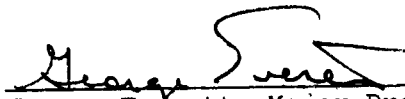
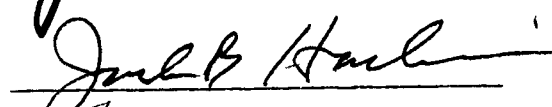
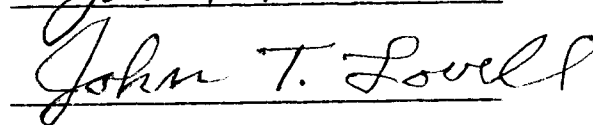


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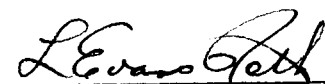
I am submitting herewith a dissertation written by Sara Stone Mantooth entitled "The Electronic Newspaper: Its Prospects and Directions for Future Study." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Communications.


George Everett, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:


Vice Chancellor
Graduate Studies and Research

THE ELECTRONIC NEWSPAPER: ITS PROSPECTS
AND DIRECTIONS FOR FUTURE STUDY

A Dissertation
Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Sara Stone Mantooth

August 1982

ABSTRACT

The purpose of this study was to examine the development of electronic newspapers in the United States, particularly the eleven electronic newspapers created for the home information retrieval project conducted from 1980-82 by the Associated Press and CompuServe.

The dissertation, which included a state-of-the-art description of videotex usage today and a lexicon of terms for the new technology, is accompanied by a four-hour videotape providing representative selections from each of the eleven newspapers participating in the project.

The primary method of data gathering was the telephone interview which was utilized to ascertain the decision making and production practices associated with the individual newspapers. From the interviews, which were conducted with either a representative of the management team at each newspaper or with the editor of the electronic edition, it was possible to create a composite picture of the typical electronic newspaper in the experiment; to create a detailed account of production practices at each of the respective newspapers, and to ascertain the opinions of the drawbacks, benefits and prospects for videotex from eleven people who worked closely with the new medium over an extended period.

The major conclusions of the research were identifiable at both a micro- and macro-level. At the micro-level, the consensus was that the newspapers had been unimaginative and largely unsuccessful in their attempts to create a new product; at the macro-level came the realization that the new technology has the potential to eliminate

geographic barriers, thereby opening the door to equalization of all information providers. The equalization factor eliminates the notion that the publisher of a newspaper is the holder of a local franchise, and replaces it with the dilemma of whether the newspaper wishes to serve a national audience or focus on a narrow public. Additionally, publishers of electronic newspapers must decide whether they want to be information providers only, in which case they are vulnerable to a host of other information providers, or if they want to become systems operators, as well, in order to control or restrict the information carried on the system.

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I. INTRODUCTION

Advances in communications technology historically have resulted in significant changes in communications capabilities. Burns (1980) and Smith (1980), as well as others, agree that there have been three major breakthroughs in communications technology. The first occurred about 3000 B.C. when the Sumerians developed the ability to communicate by writing. The second occurred in the 1400s when Gutenberg invented movable type, and the third is in the process of occurring right now.

Each of these advances has made its impact on the development of man. During the first era, writing enabled society to move from a primitive to a civilized culture. Universities were created and social, legal and economic structures adjusted to the fact that people--that is, any person with the time, money or inclination--could become informed. As Burns (1980) puts it, citizenship became possible.

The second era, made possible by Gutenberg, forever changed mankind. Heretofore people had been tied to their locales. Printing, which removed time and space boundaries, allowed the Renaissance to take place, brought about "The Age of Reason" and, ultimately, produced mass communications. During this second period, such inventions as the Linotype, the typewriter and the telephone contributed to the growth of conventional journalism. Carey (1981) views the invention of the telegraph as one of the most important developments of the 19th century in America because it divorced communication from transportation. Up until its invention, the transmission of news had been

dependent on a mode of transportation (e.g., ships, trains, pony express) for movement from one locale to another. The telegraph changed that.

Now, in this century, the invention of the microchip has brought about the same type of revolutionary impact as that of the telegraph. It has allowed the mushrooming of electronic journalism, and has led to a refinement of information technologies in communication, education and publishing.

The information explosion, made possible by the new technologies, has spawned new electronic information retrieval systems that have the potential for widespread impact on both the practice and study of communication. In particular, the combination of mass communication and computers is opening the way to new and previously unimagined uses of technology in large areas of human activity (Hannay, 1980).

Marketing News (Oct. 3, 1980) reports that because consumers are soon going to be able to touch a button and receive any information at any time, videotex has the potential to be even bigger communication phenomenon than television, and that the technology will sooner or later affect every industry imaginable. The touch of a computerized button will allow the reception on home television screens, in color, of the following kinds of information:

- all types of news and feature stories;
- detailed weather reports;
- scores and other sports statistics;
- stock market and other financial listings;
- price and product information;

- restaurant menus;
- telephone directories and Yellow Pages ads;
- movie theater and other entertainment listings;
- TV and radio program schedules and list of top-selling records;
- airline, train and bus schedules;
- bank statements and other financial transactions;
- games and quizzes;
- educational materials and curriculum lists;
- real estate, classified, and help wanted advertising;
- road conditions, traffic and other travel information ("Moving from blue," 1980).

Compaine (1981) has coined the word "communications," which he uses to describe the confluence of electronic computers and telecommunications. This dissertation deals with videotex, an offspring of communications and the generic term used to describe the interactive electronic transmission of non-photographic information to the home television screen.

Purpose and Significance of the Study

The purpose of this study is to examine videotex both from within its theoretical framework and from the standpoint of practical applications. Much has been written already about this new technology and how it may change modern communication patterns, and even about how it may change society. In the best tradition of the media effects theorists who ask, "What do the media do to people?" there is already speculation about what videotex is going to "do to" media consumers

today. However, videotex is not researched from the effects-on-audience standpoint in this study. The new technology is still in the experimental stages in the United States, and even in such countries as Great Britain and Canada, where the technology has been around long enough to be considered "second-generation," the concept is still so new that only tiny percentages of the populations even realize it exists, let alone utilize it on a regular basis. One of the problems in dealing with the question of just exactly what kind of impact videotex will make on society lies in the fact that most of the futuristic conjecture that is being made is based on speculation and not on empirical data. Smith (1980) says that with videotex, as with any new technological development, there is an enormous difference between the potential of the technology and its uses. The latter, he says, are always approximate and makeshift; the former entails a scheme of values that are not necessarily accepted.

Consequently, it seems premature to be conducting studies which reflect the rate of acceptance by the general population of the technology or the degree to which people integrate videotex with their already established use of books, film, newspapers, radio and television. Rather, this dissertation offers both a state-of-the-art review of videotex as a technology of communication, and an intensive study of one aspect of one videotex experiment that has been conducted in the United States. The primary focus is on the relationship between videotex and newspapers.

The newspaper industry has been watching the development of videotex with interest, primarily because of three developments: (1) a

rapid increase in the cost of newsprint and gasoline; (2) a fascination with such new technologies as satellites and home computers, and (3) competitive inroads that the telephone, broadcasting and cable industries are making into traditional newspaper markets.

A cynical illustration of the first point was made in an address last year to the Dallas Advertising League by cable broadcasting magnate Ted Turner:

There's nothing more inefficient than going out and chopping down trees that we are going to need for firewood and making them into paper and printing the damn paper every day. And then, with oil supplies drying up, driving them all over town and sticking those bulky things in everybody's mailbox, then we have got to send the garbage truck to pick them all up. (Jackson et al., 1981, preface).

Not quite so cynically, but in the same vein, Kelly (1980) believes that electronic newspaper delivery is inevitable. He states that the environmental effects and huge energy requirements of producing and printing newsprint (for instance, a single Sunday edition of the New York Times consumes 62,860 trees) will force the change. Decisions will have to be made about what information can be transmitted electronically and then discarded or stored. Seemingly, videotex offers an excellent alternative for some newspaper publishing needs. There are a number of studies being conducted right now, not only by newspaper publishers and chains, but by broadcasters and others in the information business, to ascertain the impact of videotex as an electronic publishing tool. One of those studies is being jointly conducted by the Associated Press and CompuServe, an Ohio-based timeshare computer company, which has expanded its telecommunications facilities for commercial data transmission to reach the growing home computer market.

The Associated Press contracted with CompuServe in 1980 to conduct an exploration of the new technology of home information retrieval. The experiment technically ended on June 30, 1982, but some newspapers continued to supply electronic newspapers for additional research purposes.

A subsidiary of H. & R. Block, CompuServe offers video games, electronic news and information services to its subscribers. Customers may use the service by dialing up a local node of the CompuServe nationwide network called Micronet. The nodes in the network manage the system, and once connected, the customer never has to pay the telephone company more than the cost of a local telephone call. The call is routed electronically to the telephone lines at CompuServe in Columbus, Ohio, where the customer is tied in directly with the CompuServe computer. Information can then be extracted from the computer, and transmitted via the telephone lines to the customer's television set, which is hooked up with a telephone and a personal computer. In addition to connecting a customer's television set and telephone, the terminal includes a small bank and keyboard, which transforms the television set into an interactive computer terminal. Once on-line, a customer can choose from one of nine basic services: newspapers, finance, entertainment, specialized communications, CompuServe user information, special services, home information, education and micronet personal computing.

The newspaper category is composed of the eleven newspapers participating in the Associated Press project. They are the Columbus Dispatch, the New York Times, the Virginian-Pilot and Ledger-Star

(Norfolk, Virginia), the Washington Post, the San Francisco Chronicle, the Los Angeles Times, the St. Louis Post-Dispatch, the Minneapolis Star-Tribune, the Atlanta Journal-Constitution, the San Francisco Examiner, and the Middlesex Daily News (Framingham, Mass.).

Customers utilizing the financial services category can call up Microquote, the Commodity News Service Financial/Commodity News, the Raylux business reports, electronic banking services, the Archer Commodity Reports, Quick Quote, Standard & Poor's stock information service, Investment News and Views, Small Business Report and the Value Line Data Base II.

The entertainment category offers a wide variety of games, CB radio simulation, movie reviews, "Video Info," "Ask Aunt Nettie," and the "National Computer Game."

The specialized communication category includes two services: one is electronic mail for user-to-user messages, and the second is a national bulletin board for placement of any kind of public message.

The CompuServe user information category provides customers with up-to-the-minute reports on the system and in-house newsletter information. Services in the category are named "What's New," "Using the Data Base," "Sending Feedback to CompuServe Information Service," "Changing Terminal Type or Service Type," "Current Rates," "CompuServe Subject Index (a list of computer commands for movement within the system)," "CompuServe Information Service Command Summary," "CompuServe Viewpoint," and "Credit Card Billing Charges."

