

**JOURNALISTS' NEWSROOM ROLES
AND THEIR WORLD WIDE WEB SEARCH HABITS**

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ABSTRACT

This paper reports an analysis of how newsroom staff members search for information on the World Wide Web. Daily newspaper data collected in 1998 and 1999 were analyzed to determine if computer-assisted reporting supervisors, news researchers, general assignment and beat reporters, news editors, and newsroom technical specialists differed in how they searched for information on the Web. Findings indicated that there are clear differences in how the group members search. The analysis found there is a “computer elite” of sophisticated users formed by information specialists. A second group, formed by computer specialists, also has advanced skills. Reporters and their editors form a third level of users, but they take less advantage of search tools and their advanced features.

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It has been argued that the Internet has permanently changed the ways people communicate as well as how they locate information they need in their daily lives.¹ The Internet has had similar impact on mass communicators. Journalists, among them, have seen their information-gathering and distribution methods altered in the past decade.² The result has led scholars and practitioners alike to proclaim that journalism will never be the same.³ The online world— the network of computer networks known as the Internet, the World Wide Web, and commercial information enterprises— is at the center of a transformation of work habits involving professional information processors. Until the late 1990s, however, professionals who searched for background information and other facts needed for news stories did not take the Internet and World Wide Web seriously as information sources. As recently as 1996, at least one expert said there was a “huge gulf” between commercial information services and the Internet.⁴ This has changed, of course. The volume of information on the World Wide Web is increasing at geometric rates and the quality of that information is also improving. By the late 1990s, information professionals recognized the Internet as “a significant research environment.”⁵ The Internet had developed into what at least one researcher has called the “most important library in the world.”⁶

Because of its value to their work, many journalists have become avid online researchers in the past five years. There is less dependence upon other individuals, such as news librarians, to conduct background searches. News librarians and news

researchers have spent considerable time in the past five years training others how to do their own background research. Reporters and other journalists have scrambled to learn to use these new tools.⁷ General assignment and beat reporters, copy editors, investigative journalists, and their editors have joined the online users list that has been headed by news researchers or librarians in newsrooms. Broadcast journalists are also using online research in an increasingly important role in their newsgathering.⁸ Research has shown that increasing numbers of newsrooms have adopted personal computers as newsgathering tools in addition to their movement toward online publications as a new medium for distribution.⁹

Journalists frequently go to the Web to find local, state, and federal government information. They also turn to the Web to search for other information and use search engines and indices. Furthermore, research has shown, they use the Web to locate background about businesses, find difficult-to-locate information, identify potential sources, and provide depth and context in their coverage.¹⁰ The purpose of this study is to determine the World Wide Web information search strategies of journalists and to explore any differences in primary user groups in daily newspaper newsrooms. The study will review use of search software and search engines and the utilization of advanced searching strategies.

Estimates describe an Internet ranging from 150 to 800 million pages and from 50 to 60 billion words.¹¹ Prior to development of the Internet, online searching was focused on use of sophisticated commercial archives such as Nexis-Lexis and Dialog. But this has changed recently.¹² The vastness of the Internet has caused problems for journalists, as well as all other users, in retrieving information with speed and efficiency.¹³ Finding the

right statistics for a news story, which is often the basic content of many stories, using Internet or other online resources is even more challenging because of the highly specific nature of statistics.¹⁴ Locating information generated by the U.S. government—the largest information gatherer in the world—has become increasingly difficult as agencies and departments place more information on the Internet and reduce their production of traditional paper-based documents.¹⁵ While there is a seemingly infinite amount of information on the World Wide Web and the Internet, and, while obtaining that information is relatively inexpensive, retrieving it is often frustrating and time-consuming.¹⁶ “Too many people try a little Web surfing but then give up on the Web as a serious information resource because it’s too hard to find the information they want. But they’re making a serious mistake. It *is* possible to find information on the Web—you just need to know what you’re doing,” observed one Internet search authority.¹⁷

The fluid nature of the Internet and World Wide Web can also cause problems when seeking information. One authority on finding government information on the Internet wrote: “[T]he Net can be frustrating. Millions of people around the globe work on it day and night: tearing down some sites, constructing new ones and remodeling others in an unremitting effort to provide the public with ever more information. While this may seem like a good thing, it means that sites that suited you the last time you visited are different the next time you arrive. Material is added, and some is eliminated, or it’s all there but it has been reorganized and now isn’t so easy to find.”¹⁸

