in the mass media. Then, writers and conference planners can consider situations that attempt to match these criteria. Robinson says that this is important because:

> The reporting of science news has become too important to remain haphazard. Those who have a stake in raising the level of science sophistication and raising the credibility of science must recognize this responsibility (1963, p. 314).

The research should produce information that will help guide scientists and journalists who seek, through mass media, to transfer knowledge from the scientists to the public.

Definitions

A study of how science news from science conferences gets into newspapers needs guidelines provided by definitions. First, here is Krieghbaum's definition for the word science:

> . . . all the various interpretations attached to the word are lumped together . . . usage will include so-called 'pure' science or basic research, applied science or development, technology, engineering, medicine, and public health (1967, p. 2).

For this study, the definition of science news is information about science that is available to the general public through the mass media--specifically newspapers.

An understanding of the word "conference" also would be helpful. The Iowa State University Office of Continuing Education (known as the Office of Extension Courses and Conferences during the times that the two reference conferences were held) provides this definition of conference on a hand-out to aid meeting planners:

> Conference--A program characterized by intensive instruction through lectures, panel discussions, and round table meetings. Participants are normally a close-knit group. The conference generally carries a descriptive adjective which designates the type of conference it is to be . . . Programs are usually one to four days in length (Ebert 1973, p. 2).

For this study, a science conference is a conference that deals with science, as science is defined above.

CHAPTER 2: FRAMEWORK FOR ANALYSIS

The framework for analysis follows the general objective of this study. The objective is to provide science writers and science conference planners with insight into criteria that mass media employees use to decide what science news is published in newspapers.

The mass media employees who make these decisions are called gatekeepers. Gatekeeping is a term that emerged from "field theory" research conducted by Kurt Lewin (1951). In a 1943 study, he investigated some of the aspects of why people eat what they eat. In his study, he addressed the question, "how food comes to the table" with a channel theory. He noted impacts of passage of food from one channel to another. This led him to observe that within social systems, gates between the channels must open in order for information to flow to actors within the system. Those who control the gates between the channels he called gatekeepers.

In a mass media context, gatekeeping affects the flow of information through channels between the source and audience. Gatekeeping decisions can affect selection, shaping, display, timing, withholding, or repetition of entire messages or message components. Gatekeepers are the media employees who decide, on the basis of news values, what news gets to the public in the mass media. Mass media employees who serve as gatekeepers carry various job titles. Among these are reporters, news editors, wire editors, assignment editors, and publishers.

Sources also serve as gatekeepers. Sources have the information. They can select, shape, withhold, repeat, and time the release of information. Job titles for scientists who control the flow of science information to the public include researcher, administrator, director, and faculty member.

Lewin reviews literature on gatekeeping from two vantage points. Scientists who are sources of science information perform gatekeeping functions as do media personnel. Since gatekeeping occurs within two social subsystems--the source and media subsystems--general gatekeeping literature pertaining to both vantage points will be examined. In addition, a review of literature on science news gatekeeping will be included. Also important is literature on gatekeeping of science news at science conferences. Since news values influence gatekeeping decisions, news value literature also will be reported. This combined literature review will bring an understanding of the forces that shape the science news that gets to the public through the mass media.

Overview of Model

The framework for analysis includes several environmental factors that help to set the stage for viewing all other parts of the model. In this case, the nature of the event (conference format) and the subject matter are considerations as are competing events that occur simultaneously with the two reference science conferences. Prior coverage of the subject matter also affects current coverage. For example, how the World Food Conference of 1976 at Iowa State University

was covered relates to the Rome World Food Conference in 1975.

The environmental factors surround the gatekeeping process and the outcome. Since gatekeeping occurs within two subsystems before the audience receives science information, both gatekeeping processes bear analysis.

Source gatekeeping is done by scientists and science organizations with public information staffs. Norms of science, personal values, conference policy decisions, and pragmatic constraints affect their gatekeeping actions.

After the science gatekeepers decide what science information is to be sent through mass media channels to the public, media gatekeepers act on science information. Media personnel who decide what science information to deliver to the public through mass media are reporters and editors acting within a media organization superstructure. News values, personal values, and pragmatic constraints of the news operation (such as deadlines) affect media decisions.

The science information that flows from mass media channels to the audience is known as the outcome on this model. Gatekeeping within the mass media channel allows an outcome of science information to be delivered to the audience. The flow of science information is determined somewhat by who covers the event, in this case science conferences, and by what is published based on news values.

The previous overview of the model will now be presented graphically in Figure 1.

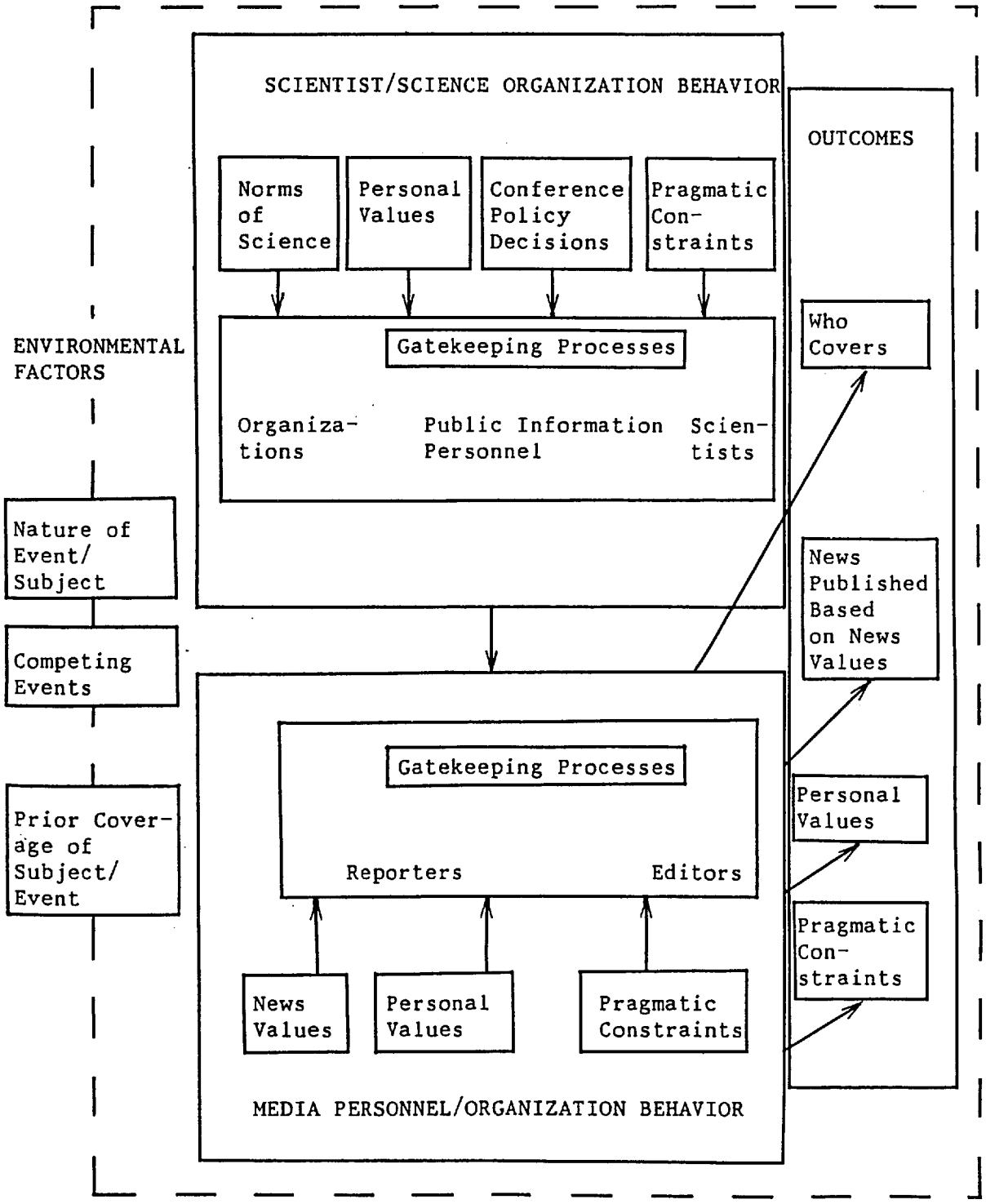

FIGURE 1. Model of the Relationship of Outcomes in the Form of News Published Based on News Values to Environmental Factors, Science Organization Behavior, and Media Organization Behavior

Elaboration of Model

Source behavior

Not much literature exists to aid in understanding source behavior. But, related research is cited below.

In order to get science information to the public through mass media, scientists are sources of information for mass media employees. Schramm notes:

> . . . the relation between the scientist (who is not primarily interested in making news) and the reporter (who is interested in science primarily as a source of news for the general public) is a most difficult one. If the reporter does not sufficiently understand science, we must also admit that not many persons in science understand the process of public information. It will require a process of mutual learning to create a productive relationship between the two (1962, p. 261).

Ryan (1979) found specific areas of disagreement between scientists and science writers. His study revealed that science writers strongly disagreed, and scientists strongly agreed that scientists should read articles before publication, that headlines should be written by the reporters, that the science writer should rely completely on the scientist to point out what is important in his/her research, that scientists should release results to the press only after scholarly publication, that a science writer should not interpret a scientist's research, and that science writers do sensationalize news.

Nevertheless, Krieghbaum (1960) gives encouragement for improvement in this relationship. He says that when scientists and the mass media representatives realize that they both consider the public

as their number one responsibility, there should be little conflict.

Science news is needed in the mass media, but how does it get into the mass media? What criteria are used to determine whether it will be included?

Krieghbaum reported one of the responses to a 1955 survey conducted by the National Association of Science Writers and New York University's Department of Journalism. The editor he cited explained:

> We do not cover 'science' because it is 'science,' but because it is important news and as such competing with many categories of news (1967, p. 73).

Besides scientists, other sources of science information which mass media employees check include news releases issued by government, corporations, and university information services. Journals are another source consulted by mass media employees.

According to Krieghbaum, annual meetings or other conferences are important sources for science news and thus meccas for science writers. To explain why, he quotes from a National Association of Science Writers' handbook:

> To these conferences come leaders and active researchers within a discipline. They present progress reports and results which may have significance to society. There they discuss their particular problems, and present challenges to the public for understanding and support. They discuss the policy. And there, increasingly, they meet and become mutually acquainted with science writers whose task it is to communicate to the public the advances and directions of physical, biological and social sciences (1967, p. 73).

In addition, Sharon Dunwoody (1978) found that during a meeting in 1977 of the American Association for the Advancement of Science, the AAAS could dictate what became news about its own meetings to a great

degree by offering particular topics in press conferences.

A study by Glynn Wood, that Schramm (1962) reported, showed that the reporter's capacity was increased by the efficiency of the newsroom in making material more easily available and by the cooperation of the scientists in the interview sessions arranged by the press room operators.

Goodell (1977) studied "visible" scientists--those who seek out the mass media to get across a message. She said that the top 20 most visible scientists shared five characteristics. These characteristics resemble news values. The characteristics she lists are that the scientist (1) has a current topic; (2) is controversial; (3) is articulate; (4) has a colorful image; and (5) has a credible reputation.

These characteristics suggest communication strategy that might be successful sources of science news and public information staffs of science organizations. Audience and media behavior studies can guide sources as they aim to get more science to the public through newspapers. Research is needed into the active efforts of conference participants, conference organizers, and public information employees to assure media coverage of science.

Media behavior

According to the model, media behavior is a major consideration in determining the news that is published. Therefore, much research has been done on media behavior. Several studies will be reviewed here.

Researcher Herbert J. Gans (1979) concentrated on the cultural impact on news organization employees. Gans' comments relate to values in the model--news values and personal values--primarily for media personnel involved in the gatekeeping processes.

Gans assumes that the news contains a picture of the nation and society, yet he says journalists aren't paid to present such a picture. He describes their task: to create "stories" about what they have observed or whom they have interviewed. Nevertheless, the outcome of their work can be viewed, over time, as a picture of America. He notes that audiences may not see any national, societal picture. Since audience members bring their own concepts and categories to bear on any picture they would draw, a variety of conclusions would emerge from that audience overview.

He says that to give a picture of nation and society, news ought to be about individuals and a variety of recurring activity patterns. Instead, complexes that fuse to form a society make news. Gans mentions these complexes: government, business and labor, the law, religion, science, medicine, education, the arts, environment. Needless to say, some complexes do not enter the news. Among Gans' examples are the social structure, class hierarchy, the power structure, and corporations. These omissions and others could produce an inaccurate picture for the audience if it scanned a decade of news products.

Any picture of the nation and society that develops from news media is a result of reality judgments by journalists, says Gans. To

judge, news employees combine findings of empirical inquiry, concepts and methods which go into that inquiry, the assumptions that underlie concepts and methods, and even further assumptions that are too time-consuming to test in the journalistic inquiry process. These assumptions mostly are about the nature of external reality. Therefore, Gans calls them reality judgments.

The model shows values in sources and media behavior. According to Gans, values join reality judgments to develop a picture of nation and society through news media. He says the values also could be called preference statements. Sources for values aren't necessarily those of the journalists. Many values are shared by or originate with news sources and other sectors of America.

How do values of journalists and others fit in when objectivity is an aim of journalists? Gans says that values in the news rarely are explicit; however, they can be inferred by reading between the lines. By implication, the news media remind the audience of values that are being violated. This assumes that the audience agrees on the values that the media messages imply were violated. However, a consensus about values may not exist between media employees and the audience. As people make inferences, they may infer many different values from the news since people come to the news with different preconceptions.

In looking at values as preference statements about the nation and society, Gans identifies two types of values--topical and enduring. Topical values are opinions expressed about specific actors or activities. Enduring values are those that can be found in many

different types of news stories over a long period of time. His list of enduring values includes ethnocentrism, altruistic democracy, responsible capitalism, small-town pastoralism, individualism, moderatism, social order, and national leadership.

Gans says that news results from an aggregate of only partially thought out values which aren't consistent or well-integrated. If the news audience sees the picture of nation and society as a mirror image of that nation and society, then, Gans says, it will find the reflection to be misshapen, yet the resemblance remains recognizable.

Besides cultural theory, media behavior also is influenced by the expectations that exist for media. Functions of the mass media are defined by several other researchers. Schudson says,

> The job of the press is to help produce a more informed electorate. A more informed citizenry will create a better and fuller democracy (1984, p. 45).

Lasswell (1964) says that the press has three main functions: surveillance of the environment, correlation of parts of society, and the transmission of social heritage from one generation to the next.

Lazarsfeld and Merton (1964) say the press functions to determine what is deserving of the public attention, to enforce secondary norms by exposing deviations of norms to the public, and to reinforce social norms.

Schramm (1962) says that mass media functions to substitute for person-to-person communication, to correlate parts of society, to correlate responses to challenges and opportunity which help persons reach consensus on social action, to help transmit culture to new

members of society, to help entertain, and to help sell goods and services.

With the above discussion of mass media in society, another facet of the model can be examined. Gatekeeping within the media subsystem can be researched.

An often-cited gatekeeping study is White's (1950) case study in the selection of the news. He set the stage by giving Lewin's definition of gatekeeping as the individual or group "in power" for making decisions between the information that goes into the communication channel and the information that comes out of that channel.

He acknowledged that the first gate is the reporter who judges whether a story is important. The second gatekeeper was the rewrite man; the third the bureau chief (for wire services); the fourth was the state file editor; the last gatekeeper was the wire editor on the non-metro papers.

The wire editor on the non-metro paper was the subject of a study by White (1950). White set out to determine some preliminary idea as to why wire editors on non-metro dailies selected or rejected news stories filed and transmitted by the three press associations. White hoped to gain some diagnostic notions about the general role of the gatekeeper in the areas of mass communication.