The special services category contains services for aircraft pilots, the "Tandy Newsletter," the "Atari Newsletter," "Motor Racing

Reports," "The Micro Advisor," federal reports, "The Future File" and "H&H Sporting Times."

Within the home information category can be found Better Homes and Gardens magazine, U.S. government publications, Popular Science--Energy and Popular Science--New Products, "The Refundle Bundle" and the home management programs.

In the education category can be found a listing called "The College Board" and a service called "The Multiple Choice."

The Micronet Personal Computing category contains special interest groups, software exchange (Softex), manufacturers' newsletters, the line printer art gallery, an index, a public access area and the Micronet command mode.

CompuServe charges its customers an initial fee of between \$19.95 and \$29.95 for a personal CompuServe identification card and password. This cost is included in the price of some personal computers or the equipment needed to upgrade some existing computers. The time charge is 8 and 1/3 cents for each minute of connection, which amounts to \$5 an hour. The service is available between 6 p.m. and 5 a.m. every weekday, and all day on weekends and holidays. Business customers can access the CompuServe computer during regular business hours at the higher cost of \$22.50 an hour. To promote its service, CompuServe has worked out a marketing arrangement with Tandy Corporation's Radio Shack division. Radio Shack is marketing a color computer called the TRS-80, which sells for \$399, several hundred dollars under the \$1,000 cost of the average home computer. The TRS-80 has a 53-key keyboard, screen format of 16 lines of 32 characters,

graphics array from 32-by64 to 196-by256, and a 1,500 bit-per-second cassette interface. It features a 4K random access memory (RAM) which can be upgraded to 16K of RAM, and an 8K read-only memory (ROM).

Jackson, et al. (1981) say that CompuServe's text and graphic capabilities are rudimentary when compared to some of the second-generation viewdata services such as the Canadian Telidon system. However, they stress that one of the biggest selling points of CompuServe is that it is an operating service already available in every major U.S. city and it is affordable.

As an operating service, and one which delivers newspaper content electronically, the Associated Press/CompuServe experiment raised the opportunity to study directly some of the aspects of the technology which have heretofore been only the subject of speculation. The AP/CompuServe experiment has yielded data that is helping to shed light on at least one aspect of videotex's uses, and that is how newspapers that have been printed by conventional means can make transitions into electronic publishing. It has provided information on how eleven newspapers, representing 10 large and small cities in very different sectors of the country, developed electronic editions of their publications.

The Associated Press entered into the experiment to find out whether a market exists for information retrieval in the home, and if so, what role the newspaper should play. According to Fuller (1981) the AP experiment was concentrated in four areas: Database development/editorial; marketing and promotion; research; and technical.

One of the ways in which the AP tracked the use of the news database was through operational logging of the computers. The wire service

hired a marketing research firm, RMH, Inc., to coordinate all research activities connected with the CompuServe experiment and RMH completed the operational logging checks in the summer of 1981. According to Fuller, the operational logging was possible because a CompuServe computer can track such items as time of day of access, length of access, day of week (weekday vs. weekend), type of information accessed, specific newspaper content accessed, local vs. other database accessed, source analysis (what people access before and after the newspaper), behavioral variations by stimuli (response to promotions, advertising), and analysis of test panel (trial vs. repeat information usage, access cycle, other standard measures). RMH, Inc., also handled two other projects for the AP in the experiment--abstracting articles, books and other material on videotex and conducting a survey on attitudes and awareness of the general public of electronic news delivery. The results of these studies should have proved helpful to the Associated Press in assessing its project.

Statement of the Purpose

Ample research data was generated by the Associated Press project because computer systems are so well suited to tracking quantifiable information. But, some questions cannot be answered by a computer. Therefore, this dissertation has a dual purpose: first, to provide a state-of-the-art description of videotex newspapers today with emphasis on emerging issues; and second, to conduct a survey of electronic editors at each of the eleven newspapers taking part in the experiment to ascertain the many decisions and processes involved in producing the electronic editions on a daily basis. This second part is, in

essence, a gatekeeping study focusing on the content or editorial/database development of the AP experiment.

Research Questions

Because there has been no precedent to guide any of the editors of the electronic editions in meeting the challenges of producing these first electronic newspapers, one of the purposes of this dissertation is to ascertain the kinds of problems the editors of the electronic editions encountered and to learn their perceptions of the technology and its positive and negative aspects. The following represent the research questions in this benchmark study.

1. What is printed in the electronic edition of the newspaper? (i.e., is the electronic edition a carbon copy of the print edition?)
2. How much manpower is devoted to the electronic edition?
3. Does the content of the local database reflect the printed edition or go beyond?
4. Does the newspaper staff the database five or seven days a week, one shift or three?
5. Is material in the electronic edition released pre-publication, at-publication or post-publication of the print edition?
6. How often does the newspaper staff update the information in the database?
7. How much time did it take for the system to become operational? (i.e., how much time and expense were involved in converting the newspaper's front-end computer system which normally sends copy to a typesetter and not to a telephone line?)

8. Where is the location of the electronic newsroom in relationship to the print newsroom?
9. How was the electronic editor selected for the position?
10. What qualifications does the electronic editor have for the position (both news background and computer background?)
11. What criteria were used in the selection of the electronic editor and electronic staff?
12. What is involved in copy selection for the electronic edition? Who makes the decision? Is the decision made at a meeting?
13. How, if at all, does the electronic copy differ from the printed edition copy?
14. What are the perceptions of the audience of the electronic edition? (a computer hobbyist? a serious reader of the news?)
15. Does the electronic editor or reporter consider himself to be writing for print or broadcast purposes?
16. How do other reporters and editors at the paper feel about the electronic edition? about its staff? is there resentment?
17. How much per year does it cost to provide the electronic editions?
18. Did newspaper management have to reduce newsroom budgets in order to provide funds for the electronic experiment?
19. Does the paper plan to continue the electronic edition after the AP experiment is completed?
20. How is the relative importance of a story conveyed to the CompuServe customer? (i.e., a printed newspaper can convey importance through story placement and headline size--how is the lack of these two elements compensated for in the electronic edition?)

21. Is there any way a story can be given rank ordering in an electronic newspaper?

22. What are the major problems involved in copy preparation for the electronic editions?

23. What does the electronic editor perceive to be the major benefits of the videotex process?

24. What does the electronic editor perceive to be the major drawback of the videotex process?

25. What is the electronic editor's self-estimation in connection with the videotex job?

26. What, in the electronic editor's estimation, is the future of videotex in the United States?

Definition of Terms

Because videotex is still developing as a communication technology, considerable confusion exists in the related terminology. The following list of definitions is offered to assist in the understanding of technical and commercial terms associated with the field.

Videotex (sometimes spelled videotext) is commonly used in the United States as a generic term referring to interactive information delivery systems which allow users to call up computer data via telephone or data networks for display on a TV screen. The means of delivery from the central computer bank can be a telephone line, broadcast signal, coaxial cable, microwave, or satellite. The two types of videotex systems most evident today are teletext and viewdata.

Teletext, a specific kind of videotex, represents one-way communication from the information source to the user. An unused portion

of the conventional TV signal is used to carry up to 200 "pages" of textual, numerical and graphic information which is delivered over and over again at rates of dozens of pages per second. Since the user does not send any information back to the sender of the signal, it is a one-way system, although it is interactive in the sense that the user enters a code into a specially modified television set to select one of the pages for display on the screen.

Viewdata is an interactive system linking the user to a mammoth host computer. Whereas teletext depends on television signals as its transmission source, viewdata uses telephone or cable TV lines as its communication link. The user accesses information from a host computer through a small microcomputer, and the information is displayed on a home television receiver. The user can talk to the computer and also can store the information retrieved in the microcomputer's storage for later use.

These are the main terms used in connection with videotex. The following terms are defined for ease in understanding the state of the art today.

Antiope is a teletext system introduced in France. Supervised by the French government, Antiope's teletext service operates special channels for transmission of financial and weather information.

CAPTAIN (the Character and Pattern Telephone Access Information Network system) is the experimental interactive viewdata system in Japan. Because of the complex nature of the Japanese written language, CAPTAIN will permit still pictures to be drawn and transmitted through the system. CAPTAIN is very similar to Prestel, the British videotex

system, except that it is designed to act as the forerunner of a Video Response System, a system which will offer animated and still pictures (with sound) to the home.

Cable television is the technology of sending television signals to homes by wire instead of over the air. Antennae receive television signals from satellites, microwave transmissions and over-the-air broadcast transmissions, then distribute the signals to households via cable.

Communications, a word coined by Benjamin Compaine (1981), is information industry jargon for technologies that merge the advancements in microelectronics and telecommunication to create computerized communication devices, products and services.

Computer is an electronic machine capable of accepting and processing data and producing results by carrying out repetitious and highly complex mathematical operations at high speeds. It is also efficient at storing information.

Data banks represent the large quantities of information stored in computer memories. Users retrieve information from such data banks through a variety of electronic terminals, including those tied to living-room TV sets as in a viewdata system.

Direct broadcast satellite (DBS) is a form of delivery of television programming similar to traditional over-the-air broadcasting, but with signals beamed to homes directly from satellites. To get the signals, a user must purchase a dishlike antenna that can focus on a satellite and receive the programming. It is known as direct-satellite transmission or direct-to-home broadcasting.

Electronic edition is the version of a newspaper that is transmitted through the teletext or viewdata technology to readers.

Electronic editor is the person on the newspaper staff who is responsible for supervising and directing the preparation of the electronic edition.

Electronic newspaper, a paperless product, is news delivered in text and graphic form to home terminals either through teletext or viewdata technology.

Frame is a television screenful of information. It usually is about 16 lines of 30 characters each.

Interactive represents the "conversational" ability of a person to talk to a data bank, using a system to input commands and receive a response. The system sends its information to a user one way, and the user sends answers or requests back; systems able to handle user response are said to be "interactive" or "two-way," although the one-way technology called teletext does allow limited interaction.

Personal computer is a computer terminal in the home or office which can perform a variety of informational or entertainment functions.

Prestel is the name of the telephone-based videotex system used in Great Britain today. It is operated by the British Post Office.

Software represents the program, or "intelligence," that gives a computer the ability to "think" when the user provides the proper commands. The computer itself is hardware. The instructions put into it, telling it how to respond to various commands, are the software.

Telecommuting is an information industry term for applications of terminal technology and telecommunication that allow white collar

workers, such as secretaries, managers and professionals and executives, to work at home or places close to them. Such commuting by telecommunication would in some instances replace commuting by vehicle.

Telidon is the viewdata/teletext system developed by the Department of Communications in Canada. The Telidon system is generally recognized as having superior graphics and resolution capabilities.

Terminals are devices that allow a user to communicate with a computer. They are required for viewdata, but not applicable to teletext.

Assumptions

The first assumption of this research is that videotex and all of its related technology is a worthwhile subject of scholarly attention.