There are significant differences in surfing the Web and searching it.¹⁹ Casual searchers often use the terms interchangeably. However, searching implies an organized process of determining what is needed—the goal—and setting a strategy to find it. The

growth of the Web in recent years has forced even casual users to re-think their approaches and use search strategies and search tools in a more organized manner. The tools themselves have evolved, resulting in constant change in their features and results.²⁰ All of this has also modified how journalists find and retrieve information. Callahan observed “the Internet— with its instant, ever-growing, and largely free access to millions of data sources around the world— provides journalists with the most important reporting tool since the telephone. But when used poorly, the Internet can be detrimental to journalism by exacerbating sloppy and inaccurate reporting.”²¹

Diffusion Theory

Diffusion theory provides necessary context for understanding the adoption process for new technologies. Since some of the earliest diffusion research was published in the 1960s, nearly five hundred diffusion studies by communication researchers have been published.²² Diffusion is frequently approached as a communication *process*, separate from the type of innovation involved.²³ A subset of this theoretical perspective, the study of adoption of interactive innovations, has grown in importance with the development of the Internet and the Web. Rogers, in his classic study of diffusion, stated that diffusion of innovation is, simply, the process through which the idea is “communicated through certain channels over time to the members of a social system.”²⁴

The Web began to be embraced by the general public in winter 1993-94.²⁵ At that time, newsrooms that used online resources were dependent on dedicated commercial services that were not part of larger networks. Instead, their online networks were self-contained and not connected to other systems. Both the general public’s and news

organizations' access to the Internet and Web were encouraged by the Web's convenience, its ease of use, and the simultaneous decline in the cost of dial-up and network connections. This receptive environment created the opportunity for expanding use of online resources by news organizations.

Rogers described five categories of adopters— innovators, early adopters, early majority, late majority, and laggards— and profiles each group based on socioeconomic status, communication behavior, and personality traits. For example, innovators are more individualistic and venturesome and early adopters are opinion leaders who are more integrated into the particular social system involved in the adoption process.²⁶ In this study of Web search strategies by different users in newsrooms, it is significant to consider Rogers' typology. It is likely that there are different levels of adopters in each newsroom if a newsroom can be assumed to be similar to other social groups and organizations. One focus of this study was to understand which information-gathering and processing roles in the newsroom are most often innovators, early adopters, early or late majority, and laggards. The study of diffusion of computer use in journalism has several threads. One area of investigation involves adoption and use of computers in production. Chang, for example, studied adoption of computers by Taiwanese newspapers, finding that three perceived innovation attributes— advantage over the old idea, compatibility with existing values and needs, and complexity in use and understanding— explained adoption.²⁷ Other studies have focused on technologies as information sources.²⁸ Furthermore, there has been some research interest in diffusion of interactive information technologies in recent years.²⁹ Rogers' typology suggests that individuals who are technologically advanced in their work would be innovators or early

adopters and, thus, more advanced in their use of search tools. However, there is little research about adoption types in newsrooms.

A small body of diffusion research has focused on use of new technologies for newsgathering. Maier found that the use of personal computers for gathering information for news stories, commonly known as computer-assisted reporting, was slowly being adopted in newsrooms.³⁰ He found computer use varied depending on task complexity in his study of the diffusion process involving computer-based reporting tools. He also determined that “computers are gaining acceptance as an every-day reporting tool,” he said.³¹ Maier reported that newsrooms had passed the early innovator and early adopter stages and were, in 1998-99, emerging into the early majority stage. Diffusion theory, he concluded, provided a useful framework to assess computer-based newsgathering. Niebauer, Abbott, Corbin, and Neibergall found that computer technology had been accepted as a “viable innovation” but that it “had not yet reached the ‘adoption’ threshold of 50 percent use” in Iowa.³² Other studies of diffusion of new technologies in newsgathering have focused on digital photography, journalism education, and use of computers as information-gathering devices³³