He found that highest use came from stories that had human interest and a politically-related topic. Broad patterns became apparent. When various versions of the same story were available, the

"conservative" version was chosen. It avoided sensationalizing the topic and was devoid of insinuation. It also avoided statistics and figures. The writing style was noteworthy.

White noted that theoretically, all of the wire editors' standards of taste should refer back to an audience who must be served and pleased. Yet White found that it appears that, as gatekeeper, the newspaper editor sees to it (perhaps unconsciously) that the community shall hear only those events which the newsman, as the representative of his culture, believes to be true.

White concluded that the communication of news really is highly subjective, and based on the "gatekeeper's" own set of experiences, attitudes, and expectations.

The editor who White studied said that he preferred human interest articles, well-wrapped up stories, articles tailored to his need, or slanted to conform to his paper's editorial policies. He considers articles to be particularly newsworthy if they have clarity, conciseness, and an interesting angle, and a length that adequately handles the subject yet is not long-winded.

Seventeen years later, in 1966, Snider (1967) replicated the White study. He used the same questions to query the same "Mr. Gates." Even though the world had changed and some of the situations at the place of work for "Mr. Gates" had changed, these limitations did not interfere with the findings since the methods were the same.

Snider found that the wires carried and "Mr. Gates" chose a better balanced news diet. A more even spread of usage among the various

categories emerged in the second study. Human interest and international war stories were in the top 71 percent in both studies. "Mr. Gates" still picked stories he likes and believes his readers want.

According to the model, pragmatic constraints also enter into gatekeeping activities of media organizations. In choosing articles, "The choices were largely dictated by what material was in hand when the pages closed" (Westley 1980).

In a study about judgments that editors make, Stempel (1964) found that wire services file stories related to the production schedules of their media subscribers. In turn, the news available from wire services when a page must be ready to print helps the gatekeeper editor make decisions. Thus traffic and production schedules affect gatekeeper decisions.

Besides pragmatic constraints and personal values, the model includes news values as an influence on mass media employees in the gatekeeping process. Literature reported identification of news values by several researchers.

Dubas and Martel (1975) listed these news values--localness, photo possibilities, interesting to a mass audience, simply written, newness, and accessibility.

Wood (1962) wrote on qualities that help get stories printed. Those stories included well-known names, handled conflict or argument, human interest, and localness.

Harriss and Johnson write that any newsworthy disruption or potential disruption of the status quo will be due to events and potentials. These are characterized by one or more of the following news values:

News Values

Intrinsic Characteristics of the Event

1. Conflict (tension--surprise)
2. Progress (triumph--achievement)
3. Disaster (defeat--destruction)
4. Consequence (effect upon community)
5. Eminence (prominence)
6. Novelty (the unusual and even the extremely usual)
7. Human interest (emotional background)

Desirable Qualifications

8. Timeliness (freshness and newness)
9. Proximity (local appeal)

General Interest

10. Sex
11. Animals (1965, pp. 31-32)

News values emerge from a Clyde and Buckalew (1969) study. They call these items "five elements of news." They list high impact, conflict, known principals, proximity, and timeliness.

These criteria, or news values are called concepts of science writing by Krieghbaum (1978). He includes people--since people are

always interested in people. Another concept stresses the local angle; localness attracts editors and readers. Progress is another element to emphasize in an effort to get science news printed and to the public.

Krieghbaum lists another approach to science news. It involves human interest, that attempt to personalize scientists and the work they do. Ambivalence about the social impact of most scientific discoveries and applications is another criterion Krieghbaum mentions.

Timeliness is another item he offers since newspapers must print what happened in the previous day or the previous week.

Now, leave the media personnel/organization section of the model. Consider the outcomes section of the model. It includes outcomes of who covers and news published. To see the impact of news values on the science information that gets to the public through mass media, literature on mass media coverage of science conferences was sought. The search yielded two studies.

Wood (1962) conducted a study in 1955 of the American Psychological Association convention as a source of popular information. Theoretically, more than 500 news stories could have been written about meetings, research reports, speeches, and symposiums that were part of the APA convention. The problem that the reporters encountered in covering the convention was one of selection. Wood notes that in making their selections, the reporters were acting as gatekeepers in the communication chain between the psychologist and the newspaper public. Difficulty at this point, Wood said, could block dissemination of psychological knowledge to the general public and

could even relate to the larger problem of the utilization of the social sciences.

Wood (1962) said the purpose of his study was to look into the selection process, to see how the reporters made their choices, the limits within which they worked, and how well, from a psychologist's point of view, they handled the material.

The most noticeable fact, Wood (1962) says, about the coverage of the convention was the amount of agreement on which items were newsworthy. He says that this can be explained in part by agreement on news values. It also is related to the work of the APA and to the need for cooperation in handling a convention of this size. Since newspapers were able to assign only one reporter to cover the convention regularly, efficient coverage could be had only by working through the press room.

Wood (1962) notes that the procedure set up by the APA was simple, and is almost standard operating procedure for well-run conventions, according to reporters who are veterans of other conventions. He described the procedure. Before the convention the reporters were given copies of abstracts of the papers to be given, plus a number of press releases dealing with research findings. Reporters then could select the complete text, an interview with the psychologist who was to make the presentation, or both.

Wood (1962) reports that the press room then contacted the psychologists and ran off copies of complete texts. He noted that more than 70 percent of the newspaper articles included material which was

in neither the abstracts nor releases. Thus, the convention was almost entirely covered from the press room by the local reporters.

The APA was able to play a large part in the selection process, Wood says, by the advance preparation of abstracts and news releases and by close relationship between the reporters and public relations director.

One reporter summarized the feelings of others who were interviewed for Wood's study on the working relationship between reporters and the press room. He said that because of the volume of material, the reporters relied heavily on the public relations director's judgment.

Wood's (1962) study revealed that the reporters interviewed take their jobs seriously. They see themselves as interpreters between science and the layman. Yet they criticized findings reported by psychologists for being trivial, inconclusive, and not pointing to anything. They also complained about the tendency of psychologists to talk in jargon. Some also said that they thought that the use of jargon could affect the coverage of the convention; the ease of translation would be a factor when time was short, for the easy story would be chosen in a rush. Reporters said that interviews overcame most of the difficulties involving time and technical details. They commented that a tough story would be translated if it were worth the effort.

All the reporters agreed that in the rush of a convention of this size, stories which might be newsworthy at another time are passed

over. Wood (1962) says that judging from the sample of papers dependent on wire stories, the convention did not fare as well under wire editors' scissors compared to those written by reporters representing local newspapers. Local coverage appears to have been near the saturation point. Considering, though, that the Associated Press put two stories a day on the wire, the mortality rate was quite high.

Wood (1962) found that speeches and symposiums were more likely to be covered than research reports. The speeches and symposiums were likely to be covered in more detail than research reports. However, Associated Press coverage was the exception to this. AP placed more emphasis on the research reports, explaining that they were new material and that the reports had more value for the nation-wide audience of the Associated Press.

Wood (1962) commented on the "who" factor. He said that while only 25 percent of the research reports were given by California psychologists, 47 percent of the reports covered by the newspapers involved someone from within the state. He says that it seems that the local interest of newspapers caused the California psychologists to be mentioned more often.

When reporters were interviewed, they said that they did not seem to be consciously categorizing the material as they made their selections. The reporters seem to select a combination of what seems important to them and what they think will interest the hypothetical reader.

Wood looked over the 10 stories that were most used. From this it was evident that in the reporters' views, the newspaper reader "is interested in science to the extent that it may affect his life." Only one of 10 stories didn't relate closely to everyday life; it involved a high degree of controversy.

It appeared, Wood (1962) said, that the amount of coverage in San Francisco for the 1955 APA convention was determined by the capacity of the reporter assigned, working within the general limits set by the size of the paper.

Wood said "news interest" in psychology seems to equal the reporter's idea of how the science may affect the reader's life and the element of controversy.

Psychologists whose work at the convention was covered in the newspaper reports were queried. The great bulk of criticism, Wood (1962) reported, revolved around attempts of the reporters to clarify their stories. These inaccuracies may be seen as reporters' responses to the demand of the newspaper that copy "have a point." Wood says that the position of the reporter is not an enviable one, for he must satisfy the demands of the media, while attempting to stay within the bounds of scientific accuracy--a delicate task at best. One psychologist said that features of his study which were unfavorable to the mass media were ignored. Wood commented that this "selective perception" on the part of the reporters has a more serious implication than the more simple attempts at clarity.

Newspaper headline practice drew some criticism. Even though more psychologists commented favorably about their contacts with the press, some raised objections to the reporters' methods related to interviews.

Wood (1962) said that the point of view of the psychologists whose findings were reported reflected that the greatest sources of inaccuracy were the attempts of the reporters to give their stories meaning for the general public. In relatively few instances did they feel that the reporters missed the point--rather, they felt that they went too far to make an interesting point.

In conclusion, Wood (1962) said that it seems that most of the difficulty in the reporting process came from the divergent aims of the psychologist and the reporter. The psychologist, interested primarily in the search for truth, makes news only incidentally. The reporter's primary concern is in reporting material which will interest the general public. Distortion of the scientist's truth occurs in the reporter's effort to make the material meaningful and interesting to the reader. While this basic divergence between psychologist and reporter cannot be resolved, better understanding of the demands of mass media, on the one hand, and of science on the other, may help ease the friction.

A further look at the portion of the model that covers outcomes appears in Dunwoody's study (1978). It pertains directly to news at a science meeting. She reports that four major information sources were identified at the meeting--news conferences, symposiums, an interview with a scientist, and a research paper. She noted that the journalist

could choose to use one of the sources; two, or more than two for any given story.

For her study, she found that the "composite" science writer operated under a fairly large number of newsroom constraints that required him to write more than one story a day during the six-day meeting. She learned that more of his stories utilized press conferences than any other source, and he produced either single-source or two-source stories.

More than one story a day was produced by the "average" journalist. This was accomplished by using press conferences more heavily than any other source. Dunwoody says that when time is of the essence, press conferences offer an efficient means of gathering information in a meeting setting. If there is time to utilize more than one source, then one sees some reliance on research papers and interviews.

In summary, she said the less constrained reporter exercised a great deal more independence in both topic selection and information gathering techniques than did the science writer who was burdened with daily deadlines at the meeting.

The literature review according to the framework for analysis leads to hypotheses.

Hypotheses

Hypothesis (1)

Dunwoody (1978) found that the behavior of public information employees for science organizations influences the coverage of science conferences. In addition, Westley (1980) said that reporters chose material that was available by deadline.

This leads to Hypothesis (1): If services offered to the mass media at conferences by the public information staff don't fit media deadlines, the services won't be used extensively.

Hypothesis (2)

Gans (1979) says that news media remind the audience of values that are being violated. Harriss and Johnson (1965) comment on disruption of the status quo. This leads to Hypothesis (2): More articles will have conflict as the major news value than any of the other eight news values for each conference.

Hypothesis (3)

Harriss and Johnson (1965) found that disruption of the status quo gives events a newsworthy quality and identified novelty as one news value.

This leads to Hypothesis (3): A conference will get more coverage if one of its news values is novelty.

Hypothesis (4)

Wood (1962) noted that local coverage was near the saturation point. This leads to Hypothesis (4): Local newspapers will run more articles and inches on both conferences than elite newspapers.

Hypothesis (5)

Merrill (1968) says elite newspapers try to present serious educational reading. This leads to Hypothesis (5): Elite newspapers will run more articles that are high in science content than the two local papers analyzed for this study.

Hypothesis (6)

Timeliness is useful in measuring the importance of news, Harriss and Johnson (1965) say. The most recent events will receive most space, because of their timeliness. Krieghbaum and other researchers also support the importance of timeliness. This leads to Hypothesis (6): Most articles with a high degree of science news will be published during the conferences rather than before or after.

The discussion for Hypotheses (5 and 6) lead to Hypothesis (6a): Elite newspapers will publish more articles high in science during the conference, than will local newspapers.

Hypothesis (7)

Wood (1962) found that speeches and symposiums were more likely to be covered than research reports. This leads to Hypothesis (7):

Conferences may vary, yet, plenary sessions will be used more than other conference events as a source by elite and local newspapers at both conferences.

CHAPTER 3: METHODS

This study examined three questions for each conference. (1) How were publicity (public information) efforts organized? (2) What coverage was obtained? (3) Why was the coverage as it was? The questions need to be examined to learn more about how news from science conferences gets to the public through newspapers.

In the search for answers, a descriptive analysis was made of the publicity efforts. A qualitative analysis was obtained from interviews. A systematic content analysis has been pursued and quantitatively analyzed in determining what coverage was obtained. The interrelationships of the findings of the first two questions have been examined to determine why coverage was as it was.

Procedures for Examining Publicity Efforts

To learn how the publicity or public information efforts were organized, two sources of information were examined. Records of publicity efforts for each conference were reviewed in an effort to discover the kinds of preparatory activities performed by Information Service staff members to alert the media about what was at the conferences to cover. Interviews were conducted with Information Service specialists in charge of each conference to learn the kinds of information released, to whom the releases went, and the timing of the releases. Information from this descriptive analysis is reported in Chapter 4.

In addition, in February of 1978, depth interviews were conducted with the only two media representatives that covered both conferences. February 2, John Epperheimer was interviewed. He was editor of the Ames (Iowa) Tribune. On February 3, Norm Sandler was interviewed. He was a reporter from the Des Moines bureau of the United Press International. From these interviews, opinions from these media representatives emerged on why each conference was covered as it was. Information from these two interviews is reported in Chapter 5.

All media persons invited to Cover each conference were not interviewed to determine the coverage of each conference. This phase of the study was considered in 1980. However, two and three years had passed between the dates of the conferences and that point of the study. It was decided that accurate results would not have been forthcoming from these later interviews. This is because the reporters probably would not have been able to adequately recall the information sought.

Procedures for Examining News Coverage

To determine what coverage occurred for each conference, a systematic content analysis was conducted. Newspaper clippings would have provided a set of published news to review to learn more about the coverage, but no systematic system for getting newspaper clippings was arranged for the World Food Conference. However, conference planners tried to get what clippings there were, and there were not many. The Iceberg Conference planners hired a clipping service which produced

clippings that were bound into three volumes, each one inch thick by 8 1/2" x 11". The clippings on each conference were interesting to review. However, they could not be used for the content analysis because they had not been systematically selected.

Content analysis is a research technique for the objective, systematic, and quantitative description of the manifest content of communication. Berelson (1952) gave the process that classic definition.

According to Danielson (1963), key elements of content analysis require the analysis to be objective, systematic, quantitative, and manifest.

To qualify as objective, categories used to analyze content must be defined so precisely that anyone using them to analyze the same material would get the same results.

To be systematic, the content to be analyzed must be selected in a predetermined, unbiased way.

Content analysis results are usually quantitative. A content analysis is considered to be manifest when the content is analyzed for what it says, not for the meaning "between the lines." To be systematic, objective, and quantitative requires attention to what is sampled, and how it is sampled.

Content to be analyzed could be obtained from clippings that relate to each conference. However, a shortcoming of this source is that the methods of collection of clippings for both conferences were not parallel. While the Iceberg Utilization Conference hired a

clipping service, the World Food Conference did not. Consequently, the methods of collecting the clippings were dissimilar. Also, studies often show that clipping services note and clip only 50 percent of those available.

A systematic way to obtain content to be analyzed is to conduct a search of selected media. That method was used in this study. Newspaper was the medium selected for this study, because newspapers are readily available to the public for use as sources of information for democratic decision-making.

Magazines and electronic media were excluded. Even though casual observation at the time of the conferences revealed radio and television coverage, no archival retrieval system existed to systematically check the content that was aired. Magazines were not analyzed in order to narrow the scope of the study.