A second assumption is that the Associated Press-CompuServe videotex project represents an experiment which will yield data useful to persons interested in studying the relationship between technology and mass communication.

Finally, it is assumed that the AP-CompuServe project will not be terminated before the researcher has an opportunity to complete the dissertation study.

Limitations

Since the data for analyses are to be gathered from a highly specialized, very small group of individuals, it might appear that the findings could not be generalizable to any larger population. That doesn't appear to be an immediate problem, because at this point these

editors are the population. There is a possible limitation, however, that the findings of this study will not in any way be generalizable to the larger population of electronic editors expected to follow as the number of electronic newspapers grows.

Additionally, this study is weighted very heavily toward the editorial decision-making aspects of newspaper production. As such, it will not help to answer the questions of advertisers, advertising agencies, broadcasters, phone companies, bankers, opinion pollers, entertainment specialists, computer companies, and the host of others outside the electronic newsroom who have an interest in this new technology.

Benefits of the Study

Because videotex is such a new field, and because there is value in ascertaining, compiling and reporting initial attempts at a new endeavor, this study is worthy. Its purpose is to describe how videotex is assuming a place as a viable new communication medium, to provide a state-of-the-art description of the technology, to enumerate the issues and problems that are emerging as the technology is put into use, and through special focus of the gatekeeping research, to describe and explain how electronic editors make and then implement decisions in the production of electronic editions of newspapers.

Haskins and Kubas (1979) write that gatekeeping

. . . is largely an onerous, uncertain, demanding, error-prone component of an editor's job--but probably one of the more important components in terms of reader satisfaction and eventual success or failure. (p. 269).

A compilation of the information gleaned from the editors will be

helpful to those who follow--whether other journalists, students or academicians. Most important, a study of this type provides the benefit of exploration through the discovery of problems and the pinpointing of areas worthy of further research.

II. LITERATURE REVIEW

Advances in communication technology, particularly in the field of computer science, indicate the potential for dramatic changes in the way people conduct their lives. These changes, which deal with such diverse fundamental aspects of daily living as work, play, banking, shopping and communicating, all are related to videotex, a type of technology dependent on computers and telecommunications for the electronic dissemination of information. Videotex is still in the experimental stages in the United States, but is in the process of being perfected in Canada and Europe, where it has been in use for nearly a decade.

Much has been written about videotex, but because of the newness of the technology very little in the way of empirical research on the subject has been conducted. Consequently, this review of the videotex literature, of necessity, will focus on descriptive rather than empirical studies.

Academic Studies of Videotex

At the beginning of 1982, there had been only three scholarly studies conducted in the United States on videotex. These included two doctoral dissertations and one master's thesis. The first of these studies was a doctoral dissertation written by Ahlhauser (1978) as a survey of four British teletext systems for electronic newspapers and an assessment of implications about electronic newspapers by a number of U.S. newspaper editors. The fact that just four years ago there were no teletext or videotex systems in operation in the United States

provides a clue as to just how new the technology is in this country. Alhauser summarized the advantages and disadvantages of teletext based on his study of the British systems and the American editors' assessments. He found seven advantages to teletext. It:

1. eliminates or bypasses present problems with the supply, printing, and the delivery of newspapers.
2. gains greater immediacy of news "delivery."
3. increases the volume of information deliverable.
4. multiplies diversity for viewers with special interests.
5. serves viewers with current, on-demand information at any time.
6. maintains the American newspaper responsibility of fulfilling the information needs of a democratic society.
7. forestalls newspapers losing the initiative to non-journalistic entrepreneurs.

He found five drawbacks to teletext. They were:

1. lack of a penetrating transmitting facility and channel in every community.
2. the undefined role of government regulation.
3. challenge of integrating advertising with news.
4. possibility of viewer resistance to text on the screen.
5. the risk that economics will reduce news coverage to those stories which satisfy what most individuals want.

The other two academic studies dealt with specific applications of the new technology. In a master's thesis, Huntley (1981) described a Thailand Hospital "video venture" and speculated about the likely

impact of video and teletext in missiological applications in developing countries. In a doctoral dissertation, Bolton (1981) studied one aspect of a three-month field test of a prototype viewdata system called Channel 2000, taking particular interest in implications for diffusion theory. Bolton described Channel 2000 as an electronic informational device which delivered library and banking services, as well as various types of community information, to 71 randomly selected Columbus, Ohio households. The users had free and unlimited access to the electronic services throughout the field test. Bolton, operating on Rogers' (1971) assumption that the perceived attributes of an innovation can, to a certain extent, determine whether an innovation is accepted or rejected, found that Channel 2000 (the innovation) was perceived by the users as being not too complex to use, but not particularly useful or compatible with their current experiences, values, or needs and that it offered them few advantages over the status quo.

No studies have been conducted on the gatekeeping aspects of videotex.

The paucity of scholastic research into the field of videotex is indicative of three things: one, that videotex is a new communication technology, two, that the field is fertile for many additional studies, and three, that pioneering seminal studies are needed to provide a basis for important research to follow.

Development of Videotex

Videotex, the generic term used to describe all electronic information delivery systems, got its name from the British, who started the first interactive videotex service during the 1970s. It was developed

by Sam Bedida of the British Post Office Research Center, whose research group was seeking a linkage of television, telephone and computer. The result was Prestel, a system whereby users rent their specially adapted television sets and pay for time their telephone is tapped into the database. It is operated under the auspices of the government by the British Post Office ("Telecommunications," 1981).

Much has been written (Ashe, 1980; Ball, 1981; Carey, 1982; Chanin, 1981; Chorafas, 1981; Criner & Johnson-Hall, 1980; Eisele, 1979; Fedida & Malik, 1979; Howkins, 1979; Hughes, 1979; Jackson, 1979; Logue, 1979; Martin, 1981; Radolf, 1980; Rimmer, 1979; Sigel, 1980; Smith, 1980; Snider, 1981; Thomas, 1981; Urrows & Urrows, 1981; Wicklein, 1981; and Zenor, 1981) about the development of videotex from its start in Great Britain and about how it is going to change modern communications patterns.

One key component of Prestel and all of the other videotex systems is the computer. As recently as the 1950s, shortly after the invention of the computer, Smith (1980) reports that experts believed that three or four computers would be the total required to fulfill the needs of an entire society. Yet, the New York Times printed an article in August, 1981, indicating that by 1980 one million computers had been manufactured, and even more revealing of the computer industry, that Commodore International Ltd., the number three manufacturer of computers worldwide (behind Apple Computer and Tandy Corporation) alone would produce one million computers in 1982 (Pollack, 1981). Consumers' Research Magazine explains the reason why such growth was made possible:

As recently as five years ago, computers with the capabilities of today's desk top units filled an entire room

with board after board of transistors, tubes and crude integrated circuits and relied on thousands of computer cards to feed in programs. Technological developments such as computer chips which replace transistors and processing units which manage computer languages have dramatically decreased the size and the cost of the systems. Systems which would have cost thousands or hundreds of thousands of dollars are now being replaced by small, relatively inexpensive desk top units. ("Is there a computer," 1981, p. 11)

Blasko (1981) neatly sums up the utility of a computer when he says that the computer is to the mind what a lever is to the arm: it is mind-amplifying (p. 48).

Prestel is an interactive system in which viewers can send messages to a computer and interact with the system. After viewing a table of contents, viewers can request specific pages from the computer.

Fielding and Porter (1981) report that Prestel is capable of providing up to 150,000 pages of information from 150 different information services to more than 1,000 subscribers in the London area. For a fee, the subscribers can obtain information ranging from hard news to advertising to entertainment.

In addition to the Prestel two-way interactive viewdata system, Hughes (1979) describes the two teletext systems in operation in Great Britain. They are Oracle and Ceefax, owned by the Independent Television News group and the British Broadcasting Corporation respectively. Oracle, which stands for Optional Reception of Announcements by Coded Line Electronics, and Ceefax are one-way systems in which the viewer can interact only with the receiver and must wait for the page wanted to come around on the cycle. Hughes (1979) indicates that improvement of access time is planned to shorten the 22-second timing for each 100-page cycle.

The British introduction of videotex has spawned a number of other systems around the world.

Videotex in Canada

The Communications Research Center of the Canadian Department of Communications has developed a highly sophisticated version of Prestel which Smith (1980) reports in gaining the greatest attention from communicators around the world because of its compatibility to every available form of transmission system--telephone line, coaxial cable, optic fiber, and broadcast signal. It is called Telidon, and has been the subject of a number of articles (Ball, 1981; Brown et al., 1979; Foley, 1979; Forgie, 1981; Jensen & Ball, 1981; Madden, 1979; and Phillips, 1980).

Telidon is touted as a kind of total domestic communication system which would include telebanking, education, shopping, entertainment, employment and news delivery. Smith (1980) says its only drawback is that it is too far advanced for the average telecommunication network. Telidon users are offered the facility of common intercommunication, and with the use of a special keyboard terminal, all forms of written and graphic communication are possible. The user even can draw material on his screen with a light pen and transmit it to an interlocutor (Smith, 1980).

Telidon is considered superior to other systems because it has been constructed on the basis of very high resolution produced by a much larger terminal memory store than any rival system. Smith (1980) says that while the other systems are built upon forms constructed in

mosaic patterns, Telidon describes its basic forms as points, lines, arcs, rectangles, and polygons--building up pictures from a large repertoire of geometric elements. A Telidon monitor can register resolutions built upon 4,906 x 4,906 elements on a single display, compared with 240 x 320 for the average color receiver. Unlike the other systems, it therefore can transmit photographs by describing them as a series of points. The Telidon terminal contains a built-in mini-computer, which offers tremendous versatility (Smith, 1980), although all of the necessary equipment can be packed in a box the size of a telephone directory.

Phillips (1980) lists a number of videotex experiments either under way or planned in Canada. The Ontario Educational Communications Authority initiated a field trial of broadcast Telidon in January, 1980, utilizing 55 terminals. Bell Canada and the Department of Communications teamed up to Launch a \$10 million field trial in January, 1981, utilizing 1,000 terminals. This test represents Phase II of the trial of the Bell Vista system. Phase I was a smaller trial of the same equipment which was conducted in 1979. A number of other telephone systems in Canada also have videotex experiments in the works. These include field trials by British Columbia Telephone Company, Alberta Government Telephones, Manitoba Telephone System, New Brunswick Telephone Company, Telecable Videotron in Montreal, and others (Phillips, 1980).

The government in Canada is keeping a close watch on the development of the technology. According to Phillips (1980), the main concern has been with establishment of standards to promote some uniformity of

design and manufacture of Telidon terminals with adequate flexibility so that future services, when they develop, will be available to all those who own a Telidon terminal. To that end, the Canadian Videotex Consultative Committee has been established to advise the government about videotex developments. It is composed of representatives from the manufacturing industry, information service providers, carriers including broadcasting, cable and telephone, government, labor and community groups (Phillips, 1980).