Search Engines

There are hundreds of search tools available for the Web and other Internet resources. Two authors estimated that there were 145 major search engines in 1998, and that the number was growing.³⁴ Journalists, like other individuals using the Web, have turned to two different tools for searching the Web, the search engine and search index, for finding information.³⁵ Ross and Middleberg determined that print and broadcast

journalists responding to their national study most often used the Yahoo! search index. They found that journalists' favorite search engines were AltaVista and Netscape Search.³⁶ Garrison's national study determined that Yahoo! and AltaVista were clearly dominant (66% and 62%, respectively). Other search tools cited were InfoSeek (24%), Excite (23%), and Lycos (23%). These findings suggest, of course, that journalists like to use both the index approach and the key word search strategy in their online research.³⁷

For professional information searchers, the search tool used is not a matter of favorites or loyalties. "There's not a lot of brand loyalty among the pros when it comes to selecting search engines," wrote one search authority. "Some are better than others at specific tasks."³⁸ Most authorities believe that search procedures are improving on the Internet and becoming more user friendly.³⁹ There are clearly more options and alternatives for searching, including advanced options. The ability to modify and qualify searches impacts on the success of a search.⁴⁰

Numerous users are frustrated by the volume and complexity of finding information, even of using search engines or indices. The common reaction, some authorities have concluded, is to give up and claim there is nothing on the Internet about the subject they are searching.⁴¹ Advanced search options, usually indicated by a hypertext link to a different page of the site such as those employing Boolean logic, are common examples.⁴² Other ways that advanced searches help users are by setting inclusive or exclusive dates, domain names, or other types of search parameters. Some search engines and indices permit truncated searches that produce results similar to search terms and proximity searches that find terms adjacent to search terms.⁴³

Not all search indices and engines are the same. They often vary in the basic user interface, which is the Web software they employ to search at the basic and advanced levels.⁴⁴ The search tools also differ in the size of the databases— sometimes called an “index”— searched and the frequency in which the databases are updated. Furthermore, there are differences in the way the “spider” software program searches the Web to build the database.⁴⁵ Differences in these fundamental characteristics can produce different results.⁴⁶

Selection of a search tool has significant impact in locating information on the Internet.⁴⁷ Paul and Williams listed search tools characteristics that determine quality. Those criteria included selection of resources, site stability, currency, usability, searchability, listing and usage fees, and link descriptions.⁴⁸ The requirement of fees by some Web search sites has become a restrictive factor in finding information. With a growing number of sites that charge fees to search, individuals have greater access to information that was previously not on the Web or was very hard to find.⁴⁹

Because search engines differ in the sizes of their databases, procedures used to develop the database, the frequency that it is updated, the search options, speed of response, and user interface, users must be aware that search outcomes will vary widely.⁵⁰ Browser software may also have an impact on how individuals use the Web. The two major Web browsers, Netscape Communicator’s Navigator and Microsoft’s Internet Explorer, have been engaged in intense competition. Each has different default search sites and journalists using the default settings will likely obtain different results from the same search instructions and key words. While Navigator held market shares in the 80% and 90% range for several years, that share has slipped significantly in the past

two to three years as Internet Explorer has gained widespread corporate and home use. Recent market studies show use of Internet Explorer has grown to dominate business and home browsing by late 1999, leading some computer industry experts to pronounce Navigator and its Communicator suite all but dead.⁵¹ Studies during the past five years have shown journalists' browser use patterns to be similar to those of other business or work-related users.⁵² While it is likely that this is because policies require journalists to use software installed on their office PCs by corporate MIS/IT staff, the impact of the search tool may be significant. Since each browser has default search options, they point uninformed users to pre-selected search sites that may or may not be appropriate for the information sought. The literature is unclear how different browsers affect search patterns.