To select newspapers to search for articles on the conferences, Merrill's (1968) list of elite newspapers was used. He compiled the list from criteria that emerged from the results of four scholarly research studies. Therefore, Merrill's list provided a research base for selecting the newspapers to search for articles. Merrill's list was selected because these papers are used by decision makers. These newspapers are on the list:

Atlanta Constitution
Baltimore Sun
Christian Science Monitor (Boston)
Daily Telegraph (London)
Denver Post
Globe-Democrat (St. Louis)
Globe and Mail (Toronto)
Guardian (London/Manchester)

Kansas City Star
Los Angeles Times
Louisville Courier-Journal
Miami Herald
Minneapolis Tribune
New York Times
Philadelphia Inquirer
Portland Oregonian
St. Louis Post-Dispatch
Times (London)
Washington Post

Merrill gives this insight into his criteria for the elite press. He says that they must have a political or ideological separation from government.

> . . . all newspapers (of any political system) which reflect the philosophy of their governmental system and try to present serious, educational reading are not only responsible to their society, but are members of the elite press--or they are climbing into that select fraternity.
>
> Assuming that a nation's sociopolitical philosophy determines its press system, and undoubtedly it does, then, it follows that the nation's leading and most prestigious papers are socially responsible and form the elite (1968, p. 47).

Merrill clarifies that elite papers show concern with serious news and views and their desire to influence opinion leaders. He notes that elite papers have economic diversity, but must also have enough money for good printing, well-educated staff, news agencies, and correspondents. They have a sizeable circulation.

> The elite press is after readers of discernment and influence. Most elite newspapers realize that their readership will probably be small, but they know that it is usually patient, sapient and prestigious (1968, p. 48).

Besides newspapers on the above list, three others were added by this researcher. The Wall Street Journal was added to the list because it is widely read among decision makers across the country. Two other

newspapers were added because they are published in close proximity to the site of the conference. They are the Ames (Iowa) Tribune and the Des Moines (Iowa) Register. They are called local papers in this thesis. They were selected as a check on the articles that were written by reporters employed by two wire services, the Associated Press (AP) and United Press International (UPI). The output by wire service employees is called wire copy. It is assumed that the wire copy published in these two papers provides a way to identify copy that was sent by these wire services regarding the conference. Copy that wire services transmit becomes part of a physical system that has the potential to be wired world-wide. However, the physical system is administered by gatekeepers at AP and UPI in regional, national, and international offices who judge whether the copy should be sent beyond these intermediate points.

As it is transmitted on each section of the wire network, it is received by the news media who subscribe to these wire services. The individual news media decision makers determine if the copy should be printed or broadcast to the subscribers or listeners at each location. The news employees decide on whether to edit or rewrite the article before it is used. By monitoring articles by AP and UPI that were published in the two local papers, the Ames Tribune and the Des Moines Register, the researcher determined the potential pool of articles available to the wire services to choose to transmit to their subscribers (news media) who in turn could consider them for publication in their newspapers or for airing on their broadcast

operations.

The researcher notes that there are shortcomings in determining output of the wire services by monitoring the two local papers. The two papers may not have used everything transmitted on the wire services. Yet the editor of the Ames Tribune told me that he relied on UPI coverage (Epperheimer, 1978). The UPI reporter said that the Ames Tribune used what he filed (Sandler, 1978). The researcher visited the Des Moines offices of UPI and AP and found that neither kept a record of stories filed. Nor did either have a record of stories offered from their national and international wires, which would have shown whether the stories that were sent were offered on those wires.

In addition, the researcher contacted the reporters who filed the articles. They kept no record of what they wrote. Also, this researcher visited the Des Moines Register, where permission was received to look through their collection of wire service printouts. Several stories were found on the two reference conferences. Considering these circumstances, the researcher used the most reliable method available to determine AP and UPI output.

Comments on the Wire Services

Crouse provides the following comments on the wire services in the United States.

> There are about 1,700 newspapers in the U.S., and everyone of them has an AP machine or UPI machine or both whirling and clattering and ringing in some corner of the city room, coughing up stories all through the day.

> It was true that some editors were still reluctant to run a story by their own man until the wire services had confirmed it.
>
> Most of these papers don't have their own political reporters, and they depend on the wire service men for all their national political coverage. Even at newspapers that have large political staffs, the wire service story almost always arrives first.
>
> So the wire services are influential beyond calculation. Even at the best newspapers, the editor always gauges his own reporters' stories against the expectations that the wire stories have aroused (1974, pp. 11, 19-20).

Locating Copies of the Newspapers

With the list of newspapers determined, the papers were located through the Iowa State University Library. Some were in the ISU Library microfilm collection. The Library obtained the others through the interlibrary loan process. Most of the other microfilm copies were obtained from the Chicago Circle Research Library, Chicago, Ill. Some were received from the archives of individual newspapers.

The newspapers were searched during specific dates. The dates were determined by three periods in relation to the conferences--one week prior to each conference, during each conference, and one week after each conference. This provided parallel periods for each conference.

The World Food Conference was held Sunday, June 27 through Thursday, July 1, 1976. For the World Food Conference, the publication dates that were checked included June 20 through July 8, 1976. The Iceberg Conference was held Sunday, October 2 through Thursday, October 6, 1977. The publication dates checked included September 25 through October 13, 1977. Occasionally, more than one edition of a paper was

recorded on microfilm. In these cases, the final edition was searched.

Once the microfilm for a particular newspaper was placed on the microfilm reader machine, the search was conducted in this way. The film was advanced to the first publication date in this study. Then, the reel was advanced slowly so that the researcher could scan the entire page for articles or illustrations on the two conferences.

To scan for articles, these techniques were used. Key words were identified, and articles were searched for them. Headlines were read. Datelines were scanned. Datelines give the city and state where the article originated. For the two conferences, the dateline "Ames, Iowa" was sought. This process was followed for every page of the particular newspaper. Nineteen dates for each conference were the reference dates. Some papers did not publish seven days of the week so the total number of issues searched is less than the anticipated 760 total issues (20 papers x 19 days x 2 conferences). The researcher searched 737 total issues. Microfilm was available for almost all except one date in one newspaper, consequently the search was executed for 736/737 of the universe.

Coding the Researched Articles

The unit of analysis was the individual article. When an article was found, the researcher marked various items on a coding sheet. A sample coding sheet is in the Appendix. The following coding procedure was used. The name of the newspaper was checked. The name of the conference was circled. The publication date of the article was

circled. The page location of the article was noted and marked. It was observed where the item appeared--front page, front page other section, inside front section, and inside other section. Next, the location of the item on the page was noted--whether the item appeared above or below the horizontal fold of the newspaper. Since microfilm versions of a newspaper do not reveal the physical line where the page of the actual newspaper would be folded, the researcher measured the length of the page to find the midpoint which would be equivalent to the fold line. This allowed the researcher to determine whether the article appeared above or below the fold.

Headlines were considered. They were coded according to the number of columns in width that they occupied. The range for coding headlines included one, two, three, and four or more columns.

Play is the amount of attention that is given to an article. It is a combined measure of column width, article length, and photo size. Articles in newspapers are measured in column inches; however the width of the column may vary from newspaper to newspaper, within a newspaper, and even change on a page under special circumstances. To determine the size for each paper and article, each item was measured as it appeared on the microfilm reader screen. The width of the column and the length of each article was measured in inches. The measured length included the headline. These measurements were entered on the coding sheet. Later these measurements were used to compute standard column inches.

A column inch is the area of type that is one column wide by one inch deep. For this study, a standard column inch was determined. It is a column 10 picas wide by one inch deep. A pica is a unit of measure used by printers, in which approximately six picas equal one inch. A column that is 10 picas wide is about 1 2/3 inches wide. The standard column inch for this study, therefore, occupies an area about 1 2/3 inches wide by one inch deep. The standard page size is eight columns, each 10 picas wide by 21 inches long.

To determine the standard column inches for an article, the width was observed on the microfilm reader screen, measured and recorded on the coding sheet. This measurement was multiplied by a correction factor of 1.25. The microfilm reader screen is less than the size of the actual newspaper page. Even though the same microfilm machine was not always available, the 1.25 factor allows for the same recorded article sizes being observed on machines to be more nearly the size of an actual newspaper page. Some recorded article sizes were observed and measured on machines with screens quite a bit smaller than an actual newspaper page.

The product that resulted from multiplying the observed microfilm width by the correction factor (1.25) was multiplied by picas per inch (6). This resulted in a column width expressed in picas. The pica width was divided by the number of picas in the standard width column for this study (10). The quotient equals the weighted width column for the specific article.

The article length observed on the microfilm reader screen was multiplied by the correction factor (1.25) for the microfilm related to the size of the actual newspaper page. The product is the weighted length. The weighted width was multiplied by the weighted length. The product was rounded to the nearest whole number. This measurement was entered on the coding sheet as standard column inches for the specific article.

Size of photos and illustration was the next analysis that was made in the search. Size was measured in square inches. If a photo or illustration was found, this procedure was followed. The width and length of the item was measured on the microfilm reader screen and recorded on the coding sheet. Later each measurement was multiplied by the correction factor of 1.25. The weighted width was then multiplied by the weighted length to obtain the standard square inches of photos and illustrations. The product was rounded to the nearest whole number, and recorded on the coding sheet. When more than one photo or illustration was used with an article, the standard square inches for each of the several items were added together to obtain one accumulated total amount of photos and illustrations for the article. Indicators of play based on total space are important in newspapers because in the publishing business, space means money. Since advertising space is sold, most people are aware that the larger the ad, the more monetary value that is attached to the space occupied by the article. It takes more money to produce a longer article than a shorter one.

Analytic categories cover the next three variables, which are titled conference event one, conference event two and conference event three. After analyzing each article, the researcher noted the event or events that the reporter had written about in the article. The researcher then marked the three event variables on the code sheet with the appropriate categories. The categories are preconference news release, external related activities, plenary sessions, paper presentation session, analysis or editorial, organized activities for participants, informal activities of participants, interviews, and no second or third categories.

To determine when interview category should be marked, the structure of the article was a guide. For instance, sometimes the article stated, "When asked, the source said," which indicates the information was acquired from an interview. In other cases, the article stated that the event was a press conference, which also was coded as an interview. External related activities included the Peoples Food Conference held prior to the World Food Conference, and the Iceberg Conference example was the residents of Ames chipping pieces of ice off an iceberg when it was on display in front of the Scheman Continuing Education Building--the site of the conference. For the analysis or editorial category, the researcher selected those articles that were labeled news analysis or were run on the editorial page of the newspaper. Organized activities for participants would be such as the chicken barbecue at the World Food Conference, and the banquet for the Iceberg Conference where a photo was taken of Prince

Faisal near an ice carving of a tugboat towing part of the iceberg. The informal activities category included a reception for Prince Faisal at the beginning of the Iceberg Conference.

In the next variable, the researcher coded the amount of science emphasis that was found in each article. Five answers were possible. The values were almost no science and technology emphasis, some science and technology emphasis, 50 percent science and technology emphasis, mostly science and technology emphasis, and almost complete science and technology emphasis. If the paper used a photo or illustration without an accompanying article, this category was not coded.

Nine Variables for News Values

The next nine variables relate to news values, as defined in Chapter 2. News values by which messages were analyzed are those listed by Harriss and Johnson (1965): conflict, progress, disaster, consequence, prominence, novelty, human interest, recency, and proximity. The researcher chose to operationalize analysis of news values according to the Harriss and Johnson list, because of the comprehensive nature of the list.

Messages in the articles also were analyzed to determine the primary and secondary news values. The topic of the article indicated which of the news values received primary mention in the article. This news value was called the primary news value. The news value that was next in importance in the article was called the secondary news value. For each article, the researcher first selected the highest emphasized

news value. The next emphasized value was then coded as the second news value. The remaining seven news values were coded with a zero, indicating they were not selected as the first or second most emphasized news values. Articles were analyzed for news values. Photos alone were not analyzed for news values.

In the next paragraphs, a descriptive example of each news value will be given.

With the conflict variable, the emphasis is on differing opinions. An example of conflict for the World Food Conference would be an article mentioning that the conference was for professionals, and speakers took issue with that concept. An example of conflict for the Iceberg Conference would be a story about if icebergs were towed, they would cause detrimental changes in the weather along their path.

With progress, the emphasis is on advancement. An example of progress was that icebergs could provide water for arid lands. An example of progress for the World Food Conference related to an article on the ability to produce more food and to improve distribution to feed the world.

In the disaster variable, the emphasis is on bad results. A disaster example for World Food was that hunger in the world is likely to continue because agricultural research is not reaching farmers in developing countries. No story was coded with a disaster news value for the Iceberg Conference.

In the consequence variable, the emphasis is on the outcome. A consequence example for the Iceberg Conference would be if icebergs can

be towed, then fresh water can be transported to arid lands where it is needed. An example of a story that illustrated consequence for the World Food Conference told about the fact that small farmer production is limited by social and cultural factors.

With prominence, the emphasis is on notoriety. An example of prominence for the Iceberg Conference would involve articles about Prince Faisal. There were no examples of prominence for World Food, as that value did not receive a first or second rating in articles on that conference.

With novelty, the emphasis is on uniqueness. A novelty example for World Food told about an exhibit in the Brunnier Gallery in which food was the theme for items on display. An Iceberg example was found in articles on transporting an iceberg to Iowa.

With human interest, emphasis is on what people are interested in. The news value human interest was emphasized for the Iceberg Conference in an interview with an Ames woman who was hostess to Prince Faisal. High human interest value for the World Food Conference related to Ames preparing for the conference.

In the recency variable, the emphasis is on something that is current. An example of recency for the World Food Conference was that the conference opened on Sunday to consider ways of feeding the world. From the Iceberg Conference, an article reported that the iceberg finally arrived as an example.

In the proximity variable, the emphasis is on a happening close to the location of the newspaper. From the Iceberg Conference, a

proximity example reported that Prince Faisal visited Ames schools. A proximity example in a news story relating to the World Food Conference concerned an Iowa firm that builds tractors for subsistence farmers in underdeveloped nations.

With this overview of items that would fit into the various news values for both conferences, the researcher has tried to give the reader an idea of how judgments were made on the most emphasized and next most emphasized news values.

The researcher also noted whether articles originated wholly from Associated Press or United Press International. Such articles were coded AP or UPI. This completes the description of how the content analysis was conducted.

The results of the systematic content analysis are reported in Chapter 6.

Determining the "Why" of Coverage

In the search for answers as to why coverage of each conference was the way it was, the relationship between the public information effort and the coverage that resulted was examined. Organization of publicity efforts was related to the coverage that was obtained. A summary of the above methods to determine why the coverage was as it was is contained in Chapter 7.

CHAPTER 4: DESCRIPTIVE ANALYSIS OF EXAMINING PUBLICITY EFFORTS

In this chapter, the researcher looks at the portion of the model that deals with science organization behavior. To gather information on the above, the researcher used observation and interviews.

To learn how the publicity or public information efforts were organized, two sources of information were examined. Records of publicity efforts for each conference were reviewed in an effort to discover the kinds of preparatory activities performed by information employees to alert media about what was at the conference to cover. Interviews were conducted with the Iowa State University Information Service specialists in charge of each conference.

The information gathered by the researcher and reported in this chapter relates to Hypothesis (1): If services offered to mass media at conferences by the public information staff don't fit media deadlines, the services won't be used extensively.

The information that was gathered follows.

World Food Conference Publicity Planning

With the World Food Conference, organizers say that plans were begun early in 1973 by the World Food Institute of Iowa State University for the conference that was to be held in 1976. The primary goal was to involve professionals from as many disciplines as possible and from as many developing countries as possible (Donhowe and Ebert, 1976).

The public information committee met in May of 1974 to plan the first conference brochure that would be mailed almost two years before the conference. A letter also was issued by ISU President W. Robert Parks that was sent to Iowa individuals, governments, organizations, commodity groups, and media representatives. Information followed in the ISU Faculty Newsletter as early as a year before the conference. In May of 1975, the conference logo and letterhead were developed. Publicity followed through widely circulated bicentennial publications and industrial magazines. In the summer of 1975, a window display was made for Younkers Department Store in downtown Des Moines (Iowa), and this same display was exhibited that August at the Iowa State Fair in Des Moines.