The Worldwide Picture

The British and the Canadians are not the only countries around the globe experimenting with videotex. Smith (1980) lists the following additional systems: both wired and broadcast videotex systems in Australia; Telidon and Vista in Canada; Telset in Finland; Tictac, Titan, Didon and Antiope, all in France; Bildschirmtext and Bildschirmzeitung, both in West Germany; CAPTAIN (Character and Pattern Telephone Access Information Network) in Japan; Text-TV in Sweden; and a number of experimental systems in the United States.

Videotex in the United States

Videotext has been slower to develop in the United States than in Great Britain and Canada where government funding has greatly enhanced the capability to experiment with the new technology. However, there are a number of videotex experiments under way in the United States today, representing such diversified sponsors as the Associated Press, CBS and the United States Department of Agriculture.

Videotex and the Associated Press. The Associated Press is one

of the moving forces behind a number of videotex services in the United States. In fact, the cooperative wire service company, which is financed by its members, is experimenting in a number of technological areas, including satellite delivery, information retrieval, cable television, portable picture transmitters and a portable front-end computer system. All of these research areas are tied either directly or indirectly to the development of videotex.

Since 1979, the AP has been actively involved in several videotex experiments or services. These include the CompuServe news retrieval project, the Knight-Ridder Viewtron experiment, the Dow Jones News Retrieval service, and Mead Data Corporation's NEXIS retrieval system ("CompuServe in operation," 1981). Briefly, CompuServe's news project is a library of news and information from the 11 participating newspapers and the AP Datastream circuit; the Dow Jones News Retrieval Service (started in 1977) includes current stock quotations provided by the Associated Press to terminal users via the Dow Jones system; the AP's Viewdata News Wire, created originally for the Knight-Ridder test in Miami, was used by the Dallas Morning News and its Belo Information System test in the Dallas area with Sammons Cable and Dow Jones and by some of the CompuServe newspapers; and Mead Data's NEXIS retrieval system, in which the entire AP AAA wire becomes part of Mead's database for library retrieval after a 48-hour embargo to prevent any use of the material in a competitive manner by other newspapers ("Satellite, retrieval," 1981).

Videotex and Knight-Ridder Newspapers. Two major videotex

studies have been conducted in the United States. One of them is the Associated Press/CompuServe experiment which was discussed at length in Chapter I. The second is the Knight-Ridder Newspapers experiment which was conducted with the American Telephone and Telegraph Company. The experiment, called Viewtron, began in the summer of 1980 and ended in the fall of 1981. Its purpose was to ascertain what consumers wanted in a home information system, how much they would be willing to pay for such a system and whether such a service is feasible. The two-way system, tested in 1960 to 200 homes in Coral Gables, Fla., provided two separate types of information from suppliers of some 30 editorial and advertising services. The first type of service was called Home Information/Management and the second was Home Transactional Service. The Home Information/Management section of the database provided the user with a continually updated news report from the Miami Herald, the Associated Press and the Wall Street Journal. The Home Transactional section of the database gave the user the opportunity to purchase merchandise and/or airline reservations (Radolf, 1980).

The Viewtron experiment, according to Radolf, represented \$1.3 million investment for Knight-Ridder. A total of 16 advertisers participated in the experiment, but did not have to pay Knight-Ridder for the opportunity. The advertisers included Eastern Airlines, Master Host Dinner Service, Sears and Roebuck, B. Dalton Booksellers, Grand Union, Southeast Banking Corporation, Official Airline Guides Inc., AAA World Travel Agency, Goldberg's Marine Distributors, J. C. Penney, Shell Oil Corporation, Bass Tickets, Spec's Music Company, Service

Merchandise Corporation, Cousins Associates (real estate), Shell's City Liquors and Merrill Lynch.

The Viewtron experiment also featured classified advertising. In an effort to encourage shopping by computer, coupons (called "Viewpons") were provided to the users of the system during the experiment (Radolf, 1980).

Holder (1982) quoted Knight-Ridder spokesman Frank Hawkins as saying that results of the Viewtron experiment were so good that plans for a second round of tests were scrapped. Instead, Knight-Ridder will market the Viewtron system in Miami beginning in 1983, and, according to Holder (1982), has already signed franchise agreements with the publishers of the Boston Globe, Fort Worth Star-Telegram (which announced early in the summer of 1982 that its videotex edition will be called Star-Text) and other non-Knight-Ridder newspapers to install its system in those cities shortly after the first Miami readers sign up.

Videotex and the Belo Corporation. The Park Cities experiment was an 18-month-long venture into production of an electronic newspaper that was undertaken by the A. H. Belo Corporation, publisher of the Dallas Morning News. The project began in January 1981 and ran through May 1982. Unlike the previously mentioned Viewtron experiment, which was considered a resounding success, the Belo project in some ways was considered disappointing. Joe M. Dealey, chairman of Belo, told Editor and Publisher (May 22, 1982), that the market for videotex services was not yet fully developed and that BISON (Belo Information Systems Online Network) was being withdrawn until market conditions warranted, and when that time came the service would be re-evaluated ("Belo corporation

cancels," 1982). At the time the experiment ended, Belo only had about 200 subscribers for the BISON service, which offered text of the Dallas Morning News, the AP Viewdata Wire, UPI Unistox, business news and stock quotations from Dow Jones, securities data from Merrill Lynch, airline schedules and other consumer information. The system cost subscribers \$10 a month. It was transmitted primarily over telephone lines, but also was available on two-way cable in Highland Park and University Park (the two Dallas suburbs which were the source for the name of the experiment). Although Belo worked in cooperation with the Sammons Communications Cable TV Company of Dallas which installed the two-way cable system used by many of the subscribers of the experiment, Belo was responsible for the majority of the financial backing of the experiment, which reportedly was \$2 million. Belo anticipated, at the time the experiment was terminated that it wouldn't "be terribly long" before the company reintroduced its videotex service to consumers ("Belo corporation cancels," 1982).

Videotex and the Tiffin Advertiser-Tribune. One of the smallest experimenters of videotex is the Tiffin Advertiser-Tribune, located in the small town of Tiffin, Ohio. The newspaper has a circulation of slightly over 10,000 subscribers in the 20,000-member community. The newspaper, which undertook the three-year project in the spring of 1982, has about \$25,000 invested in the electronic edition. The \$25,000 covered the capital expenditure needed for new equipment--two TRS-80 Model 2 Radio Shack computers, an eight-line multiplexer and two disk expansion bays ("Teletext and videotext," 1982). By summer of

1982, the Advertiser-Tribune had attracted 30 subscribers who were paying \$6 a month for the service. They were able to receive continually updated world, national and local news, sports and other information 16 hours a day (Holder, 1982; "Teletext and videotext," 1982).

Videotex and the Columbia Broadcasting System. Interest in videotex by no means has been confined to newspapers and the wire services. Broadcasters are launching numerous experiments of their own. One of the most active broadcast reachers in this area is the Columbia Broadcasting System. During 1980, CBS launched a test of three major European teletext systems (Antiope, Oracle and Ceefax) through television stations KNXT, KCET and WGBH ("CBS plans to," 1980). The objective of the experiment was to develop recommendations for the U.S. teletext standards which, as of the summer of 1982, had not been firmly established.

An interest in developing viewdata standards, as well as an interest in determining public reaction to the more sophisticated two-way systems, has led CBS to join the American Telephone & Telegraph Company in a multi-million dollar experiment in Ridgewood, New Jersey. The experiment is slated to run from the fall of 1982 through March or April of 1983. Knoll (1982) says the experiment, dubbed Venture One, is significant because it links two giants in the communications industry who have the capacity to go national with their product in a hurry if the experiment starts proving out in the immediate future. At this point, CBS is slated to provide the content and AT&T the technology in the experiment, which is being tested in 200 homes in what has been

described as an upscale community. Knoll reports that Ridgewood, a community whose average household income--about \$40,000--is twice the national average, was chosen for the experiment because it was felt the videotex market is made up of people with a high need for information and the ability to pay for it, and Ridgewood residents are a microcosm of that anticipated market. Venture One, unlike many of the electronic publications so far which have utilized very small staffs, is expected to have a staff of 80 or 90 people when it begins operation (Radolf, 1982). One of the key people involved in the project is Henry Heilbrun, CBS's editorial director for Venture One. Heilbrun, previously employed as the director of information technology for the Associated Press, brings to Venture One all the expertise he gained as the overseer of the Associated Press' participation in the Knight-Ridder/AT&T trial of Viewtron. Additionally, he was in on the planning of the AP/CompuServe home information retrieval project.

Videotex and Keycom. A major (\$20 million) videotex project has been announced by Centel, Honeywell, Inc., and Field Enterprises, which have just joined to create Keycom Electronic Publishing ("Seriouser and seriouser," 1982). Keycom will provide a videotex service called Keytran, which will be introduced in the Chicago area in mid-1983, and then subsequently into other markets. Since most of Chicago is not a cabled market, information will be sent via telephone links coordinated by Centel; subscribers will receive information on specially designed Honeywell home-unit terminals (Honeywell will also supply the central computer system), and Field Enterprises, which owns the Chicago Sun-Times, will supply the information. The Keytran terminals will be compatible

with the proposed North American standard, designed essentially by AT&T, but will be compatible with the Canadian Telidon system and the French Antiope system ("Seriouser and seriouser," 1982).

Two other Field Enterprises' videotex experiments, Keyfax and Niteowl, will be incorporated into the large Keytran experiment. Keyfax, which is based on the British Ceefax technology, is currently being tested in 100 homes in Chicago. Field supplies 200 frames of news, weather, entertainment, financial and sports information which is transmitted over the vertical blanking interval of WFLD-TV. Niteowl is a teletext service broadcast over WFLD between midnight and 5:45 a.m. ("Seriouser and seriouser," 1982).

Videotex and television stations. A number of television stations across the country have been involved or are currently involved in teletext experiments.

WETA, the Public Broadcasting System station in Arlington, Virginia (adjacent to the nation's capital), has joined forces with the New York University Alternate Media Center to conduct a teletext experiment which began in the fall of 1980. The test is designed to gauge the cost of the teletext system, who will use it, how it affects their behavior and what type of "news" is most popular. In addition to examining teletext as a potential provider of community information, the WETA two-year study also is exploring scheduling, equipment repair and personnel training in managing a teletext service (Kelly, 1980).

KCET-TV in Los Angeles is conducting a teletext equipment which reaches some 3,000 people in Los Angeles and 40,000 people nationwide

Any householder with a TeleCaption decoder can push a button to tune in the electronic ticker in the vertical blanking interval. The electronic ticker provides information from the AP cable news service ("Bell finds another," 1982).