Successful searchers employ a variety of strategies.⁵³ Bates attributed the accomplishments of the best professional searchers to curiosity, use of an iterative or repetitive process, personal expertise and knowledge levels, analytical abilities, background discussions with clients, and a sense of when to stop searching.⁵⁴ Because of the success of well-established search tools compiled for, and used by, commercial archive databases such as Nexis-Lexis and Dialog, expectations of effectiveness of Web search tools has often been high. The features, sophistication of the software, reliability of the features, and, of course, reliability of the retrieved information, are different from commercial archives. Tolerance for the inadequacies of free Web search tools has become part of the search experience.⁵⁵

Individuals Involved in Searches

Professional information gatherers use the tools of the Web extensively.⁵⁶ These individuals, such as librarians, scholars, private investigators, and some journalists, often spend large amounts of time online and learn the most efficient search resources. Newsroom information specialists, also known as news librarians or news researchers, have long had the reputation as the search experts in the newsroom and are the subject of praise from reporters and editors.⁵⁷ As research tools began to change from directories and other published volumes to varying online formats during the 1980s, these individuals began to lead development of newsroom online search skills.⁵⁸

Newsrooms have had traditional organizational structures that have defined certain roles and functions, such as information gathering and research in the news reporting and editing process. Traditional information-gathering roles in the newsroom have included general assignment and beat (or specialized reporters), copy editors, supervisory editors, and news researchers.⁵⁹ In recent years, individuals involved in graphics and computing have become more involved in information gathering as well. These roles include graphic artists and individuals who develop informational graphics, photographers, online newspaper content producers, Webmasters, and their supervisors.⁶⁰

Research Questions

Despite considerable literature on diffusion of new technologies, computer-based newsgathering, and newsroom roles and their functions, recent research has yet to investigate how these individual information-gathering jobs, or roles, may or may not vary in their use of the online resources. Nor does the literature address how these

individuals search for information online. The impact of these differences on the organizations and their news products, if they exist, is not known. The literature suggests that news researchers will search differently than reporters and editors, but it does not address groups such as computer-based reporting specialists and technical specialists—groups with extensive computer use and training. This study explores how information-gathering and information-supervising journalists search the Web. To frame the research, these research questions were asked:

1a. Which World Wide Web browsers are used? 1b. Are there differences in the type of browser used according to newsroom role?

2a. Which Web search indices and engines are used? 2b. Are there differences in the search indices and engines used according to newsroom role?

3a. Do journalists use advanced search options? 3b. Are there differences in the use of advanced search tools according to newsroom role?

4a. What reasons do journalists cite for selecting their primary search tool? 4b. Are there differences in the reasons cited according to newsroom role?

5. Are some individuals, as the diffusion model suggests, more technologically advanced in their use of search tools at this stage of the adoption process?

METHOD

This paper is based on two national censuses conducted by mail. Self-administered questionnaires were mailed to daily newspapers with Sunday circulation 20,000 or more during January through March 1998 and again in January through March 1999. The questionnaires were developed from interviews with journalists and from

group discussions at national conferences about investigative reporting, computer-assisted news reporting, and news research and from earlier censuses conducted during 1994 to 1997, which were part of the same larger research project.⁶¹ While most of the questions used each year were the same, some questions were added or deleted from individual instruments as changes in availability of tools or use of computers dictated.⁶²

The unit of analysis was the newspaper, not the individual responding. Questionnaires were mailed with postage-paid return envelopes to the computer-assisted reporting supervisor, the managing editor, or the executive editor. When sent to an editor, recipients were asked to forward the questionnaire to individuals most qualified to respond. This resulted in a mix of specialists serving as respondents, including investigative reporters, CAR specialists, news librarians, news researchers, and desk editors. In a few cases, more than one individual completed a portion of the instrument. Respondents were asked to respond on behalf of the entire newsroom, indicating their perceptions of newsroom use.

The population sizes were 504 newspapers each year, created from listings in the most recent editions of the *Editor & Publisher International Year Book*.⁶³ Two follow-up mailings were used each year to enhance response rates. The response rate in 1998 was 36.7% (n = 185). In 1999, the response rate was 34.9% (n = 176). Other survey-based studies of technology in newsrooms have reported rates as low as 20%.⁶⁴ Methodologists suggest that response rates from 10% to 50%, while low and not ideal, are normal in survey studies of professional populations.⁶⁵

Response patterns represented all regions of the country and produced a mean circulation of about 100,000 copies and median circulation of about 55,000 each year.

Respondents were editors, computer-assisted reporting supervisors, news researchers, or investigative or special project reporters. Because the study involved analysis of a population, not a sample, significance tests are not reported.