In November of that year, a campaign was mounted to attempt to attract representatives of national broadcast networks and international wire services. Letters were sent to the Associated Press, United Press International, Reuters, NBC, CBS, ABC, the Iowa Public Broadcasting Network, and National Public Radio.

The ISU Faculty Newsletter in February, 1976, carried rules for attending the World Food Conference, and in April of that year it published a preliminary program. Also in April, the first "Flame" publication was issued. Conference Chairperson Marvin Anderson said this publication would be a benefit to international visitors. The first two issues introduced visitors to Iowa, Iowa State University, and the Iowa State Center. Among those who got that publication were media representatives. In April, a courtesy letter was sent in the

form of an editor's note and news release to every Iowa newspaper, radio, and television station, encouraging their personnel to make arrangements early for accommodations at the conference. A block of rooms was reserved for media representatives at the Ames Holiday Inn. In late April, an editor's note, press release, brochure, and a list of seven international conferences that were being held at Iowa State in the summer of 1976 were sent to 138 media, selected from Ayers Directory of Publications. Among these were daily newspapers; syndicates; broadcast networks; wire services; and Washington, D.C., bureaus of foreign newspapers. Media and agricultural editors on mailing lists maintained by ISU Information Service also received the mailings.

In early May, a press conference was held with approximately 30 representatives of the Iowa Daily Press Association who were at Iowa State University to participate in a seminar sponsored by the Department of Journalism and Mass Communication, called the Mauck Seminar. The press conference was held on the last day of the seminar. Early in June the editors got letters on accommodations and how the press could register. A letter followed to media that indicated an interest in covering the conference. The letter said it was their last chance to make motel accommodations and press registration in advance. The head of the World Food Conference press effort said that Chairperson Anderson was exceptionally cooperative in devoting his time to efforts with information value to various publics (Lendt, 1980). He was very available to mass media representatives for interviews of

various kinds.

It is apparent from the model that pragmatic constraints are a factor in science organization behavior. The preceding descriptive analysis reveals that ISU organizers made eight contacts to attempt to motivate media representatives to arrange for one pragmatic detail--reservations for housing accommodations during the World Food Conference.

The researcher has observed reporters to be resourceful, independent, and self-reliant. Therefore, it seems that reporters would decide to cover a science conference based on its news values rather than on details about housing accommodations.

World Food Conference Press Room Structure

The press room was set up for the conference in the Scheman Continuing Education Building, the operating headquarters for the conference. The press room contained six telephones, but no typewriters, and no full texts of speeches. Instead, speeches that were received ahead of time were summarized in two-page news releases. The news releases were available to the media representatives in the press room. Some summaries also were written during the conference if speakers brought their papers with them and had not submitted them before the conference began. Some biographical sketches on speakers were available and were distributed at the press room.

As reported earlier, Wood (1962) said the standard operating procedure for press rooms at well-run conferences includes abstracts of

speeches and press releases with complete texts when requested by reporters. At the World Food Conference press room, only the two-page summary releases were available.

As the conference started, the conference organizers assigned press aides. Their primary responsibility was to be available at respective workshops in the Scheman Building from 2:45 to 5:15 p.m. and be helpful to the press. The press aides were to direct press representatives to seating, and then from 5:15 to 5:45 p.m., the aides gave quick reports on the workshops they covered. Copies of the reports were to be turned into the Scheman copy center to be included in the daily conference newsletter. The press room organizer said that the quick report service was disbanded after the first day because media representatives were not able to take advantage of this service because their deadlines precluded them from using information that late in the day.

The above descriptive data supports Hypothesis (1): If services offered to the mass media at conferences by the public information staff don't fit media deadlines, the services won't be used extensively.

The model includes pragmatic constraints for reporters as part of the gatekeeping process. Deadlines are among pragmatics for media organizations. Pragmatic constraints also were considered earlier in reporting the Stempel (1963) studies. He found that media organization production schedules do impact gatekeeping decisions. The above experience during the World Food Conference pertains to pragmatic

constraints on the model.

During the conference, the ISU press room organizer noted that the representative from the United Press International wire service was "on top from the start," whereas he said that the Associated Press representative wasn't there until the second day. The literature from Stempel also reports that traffic affects what is published. Traffic refers to the news that flows or is available. Stempel's study related to news from wire service organizations. Again from the model, pragmatic constraints have an impact on what gets published.

The press room organizer said that perhaps the coverage that resulted was less than if it had not been an election year because many media representatives were attending the preparation activities for the national Democratic Convention. The model sets the source and media behaviors within environmental factors. One of those factors is competing events. The organizer referred to the national Democratic Convention as a factor in the amount of coverage; it started about 10 days after the World Food Conference. He considered that it was a competing event.

From the beginning, the World Food Conference was intended to exclude politicians. The ISU press room organizer said that he feels that politicians should come to such a conference in the future, because in order to implement suggestions recommended by other professionals, action from politicians is needed, and politicians are professionals.

International Iceberg Conference Publicity

The first publicity for the First International Conference on Iceberg Utilization was a call for papers that was issued about one year prior to the conference. It was mailed to researchers and professors involved with water resources (Berkland, 1980). This first call was in the form of a formal invitation with a response postcard. The initial request was issued even though adequate funding was not assured. Lack of firm financial support continued to hamper publicity efforts until shortly before the conference, the conference communication specialist reported.

The first news release about the conference was mailed in mid-May, 1977. It was mailed to the science, engineering, news feature, and industrial publications mailing lists maintained by the ISU Information Service. These lists included science editors at national and international wire services and syndicates. In addition, several water resources journals were selected to receive the release. The conference communication specialist said a couple of the press representatives at the conference told him, "When this release came through, I filed it. This was a conference I didn't want to miss."

The next project was a call for papers issued in the form of a poster that was published in June of 1977. The conference director took copies of this poster with him to an international meeting where he was to obtain confirmation of funding. However, he did not obtain the support that was needed while at the meeting. Consequently, the conference committee voted to cancel the conference. Additional copies

of the poster that were to be mailed to universities, selected media, and research centers were held from the mail.

The model lists pragmatic constraints as a component of science organization behavior. At this period for the Iceberg Conference, funding loomed as a pivotal pragmatic constraint.

Finally funding support from various organizations came through, and the conference committee gave the go ahead in August, 1977, for the call-for-papers poster to be revised and mailed. It was revised to include a registration form and mailed by mid-August to the list that was outlined earlier. About the same time, a news release was mailed listing many of the speakers and offering a photo, selected bibliography, and list of organizations involved with iceberg utilization. Again, this was mailed to the science and engineering lists maintained by the ISU Information Service, and the additional journals selected by the conference director and communication specialist.

In late August, a news release announcing that Prince Mohamed Al-Faisal of Saudi Arabia would be one of the featured participants was mailed to Iowa newspapers, broadcast media, and wire services. The conference also was featured in the September issue of the Iowa Stater, the ISU newspaper mailed to ISU alumni, parents of students, and friends of the University. Due to the problems with funding, confirmation of speakers was delayed. This held up preparation of the final program until late September. Finally on September 26, an editor's note detailing the special events of the conference was mailed

to the Iowa news media and any other media that had indicated an interest in covering the conference. The events mentioned were the shipment of the iceberg, arrival of the prince, and press conference with the prince following the conference, as well as registration, press room, and lodging information for the press. It was mailed with a progress story about the shipment of the iceberg to Ames.

Pragmatic constraints appear in the model for mass media personnel. Again, ISU addresses the practical matter of housing accommodations. However, Berkland (1980) said housing was mentioned in an editor's note of a news release only once for the Iceberg Conference. When it was mentioned, it appeared with information that mass media recognized as having high news value.

Iceberg Conference Press Facilities

The press room had two telephones, contained a couple typewriters, and was staffed with at least two ISU Information Service staff members at a time. Also on hand were copies of the major speeches that had been sent in advance, biographical sketches of speakers, and reference sources on iceberg utilization.

Many speakers brought papers that could be copied, and these copies also were made available to the press. Summary releases of talks by speakers were prepared on only four main speakers; all other coverage of talks was up to the initiative of the reporters.

The model recognizes pragmatic constraints as factors that affect the gatekeeping processes of reporters and editors. The way public

information personnel for science organizations operate the press room becomes a pragmatic factor for media personnel and affects the news they publish.

Wood (1962) said that press rooms at well-run conferences provide abstracts of speeches, press releases, and complete texts of speeches. The Iceberg Conference press room contained complete texts and releases. It also provided telephones, typewriters, and staff. Wood said these were also basic to a well-run press room at a science conference.

The press room staff handled questions and requests from press representatives at the conference, and those who telephoned. For example, early in the conference, the French News Agency telephoned to ask for help in obtaining a special correspondent. One of the reporters who had indicated an early interest in coming agreed to take on the additional assignment. Many requests were for exclusive interviews with major participants, including the prince and the conference director. These individuals were very accommodating and willing to respond to the press. Photos were taken by the ISU Photo Service of major conference events and made available through the press room. Numerous requests were handled by telephone and letter, during and after the conference.

When the iceberg arrived in Ames Sunday morning, October 2, national and local television teams from CBS, NBC, and ABC, and photographers from national magazines, wire services, and ISU Photo Service covered the event. Press packets with background information

were provided each newly arrived, news media group representative.

Comparison with Political Press Room Operation

The following example of a "slick" or aggressive public relations campaign provides a picture of the techniques that are used to provide the particular environment for reporters that is desired by the campaign. This concept is supported by the model. Timothy Crouse describes the political press room organization for one presidential election.

> The day yielded its one easy story. McGovern was leading Humphrey by 20 points in the Field Poll. This somehow sounded <u>right</u> to the reporters, for it jibed with their half-digested notion that the McGovern campaign was a juggernaut about to flatten Hubert Humphrey. And where had this notion come from?
>
> They partly got it from the slickness of the McGovern press operation, according to a reporter who was covering Humphrey in California. When a reporter got to his room at night, his bag was there. When he called the press room, he didn't get a yo-yo saying there was nobody there. He got handouts telling him where the candidate was going to be the next morning, and who he could interview at 2 a.m. if he needed to get a fast quote. And so pretty soon the reporter started saying to himself, half consciously, "If the press operation is this good, they must have a helluva voter registration operation." The press didn't create the McGovern juggernaut, but they sure as hell <u>helped</u> create it.
>
> . . . While reporters still snored like Hessians in a hundred beds throughout the hotel, the McGovern munchkins were at work, plying the halls, slipping legal-sized handouts through the cracks under the door of each room. . . . And there was a detailed profile of Alameda County, . . . across which the press would be dragged today. . . . Finally, there was the mimeographed schedule. . . .
>
> At 6:45 the phone on the bed table rang, and a sweet, chipper voice announced, "Good morning, Mr. Crouse. It's 6:45. The press bus leaves in 45 minutes from the front of the hotel." She was up there in Room 819, the Press Suite, calling up the dozens of names on the press manifest, awakening the agents of every great newspaper, wire service and network, not only of America, but of the world. In

> response to her calls, she was getting a shocking series of startled grunts, snarls and obscenities.
>
> The media heavies were rolling over, stumbling to the bathroom and tripping over the handouts. . . . A hundred hands groped for the toothbrush.
>
> To the men who duty had called to slog alongside the Hump, the switch to the McGovern bus brought miraculous relief. "You gotta go see the Hump press room, just to see what disaster looks like," a reporter urged me. The Humphrey press room in the bowels of the Beverly Hilton contained three tables covered with white tablecloths, no typewriters, no bar, no food, one phone (with outside lines available only to registered guests), and no reporters.
>
> The McGovern press suite, on the other hand, contained 12 typewriters, eight phones, a Xerox Telecopier, a free bar, free cigarettes, free munchies, and a skeleton crew of three staffers. It was . . . a miniature road version of Thomas Cook and Son . . . the McGovern staff . . . booked reservations on planes, trains and hotels; gave and received messages . . . and handed out reams of free information. On any given day, the table in the middle of the Press Suite was laden with at least a dozen fat piles of handouts. . . . (1974, pp. 3-7, 26-27).

Pragmatics Relate to Coverage

The details cited above by Crouse categorize as pragmatics on the model. Crouse (1974) and Wood (1962) referred to information that is available in press rooms. Wood recommended complete texts of speeches. Crouse noted handouts and free information assisted coverage.

If the World Food Conference had offered such, the information would have been available at the reporters' convenience. This may have allowed them to meet their deadlines. It may have resulted in greater coverage.

Deadlines are an important pragmatic constraint for the mass media subsystem. As noted earlier in reference to the press aide service at the World Food Conference, Hypothesis (1) is supported: If services

offered to the mass media at conferences by the public information staff don't fit media deadlines, the services won't be used extensively.

CHAPTER 5: QUALITATIVE ANALYSIS OF THE TWO CONFERENCES

In this chapter, the researcher gathered information on the nature of the conferences. The researcher conducted interviews with two press representatives who covered both conferences. This qualitative analysis generated background information that scientists and public information staff for science organizations can consider as they plan future science conferences.

The Rome World Food Conference, held in 1974, according to Dr. David Lendt (1980), became very political. He said, "It had a lot of fire and heat, but little light."

This affected planning at Iowa State University. Lendt said, "We worked hard to divorce the ISU World Food Conference from politics." Consequently, politicians weren't invited to the ISU World Food Conference. Dr. Marvin Anderson also said that the conference was designed to be non-political and for professionals (Lendt, 1980).

Speakers and reporters noticed the absence of politicians, and criticized planners for excluding politicians. Lendt expressed disappointment at the low amount of news media coverage of the World Food Conference.

Excluding politicians in an effort to have less fire and heat and more light, according to Dr. Paul Yarbrough (1977), was largely responsible for a low amount of news media coverage on the World Food Conference. Yarbrough served as a press aide at the Conference. He asserted,

> "Conference organizers killed their main attraction by not having politicians" (1977).

When articles were content analyzed, political articles did appear. Politically-related articles were the most frequently used of wire service articles, White (1950) found.

Controversy ranks high as a news value when reporters and editors decide what to cover. Politicians and controversy often operate in tandem.

As cited earlier from Wood, science conference articles got published if they included conflict or argument.

In addition, the editor of the Ames Tribune, John Epperheimer, noted,

> "When I saw Iowa State University news releases that said the conference was going to be nonpolitical and professional, I read that to mean that the conference would be dull and only for professionals" (1978).

Nevertheless, Epperheimer talked to ISU Information Service staff, Lendt and Carl Hamilton, vice president for information and development, expressing his support in covering the conference.

Localness was noted as another reason that science conferences got covered, Wood and Krieghbaum found.

The depth of Epperheimer's willingness to support the conference was apparent in a letter he wrote. It went on Iowa Daily Press Association letterhead to members of the IDPA. It said,

> June 1, 1976
> TO: Managing Editors
> RE: World Food Conference

> The World Food Conference is scheduled to be held at Iowa State University in Ames on June 27-July 1 . . . UPI will have a full-time staffer at the conference, and I expect AP will also. I expect they will be writing wrap-ups and the major addresses which could lead coverage. But there are many concurrent sessions, and some of them will produce angles of particular interest to Iowa readers.
>
> If IDPA editors are interested in cooperation, we can pool our resources and perhaps split up the coverage so as many sessions as possible are staffed, with any Iowa angles given priority.
>
> The Tribune will be happy to offer desk space and typewriters and darkroom facilities. In addition, we have transmitters for both AP and UPI wirephotos in our newsroom.
>
> If editors are interested, please have them contact me (1978).

To follow through on his commitment to cover the conference, Epperheimer assigned three to four of his own Ames Tribune reporters to split the workload of covering the conference.