KNBC-TV and KNXT-TV, Los Angeles-based stations, and KPIX-TV in San Francisco are currently testing, along with the previously mentioned KCET-TV, systems based on the Antiope technology ("The experimenters," 1982).

KBSC-TV in Corona, Calif., WGN-TV in Chicago, WKRC-TV in Cincinnati, and WWLP-TV and WKEF-TV in Dayton, Ohio, are all experimenting with various forms of the British technology. An ambitious project has been undertaken at KIRO-TV in Seattle, Washington, where Ceefax, Antiope and Telidon technology are all being tested in one experiment. Using a somewhat different approach, WKID-TV in Fort Lauderdale, Fla., currently is testing a system that combines teletext information with a scrambled pay television signal ("The experimenters," 1982).

Numerous stations have already completed teletext experiments. KATV-TV, KOIN-TV, KGW-TV and KTTV-TV, all in Portland, Ore., were involved in a test of the technology conducted by the Electronic Industries Association teletext subcommittee in January 1980. KMOX-TV in St. Louis, which tested the Ceefax, Oracle and Antiope systems, wrapped up its two-year experiment in April 1981. KDNL-TV in St. Louis retransmitted the KMOX-TV signal. WTVJ-TV in Miami experimented with the same three technologies during an experiment from August 1979 to April 1980, and KSL-TV in Salt Lake City, one of the pioneers of American television

stations in the field, experimented with Ceefax from July 1978 to June 1979 ("The experimenters," 1982).

WHA-TV in Madison, Wis., is planning to inaugurate an information service providing farm reports and health and community information (Arlen, 1982). KWCM-TV in Appleton, Minn., is setting up a service very similar to the one in Madison. Additionally, it will feature the closed caption code.

PBS, ABC, and NBC all are providing closed-caption services for deaf viewers. Through use of special decoders attached to the television set, (a form of teletext service), captions converted into electronic codes and inserted into the vertical interval of the television signal can be viewed by the deaf along with the television program ("Chain reactions," 1980).

ABC announced in June that its video enterprise division was joining forces with Cox Cable Communications, Inc., the fourth largest cable operation in the country, to develop advanced entertainment and information programming and addressable communications technology. In the first phase, ABC and Cox will explore several one- and two-way addressable programs and services including pay-per-view television events, transactional services, such as videotex, and video games. Cox has already developed a two-way interactive cable system called INDAX ("ABC video enterprises," 1982).

The CBS/AT&T Venture One project and the standards testing do not represent the only testing done by CBS in the videotex area. The network is also conducting a teletext experiment in California called Extravision. A 1982 Factfinder's report issued by Control Data of

Minneapolis titled Telecommunications: wars of the future, reports that 100 California homes have been equipped with modified television sets and sets have been placed in public locations such as schools and shopping centers. Extravision is primarily a teletext news service, offering customers instant access to weather reports, news headlines and sports stories. Advertisers who participate in the experiment are doing so at a nominal charge. They include Merrill Lynch, which sponsors a page of stock price listings, and a local sporting goods store which is tagged as the sponsor of the sports page. The CBS Broadcast Group projects that after the testing period, Extravision will depend on advertising for revenues ("Telecommunications," 1982). Early in the summer of 1982, CBS announced plans to provide a national teletext service beginning "possibly as early as this fall" utilizing the Extravision system now offered over KNXT in Los Angeles. The national service is tentatively slated to offer a 100-frame "magazine," which will include some prime-time program captioning in addition to the news and informational items already offered on Extravision. The system is said to provide for adjustable size captions and reading rates, different colors and real-time captioning. CBS expects the equipment costs for any local station starting a teletext service to range from \$125,000 to \$250,000 ("The why's and wherefores," 1982).

NBC is also planning to initiate a national teletext service in the fall of 1982. Based in New York, the NBC teletext service will initially offer 75-100 frames of "information and entertainment programming. NBC has been involved in a teletext experiment through KNBC-TV in Los Angeles since July 1981, and last month began similar testing

at WNBC-TV in New York. Both experiments utilize the Tempo NBC service ("The why's and wherefore's," 1982).

Videotex, publishers and agencies. Time, Inc., is involved in a couple of major videotex experiments. The first is a psychographic test of 1500 people at the teletext research center established by Time, Inc., at Rockefeller Center. The teletext research center has been designed to look like a typical living room. Time, Inc., is hoping that the psychographic tests will help determine what to include, in terms of content, in its package of satellite-delivered teletext services that will be offered to 200 test homes on cable television systems starting in the spring of 1983. Additionally, Time, Inc., will initiate tests in San Diego and Orlando in September to test the around-the-clock distribution of 20 Time, Inc., magazines (Arlen, 1982; Holder, 1982; "Telecommunications," 1982).

The Times-Mirror Company is providing videotext delivery of the Los Angeles Times and other publications to 200 homes in the Los Angeles and Orange County areas to test consumer interest ("Telecommunications," 1982).

The National Weather Service and the United States Department of Agriculture are testing a system called Green Thumb. The test involves 200 farmers in two counties in Kentucky and is designed to measure their receptivity to the delivery of weather, crop, pest management, marketing and other informational services (Criner & Johnson-Hall, 1980; Phillips, 1980).

Videotex and banking. On October 9, 1980, the United American

Bank of Knoxville, Tenn., put into operation the nation's first in-home banking service in which customers use personal computers ("Tennessee bank-at-home," 1980). The United American Bank videotex service allows participants, via their home or office television screen, to pay bills, get statements of their accounts, use such bookkeeping services as coding checks for income tax purposes, and process loan applications from their homes or offices. Customers using the bill-paying service can specify when (on what date) they want a bill to be paid. The home banking/information system is a joint venture of CompuServe, Radio Shack and the United Service Corporation, a data processing company owned by twelve banks including United American. United Service Corporation has begun a nationwide campaign to franchise the system to other banks (Barker, 1981; "Tennessee bank-at-home," 1980).

The "Tennessee bank-at-home" article reports that except for the fact that the UAB in-home user utilizes a computer instead of a specially adapted television set with special attachments, the UAB system is comparable to an experiment being conducted by Banc One, a bank holding company in Columbus, Ohio. Banc One chose to use Channel 2000, a view-data system operated by the Ohio College Library Center (OCLC) in Columbus, as the means of transmission for the 200 people participating in the experiment ("Tennessee bank-at-home," 1980).

The first in-home banking which bypassed both telephones and home computer terminals was tested recently in San Diego, Calif., using cable television. Barker (1981) reports that HomServ, a data processing/consulting firm, teamed up with Cox Cable Communications to conduct an

in-home banking/shopping experiment which lasted for six months (September 1, 1981 to March 1, 1982) in 300 homes. Six banks and 28 shopping services participated in the experiment which represented a \$20 million investment on the part of Cox. Similar service is reportedly in the works for Omaha and New Orleans (Barker, 1981).

Within the next few months, the First Bank System of Minneapolis, a large Midwestern banking institution, will test a videotex system which offers home banking and shopping along with information retrieval. The test is called Firsthand and is scheduled to begin in mid-1982 with 15 pilot terminals in Fargo, N. D., and Minneapolis/St. Paul. Customers for this system, which is designed primarily for the agricultural community, can access the system through a local telephone number and choose (for display on their television sets) from agri-business book-keeping systems, weather, commodity and financial reports, or domestic and international news. Banking, electronic video games, advertising and shopping services also are planned for the system ("Telecommunications," 1982).

In addition, First Bank announced in May that three daily newspapers will be supplying news, market updates, and advertising to a videotex test in 200 farm households in the Fargo-Moorehead area along the North Dakota-Minnesota state line which is being sponsored by First Bank. The three papers are the Fargo-Moorehead Forum, the Wahpeton-Brekinridge Daily News and Valley City Times-Record ("North Dakota dailies," 1982).

Two additional videotex experiments involving banks are also in operation. Citibank, one of the nation's largest financial institutions,

has set up a test in which 100 New York City customers can bank from home, and Chemical Bank is conducting a similar test in 200 homes in Westchester County, New York. Chemical Bank provides checking, automatic bill-paying to 200 merchants, stock portfolio management and the classified ads from the New York Times among its services ("Window," 1981).

The Information Systems Operators

CompuServe Information Service, The Source, Dow Jones News Retrieval Service and the Reuter Monitor all represent commercial information data banks operating in the United States today. In the summer of 1981, they were serving more than 24,000 customers; by the summer of 1982, CompuServe alone was serving that number of subscribers ("Latest news," 1982). Growth among the information systems operators has developed rapidly in the two years that two-way interactive videotex experiments have been conducted in the United States.

The Source. Owned by the Reader's Digest, The Source is a commercial viewdata-type service begun in 1979 by Source Telecomputing of McLean, Va. The Source offers subscribers breaking news, hourly news summaries, sports and features from United Press International, stock and commodities prices, restaurant and wine guides, foreign language drills and electronic mail. There is a one-time hookup fee, plus a \$15-an-hour charge for daytime use and a \$4.25-an-hour charge for use after 6 p.m. The daytime fee is aimed at businessmen and women, and the nighttime fee at computer hobbyists ("Telecommunications," 1982).

Dow Jones News Retrieval Service. One of the first companies

in the United States to develop an interest in videotex operations was Dow Jones & Company, one of the leading publishers of business information in the country. Dow Jones has been exploring videotex since the early 1970s, and has been offering its News Retrieval system on a commercial basis since 1977. In 1980 it had 10,000 subscribers; in mid-1982 that number had mushroomed to 44,000 with the service reportedly growing at a rate of up to 2,000 new customers a month ("Teletext and videotex," 1982). The News Retrieval service offers customers information on 6,000 publicly held companies, including quarterly and annual sales and profits, and stock price history. Also offered are all financial and government news reported on the "broad tape," an electronic version of the Wall Street Journal and of Barron's and some New York Times articles ("Teletext and videotex," 1982).

Reuter Monitor. When the Reuters wire service initiated a central

data base for the foreign exchange market in 1973, it became one of the first, if not the first, commercially available electronic news retrieval system in the United States. The service was called Reuter Monitor and it has since expanded its services to include constantly updated general and financial news headlines and stories and prices of commodities, stocks and foreign currencies, in addition to sports, racing, and consumer-oriented information. Monitor information is fed in a one-way stream down a cable television channel to a Reuter terminal which retrieves the information through a "frame-grabbing technique. Transmission speed is five million bits per second, permitting the

entire database of 10,000 frames to be retransmitted every few seconds. Reuters has 600 contributors to its database and, in 1981, had 4,300 receivers in 38 countries. Many of its subscribers are in New York City and receive their information via Manhattan Cable ("Telidon reports," 1981).