To operationalize newsroom role, respondents were asked to define their primary newsroom role involving use of computers for information gathering. A list of nine roles, determined from open-ended questions used in earlier national studies, was compiled. The open-ended nature of the original item permitted respondent self-identification of roles from which the list used in this study was created.⁶⁶ Respondents were also given the opportunity to add to that list with an open-ended “other” option. The ten categories (including “other”) were then collapsed into five general categories for analysis. The five categories included (1) computer-assisted reporting supervisors, (2) news researchers, (3) reporters, (4) editors, and (5) newsroom “new technology” specialists. New technology specialists were defined as individuals who were the online newspaper Webmasters, newsroom computer systems supervisors or liaisons, news technology coordinators, or production managers.

Browser use was operationalized by software manufacturer, dominated by Netscape Communicator-Navigator and Microsoft Internet Explorer as well as the proprietary versions of those products used by two of the major commercial online services, America Online and CompuServe. Use of search tools was operationalized using a list of eleven major search sites on the Web also developed from open-ended questions in earlier national studies.⁶⁷ Questions about use of advanced search options and the reason for selecting the search tool most often used were open-ended and each

response was content analyzed prior to coding into categories. For analysis purposes, some specific responses for each question were collapsed into more general categories.

FINDINGS

Respondents in 1998 included 45 CAR supervisors, 13 news researchers, 25 reporters, 78 editors, and 24 individuals in newsroom technology roles involving computers. In 1999, there were 39 CAR supervisors, 12 news researchers, 29 reporters, 78 editors, and 18 individuals in newsroom technology roles. Newspapers represented all regions (East, 19%; South, 35%; Midwest, 27%; West, 19%) and produced a mean circulation of 108,386 copies and median circulation of 54,695 copies in 1998. In 1999, similar demographics were characteristic of respondents [East, 19%; South, 38%; Midwest, 26%; West, 17%; mean circulation of 100,348 copies; median circulation of 55,000 copies].

Respondent newspapers reported heavy use of computers in newsgathering (90% in 1998 and 95% in 1999). There was a mean of 7.5 persons and mode of 4.0 persons using computers in their reporting in 1998 and a mean of 11.7 persons and mode of 5.0 persons in 1999. The data on this variable were skewed by a small number of newspapers reporting entire newsrooms using computers for newsgathering. A total of 92 percent of respondent newspapers used the Web in newsgathering in 1998. The figure increased to 93% in 1999. Furthermore, a total of 83% of the newspapers participating maintained a Web site of some type in 1998 and 92% in 1999. Finally, 75% said they felt the Web was important or very important for general news reporting at their newspaper while only 15% said it was unimportant or very unimportant in 1998. Those figures were 80%

important or very important for general news reporting while only 11% said it was unimportant or very unimportant in 1999.

1a. Which World Wide Web browsers are used? 1b. Are there differences in the type of browser used according to newsroom role?

Table 1 data show the most popular browser is Netscape Navigator, despite the growth of Microsoft's Internet Explorer worldwide market share in recent years. There are differences in browser preference according to newsroom role. News researchers seem to use Internet Explorer in larger proportions than other user groups in 1998, but that changed a year later. Reporters, editors, and technical specialists show signs of increased use of IE. In addition to reporters and technical specialists, CAR supervisors also have a slightly larger proportion of IE users than other groups.

2a. Which Web search indices and engines are used? 2b. Are there differences in the search indices and engines used according to newsroom role?

Data in Table 2 indicate that AltaVista is the dominant search engine and Yahoo! is the dominant search index. A total of 66% of respondents in 1998 and 61% in 1999 regularly used AltaVista. Yahoo! was named by 62% in 1998 and 68% in 1999. Other commonly used search tools included InfoSeek (24% / 21%), Lycos (23% / 19%), Excite (23% / 27%), Netscape Search (18% / 23%), and HotBot (18% / 22%).

News researchers seemed more diverse in their use of primary search tools. While most used AltaVista (69% / 58%) and Yahoo! (54% / 67%), other tools were often used. News researchers found Netscape's Search (31% / 8%) and HotBot (31% / 25%) useful

more often than other groups. Excite and Lycos were also widely used. Technical specialists seem convinced AltaVista (79% / 67%) is best for searching. Similarly, CAR specialists also preferred AltaVista (78% / 69%). These were the highest scores on any search engine given by any group, indicating a sense of unanimity among the “techies” and CAR experts that this tool best serves their needs. Reporters (76% / 66%) also used AltaVista extensively. However, newsroom editors (51% / 55%) were least likely to use AltaVista and Yahoo! (60% / 74%). This group appears quite diverse, as did news researchers, spreading its loyalties among a number of search tools. While the largest number used AltaVista, other substantial groups preferred InfoSeek (33% / 18%), Lycos (28% / 24%), and Excite (26% / 33%).