When the conference commenced, no IDPA member newspaper had accepted Epperheimer's offer to use Ames Tribune facilities. He said,

> "I thought we'd be overrun with requests. I thought 'world' would draw. Even though I knew it wouldn't be like the Rome World Food Conference where Henry Kissinger (former U.S. Secretary of State) and Earl Butz (former U.S. Secretary of Agriculture) spoke, I learned that IDPA members thought it was too local to cover. I was surprised at the low coverage. It surprised me that few papers staffed the World Food Conference.
>
> "I thought agricultural editors would be assigned by their editors to attend. I thought it was curious that the R and T (Des Moines [Iowa] Register and Tribune) didn't send a staff person full time, because the conference was local and on the subject of agriculture, especially since I think the Des Moines Register and Tribune is the best general ag newspaper in the country.
>
> "Maybe I overestimated the importance of the conference. It seemed newsworthy to me and for our readers.
>
> "Yet as editor of a newspaper, when I saw ISU (Information Service) prepublicity and looked over the material beforehand, I saw it was so complex. Other editors, too, may have felt it was not worth the effort. And in fact, ISU warned that no results may be forthcoming from the conference" (1978).

Also, Epperheimer's comments relate to two environmental factors of the model: prior coverage of the subject or event and the nature of the event or subject. He mentioned the Rome World Food Conference where top U.S. government officials spoke. That event contributed to the 1976 environment by serving as a benchmark for comparison.

The nature of the event seemed "complex" to Epperheimer. Capacity of the reporters, Wood found in his study, helped to determine coverage. The reporters who responded to Wood's study told him that they would choose the easy story when they were in a rush at a large science conference.

In addition to its complexity, Epperheimer commented further.

> "It was a huge subject. I saw less direction to the World Food Conference. Few concrete policy statements were forthcoming" (1978).

Comparison with Iceberg Conference

Epperheimer mentioned the greater amount of coverage that the International Conference on Iceberg Utilization received compared to the World Food Conference. He noted that more press people attended the Iceberg Conference. He also noted the greater amount of play that the Iceberg Conference reaped. The World Food Conference didn't have a gimmick, noted Epperheimer. Again, these comments relate to the portion of the model on environmental factors, particularly the nature of the event. He suggested,

> "The World Food Conference organizers should have thought of some kind of gimmick.

> "A headline speaker even would have added news coverage, or maybe they should have arranged to dump a huge mound of corn outside Stephens Auditorium to draw attention to a conference related to hunger, being held in the top corn producing part of the world.
>
> "But even I altered the way I planned to have my staff cover the World Food Conference for my readers. The Ames Tribune subscribes to the UPI (United Press International wire service). UPI sent Norm Sandler to cover the World Food Conference.
>
> "Sandler is a better all around journalist than any other one person. When I saw what Sandler wrote about the World Food Conference, I recognized that he was again doing a tremendous, outstanding job. So I took most of my staff off the conference, because I saw that it was dull for our general audience. I offered our staff to Sandler, but he needed little assistance" (1978).

As Epperheimer made the decision to rely on UPI coverage, he seems to have considered the credibility of the medium. Westley, cited earlier, said that is one factor editors are concerned with as they choose articles. Continuing Epperheimer's comments, he said,

> "The Ames Tribune got a little criticism for using Sandler's materials, but I think he's top rate and was giving the best coverage for our readers.
>
> "With that experience, then at the time of the Iceberg Conference, I let Sandler do most of our coverage. In fact 80 percent of the Ames Tribune coverage of the Iceberg Conference was UPI material by Sandler" (1978).

As Stempel (1963) found in his study, news available from wire services at a deadline helps the gatekeeper editor make decisions.

The Ames editor added,

> "Norm also did radio actualities at both conferences for national broadcast" (1978).

Epperheimer compared coverage by AP (Associated Press wire service) and UPI. He said,

> "UPI outperformed AP. AP got someone to the World Food Conference one day after it started. AP came then because CBS asked why AP wasn't sending reports covering the World

Food Conference. I would have thought AP would have learned their lesson at the World Food Conference and would have covered the Iceberg hard, but . . . " (1978).

Epperheimer told of the differences in the nature of the Iceberg Conference that led to greater coverage in newspapers. He noted that the Iceberg Conference centered around a more straightforward issue--would it work to use icebergs.

> "Even though many aspects of this appeared, they were all directed at one subject. Whereas with the food problem, that's complex, even in the United States.
>
> "Aspects of the Iceberg Conference were easier for the average person to grasp. Yet the Iceberg Conference was no more significant than the World Food Conference, perhaps less so. But the Iceberg Conference was a lot more interesting.
>
> "The concept of towing an iceberg is interesting. Bringing an iceberg to Iowa captured the public's imagination. I'm not sure of the scientific value of that, but ISU professors thought there was scientific significance to having the iceberg at the site of the conference. The iceberg gimmick offered photo possibilities, too.
>
> "The Iceberg Conference provided an exotic angle by having a real live wealthy prince on hand. Prince Faisal was so accommodating and gracious to the press and by even writing a letter to an ill woman in Des Moines and trying to phone her. These situations proved newsworthy" (1978).

Krieghbaum (1967) found that people are always interested in people. Personalizing scientists and their actions fits the human interest category of news values that editors consider as they make decisions.

Epperheimer continued,

> "It was easier to cover the Iceberg Conference with its summary sessions, interviews with the prince, and final press conference. It was easy to find specific things to write about" (1978).

In an editorial in the Ames Tribune after the Iceberg Conference, Epperheimer wrote,

> "The iceberg is gone . . . but while it was here, the two-ton mound of ice served as a spectacular gimmick.
>
> ". . . it was a public relations man's dream come true.
>
> "Just when news coverage was focusing on the iceberg gimmick, the serious--and involved--discussion of how to select, move and melt icebergs took over.
>
> "Dan Zaffarano, ISU vice president for research and iceberg conference director, said he wasn't really surprised at the amount of news coverage.
>
> " 'I became very excited myself, when the prospect of iceberg movement was first discussed,' Zaffarano said. He was confident the same excitement would carry over to everyone else, and it did" (1978).

Apparently it did. At science conferences, leaders and researchers present challenges to the public amid discussions of particular science problems and related policies. These expected discussions draw science writers to science conferences, Krieghbaum (1967) said as he cited a handbook for the National Association of Science Writers.

Sandler Offers His Insight

Norm Sandler, UPI reporter, said,

> "It's hard to break into wire copy with something scientific" (1978).

Yet that's just what Sandler did very successfully with copy from the World Food and Iceberg Conferences. He said,

> "The news business is based on fast-breaking news from politics or axe slayings.
>
> "We (at UPI Des Moines Bureau) made a conscious decision to cover because the conferences were newsworthy or interesting enough to cover. At the Des Moines Bureau we have six people, and two are assigned to the Legislature. We rarely send people out of Des Moines--especially for one week. But I lobbied to go to the Iceberg Conference.

> "In Des Moines we made a decision to give the conferences play and to staff them. New York should have done the same" (Sent someone to cover them) (1978).

Sandler referred to one of the environmental factors as he related the appeal. He also mentioned news values. He said,

> "Now the World Food Conference had immediate appeal. It had political overtones, yet it would be a contrast to the Rome World Food Conference. It was easier to decide to cover the World Food Conference than the Iceberg Conference. An iceberg is not a weapon, but food is essentially an international weapon.
>
> "The Iceberg Conference looked like one issue--iceberg transportation--that would go on for four days, but it didn't turn out that way. Our World Food Conference coverage caused others to cover it, so our coverage had the domino effect" (1978).

As cited earlier from Wood's study, the reporters acted as gatekeepers in the communications chain between scientists and the newspaper's readers. Snider (1967) found, too, that the first gate is the reporter who judges whether a story is important.

Sandler, the gatekeeper reporter for UPI also said,

> "Once I got to a conference, I was on my own to file what I wanted. The Des Moines Bureau sends out an alert that an event is going to happen and to watch for what we send on the topic. The alert is sent by phone or memo. Once I've prepared a story, I'd call it in to Des Moines. They send it out to Chicago, where it may be edited. Chicago sends a note about the story to New York. The New York office decides if it's worthy of a national break on the 'A' wire. The goal is to get a story on the 'A' wire.
>
> "The Des Moines Bureau also could send a story anywhere in the United States. For example Des Moines did send an iceberg article on California participants directly to California.
>
> "I was up against two layers of decision makers--Chicago and New York. People on the desks at Chicago and New York are not scientists or science writers, but generalists and therefore biased to status quo news, unless it's really crazy--offbeat" (1978).

White (1950) found that newspaper editors chose wire service articles that had human interest and a politically-related topic. Westley, too, identified these factors as concerns for editorial choices.

Sandler described this style.

> "I write to bring the clients into the story. I work towards a grabber lead (opening paragraph) right away. Then I go on to explain why what is being said is important and how it's going to affect the lives of people.
>
> "So writers must try hard to sell it to their editors. Selling depends on the way it's written, the way it's covered. I dictate my stories over the phone to the Des Moines Bureau so I couldn't check the way my stories were sent, because I didn't have copy to refer to.
>
> "By 10 a.m. New York determines their national stories on the 'A' wire. Twenty-four hours in advance, Des Moines needs to tell New York what the national story from Des Moines will be" (1978).

Stempel's (1963) study, cited earlier, found that wire services file stories related to production schedules of their media subscribers. This represents media system constraint in the model. Sandler told how he functioned to file articles that met production demands.

> "So I had to encourage the Des Moines Bureau chief to send an alert to Chicago. Once it got to Chicago the division news editor kept it pretty much the same. The main stories of the day in Chicago are determined by 9:30 a.m. Editors determine which stories to schedule for the 'A' wire by 11 a.m. EST.
>
> "I filed six stories a day. I hoped the most interesting would be early in the day because I wanted to push to get the top story of the day on the 'A' schedule. The scheduled stories must move earliest. The five others I sent as major sidebars.
>
> "We didn't do too well on getting that morning story. Sometimes we came out with a p.m. story; there's more leeway in filing a p.m. story.

"With the World Food Conference we had real bad luck getting our copy used. We may never know what happens to a story. We may send it to Chicago and then never see it back. It's a funny thing with the World Food Conference stuff; it was routed international, but not routed back to national.

"The World Food Conference was wide open for story ideas. It had so many different issues; some weren't related to food. There was so much there, I didn't need to look too far for a good story.

"Even though the World Food Conference got a non-political billing in pre-conference publicity, my reaction was 'Like hell, it's not!' And politics did enter in on occasion despite what some people thought. With so many governments represented there, it's bound to.

"I contrasted the World Food Conference of '76 with the '74 conference in Rome. I had second hand knowledge of the Rome conference, because I had read about it. There may have been an excess of politicians at the one in '74 and a shortage of politicians in '76. In fact that shortage in '76 was one of the recognized shortcomings of the '76 World Food Conference" (1978).

Sandler talked about covering the conferences. He commented on ISU Information Service efforts.

"The advance news releases, I use to become familiar with the principals. These help me to develop my sources. For each Conference I did advance stories.

"For the World Food Conference I did one a month ahead and another a week ahead. For the Iceberg Conference I did an advance. I talked to Husseiny (ISU conference organizer). Husseiny sent me Victor's (a keynote speaker) paper from a Paris conference" (1978).

Sandler discussed services of the press rooms for both conferences.

"Phones are important in the press room. Press conferences were valuable. Copies of the Iceberg speeches were useful. Copies of the releases on speeches at the World Food Conference helped me plan my day so I could attend a 'hot' speech. Both gave me story ideas, and I would track down a speaker later. Oral reports at the World Food Conference (by ISU press aides) were at a bad time for me. They were too late in the day and didn't work out too well.

"Once I get to a conference, I immerse myself. I'm competitive, and I like to work alone. World Food Conference wasn't competitive until AP sent someone. (Other reporters were mostly Iowans.) It's funny that Time didn't send anyone. They can afford to send a reporter and have that person not write for four days; then write a long article afterwards.

"Some thought that low coverage was due to the national election campaign. At the time of the World Food Conference, the national campaign was in a lull. Caucuses and primaries were over so spot news goes down. Coverage does depend on what else is occurring at the time. I really have no feeling why the World Food Conference got low coverage.

"The World Food Conference had an element of human drama, evidence of starvation was given, and warnings were offered. It was a rewarding, intellectual exercise for me. But it didn't have hard news which involves a lot.

"Scientists aren't used to talking to reporters and vice versa. Scientists seem shortsighted at what's newsworthy for general distribution in the regular diet of news. And general editors don't understand scientists or science writers.

"To try to make a topic newsworthy, I can write, 'Someone said _____ today,' and it has profound effect. Also if someone at the World Food Conference had said, 'A thousand people will die if _____.' That would have been news.

"Secretary Butz would have been an instant draw--if he was alone, but two main speakers were scheduled at the end (John Hannah, executive director of the UN World Food Council in Rome and Butz--keynote speaker for International Federation of Agricultural Editors following the World Food Conference). This gave scheduling problems to reporters and caused quandries for editors who decide what to carry where.

"Generally timely news about people gets covered, but conflict gives immediacy to an article, and that's what gets noticed at the news desk. For UPI I try to get the inside flavor, the behind the scene feel. For the afterward piece to gel, it requires the total commitment of one person. It's on the last piece that you really let yourself go.

"AP covered the conferences on a spot basis. They sent a different person from Des Moines every day. That limited them. At the Iceberg Conference, AP was there from the outset. We took a drubbing from them on Monday evening, but we won the other cycles from AP.

"I was surprised at who sent people to cover the Iceberg Conference. Time was there. Doug Kneeland from the New York Times was there.

> "The Iceberg Conference had a pretty profound impact. It was 'featurey,' with the paddlewheel as an idea on how to tow the 'berg, and the iceberg brought to Iowa.
>
> "It was quirky and had good timing since the iceberg and prince arrived on the weekend.
>
> "Not so many countries were represented at the Iceberg Conference and more people spoke English. Also the conference was all on one topic. There was less material at Iceberg. At Iceberg there was less overlap of sessions. At Iceberg I had to dig a little more and try to decide whom to contact.
>
> "I got to know the Prince's technical adviser. That helped. Also Faisal appealed to the UPI Chicago Bureau. They assigned me to do one piece a week before the conference, two the weekend Faisal came, and two audio feeds per day by 6 p.m. during the conference. I did little audio at the World Food Conference. What I did for Iceberg got good use; I usually fed interviews. The national audio feeds go out hourly from Chicago and New York. Chicago and New York could edit them.
>
> "The iceberg in Iowa kept the story alive. The iceberg at the site of the conference gave me a good way to keep something new in the story" (1978).

Sandler is a political science graduate from the Massachusetts Institute of Technology. He has a strong interest and background in science. He credits MIT professors with helping him to land writing jobs during college with Newsweek and New York Times about science policy and introducing him to contacts for articles. He said,

> "No, science is not my beat; science reporting just 'ain't' in. Political and investigative reporting are my beats with UPI. I find science intellectually challenging, and writing about it is almost a relief" (1978).

Sandler said that his interest in news started in high school. He worked for the hometown radio station in Fairfield, Iowa, after high school classes were out for the day. He worked in a presidential campaign. He said that he is interested in substantive matters.

While at MIT, he worked for UPI for one and a half years. He was assigned to the Des Moines Bureau in September, 1975.

The researcher has reported the information from the interviews as a qualitative analysis to aid those who aim to deliver science news generated at science conferences to the public through newspapers.

CHAPTER 6: QUANTITATIVE ANALYSIS OF ARTICLES REVIEWED

This chapter reports the results of the systematic content analysis study that was described in Chapter 3: Methods. Coding and analysis of findings from the content analysis were parallel. The statistical analysis includes descriptive statistics by frequency distribution and a summary of the statistics using means and standard deviation.

Cross Tabulation of News Values and Media

Hypothesis (2): More articles will have conflict as the major news value than any of the other eight news values for each conference.

A cross tabulation procedure was used to determine the relationship between news values and the media covering both conferences. The variables were the nine news values, the elite newspapers that covered the World Food Conference, and the elite newspapers that covered the Iceberg Conference.