While not a newspaper project per se, the New York Times Information Bank is worth noting here because it represents just one more step toward newspaper "electronification." The Infobank, as it is called, dates back to 1966 in conception and 1973 in reality (Smith, 1980). It is the newspaper morgue at the New York Times, which has been computerized to create a data bank which provides users with 1.9 million abstracts of articles from The Times and some 60 other newspapers and magazines dating to January 1969. The service, which was designed to sell information to outside corporations, costs users \$120 an hour. For an even steeper fee, \$165 an hour, Infobank users can access Advertising and Marketing Intelligence, a service which provides information on people, new products, promotional programs, consumer trends, research and media buying from 60 advertising, marketing, media and consumer products publications, including Advertising Age ("Telecommunications," 1982).

The growth of information providers has been rapid during the past decade, as the demand for information and the ability to pay for it has grown as well, too. The New York Times Information Bank, Mead Data Central and its NEXIS (general news) and LEXIS (legal citations) databases, the Reuter Monitor and the Dow Jones News Retrieval Service are all examples of firms which largely repackage and index what is

already widely available in printed form. Dozens more are cropping up annually. An example is Pergamon International, a database which allows users to call up the text or any patent ("Window," 1981).

The Magnetizing Force of Videotex

Interest in videotex systems is being expressed by a wide variety of business and industrial concerns in America. Logically, as a communications device, videotex has drawn interest from newspaper, magazine and book publishers. These include the newspapers participating in the CompuServe and Knight-Ridder experiments; magazines like Time and Reader's Digest, and publishers like Dun & Bradstreet, Dow Jones and McGraw-Hill. It also has drawn a great deal of interest from such commercial and cable television companies as ABC, CBS, NBC, Cox Cable, Sammons Cable, Times-Mirror Cable, Warner Amex Cable and Westinghouse Broadcasting ("Telecommunications," 1982).

Additionally, it is drawing significant attention from financial institutions, from home computer terminal manufacturers, and from numerous retail and customer service corporations. Representing the financial institutions are Banc One, Chemical Bank, Citibank, First Bank System, Merrill Lynch, and the United American Bank. In the computer category, Apple Computer, Atari, Commodore, IBM, Radio Shack, Texas Instruments, Western Electronic and Zenith Radio are all jockeying for place in customer sales of home terminals--one of the necessary components of any viewdata system. Among the retail and service institutions actively involved in videotex research are B. Dalton, Comp-U-Card, Federated Department Stores, J. C. Penney, Sears and Roebuck,

American Airlines, AT&T, Bibliographic Research Service, Dialog Information Service, the New York Stock Exchange and System Development Corporation to name a few ("Telecommunications," 1982).

What do all of these firms have in common? Why are they interested in utilizing this new technology? The answers fall into two broad categories. The first is financial, and the second has to do with access to a potential audience. Videotex is dependent on two things: a computerized database to store information, and a transmission system that links the database to the user. There is a lot of money to be made in the fledgling business, hence the interest of the computer manufacturers and the transmitter firms.

Although there are no profits as yet ("Telecommunications," 1982; "Window," 1982), dozens of major corporations are convinced that the videotex industry will grow dramatically in the 1980s. These companies have invested nearly \$100 million already in the United States alone in developing and testing videotex systems. The firm which seems to have the highest stake in the business at this point is the American Telephone & Telegraph Company. It is no small coincidence that AT&T, after ten long years of dispute with the United States government, arrived early in 1982 at an out-of-court settlement with the Justice Department in its anti-trust case. On January 8, 1982, the giant utility agreed to divest itself of 22 local Bell Companies ("Local phone," 1982). In return, AT&T was given the go-ahead to venture into new businesses, such as cable television and automated information systems. AT&T is now in an ideal position to use its telephone network

to perform all of the functions associated with videotex ("Telecommunications," 1982).

A conservative forecast by AT&T estimates that as many as 7 percent of all U.S. households, some eight million homes, will have videotex terminals by 1990. Others believe that this figure is low.

Strategic Inc., a San Jose, Calif.-based marketing firm, estimates that 33 percent of U.S. households, or 45 million homes, could have some form of teletext service, while as many as 12 million homes will have some form of videotex service ("Telecommunications," 1982; "Window," 1981). The California firm predicts that of the videotex figure, 1.3 million will use two-way cable connections to receive information, while the remainder will make use of the public switch telephone network. For the teletext subscribers, nearly one million could receive the service via cable, while the remainder will use telephone networks, it is speculated ("Telecommunications," 1982).

AT&T has already had measurable impact on videotex, not only in the United States, but in North America and even in Europe. That impact comes from AT&T's development of technical standards for the United States in videotex transmission. Electronic publishing standards can be broadly divided into two parts--first, the presentation part which governs the format used to describe information for storage in computer files and subsequent display on video screens; second, the transmission part, which governs the transmission of information through communications standards ("Telidon reports," 1981). Although AT&T's standards have not yet been adopted as the United States' official standards in the international videotex arena, by the last week in

June, 1982, there was about "95 percent agreement" that the AT&T standards would be the official United States standards ("The why's and wherefore's," 1982).

AT&T isn't the only telephone company with a stake in the videotex market: the Atlanta-based Continental Telephone Company is scheduled to begin a one-year videotex experiment in Manassas, Vt., on September 1, 1982. The experiment is to be conducted by ConTelVision, a new subsidiary of Continental, using a modified version of the Prestel system. The phone company will not be restricted in terms of determining content, meaning that it will have control over the information, database, the equipment, and the telephone lines over which the data will travel ("Teletext and videotex," 1982).

Jackson, et al. (1981) maintain that the magnitude of AT&T's potential impact on videotex is due largely to one factor: the company's size. Briefly put, Bell is the biggest player in the new electronic text market. And, because of Bell's Yellow Pages operation, it is a hidden giant in the publishing industry, with advertising revenues exceeding those of any newspaper publisher. Its ad revenues, according to Jackson (page 45), are greater than those of the Washington Post, New York Times, Dow Jones, Harte-Hanks, and Scripps-Howard combined. It publishes 2,900 regional editions of the Yellow Pages, earning from them approximately \$400 million every year--more than twice the profits of Times-Mirror (Kleinfield, 1981, p. 285).

Jackson (1981) believes that AT&T's interest in publishing the Yellow Pages electronically will have an impact on videotex for three reasons: first, the directory service is unregulated; second, it is

an ongoing activity which provides the critical mass needed to put a large electronic directory into operation, and third, it gives Bell a substantial stake in the information marketplace.

By mid-1982, it was apparent that newspaper publishers and the telephone company had reached an interesting dilemma: AT&T was and is facing a threat to its Yellow Pages monopoly by the new electronic newspaper services which have the potential to replace them, and at the same time, newspaper publishers are finding that of the three transmission forms available to videotex, the telephone lines have the highest penetration into American homes, and second and most important, the telephone system, unlike cable and broadcasting, does not face the licensing regulation of the U.S. government.

During the past year, telephone companies--or the telephone company--have become

an anathema to many newspaper publishers, who see AT&T's entry into electronic text as a threat to their own revenues from classified ads and, thus, their papers' long term survival. This attitude is ironic, for of all the electronic media that can be used to transmit videotex, telephony may be the one best suited to the newspaper industry's needs. (Jackson, p. 56)

The American Newspaper Publishers Association, a trade organization representing both large and small newspapers across the country, has lobbied heavily for bills introduced in both the Senate and the House of Representatives that would bar AT&T from compiling data and transmitting it for profit, however by mid-1982 no decisive action had been taken on either of the common carrier reform bills.

Problems and Issues Facing Videotex Implementation

Despite the enthusiastic scenarios that have described how videotex is going to transform communication into an effortless armchair activity, a number of questions must be resolved before videotex becomes not only a household word, but a household device. These include questions of legality, technical standards, costs, privacy and information ownership.

The legal issues alone represent some substantial hurdles to be overcome. Fielding and Porter (1981), Jackson (1981) and Zerbinos (1981) identify a number of questions which must be resolved. These include:

1. If electronic text enters the home either through the broadcasting signals or cable television lines, is the electronic publisher subject to the regulatory guidelines set forth by the Federal Communications Commission?
2. What is the 1982 definition of the term "common carrier?"
3. What technical standards should be adopted?
4. How should teletext be licensed?
5. What regulations, if any, should govern the editorial content sent over teletext systems?
6. What kind of advertising should be allowed?
7. What regulations should there be on content, licensing, or spectrum allocation for Direct Broadcast Satellite (DBS)?
8. What rights of access should exist in connection with Multipoint Distribution Service (MDS) operations?
9. Does a newspaper become a cablecaster on a cable system when

it distributes its own videotex service on a cable system which it also owns? What obligations, if any, should such a system have to carry videotex services offered by competing publications?

10. How do you limit access by minors to certain types of information?

11. Who is guilty of libel in videotex systems--the newspaper or the carrier?

Furthermore, the question of cost to the viewer has yet to be resolved. "Telecommunications," (1982) reports that

although videotex has been referred to in the mass media as the "home information revolution," there is reason to believe that information retrieval will not be the driving force behind getting videotex into homes. The difficulty with information retrieval is that most customers are unwilling to pay for information which they believe is readily available from other sources such as newspapers and books. Tests indicate that even at relatively low rates, consumers are not eager to access a database. ("Telecommunications," 1982, p. 14).

The Knight-Ridder/AT&T Viewtron experiment, which was offered free of charge to people participating in the experiment, ended in September 1981. It is being touted by the sponsors as a success, but nearly a year later three nagging questions remain:

1. Did people use it only because it was unique and new, or did it fill a need?

2. Will the newness wear off?

3. Does it offer a value that people are willing to pay for?

Ellen Berland Sacher, a stock analyst for Goldman, Sachs and Company in New York, a firm specializing in print and electronic issues, recently took a hard look at advertising revenue trends and questioned

publishers' entry into pay television (including transactional television). Sacher said that individual subscribers will pay \$20 or more a month for entertainment services, but it is not at all clear at this point that people will pay anything approaching those sums for informational or transactional services that newspapers want to provide. And to further put a damper on videotex operations, Sacher suggested that scrolling texts on a television screen are "just plain boring" ("Straight talk," 1982).

Another person questioning whether the "wizardry" of electronics bringing the printed word into the home would be enough to hold reader's attention is Arthur Ochs Sulzberger, publisher of the New York Times, whose publication is very much at the forefront of videotex experimentation. Sulzberger ponders:

When you glance at a broadsheet newspaper page such as that of The Times, your eye can scan up to 6,000 words in but a moment. But the tv screens that we call standard have a course 525-line readout. As a result, they can barely show 32 characters on each of 12 lines--or about 80 words per screenful. That means it would take 75 screensful to present one page of The Times. And, if you wished to see a page of classified ads, you would need 1,700 screensful. It's not a relaxing way to spend your Sunday morning. ("The new competition," 1982)

Another problem involving videotex that must be resolved on both a national and international level is the question of privacy. It is speculated that as with any interactive system, countries or citizens will try to find ways to enter the system and get information that should be confidential (Miller, 1980).