3a. Do journalists use advanced search options? 3b. Are there differences in the use of advanced search tools according to newsroom role?

Most journalists responding to the survey used advanced search options. Data in Table 3 show about four in five used advanced options always or sometimes. However, there are some differences according to newsroom roles. CAR supervisors and technical specialists used them somewhat more often than others. CAR supervisors used advanced options at 89% in 1998 and 82% in 1999. Technical specialists’ use level was second highest at 91% and 72%. Editors, on the other hand, use the advanced options less than CAR supervisors, news researchers, or reporters, with a level of 73% / 68%.

4a. What reasons do journalists cite for selecting their primary search tool? 4b. Are there differences in the reasons cited according to newsroom role?

Table 4 data show a wide range of reasons offered by respondents for selecting a search tool. The most common responses were that their choices depended on the type of search that needed to be done (25% overall in 1998, 24% in 1999) or the individual started with what he or she considered a major search engine (34% overall in 1998, but only 8% in 1999).

There are differences in how each group selects a search tool. CAR supervisors start with a major search engine (41% / 10%) or a familiar one (18% / 26%). News researchers, however, report that their decision depends on the type of search to be conducted (46% / 33%). Reporters are less cohesive, opting to select based on the type of search needed (23% / 27%), use a familiar engine (23% / 19%), and use a major engine (32% / 8%). Editors select a search tool based on the type of search needed (24% / 22%), use a familiar tool (15% / 24%), or use a major search engine (31% / 7%). Technical specialists, who tend to have management or technical support and production positions, depend on the type of search the tool conducts (13% / 46%) or use major search engines (38% / 9%).

5. Are some individuals, as the diffusion model suggests, more technologically advanced in their use of search tools at this stage of the adoption process?

Data in Tables 2-4 show that individuals whose roles require advanced computer skills are more advanced in their use of Web search tools. These individuals, categorized as news researchers, technical specialists, and CAR supervisors-specialists, each report sophisticated use of the Web's search engines, use of advanced tools, reasons for

selecting the tools when compared to reporters and editors. News researchers appear to be the newsroom innovators and early adopters in use of Web search tools and strategies.

CONCLUSIONS

While this research is exploratory in many ways, it leads to some useful areas for further inquiry about how the Web is used to seek information in newsrooms. These data reflect perceptions and self-reports about use. The respondents were among the most knowledgeable about computer use in their respective newsrooms. Thus, these findings might represent the use habits of the individuals responding more than the entire newsroom of a newspaper.

The data show clear differences in how these types of newsgatherers use search tools. Should there be differences in how reporters, editors, news researchers, CAR specialists, and technical specialists? Regardless, the data suggest at least two classes, perhaps even three, of computer searchers in newsrooms. First, there is a computer elite, those with greater experience and training for use of online resources. These are the news researchers, CAR specialists, and technical specialists. They are different from those without extensive experience. There are differences in the elite and the more conventional newsgatherers— general assignment and beat reporters and editors-supervisors. The differences in these groups may also exist because of the way the individuals in these groups use their computers for their online work. News researchers, CAR specialists, and technical specialists are in positions that are extraordinarily computer oriented in the newsroom. Reporters and editors, while writing and editing with computers, do not depend on them as much to succeed in their jobs. It is also likely that

these individuals do not spend as much time on the computer as they do working with other individuals or leaving the newsroom on assignment. Their job responsibilities simply do not allow it. This should be measured and analyzed in a future study.

Some insight comes from the use of advanced tools for searching. Editors and reporters offer the lowest proportions of individuals who used advanced tools when searching for information. Either they were not aware of such procedures and did not use them or they were satisfied with basic search productivity. CAR supervisors and technical specialists most often took advantage of these features because they were better prepared to use them and their jobs, perhaps, require it. The lower proportion of news researchers using advanced options in 1999 is a bit puzzling and may be attributed to the small number of respondents in that role. However, there are likely to be other factors and additional research is necessary for better understanding of this finding.