To arrive at the following ranking, the quantities from the value labels for the nine news values were combined. The two value labels were "most emphasized" and "next most emphasized."

The frequency tables show that the news value "consequence" was the most used news value by the elite newspapers that covered the Iceberg Conference. See Table 1 for a comparison of the ranking. The other news values, ranked in descending order, are novelty, prominence, conflict, proximity, human interest, progress, recency, and disaster.

TABLE 1. Emphasized News Value Ranking in Elite Media Articles for Iceberg Conference

News value	Rank	Frequency of most emphasized	Frequency of next emphasized	Total of most & next
Consequence	1	16	16	32
Novelty	2	18	12	30
Prominence	3	14	10	24
Conflict	4	6	9	15
Proximity	5	6	5	11
Human interest	6	0	10	10
Progress	7	5	4	9
Recency	8	2	2	4
Disaster	9	1	0	1

For the World Food Conference, the frequency table shows that for the elite newspapers carrying articles about it, consequence was also the most used news value. See Table 2 for the ranking. The ranking in descending order was conflict; proximity; progress; recency; disaster; novelty and human interest tied; and prominence. It can be observed that the ranking varies between these two conferences.

This analysis by elite newspapers for both conferences does not include The Wall Street Journal as Merrill's (1968) list of elite media does not include The Wall Street Journal. However, the researcher was aware that The Wall Street Journal covered the Iceberg Conference and wanted to check if it also carried an article on the World Food Conference. The content analysis showed no article on the World Food Conference appeared in the Journal during the time period of the study.

TABLE 2. Emphasized News Value Ranking in Elite Media Articles for World Food Conference

News value	Rank	Frequency of most emphasized	Frequency of next emphasized	Total of most & next
Consequence	1	12	39	51
Conflict	2	34	9	43
Proximity	3	13	5	18
Progress	4	7	6	13
Recency	5	4	8	12
Disaster	6	1	2	3
Human interest	7	0	1	1
Novelty	7	0	1	1
Prominence	9	0	0	0

After analyzing the content of articles in elite newspapers, consequence was the news value that was used most for both conferences. However, conflict was highly supported for the World Food Conference. It is the most used news value in the "most emphasized" category. When "most emphasized" and "next emphasized" results were combined, conflict was the second ranking news value.

The direction of support is towards the hypothesis. Considering the mixed data from the two conferences, the hypothesis is not rejected. The need for further research is indicated for ranking conflict as the top news value at science conferences.

Testing Hypothesis (3)

Next, Hypothesis (3) was tested. The information in Figure 2 supports Hypothesis (3): A conference will get more coverage if one of its news values is novelty. Also, refer to Tables 1 and 2 for tests of this hypothesis. Table 1 shows that the news value novelty appears second for the Iceberg Conference. It is the most used news value in the "most emphasized" category.

Apparently, the World Food Conference did not have novelty. Note in Table 2, when the articles from the World Food Conference were content analyzed, novelty appeared only one time as a news value. It ranks lowest of the news values found by the content analysis. In addition, the qualitative analysis reported in Chapter 5 that the interviewed media representatives said novelty was present at the Iceberg Conference and not at the World Food Conference.

Figure 2 shows the number of column inches of news articles for the conferences. Note that the Iceberg Conference had many more inches than the World Food Conference. Figure 3 shows that the number of articles at both conferences was nearly the same.

The Iceberg Conference, which ranked high in novelty, was recorded to have about the same number of articles. However, the articles were longer, providing for more inches of coverage than the World Food Conference. Therefore, it appears that a conference will get more coverage if one of its news values is novelty. Thus, Hypothesis (3) is supported.

Even though photos were not content analyzed, the researcher noted that photos were used with Iceberg Conference articles that were high in the news values prominence and/or novelty. The photos usually showed the prince and/or part of the iceberg.

The Iceberg Conference generated more photos than the World Food Conference. Usually, photos appeared with articles. Two World Food Conference photos appeared without articles, and eight Iceberg Conference photos appeared without articles.

Photo possibilities for a science conference appear to help gain more coverage, producing newspapers articles and photos.

Inches Published by Newspapers Compared by Conference

Even though the number of articles from both conferences was found to be about the same, the total number of inches varies greatly as Figure 2 shows. Approximately 1,785 column inches of copy were measured for the World Food Conference, whereas the Iceberg Conference received about 1,000 inches more or 2,840 inches.

The iceberg in Iowa is novel; the prince is prominent; progress should be reported at the prince's news conference at the end of the conference. As cited earlier from Harriss and Johnson, novelty, prominence, and progress are characteristics of an event that indicate the news value of the event.

Testing Hypothesis (4)

Now, look at coverage in local and elite media as shown in Figures 2 and 3. This relates to Hypothesis (4): Local newspapers will run more articles and inches on both conferences than elite. This hypothesis was supported.

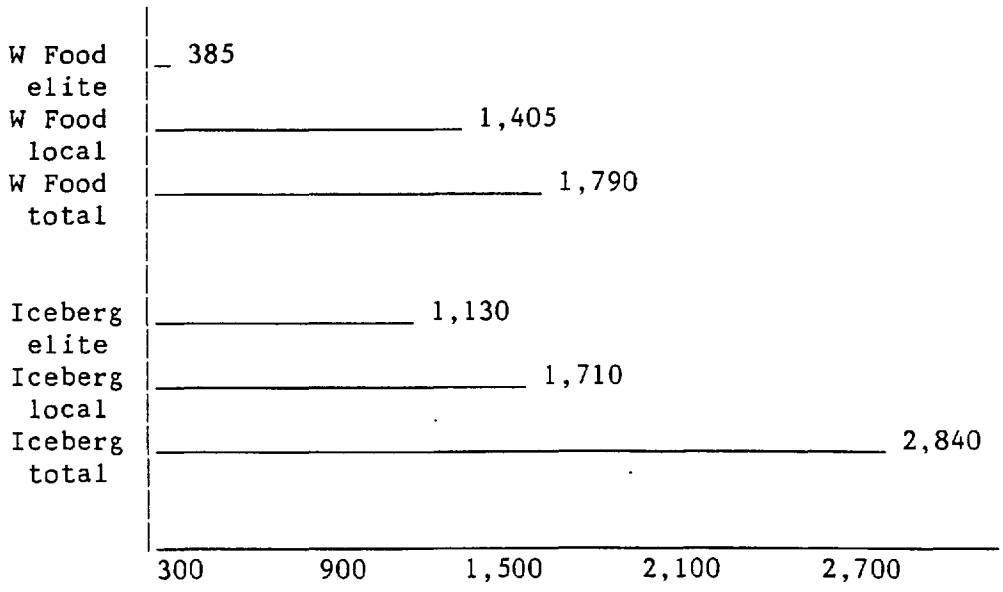

FIGURE 2. Number of Column Inches of News Articles

First, in terms of total column inches of coverage, for the World Food Conference, 78.5 percent or 1,405 inches of the total occurred in local media and 21.5 percent (385 inches) in elite media. For the Iceberg Conference, 60 percent or 1,710 inches of the total occurred in the local newspapers and 40 percent (1,130 inches) occurred in elite media.

Both conferences received about the same number of total articles; however, considerably more photos resulted from the Iceberg Conference as Figure 3 shows. Newspapers carried 68 articles and 36 photos from the Iceberg Conference. With the World Food Conference, newspapers carried 71 articles and 21 photos. Almost always, photos were run with articles.

The World Food Conference received much more coverage by local newspapers than elite. But, at the Iceberg Conference, coverage was almost the same for local and elite newspapers. Local newspapers ran only four more articles than elite newspapers. The local newspapers ran 19 photos and 36 articles on the Iceberg Conference and 20 photos and 54 articles on the World Food Conference.

However, elite newspapers provided greater coverage of the Iceberg Conference than the World Food Conference. They carried 17 photos and 32 articles from the Iceberg Conference and 1 photo and 17 articles from the World Food Conference.

Eight elite newspapers plus the two local papers published material on the World Food Conference. Thirteen elite news newspapers, the Wall Street Journal, and the two local papers published items on the Iceberg Conference.

The eight elite papers publishing articles on the World Food Conference included the Atlanta Constitution, Baltimore Sun, Christian Science Monitor, Kansas City Star, Los Angeles Times, Miami Herald, Minneapolis Tribune, and St. Louis Post-Dispatch.

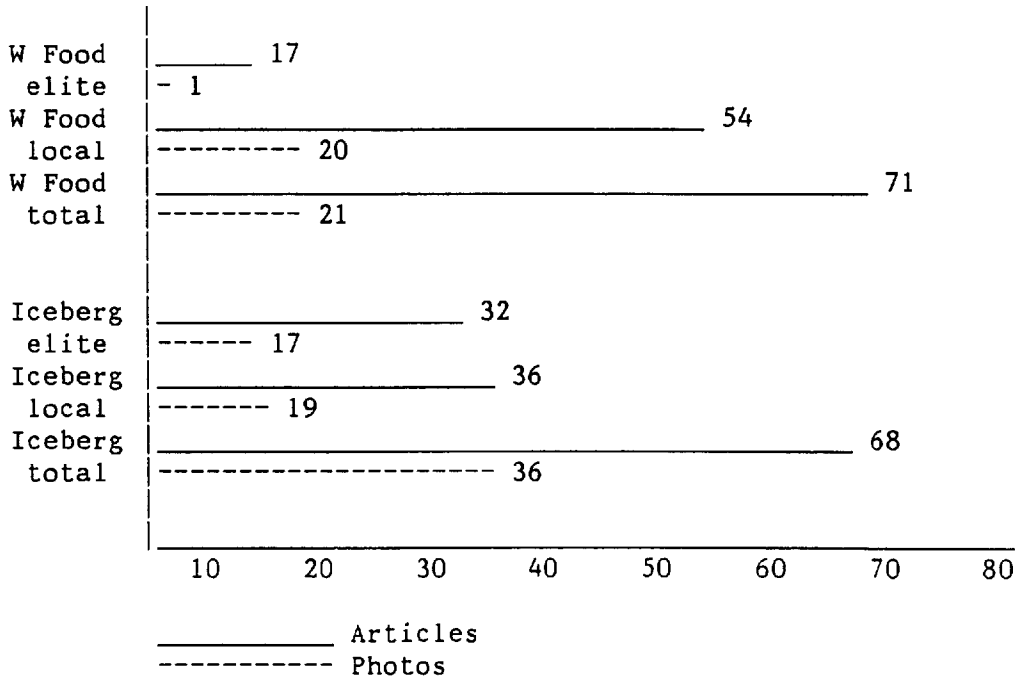

FIGURE 3. Total Number of Articles and Photos for Each Conference Compared for Local and Elite Newspapers

Both local papers, the Ames Tribune and Des Moines Register, sent reporters to cover and publish material on both conferences.

Thirteen elite papers published articles on the Iceberg Conference. They were the Atlanta Constitution, Baltimore Sun, Daily Telegraph (London), Denver Post, Los Angeles Times, Louisville Courier-Journal, Miami Herald, Minneapolis Tribune, New York Times, Portland Oregonian, St. Louis Post-Dispatch, Times (London), and Washington Post.

The number of standard inches for each conference and newspaper is shown in Figure 4.

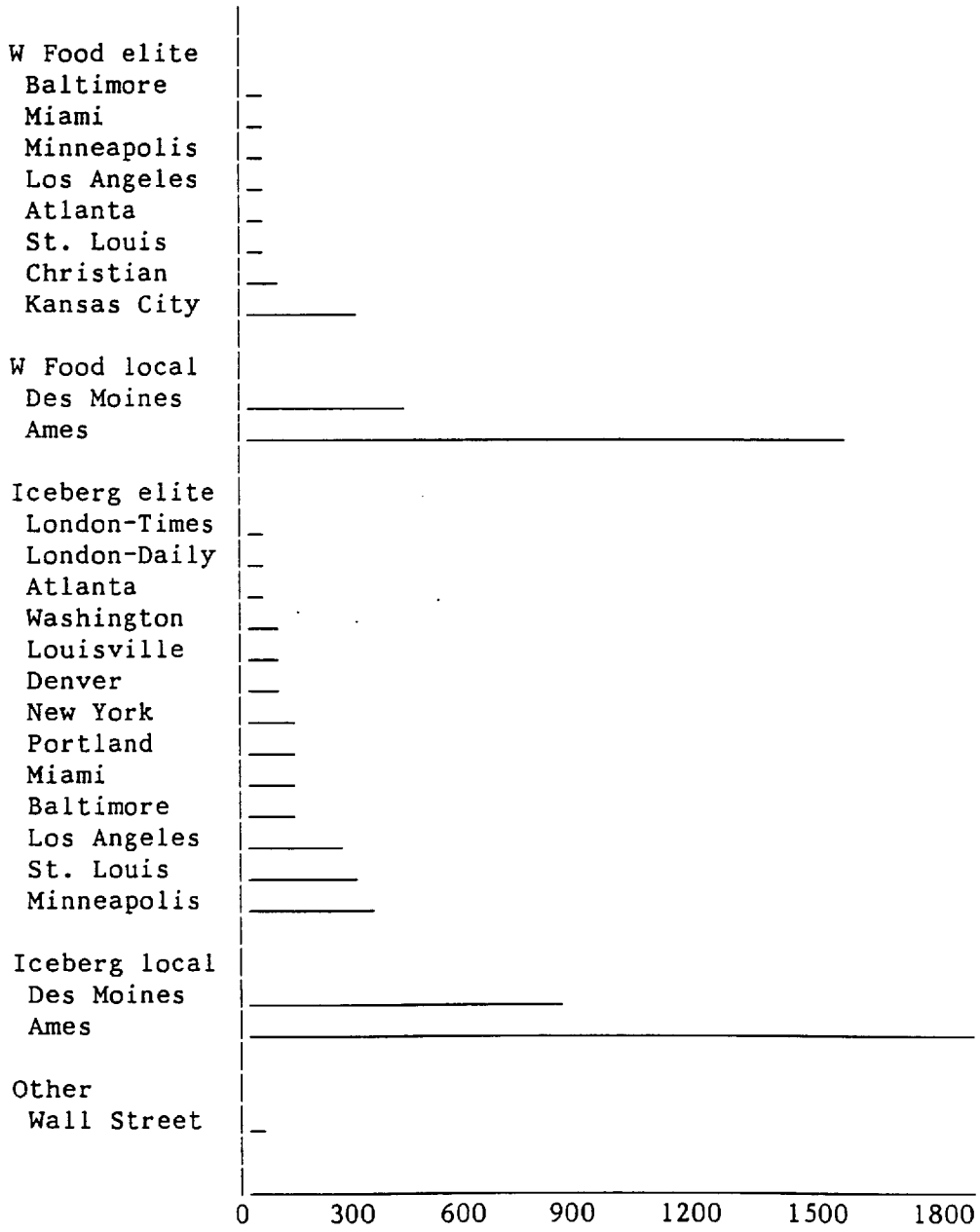

FIGURE 4. Inches Published by Each Newspaper by Conference

Use of Wire Services and Newspaper Staffs for Conference Coverage

News flowed from both conferences via AP and UPI wire services. More UPI wire service articles were published in the newspapers sampled about each conference than by AP and other wire services as shown in Table 3. Both local papers ran wire service articles to extend their coverage.

TABLE 3. Number of Articles Published by Wire Services and Newspaper Staffs

	AP Wire	UPI Wire	Other news service	News-paper staff	Total articles
W Food elite	3	1	1	12	17
W Food local	1	13	2	38	54
Iceberg elite	6	5	12	9	32
Iceberg local	0	17	1	18	36
Total articles	10	36	16	77	139
Percent	7.2	25.9	11.5	55.4	100

For the World Food Conference, the Ames Tribune that subscribed only to UPI ran 13 articles generated by UPI; that was 80 percent of the newspaper's articles. One elite newspaper ran one article sent by UPI. The Des Moines Register that subscribed to AP ran one article generated by AP. Two elite newspapers ran three articles generated by AP.