Smith (1980) thoughtfully raises questions about the privacy issue in his discussion of Warner-Amex's QUBE experiment in Columbus,

Ohio. Although not originally introduced as a true videotex experiment, QUBE, which has more than 30,000 subscribers, is considered to be the most versatile of all existing cable systems today. While it was not designed as a videotex experiment, it does offer several interactive features: an information retrieval system operated jointly by Atari and CompuServe, home banking and encyclopedic research capacity, and a device containing five buttons which allows a viewer to communicate back to the QUBE master control center to register an opinion or order merchandise (Smith, 1980; "Telecommunications," 1982).

Viewers have been warned whenever they are about to indicate via their buttons a fact about themselves that will be recorded. Warner management has taken care to institute regular procedures to safeguard all data that their subscribers have supplied about themselves. QUBE could easily cause friction within as well as between families. It could reveal the fact that a subscriber who votes a straight "puritan" ticket in all the polling programs is, in fact, a secret heavy user of the porn channel. It could analyze over time accumulating information from a single family, revealing its internal tensions at many levels. It is a system that can wreak havoc through the creation of shame and by manipulating the fear of shame. It can monitor the spending habits and cultural tastes of individuals within a family. In the hands of the unscrupulous, it could bring misery and terror into people's lives. (Smith, 1980, p. 278)

An additional issue confronting videotex is the question of information ownership. Boyd (1980) wonders how reuse of a reporter's material in an electronic edition affects jurisdiction and compensation. The issue has already caused a major contract dispute at the Minneapolis Star-Tribune, where failure of Guild members to come to agreement on a new contract which contained provisions for jurisdiction over and compensation for material disseminated by an electronic newspaper resulted in 1980 in a four-week strike (Boyd, 1980). In addition to the question

of whether the reporter should be compensated for material used in electronic editions, is the larger question posed by Miller (1980) of whether a company which transmits information should be allowed to own that information.

Theoretical Foundations

Roberts (1972), Noelle-Neumann (1973) and a host of other mass communication researchers agree that one of the more striking features of contemporary society is the ubiquitous presence of the mass communications media. Roberts writes that thousands of people and billions of dollars are devoted annually to collecting, structuring, reproducing and transmitting a seemingly endless barrage of messages at those millions of individuals who comprise the mass audience.

The World Almanac and Book of Facts (1982) reports that 402 million radio sets are in use in America; there are 121.1 million television sets in the U.S.; daily newspaper circulation exceeds 62 million, and the literacy rate stands at 99 percent. There is no arguing with Roberts that one of the more striking features of contemporary society is, indeed, the ubiquitous presence of the media, or with Noelle-Neumann that the media are also consonant and cumulative as well as ubiquitous. Roberts says that mass communication is useful for maintaining the status quo and that it may have a great deal to do with how audiences structure the world over the long term, and with how audiences organize new aspects of the image of the world, and form new opinions and beliefs. He says that one of the major consequences of the mass media's ability to transmit messages quickly across great

distances and to supply the audience with otherwise unobtainable information is that the media have come to be expected to maintain a constant surveillance of distant parts of the environment and to provide information about the broader world.

In the surveillance process, Dimmick (1974) writes that news organizations and their gatekeepers are the nexus which mediates between the environment and the society's members. Videotex has the capability to meet the challenges of constant surveillance and of providing wide-ranging information about the broader world. It can provide the communication capability necessary to make Marshall McLuhan's (1964) global village a reality. Additionally, it represents a possible alternative to the traditional mass media, and, as a result, it could dramatically change the nature of marketing, broadcasting, advertising and news dissemination.

The Information Explosion

Sociologist Daniel Bell believes the United States has entered a "post-industrial" society, one that doesn't supersede Lerner's (1957) industrial society, but rather overlies it, in the same sense that industrial society overlies the earlier rural, agricultural society. According to Bell,

the post-industrial society is basically an information society. Exchange of information in terms of various kinds of data processing, record keeping, market research, etc. is the foundation for most economic exchanges. Data communications systems are the transforming resource of the society, so information and knowledge frame the problems of a post-industrial society. (Hannay, 1980, p. 461)

Just as knowledge has grown, so has technology, and it is in this area that Compaine (1981) sees the importance of today's changing

information technologies and their related expanded accessibility to vastly greater amounts of information. To illustrate this growth in knowledge, Bell (1973) uses the analogy of the publication of the Encyclopaedia Britannica: Between 1745 and 1785 when the earliest editions of the Encyclopaedia Britannica were being produced, the volumes were compiled by only one or two men who had the realm of all knowledge in the universe at hand. However, when the Encyclopaedia Britannica was revised in 1967, some 200 years later, 10,000 "recognized experts" contributed to the publication.

Information activities in the United States, according to Hannay (1980), contribute a larger share of the gross national product than all manufacture and agriculture combined. At the turn of the century, over one-third of the work force were still farmers. Now it is about 2 percent. Machlup (1962) and Kerr (1963) estimated that the "knowledge industry" accounted for more than a fourth of the gross national produce 20 years ago. Today, the more rapid growth of this knowledge industry, which includes the mass media, has resulted in a doubling of this figure. In 1980, 75 percent of all the U.S. work force was in the service sector, and according to a Department of Commerce study, two-thirds of this is concerned with information. Thus, about half the work force and gross national product are in the "information industries" (Dizard, 1982; Hannay, 1980; Schiller, 1981).

Whitehead (1982) reports that futurist John Naisbitt sees definite trends developing not only in the media but in society itself in connection with the knowledge explosion. Naisbitt identifies these trends in the move from the industrial age to what he refers to as the

information age as changes from a time of centralization to a time of decentralization; from a national economy to a global and interdependent economy, from managers to entrepreneurs, from institutional help to self-help; from an American economy based in the North to a base in the South, from hierarchies of people to networks of people, from short-term thinking to long-term thinking (Whitehead, 1982).

Blasko (1981) sums up the information age nicely when he says:

the information age occurs when the delivery of information becomes more important than the delivery of materials. In a way, getting the information on how to do something from those who know to those who need to know becomes more important than doing the thing itself. (Blasko, 1981, p. 46)

Decision making. Newspapers face a number of alternatives in

how they will approach the information age. The rationale for how those alternatives are viewed and acted on is rooted in decision making theory. Littlejohn (1978) writes that a necessary aspect of any organization is decision making. Decisions can be described three dimensionally, he says, and lists level of generality, scope of impact and duration as the three dimensions. On the policy-making level, decisions may relate to the establishment of goals and objectives and the development of strategies to achieve the goals, he says, while goal-related decisions may be made to sharpen or clarify goals, add or delete goals, reprioritize, or change the organizational mission. Strategy decisions, which will probably be most evident in this era of dynamic media growth and change, involve development of evaluative criteria and feedback mechanisms (Littlejohn, 1978).

Katz and Kahn (1966) adopted Dewey's reflective-thinking model

of decision making for use in their description of organizational decision making. The reflective-thinking model contains four steps: felt difficulty, problem analysis, search for solutions and assessment of solution consequences.

Before Grunig (1966) made his contribution on the importance of information in the decision making process, there were three general types of decision making theories. The first was the rational man model, which was based on the assumption that man studies all alternative solutions to a problem, has complete knowledge about each alternative, and then chooses the alternative most rational in terms of his goal of maximizing utility or profit. Information had no role in this theory--knowledge was assumed to be perfect and all relevant information was assumed to be available to the decision maker. Grunig, however, said that the decision maker didn't have perfect knowledge and was faced with "subjective uncertainty" or "learning" situations. He added that when incomplete knowledge was admitted into the model of the economic (rational) man, uncertainty arose and the decision maker was forced to make decisions that may have turned out to be irrational post hoc. The lack of complete knowledge is what made the decision necessary.

Knowledge, including information, functions to reduce risk and uncertainty. Information can be simply defined as a message which helps an individual gain a single, clear picture of his situation. If a message confuses a picture or contributes to a non-singular picture it can be defined as noise.

Grunig said that once the importance of incomplete knowledge

and the lack of information was recognized, research in decision making moved in two directions. Those interested in describing the process as it exists in the real world turned to "descriptive" studies, he said, and those who clung to the old pure maximization model became "normative" theorists studying how decisions ought to be made in order to be rational. Shannon and Weaver's (1949) information theory model, which provides a precise measure of the amount of information needed to eliminate uncertainty, is an example of the normative theories. Game theory is another example of the major theoretical attempts to overcome uncertainty.

The important thing about this direction in theory-making was the consensus on the clearcut theoretical role for information in decision making: to reduce uncertainty.

If the decision maker has perfect knowledge (including all relevant information and the mental capacity to process it), his decisions theoretically will always be simple maximizing ones. But when faced with uncertainty, the decision maker must form expectations and use strategies rationally to cope with an uncertain situation. In such a case, says Grunig, he uses information as the basis of his expectations. The more information he has available and which he can process, the more accurate his expectations and the more rational his decisions. The more easily available the information is, the lower will be the cost of search, the more accurate his expectations and the more rational his decisions, Grunig said.

His conclusion on the entire decision making process is that men are like the rational economic men of orthodox economic theory only in

rare instances. In most cases personal reinforcements which result in habit formation, differences in individual attributes and social roles and pressure alter the decision making process. In situations where the decision maker has previous experience in making similar decisions or in relatively unimportant decisions, habit normally substitutes for genuine decision behavior. Information provided in a genuine decision situation was previously the basis for the formation of this habit and accurate information is thus extremely important in the earlier situation if "good" habits are to be formed, Grunig said, adding that once habits have been formed, information may have little function except to reinforce habits--i.e., the decision maker will tend to expose himself to and remember supportive information.

Finally, Grunig says the decision maker interprets information on the basis of his experience within an environmental situation, which includes experience within his social system. Information often comes to him through the information processing mechanisms of the social system and can be biased by the individual transmitting the information. Both social influences may prevent the decision maker from using the information in a purely rational manner.

March and Simon (1958) criticize the traditional view of rational man and decision making because they say it makes three exceedingly important demands upon the choice-making mechanism. It assumes that

1. all the alternatives of choice are "given"
2. all the consequences attached to each alternative are known
3. the rational man has a complete utility-ordering . . . for

all possible sets of consequences.

March and Simon said in the process of solving the problem the person does not really seek an optimal solution, but a satisfactory one. An alternative is considered to be satisfactory if it meets certain minimal requirements.

Most human decision making, whether individual or organization, they said, is concerned with the discovery and selection of satisfactory alternatives; only in exceptional cases is it concerned with the discovery and selection of optimal alternatives.

Perrow (1972) cautions, however, that care must be taken to distinguish between the individual and the organization. He said one cannot explain organizations by explaining the attitudes and behavior of individuals or even small groups within them. Within newspaper organizations, both systems theory and gatekeeping theory have provided useful frameworks for the study of decision making.