Additional understanding may be gained by examining the primary reasons for selecting a search tool. News researchers, who arguably spend a larger proportion of their workday searching for information and have been the innovators and early adopters in use of online resources in newsrooms, were alone in their large number of individuals who select on the basis of the type of search conducted (46%) by a search site. This requires sophisticated knowledge and extensive experience involving the advantages and disadvantages of a particular search site. The other groups were more similar on this measure, electing to begin with a major search site.

This suggests that news researchers likely form a third group in a newsroom hierarchy of those who seek information on the Web, as shown in Figure 1. Instead of reporters and editors forming a basic layer of the least skilled or least experienced and the

other three roles forming the second layer, perhaps CAR specialists and technical specialists form the second layer of more sophisticated users. News researchers become the third layer for those who are the most skilled and experienced in finding information on the Web. As the newsroom's innovators and early adopters in the diffusion of this interactive innovation, these individuals have the most experience using online research tools. The evidence presented is not sufficient because other measures are needed, but the model poses interesting questions for additional research.

Figure 1



News researchers are different in their use of the search tools of the Web. One interesting finding is that technical specialists, reporters, and editors use Internet Explorer more frequently than they use Navigator. The reason could be as simple as availability and newsroom adoption policies where these particular respondents work. But it could also be explained by insight these individuals have into the differences in browsers and their features that assist the specialists in their work. Another difference is that news researchers are more diverse in their use of search resources. This could be attributed to

experience and time spent using the Web, but it may also be the result of other, less obvious reasons. Clearly, further research is needed to better understand these findings.

These findings also suggest that training is an important role for news researchers and news librarians in today's wired newsrooms. In addition to finding information for reporters and others in the newsroom when it is needed, these specialists should be utilized in a development role. The data show that they have the most sophisticated skills for finding information on the Web and sharing that knowledge benefits the entire newsroom. Other studies have found that news researchers and news librarians have already begun to take on training responsibilities in some newsrooms.⁶⁸

The differences between news researchers and others in the information-gathering process must be considered. Clearly, there is need for additional training of those just learning and beginning to understand the online search process, especially involving the vastness of the Web. As more individuals are given the responsibility for their own research, training should lift the quality of the effort and make it more efficient. In terms of quality, greater accuracy and thoroughness will likely occur. In terms of efficiency, there will be less wasted time finding information that is needed or finding incorrect information, or, of course, not finding anything useful at all.

The issue of use of the Internet and World Wide Web by journalists is important to understand, if, for no other reason, because of the unrestricted content released each day on the Web. This study sheds some light on this process, but it does not look at the critical analysis involved in judging Web content once it has been found. This is the basis for a series of studies in the future. It is but one aspect of the impact of the Web and its new information-gathering potential that should be investigated.

This subject also requires further analysis to determine differences in the specialists in the newsroom and those who do not serve in information-providing roles. Understanding how the three groups identified in this study are different from others in the newsroom may be useful for a broader view of this subject. The argument can be made that the differences in these two groups may be more significant than those of the groups studied.

TABLES

**TABLE 1
PREFERRED WEB BROWSER SOFTWARE**

	MSFT Internet Explorer		Netscape Navigator		America Online	
	1998	1999	1998	1999	1998	1999
CAR supervisor	29.5%	28.9%	65.9%	68.4%	4.5%	0.0%
News researcher	38.5	16.7	53.8	75.0	7.7	8.3
Reporter	20.8	32.1	70.8	64.3	8.3	3.6
Editor	15.7	21.9	78.6	78.1	5.7	0.0
Technical specialists	21.7	37.5	78.3	62.5	0.0	0.0

CAR supervisor n = 44, News researcher n = 13, Reporter n = 24, Editor n = 70, Technical specialists n = 23, missing n = 11, total n = 185 in 1998; CAR supervisor n = 38, News researcher n = 12, Reporter n = 28, Editor n = 73, Technical specialists n = 16, missing n = 9, total n = 176 in 1999.