For the Iceberg Conference, the local Ames newspaper ran 17 articles generated by UPI. Two elite newspapers ran five articles generated by UPI. The "local" Des Moines paper, Des Moines Register, ran no Iceberg Conference articles generated by AP. Four elite newspapers ran six articles written by AP.

For both conferences, UPI was the source of nearly 26 percent of the articles. AP was the source of only seven percent of the articles.

Other wire and news services that provided articles were the Chicago Tribune News Service, Reuters News Service, New York Times News Service, and Agence France Presse. Three other sources who also were categorized as news services provided special features for the Ames Tribune and the Washington Post.

Degree of Science in Articles Related to Type of Newspaper

Hypothesis (5): Elite newspapers will run more articles that are high in science content than the two local papers analyzed for this study. The researcher coded articles to be "Low science" if less than half of the article was about science. Articles with half or more science content were coded as "High science." Note that in Tables 4 and 5, elite papers carried a greater percentage of articles with a high degree of science than did local media.

However, these differences were not statistically significant in individual tests for each conference as shown in Tables 4 and 5. This is likely because of the low 'N.' When results for the two conferences were pooled, the results were significant as shown in Table 6. The

researcher concluded that the hypothesis is supported. Elite newspapers will run more articles that are high in science content than the two local papers analyzed for this study.

TABLE 4. Number of Articles by Degree of Science by Type of Newspaper for the World Food Conference

	Local	%	Elite	%
Low science	48	88.9	13	76.5
High science	6	11.1	4	23.5
Total	54	100.0	17	100.0
Not analyzed --photos only	2			

Chi-square = 1.64 (Not significant)

TABLE 5. Number of Articles by Degree of Science by Type of Newspaper for the Iceberg Conference

	Local	%	Elite	%
Low science	23	63.9	15	46.9
High science	13	36.1	17	53.1
Total	36	100.0	32	100.0
Not analyzed --photos only	3		5	

Chi-square = 1.94 (Not significant)

TABLE 6. Number of Articles by Degree of Science by Type of Newspaper for Both Conferences

	Local	%	Elite	%
Low science	71	78.9	28	57.1
High science	19	21.1	21	42.9
Total	90	100.0	49	100.0
Not analyzed --photos only	5		5	

Chi-square = 7.3 (Probability < .005)

Degree of Science in Articles Related to Date Published

Hypothesis (6): Most articles with a high degree of science news will be published during the conferences rather than before or after. This was supported.

Table 7 shows the number of standard inches by publication date for each conference. The most coverage occurred during the conferences. For the Iceberg Conference, the second ranking coverage time followed the conference, while the pre-conference coverage ranked second for the World Food Conference.

To further test Hypothesis (6), cross tabulation was used to compare the degree of science in articles related to the date published.

Table 8 shows the degree of science in articles about the World Food Conference in relation to the date that the article was published. Ten articles high in science were published about the World Food

TABLE 7. Inches Published by Publication Date for Each Conference

Day published	W Food local	%	W Food elite	%	Iceberg local	%	Iceberg elite	%
1	45	3.2						
2								
3	35	2.5						
4	35	2.5					5	0.4
5			20	5.2	55	3.2	5	0.4
6	115	8.2			10	0.6	5	0.4
7	85	6.0			135	7.9		
Total before	315	22.4	20	5.2	200	11.7	15	1.2
8	50	3.6	25	6.5	65	3.8	45	4.1
9	135	9.6	55	14.3	355	20.8	290	25.7
10	345	24.6	75	19.5	145	8.5	165	14.6
11	235	16.7	75	19.5	115	6.7	85	7.5
12	110	7.8	40	10.3	225	13.1	35	3.1
Total during	875	62.3	270	70.1	905	52.9	620	55.0
13	175	12.5	95	24.7	405	23.7	235	20.8
14	40	2.8			200	11.7	175	15.5
15								
16							85	7.5
17								
18								
19								
Total after	215	15.3	95	24.7	605	35.4	495	43.8
Grand total	1405	100.0	385	100.0	1710	100.0	1130	100.0

Conference. Nine of those were published during the World Food Conference. This supports the hypothesis that most high science news will be published during the conference.

Table 9 shows the degree of science in articles about the Iceberg Conference in relation to the date that the article was published.

TABLE 8. Degree of Science in Articles about the World Food Conference Related to Publication Date

Time of article	High science	%	Low science	%	Total articles	%
Before	0	0.0	12	100.0	12	100.0
During	9	18.0	41	82.0	50	100.0
After	1	11.1	8	88.9	9	100.0

Not analyzed--photos only 2

Chi-square = 1.67 (Not significant)

TABLE 9. Degree of Science in Articles about the Iceberg Conference Related to Publication Date

Time of article	High science	%	Low science	%	Total articles	%
Before	0	0.0	9	100.0	9	100.0
During	20	54.1	17	45.9	37	100.0
After	10	45.5	12	54.5	22	100.0

Not analyzed--photos only 8

Chi-square = 8.60 (Probability < .02)

Thirty articles high in science were published about the Iceberg Conference. Twenty of those were published during the Iceberg Conference. Table 9 shows that, on a percentage basis, more high science articles than low science articles were published during the conference. The results were statistically significant.

Table 10 shows the degree of science in articles about both conferences in relation to the date that the article was published.

TABLE 10. Degree of Science in Articles about Both Conferences Related to Publication Date

Time of article	High science	%	Low science	%	Total articles	%
Before	0	0.0	21	100.0	21	100.0
During	29	33.3	58	66.7	87	100.0
After	11	35.5	20	64.5	31	100.0

Not analyzed--photos only 10

Chi-square = 10.04 (Probability < .01)

Again, most articles high in science were published during the conference. The results were statistically significant. One-third of the articles published during the conference contained a high degree of science. The period after the conference yielded more articles high in science than before.

Hypothesis (6) is supported: Most articles with a high degree of science news will be published during the conferences rather than before or after. Media gatekeepers use news values to determine the importance of news. Timeliness is one of the news values. Articles that have a high degree of science news will be published when they are most timely--during the conference.

Comparison of Elite and Local Newspapers

Hypothesis (6a): Elite newspapers will publish more articles high in science during the conference, than will local newspapers. Support was in the direction of the hypothesis, yet the differences were not statistically significant.

Table 11 shows the degree of science in articles about the World Food Conference in relation to the date that the article was published and whether the article was published in local or elite newspapers.

TABLE 11. Degree of Science in Articles about the World Food Conference Related to Publication Date and Newspaper Type

Time of articles	Local						Elite					
	High science	%	Low science	%	Total articles	%	High science	%	Low science	%	Total articles	%
Before	0	00.0	10	100.0	10	100.0	0	00.0	2	100.0	2	100.0
During	6	16.2	31	83.8	37	100.0	3	23.1	10	76.9	13	100.0
After	0	00.0	7	100.0	7	100.0	1	50.0	1	50.0	2	100.0

Not analyzed--photos only 2

Elite newspapers instead of local newspapers published a greater percentage of articles high in science during the conference. Sixteen percent of the articles published by local newspapers during the conference were high in science. Whereas, 23.1 percent of the articles published by elite newspapers during the World Food Conference were

high in science.

Table 12 shows the degree of science in articles about the Iceberg Conference in relation to the date that the article was published and whether the article was published in local or elite newspapers.

TABLE 12. Degree of Science in Articles about the Iceberg Conference Related to Publication Date and Newspaper Type

Time of articles	Local						Elite					
	High science	%	Low science	%	Total articles	%	High science	%	Low science	%	Total articles	%
Before	0	00.0	6	100.0	6	100.0	0	00.0	3	100.0	3	100.0
During	11	55.0	9	45.0	20	100.0	9	52.9	8	47.1	17	100.0
After	2	20.0	8	80.0	10	100.0	8	66.7	4	33.3	12	100.0
Not analyzed--photos only					3						5	

The results for the Iceberg Conference show that local and elite newspapers published about the same proportion of articles high in science during the conference. Of the articles about the Iceberg Conference that appeared in local newspapers during the conference, 55 percent were high in science; 52.9 percent of the elite articles were high in science. Note that most articles published after, rather than during, the Iceberg Conference in local and elite newspapers had a high degree of science.

Articles published after the conference probably resulted from information that was presented on the last day of the conference. It

appears that articles high in science will be reported when the news is available.

Cross Tabulation of Conference Events and Media

Hypothesis (7): Conferences may vary, yet, plenary sessions will be used more than other conference events as a source by local and elite newspapers at both conferences. This was supported for local and elite newspapers at the World Food Conference and elite papers at the Iceberg Conference. However, interviews were used more by local media at the Iceberg Conference.

The sources were coded according to the method presented in Chapter 3 on page 42. To determine the rank of type of conference events as sources that were chosen by local and elite newspapers for articles on each conference, cross tabulations were run. The results appear in Tables 13 and 14.

Table 13 shows the ranking of conference events as sources for articles published by local and elite media on the World Food Conference.

"Plenary session" was the main source for both local and elite newspapers at the World Food Conference. (That is the only source that ranked the same for both local and elite newspapers for the two conferences.)

The second-ranked source for local newspapers was "Paper presentation session." That source was third for elite newspapers. The "Preconference news release" was second for elite newspapers.

TABLE 13. Rank of Conference Events as Sources for Articles by Local and Elite Media for the World Food Conference

Conference events as sources	Number of articles Local	Elite	Total	%
Plenary session	18	9	27	37.0
Paper presentation session	12	2	14	19.2
Interviews	11	1	12	16.4
Preconference news release	11	3	14	19.2
External related activity	2	1	3	4.1
Organized activity for participants	2	0	2	2.7
Informal activity of participants	0	1	1	1.4
Analysis	0	0	0	0.0
Total	56	17	73	100.0

Local newspapers used "Interviews" and "Preconference news release" equally to tie those as the third-ranking sources for the World Food Conference.

The other sources were used less often by both types of newspapers. From Table 13, if the number of articles from both local and elite newspapers are combined, then "Plenary session" ranks first, "Paper presentation session" and "Preconference news release" tie for second, and "Interviews" ranks third.

Table 14 shows the ranking of conference events as sources for articles published by local and elite newspapers on the First International Conference on Iceberg Utilization.

Elite newspapers used "Plenary session" most as a source for the Iceberg Conference. Second-ranked source for elite papers was the

TABLE 14. Rank of Conference Events as Sources for Articles by Local and Elite Media for Iceberg Conference

Conference events as sources	Number of articles Local	Elite	Total	%
Plenary session	5	11	16	21.0
Paper presentation session	3	3	6	7.9
Interviews	13	4	17	22.3
Preconference news release	4	7	11	14.5
External related activity	2	4	6	7.9
Organized activity for participants	1	3	4	5.3
Informal activity of participants	7	5	12	15.8
Analysis	4	0	4	5.3
Total	39	37	76	100.0

"Preconference news release," followed by "Informal activity of participants." "Interviews" and "External related activity" tied for fourth.

Local newspapers used "Interviews" most as a source for the Iceberg Conference. "Informal activity of participants" ranked second, with "Plenary session" ranking third. Tied for fourth were "Preconference news release" and "Analysis." Other sources were used less often by both types of newspapers.

From Table 14, if the number of articles from both local and elite newspapers are combined, then "Interviews" rank first, followed closely by "Plenary session." "Informal activities of participants" ranked third, separated by less than one percentage point from the fourth-ranked source, "Preconference news release."

Table 15 shows the ranking of conference events as sources for articles published by local newspapers for both conferences.

TABLE 15. Rank of Conference Events as Sources for Articles by Local Newspapers for Both Conferences

Conference events as sources	Number of articles W Food	Iceberg	Total	%
Plenary session	18	5	23	24.2
Paper presentation session	12	3	15	15.8
Interviews	11	13	24	25.3
Preconference news release	11	4	15	15.8
External related activity	2	2	4	4.2
Organized activity for participants	2	1	3	3.1
Informal activity of participants	0	7	7	7.4
Analysis	0	4	4	4.2
Total	56	39	95	100.0

After pooling the sources for both conferences for local newspapers, "Interviews" is the top ranking event as a source, both numerically and by percentage. However, it was followed very closely by "Plenary session" as a source. In fact, only one article and one percentage point separated the two sources. This suggests that both sources could be expected to be important for local newspapers covering science conferences.

Table 16 shows the ranking of conference events as sources for articles published by elite newspapers for both conferences.

TABLE 16. Rank of Conference Events as Sources for Articles by Elite Newspapers for Both Conferences

Conference events as sources	Number of articles W Food	Iceberg	Total	%
Plenary session	9	11	20	37.0
Paper presentation session	2	3	5	9.3
Interviews	1	4	5	9.3
Preconference news release	3	7	10	18.5
External related activity	1	4	5	9.3
Organized activity for participants	0	3	3	5.5
Informal activity of participants	1	5	6	11.1
Analysis	0	0	0	0.0
Total	17	37	54	100.0

A look at sources used by elite newspapers shows that "Plenary session" ranks the highest. "Preconference news release" is ranked as a distant second.

Does the nature of the conference itself make a difference on coverage? This case suggests that it does.

Summary of Results

A summary of the results of the systematic content analysis follows. When conflict is present, newspaper coverage is likely to occur. If novelty is present, a science conference is more likely to be covered.

Elite newspapers will run more news high in science content from science conferences than local newspapers.

Science news will be published when it is available--usually during the science conference, but, it also could be after the conference. Results indicate that local newspapers are likely to publish more articles high in science news during a conference than elite newspapers.

Plenary sessions are the conference event that is the source of conference news most often for elite newspapers, and a very strong second source for local newspapers after interviews. Informal activities of conference participants will be used as a source by local newspapers for news from science conferences.

CHAPTER 7: SUMMARY AND IMPLICATIONS

This study set out to investigate how science news generated at science conferences gets to the public through newspapers. The objectives of this study were (1) to examine how two conferences, the World Food Conference of 1976 and the First International Conference on Iceberg Utilization, were organized to provide for coverage through public relations efforts; (2) to analyze aspects of coverage for both conferences including quantity of coverage and how coverage relates to news values; and (3) to explore the implications of the findings of (1) and (2) above.

A model provided the framework for research. It included environmental factors, scientist/science organization behavior, newspaper personnel/organization behavior, and outcomes.

Using this model, several major hypotheses were specified. Their tests have resulted in general conclusions that have implications for those seeking to offer science information from science conferences to the public. The remainder of the chapter will discuss the implications of the study and suggestions for research.

Implications

In order for science information from science conferences to reach the public through newspapers, conference planners and promoters should consider the findings from this study. In addition, the researcher recommends that the science organization that is hosting the science conference seek counsel from a public information specialist as soon as

planning begins. The public information specialist should be named to the conference planning committee.

Planners and promoters should discuss the objectives and activities of the conference. This information should be considered alongside the characteristics which newspaper reporters and editors use to decide what to cover. The inherent conference news values should be identified and used in advance news releases to serve as flags to media personnel that this is a conference that will be of value for news. They should look especially for an angle of the conference that would be considered a novelty by editors and reporters who make gatekeeping decisions based on news values. When novelty is present, coverage increases, because after the novelty is covered, reporters tend to continue the coverage using other news values.

The study showed that conflict and consequence are two news values that yield coverage of science news. Conflict aids coverage. Reporters aim for a balanced presentation of news so they can be expected to report differing opinions (as conflict was defined in Chapter 3).

Conference planners, who are dedicated to informing the public so the public can use the science information to make decisions, should be alert for opinions of scientists that indicate a major point for discussion. Reporters may recognize the differing opinions as a potential for news, because it indicates controversy, or conflict, a news value that leads to coverage of science news.

Another news value to watch for is consequence, because it is an indicator of "so what" or the results forthcoming from a conference.

The researcher found that the conference with more photos also received more inches of coverage from articles. Therefore, science conference planners should be aware of photo possibilities. The science conference with inherent characteristics that attract media gatekeepers can be expected to reap more coverage from photos and articles.