**TABLE 2
USE OF SEARCH ENGINES**

	All-in-One		AltaVista		Dogpile		Excite	
	1998	1999	1998	1999	1998	1999	1998	1999
CAR supervisor	0.0%	2.6%	77.8%	69.2%	11.1%	23.1%	15.6%	28.2%
News researcher	0.0	0.0	69.2	58.3	0.0	8.3	23.1	8.3
Reporter	4.0	3.4	76.0	65.5	4.0	24.1	24.0	10.3
Editor	3.8	2.6	51.3	55.1	7.7	16.7	25.6	33.3
Technical specialists	0.0	5.6	79.2	66.7	8.3	11.1	25.0	33.3
Overall	2.2	2.8	65.9	61.4	7.6	18.2	22.7	26.7

	HotBot		InfoSeek		Lycos		Netscape	
	1998	1999	1998	1999	1998	1999	1998	1999
CAR supervisor	22.2%	33.3%	17.8%	23.1%	15.6%	23.1%	8.9%	7.7%
News researcher	30.8	25.0	7.7	25.0	23.1	16.7	30.8	8.3
Reporter	16.0	31.0	28.0	20.7	20.0	10.3	12.0	17.2
Editor	16.7	11.5	33.3	17.9	28.2	24.4	23.1	35.9
Technical specialists	12.5	27.8	12.5	22.2	20.8	5.6	20.8	16.7
Overall	18.4	22.2	24.3	20.5	22.7	19.3	18.4	22.7

	Snap		WebCrawler		Yahoo!		Other tool	
	1998	1999	1998	1999	1998	1999	1998	1999
CAR supervisor	----	7.7%	13.3%	5.1%	62.2%	61.5%	8.9%	15.4%
News researcher	----	0.0	7.7	8.3	53.8	66.7	7.7	41.7
Reporter	----	0.0	24.0	3.4	72.0	65.5	4.0	31.0
Editor	----	1.3	14.1	9.0	60.3	74.4	2.6	10.3
Technical specialists	----	0.0	0.0	5.6	62.5	61.1	4.2	16.7
Overall	----	2.3	13.0	6.8	62.2	68.2	4.9	17.6

Snap search did not exist and was not included in the 1998 questionnaire. CAR supervisor n = 45, News researcher n = 13, Reporter n = 25, Editor n = 78, Technical specialists n = 24, total n = 185 in 1998; CAR supervisor n = 39, News researcher n = 12, Reporter n = 29, Editor n = 78, Technical specialists n = 18, missing n = 0, total n = 176 in 1999.

**TABLE 3
USE OF ADVANCED SEARCH OPTIONS**

	Yes		No	
	1998	1999	1998	1999
CAR supervisor	88.6%	82.0%	11.4%	17.9%
News researcher	84.6	66.6	15.4	33.3
Reporter	83.3	75.9	16.7	20.7
Editor	73.1	68.0	26.9	25.6
Technical specialists	91.3	72.2	8.7	27.8

CAR supervisor n = 44, News researcher n = 13, Reporter n = 24, Editor n = 67, Technical specialists n = 23, missing n = 14, total n = 185 in 1998; CAR supervisor n = 39, News researcher n = 12, Reporter n = 29, Editor n = 78, Technical specialists n = 18, missing n = 0, total n = 176 in 1999.

**TABLE 4
PRIMARY REASON FOR SELECTING SEARCH TOOL**

	Start with major engine		Use familiar search engine		Hit or miss, guesses		Depends on search type	
	1998	1999	1998	1999	1998	1999	1998	1999
CAR supervisor	41.2%	9.7%	17.6%	25.8%	5.9%	6.5%	26.5%	16.1%
News researcher	27.3	11.1	9.1	22.2	0.0	0.0	45.5	33.3
Reporter	31.8	7.7	22.7	19.2	13.6	15.4	22.7	26.9
Editor	30.9	7.4	14.5	24.1	14.5	11.1	23.6	22.2
Technical specialists	37.5	9.1	12.5	18.2	18.8	0.0	12.5	45.5

CAR supervisor n = 34, News researcher n = 11, Reporter n = 22, Editor n = 55, Technical specialists n = 16, missing n = 47, total n = 185 in 1998. ; CAR supervisor n = 31, News researcher n = 9, Reporter n = 26, Editor n = 54, Technical specialists n = 11, missing n = 45, total n = 176 in 1999.

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