To attract media that will cover the science conference, planners need to select appropriate media to receive news releases and preliminary information. When the conference is international in scope, media should be targeted on continents and in countries that are expected to participate. The word "world" in the conference title can not be expected to alert media in other countries. Media in non-English speaking countries could be targeted through wire services that serve those countries. Foreign and special interest media that cover the conference topic should be selected. Both local and elite media should be targeted.

This study shows that plenary sessions are an important source for science news for both local and elite newspapers. Plenary sessions should be scheduled at a time that will allow reporters to report timely science news by deadlines. Deadlines vary for morning and afternoon newspapers and according to time zones around the globe. Nevertheless, conference planners should be aware that deadlines operate as important pragmatic constraints for media gatekeepers.

In addition, conference planners should pay close attention to the non-conference agenda items that might draw coverage. In this study, this source provided several articles.

When setting up the conference schedule, conference planners should consider the deadlines that reporters need to meet.

Science conference planners can aid coverage with press room services. As arrangements are made for a press room during the conference, planners should provide phones, typewriters, abstracts of speeches, and complete texts of speeches. In addition, background information related to the conference topic should be available. The press room should have at least two staff members who have a working knowledge of the conference topic. They should be knowledgeable about the journalism profession. Press room staff should be willing to help set up interviews with conference speakers if reporters ask, because often reporters will use interviews to gain more and perhaps unique information for their articles.

These types of press room services and staffing should allow reporters to have access to information when they need it to meet their deadlines. Planning for these needs shows that science conference organizers consider needs of media representatives.

Another service that the researcher recommends would occur at the end of the conference. The science organization should issue a follow-up news release. This type of release provides a summary and the consequence of the conference. This could aid coverage, because the research in this study shows that elite newspapers carry more science

news after the conference. The follow-up article could lead to more coverage of science news at science conferences.

The above implications should aid scientists and public information employees for science organizations in their efforts to educate the public about science by informing the public through newspapers with more science news from science conferences.

Research

For further research, consider a study of sources as gatekeepers. Research could look at the science subsystem as a channel that affects the flow of science information to the public. Scientists as sources at a science conference could be audio taped during the interviews conducted by reporters. The tapes could be content analyzed for specified information that would be expected to be forthcoming during an interview on a specific topic with a scientist well-versed on the topic of the interview.

To determine how conference organization and policies affect coverage, media representatives who attend to cover the conference could be queried via a telephone survey within a week after the conference. Media representatives who were notified of the conference, but who did not attend, could be included in the survey, too, to compare the reasons for not attending. Representatives from print and broadcast media could be included in the survey so conference planners and promoters could consider the needs of all forms of media when organizing science conferences.

A study of reporters and their attitudes toward science, scientists, and media's responsibility to inform the public about science would fit into the model's mention of personal values in gatekeeping by the media subsystem.

Or the reverse for the science subsystem: a study of scientists and their attitudes toward reporters, media, and the science subsystem's responsibility to inform the public about science through mass media.

To learn more about the environmental factors that affect coverage, a study could be made of prior coverage of the subject, and then when the science conference on that topic is held, current coverage could be content analyzed for mention of prior attitudes, events, and scientists associated with the topic. The same could be done for a conference that is on a relatively unreported topic. The coverage of the conferences could be compared for publicity efforts, news values, and quantity of coverage.

In addition, a study similar to the one just completed by this researcher could be done for magazines. Electronic media (radio and television) could be studied.

The researcher recommends that future post-conference research should be planned prior to the science conference.

LIST OF REFERENCES

Berelson, Bernard. Content Analysis and Communication Research. Glencoe, Ill.: The Free Press of Glencoe, 1952.

Berkland, William R. Extension Information Service, Iowa State University, Ames, Iowa, Interview, Jan. 20, 1980.

Clyde, Robert W. and Buckalew, James K. "Inter-media Standardization: A Q-Analysis of News Editors." Journalism Quarterly 44 (Spring 1969): 349-351.

Crouse, Timothy. "Riding with the Campaign Press Corps." In The Boys on the Bus. New York: Ballantine Books, 1974.

Danielson, Wayne. "Content Analysis in Communication Research." In Introduction to Mass Communications Research, pp. 180-207. Edited by Ralph O. Nafziger and David Manning White. Baton Rouge, La.: Louisiana State University Press, 1963.

Davis, Robert C. "A Report on a Nationwide Survey for the National Association of Science Writers." The Public Impact of Science in the Mass Media. Ann Arbor, Mich.: Survey Research Center, Institute for Social Research, University of Michigan, 1958.

Donhowe, Charles E. and Ebert, George H., eds. "World Food Conference of 1976 Report Notebook." Ames, Iowa: World Food Institute Iowa State University, 1976.

Dubas, Orest and Martel, Lisa. "A Research Study on Science Communication." Media Impact. Volume 2. Ottawa, Canada: Ministry of State, 1975.

Dunwoody, Sharon. "A Cross-Methodological Study of Factors Affecting the Selection of News at a Scientific Meeting." Paper presented at meeting of the Midwest Association of Public Opinion Research, Chicago, Oct. 19-21, 1978.

Ebert, George. "Program Types and Working Definition." Iowa State University, Office of Extension Courses and Conferences, Ames, Iowa, 1973.

Epperheimer, John. Editor, Ames Tribune, Ames, Iowa, Interview, Feb. 2, 1978.

Gans, Herbert J. Deciding What's News. New York: Pantheon Books, 1979; Vintage Books, 1980.

Goodell, Rae. The Visible Scientists. Boston: Little, Brown and Company, 1977.

Grunig, James E. "Research on Science Communication: What is Known and What Needs to be Known." In Proceedings of the National Agricultural Science Information Conference, pp. 60-99. Washington, D.C.: U.S. Department of Agriculture and Land-Grant Universities Cooperating, 1980.

Harriss, Julian and Johnson, Stanley. The Complete Reporter. New York: Macmillan Co., 1965.

Krieghbaum, Hillier. "Bouquets and Boobytraps for Science Writers." Nieman Reports 13 (April 1960): 25-26.

Krieghbaum, Hillier. Science and the Mass Media. New York: New York University Press, 1967.

Krieghbaum, Hillier. "Perspectives on Science Writing." Paper presented at the Symposium on Teaching Science and Environmental Writing: The Journalism of Uncertainty, University of Washington, Seattle, Aug. 12, 1978.

Lasswell, Harold D. "The Structure and Function of Communication in Society." In The Communication of Ideas, pp. 37-51. Edited by Lyman Bryson. New York: Cooper Square Publishers, Inc., 1964.

Lazarsfeld, Paul, and Merton, Robert. "Mass Communication, Popular Taste and Organized Social Action." In The Communication of Ideas, pp. 95-118. Edited by Lyman Bryson. New York: Cooper Square Publishers, Inc., 1964.

Lendt, David L. Information Service, Iowa State University, Ames, Iowa, Interview, Jan. 15, 1980.

Lewin, Kurt. Field Theory in Social Science. New York: Harper & Brothers, 1951.

Merrill, J. "Global Patterns of Elite Daily Journalism." Journalism Quarterly 45 (1968): 99-105.

Robinson, Edward J. "Analyzing the Impact of Science Reporting." Journalism Quarterly 40, No. 3 (1963): 314.

Ryan, Michael. "Attitudes of Scientists and Journalists Toward Media Coverage of Science News." Journalism Quarterly 56 (1979): 18-26, 53.

Sandler, Norm. United Press International Bureau, Des Moines, Iowa, Interview, Feb. 3, 1978.

Schramm, Wilbur. "Science and the Public Mind." In Studies of Innovation and of Communication to the Public (Studies in the Utilization of Behavioral Science, Volume II), pp. 261-284. Stanford, Calif.: Institute of Communications Research, Stanford University, 1962.

Schudson, Michael. "News Media and Democratic Society." Society 21, No. 2 (1984): 45-53.

Snider, Paul B. "Mr. Gates Revisited: A 1966 Version of a 1949 Case Study." Journalism Quarterly 44 (1967): 419-427.

Stempel, Guido H., III. "An Empirical Exploration of the Nature of News." In Paul J. Deutschmann Memorial Papers in Mass Communication Research, pp. 19-23. Cincinnati, Ohio: Scripps-Howard Research, 1963.

Westley, Bruce H. News Editing. 3rd ed. Boston: Houghton Mifflin, 1980.

White, David Manning. "The 'Gatekeeper:' A Case Study in the Selection of the News." Journalism Quarterly 27, No. 4 (Autumn 1950): 383-390.

Wood, Glynn L. "A Scientific Convention as Source of Popular Information." M.A. thesis, Stanford University, 1957. In Studies of Innovation and of Communication to the Public (Studies in the Utilization of Behavioral Science, Volume II), pp. 229-243. Edited by Wilbur Schramm. Stanford, Calif.: Institute of Communications Research, Stanford University, 1962.

Yarbrough, Paul. Department of Journalism and Mass Communication, Iowa State University, Ames, Iowa, Interviews, 1977-1982.

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APPENDIX A: ADDITIONAL DISCUSSION ON SCIENCE INFORMATION

In order to raise their level of scientific knowledge, adults read science information in the mass media. A widely reported study confirms this (Krieghbaum, 1978). In 1957, a survey of 1,919 adult Americans was conducted by the Survey Research Center of the University of Michigan for the National Association of Science Writers and New York University. It provided a reference on some of the characteristics of those who reported that they "consumed" science and medical news of the mass media.

Here are some of the more noteworthy conclusions of this study. Three quarters of the total sample (76 percent) could recall a recent, specific science or medical news item, and thus qualified as true "consumers." Those who recalled science and medical items in the mass media tended to be better educated.

Education appeared to be an impressively influential factor favorable to "consumption" of science and medical news. The more education a science reader had, the more likely the reader was able to recall a specific story on medicine or science. However, it was not higher education, but course work in the sciences that seemed to kindle a life-long interest in science.

For example, high school graduates who took science courses could recall items more readily than those who attended college but took no science courses in either high school or college. (Currently, practically all high schools require students to take at least some science courses, and many colleges require additional work in science;

therefore, the science news "consumption" could be expected to increase.)

As mass media covers science, the reporters and editors understand that the audience is interested in science and technology. Over recent decades, favorable public attitudes exist towards greater understanding of science. The Survey Research Center, University of Michigan, asked this question of the national sample of 1,919 Americans:

> "All things considered, would you say the world is better off or worse off because of science?"

The results are shown in Table 17 as reported by Krieghbaum (1978).

TABLE 17. World is Better Off or Worse Off Because of Science

	Percent
Better off	88
Both or about fifty-fifty	3
Worse off	3
Don't know	5
Not ascertained	1

In the early 1970s, when the Harris survey (Krieghbaum, 1978) asked 1,548 households in American if modern life is much better off due to the wonders that science has brought, the results are reported in Table 18.

The Opinion Research Corporation, Princeton, N.J., conducted three survey during the 1970s, on U.S. public attitudes toward the nation's

TABLE 18. Life is Better Due to Science

	Percent
Agreed	81
Disagreed	10
Not sure	9

scientific endeavors, Krieghbaum reported (1978). Results of the following question are reported in Table 19.

"Has science and technology changed life for the better or the worse?"

TABLE 19. Science Changed Life for Better or Worse

	Percent		
	1972	1974	1976
Better	70	75	71
Worse	8	5	7
Both	11	11	12
Neither/no effect	2	3	3
No opinion	9	6	7

ORC also asked the following question as reported in Table 20.

"Overall, do science and technology do more good than harm, more harm than good, or about the same of each?"

Those who felt science and technology had done more good than harm were asked to list some of the "good things." Table 21 reports the items they listed.

TABLE 20. Science Does More Good or Harm

	Percent		
	1972	1974	1976
More good	54	57	52
More harm	4	2	4
About the same	31	31	37
No opinion	11	10	7

TABLE 21. Good Things from Science

	Percent	
	1972	1976
Improvements in medicine	79	81
Space exploration	26	24
General improvements (products and living conditions in general)	12	14
Protecting environment, conservation	12	11
Electric and electronic products	9	11
Improved methods of travel and transportation	9	9
Food and agriculture	9	7
Energy problems	2	5
Improved communications	3	4
Other answers	16	9
Don't know	4	4

With an extensive expressed interest in science, is the public interested in reading about science in newspapers? The Newspaper Advertising Bureau surveyed media news consumption by Americans in 1971 and 1977, according to Krieghbaum (1978). These surveys found that public interest in science-related content was increasing. In the 1977 survey, participants were asked to indicate to which of 34 categories

they would give "a lot," "some," "a little," or "no" space, if they were the newspaper editor.

Among the top 10 categories to be given more space were "Environment" plus "Health and nutrition," Krieghbaum reported. Items about "Mysterious events, Psychic prediction" were towards the end of the list. "Astrology, horoscopes" came in the very last position.

APPENDIX B: CODE SHEET

BERKLAND code sheet for one article

Article number _____

Newspaper name

___Christian Science Monitor	___Miami Herald
___Portland Oregonian	___Los Angeles Times
___St. Louis Post Dispatch	___Minneapolis Tribune
___Globe and Mail	___Des Moines Register
___Washington Post	___Kansas City Star
___Times (London)	___Ames Daily Tribune
___New York Times	___Louisville Courier
___Guardian (London)	___Wall Street Journal
___Baltimore Sun	___Atlanta Constitution
___Daily Telegraph	___Denver Post

Date	World Food	Iceberg		World Food	Iceberg
01	June 20, 1976	Sept. 25, 1977	10	June 29, 1976	Oct. 4, 1977
02	June 21, 1976	Sept. 26, 1977	11	June 30, 1976	Oct. 5, 1977
03	June 22, 1976	Sept. 27, 1977	12	July 1, 1976	Oct. 6, 1977
04	June 23, 1976	Sept. 28, 1977	13	July 2, 1976	Oct. 7, 1977
05	June 24, 1976	Sept. 29, 1977	14	July 3, 1976	Oct. 8, 1977
06	June 25, 1976	Sept. 30, 1977	15	July 4, 1976	Oct. 9, 1977
07	June 26, 1976	Oct. 1, 1977	16	July 5, 1976	Oct. 10, 1977
08	June 27, 1976	Oct. 2, 1977	17	July 6, 1976	Oct. 11, 1977
09	June 28, 1976	Oct. 3, 1977	18	July 7, 1976	Oct. 12, 1977
			19	July 8, 1976	Oct. 13, 1977

PLAY

Location in paper
4 Front page
3 Front page other section
2 Inside front section
1 Inside other section

Location on page
2 above fold
1 below fold

SIZE

Heads
1 column
2 columns
3 columns
4 or more columns

Article
___inches narrow columns
___inches medium columns
___inches wide columns

(1/10 inch)

Photos/Illustrations
#1_____W_____D
#2_____W_____D
#3_____W_____D
#4_____W_____D

Photo layout
_____W_____D

BERKLAND code sheet for one article

CONTENT

HOLISTIC THEME_____

_____

ANALYTIC CATEGORIES

A. Conference event from which story drawn
   1. Preconference new release
   2. External related activity
   3. Plenary session
   4. Paper presentation session
   5. Workshop (Analysis)
   6. Organized activity for participants
   7. Informal activity of participants
   8. Other: _____
   9. Other: (Interviews/Press conferences)

B. Science vs. non-science emphasis of story
   1. Almost no science/technology emphasis
   2. Some science/technology emphasis
   3. 50/50 treatment of science/technology with other content
   4. Mostly science/technology emphasis
   5. Almost complete science/technology emphasis

C. Emphasized news values

Most Emphasized YES	NO	Next Emphasized YES	
2	0	1	Conflict
2	0	1	Progress
2	0	1	Disaster
2	0	1	Consequence
2	0	1	Prominence
2	0	1	Novelty
2	0	1	Human Interest
2	0	1	Recency
2	0	1	Proximity