Gatekeeping. Donohue et al. (1972) postulate that if mass communications is in actuality control of information and knowledge, then in light of the way decisions are made in a modern, pluralistic society, the study of gatekeepers who execute control decisions in the knowledge flow is especially urgent.

Knowledge is basic to social power, and immense potential for developing power over other human lives rests with those who man the gates in the communication flow (Bagdikian, 1971; Donohue, 1972; Galbraith, 1967; McDermott, 1969; Park, 1940). DeFleur (1975) sees the gatekeeping processes within mass communication as a part of the framework of the overall or total social system, made up of a series of

subsystems whose primary concerns include the control of information in the interest or gain of other social ends. In short, gatekeeping, in its broadest context, involves far more than mere determination of whether a message is transmitted or not; it includes all forms of information or knowledge control.

Donohue (1972) suggests that questions for mass communication research in this area include how such controls are exercised, where in the process they occur, and what the consequences of these controls are for the overall social system as well as for the interdependent subsystems.

Lewin first used the term gatekeeping in relationship to the "flow" of food and other goods potentially available to housewives. White (1950) borrowed the term to apply to a newspaper wire service editor (the classic Mr. Gates) in his role as a decision maker in selecting or rejecting certain messages for inclusion in the newspaper. White found the flow of wire messages roughly analogous to Lewin's flow of goods and services to households (Donohue, 1972). In his study of Mr. Gates, White (1950) found that of the approximately 12,400 column inches of wire copy received during the week at the newspaper, only about 10 percent (1,297 column inches) made it into the paper. White found that the wire editor was more concerned with the convenience of backshop production personnel, whom he felt required an even flow of work, and with his perceptions of the interests of the publisher and the public than he was with a checklist of news value criteria when he made his selection of stories to be used in the newspaper. Geiber (1956, 1964) came to the conclusion that news is what newspapermen make

it. He found the problems of space availability in newspapers to be far more important in the decision making process than interest on the part of the gatekeepers in the edification of the reader. He also found that certain reporters and editors had little knowledge of their general reading audience.

White's operationalization is viewed as gatekeeping's lowest common denominator, i.e., the editor/gatekeeper as a lone figure, without considering him as part of a larger organization. Donohue (1972) feels gatekeeping should be looked at in the broader capacity of information control and how it relates to social control. Information control relates to all decisions that may arise in message encoding, such as selection, shaping, display, timing, withholding repetition of entire messages or message components and censorship.

The "systems" approach to information control is useful for looking at the feedback regulatory system of the press (Hachten, 1963; Hocking, 1957; Rucker, 1968) and at the distribution function (Donohue, 1972; Olien et al., 1968). It also is useful for providing a perspective on the relationship between professionalism and reporter social status (Breed, 1960; Merton, 1967; Tichenor et al., 1970), media ownership (DeFleur, 1975; Owen, 1969; Schramm, 1957), and information control. Many of these studies have looked at the forces acting upon gatekeepers' decision making and at the effects of the gatekeepers' decision making.

In researching the gatekeeper through a "systems" approach, Dimmick (1974) viewed the news organization (within which the gatekeeper worked) as a system engaged in input-output relationships with its

environment. In systems language, news is the account of environmental events which appears in the organization's output. The primary area of interest for communications researchers is determining how the news organization's gatekeepers solve the decision problems of identifying input and defining output. Dimmick advances an uncertainty theory based on four propositions as an explanation for how the gatekeeping process works. The four propositions are:

1. Gatekeepers are uncertain which events are to be defined as

news.

2. Gatekeepers' potential universe identification uncertainty

is reduced by: (a) accepting the definition of news of an "opinion leader" in a group within which he works; (b) arriving at a group consensus; (c) monitoring the output of a reference institution; (d) accepting the policy of the organization for which he works; (e) accepting the definitions of news promulgated by his sources, and (f) using his own group-related attitudes and values.

3. Gatekeepers' decision spaces are multidimensional. The

dimensions of the space are the criteria the gatekeeper uses to select news from the potential universe for broadcast or publication.

4. The gatekeeper's actual universe selection uncertainty is

reduced (i.e., the partial order is mapped into a simple order) by the composition model(s) used by the gatekeeper.

Propositions one and two are used by Dimmick to answer the

question of what accounts for a news organization's input, and propositions three and four are offered to explain what accounts for the output (Dimmick, 1974).

Haskins (1975) finds that decisions are ubiquitous among gatekeepers at every level and in every medium. While the criterion for success or failure is audience interest or performance, Haskins writes that not all gatekeepers approach their choices equally. He says the sophistication of the gatekeeper is the key to his or her decision making, and the decision making usually stems from four positions: (1) following tradition; (2) intuition (either individual or collective); (3) analysis of past performance, or (4) a pretest of all available options.

In summation, no matter whether the study is at the micro- or macro-level, gatekeeping represents the various controls and restraints, coming from individual experiences and group relations and perceptions of how messages will be received, that affect decision making in selection and processing of mass media messages. The relationship between gatekeeping and the production of electronic newspapers is an extremely important one because it has defined the substance of these early electronic editions.

Impact on mass communications. The gatekeeping function during this new information age is going to become more important than ever if the average person is not going to be overwhelmed by the sheer volume of information to be absorbed. Videotex has the potential to revolutionize mass communication because of its ability to differentiate, personalize and interact with the audience. McCombs (1972) foresaw ten years ago the changes that the new technology might bring about when he wrote that mass communication will no longer mean the simultaneous diffusion of identical messages to mass audiences.

There will still be mass production of identical messages: on the production end there may be little change except in packaging. But, on the receiving end there may be a true revolution in human behavior. The mass audience--millions of people simultaneously (or nearly simultaneously) receiving identical messages--may well become a thing of the past. Each individual can structure his own individual "mass" communication. From the audience viewpoint, what was mass communication may become a more personal and individual thing. (McCombs, 1972, p. 60)

McCombs' vision of individualized news is rapidly approaching.

In May, United Press International and Dialcom, Inc., announced a joint venture in computerized news distribution called Newstrack. The service, which is available only in Washington now, produces an individually tailored newsletter for every subscriber. With satellite or cable transmission tie-ins, the service could provide the opportunity for each subscriber to be his own gatekeeper and select only those news items he wishes to read ("Vidsat Netcom," 1982).

Smith (1980) seems in agreement with McCombs when he writes that the essence of the change brought about by computerized information lies in individuation.

In some senses the information revolution of the computer age offers a reduction of the regimentation of mass society, in the perception of the public as a mass. Some freedoms that were lost in the age of industrialization and mass production may be regained in the next. (Smith, 1980)

Carey (1980), however, disagrees with Smith that society is in the midst of a computer revolution. He says that the traditional patterns of social communication which have been in existence since the late 19th century are still in existence--even if they have been "intensified, twisted, and extended into international arenas." But,

he agrees that the emphasis is away from communicating with the masses and toward a disassembled audience of segments and individuals. He says that because of the new information technology

there will be an intensification of the private sphere and the delivery of centralized services into it. Work from home by computer, shop from home by computer, play games at home by computer. The new media will both batter down historic zones of privacy and further direct what remains of a public world of work, play and interaction. (Carey, 1980, p. 43)

Naisbitt (Whitehead, 1982) sees two major changes in American newspapers as a result of the technological advancements: first, a reshaping of the newspaper both as a daily product and as an ongoing organization, and second, a stronger need for the American newspaper to fulfill what Lasswell (1948) referred to as the correlation function of the media. Carey and Quirk (1978) postulate that knowledge is power, but that knowledge needs to be relevant and meaningful. The emphasis in the computer age, or the information age, or the post-industrial age, or the age of the service society, or the age of leisure time--whatever the label--is going to be on the individual, and because of this, the newspaper gatekeeping function is going to become more important than ever in the communications process. The vast amounts of information that are going to suddenly be made available will need to be structured, organized, analyzed and synthesized into something meaningful for the average American.

Summary of Chapter

Videotex, the electronic transmission of textual matter into the home or office, represents a new communication technology that has the potential to change traditional communication patterns.

Developed in Great Britain, it also has been tested in Australia, Canada, Finland, France, Germany, Japan, Sweden and the United States.

Interest in the technology has been expressed by dozens of firms from the banking, communications, retail trade and high tech industries. There are currently 83 videotex experiments being conducted worldwide, representing investments of a quarter-of-a-billion dollars. The investment of the United States alone is \$100 million. There have been only negligible returns on the videotex investments made so far, but it is speculated that videotex will be big business in this country by 1990. Richard Hooper, director of Prestel, sums up the mood of most of the videotex experimenters who are gearing up for the big battles for videotex markets which have not yet developed:

Videotex is like an international Grand Prix, we're all just doing practice laps now. We are not just yet sure where the race is or when it will start. ("Window," 1982)

The videotex experiments have emphasized two key roles, that of the policy maker and that of the decision makers. The policy makers have been charged with developing standards, while decision makers are attempting to decide what information to carry. To date, the policy function has been researched much more than the decision making function.

III. METHODOLOGY

Babbie (1973) describes the three general objectives of conducting survey research as description, explanation and exploration. Surveys yield data which allow both descriptive and explanatory assertions to be made about populations, and, most important in the case of this particular study, which provide a "search" device for initiating inquiry into new areas worthy of research. Videotex certainly represents a new area for communication research, and gatekeeping in connection with videotex publishing has been largely unexplored.

Population to be Studied

The population studied consisted of the men and women who are in charge of the electronic editions of the 11 newspapers taking part in the Associated Press/CompuServe home information retrieval project. These papers are the Columbus Dispatch, the New York Times, the Virginian Pilot & Ledger Star, the Washington Post, the San Francisco Chronicle, the Los Angeles Times, the St. Louis Post-Dispatch, the Minneapolis Star-Tribune, the Atlanta Journal-Constitution, the San Francisco Examiner and the Middlesex Daily News. The decision to submit the entire population to inquiry in this case was based on the low number of participants and on the nature of the information sought. The survey of every member of the population provided precision and the totality of viewpoint necessary to make this research meaningful.

The Survey Method

According to Parten (1950), primary data can be secured through personal interviews, observational methods and recording devices,

telephone interviews, mail questionnaires or ballots, radio appeals or panel techniques. The three most commonly used data-gathering methods used in survey research are personal interviews, telephone interviews or mail questionnaires.

The data-gathering method used in this study was the telephone interview. Telephone interviews, rather than mail or personal interviews, were selected for a number of reasons, the two most important being cost and facilitation in obtaining the kind of detailed information needed for the purposes of the study. Since the 11 newspapers are scattered from coast to coast, it was not feasible to travel to each of the cities for personal meetings with the electronic editors. Consequently, the best alternative was the telephone interview. All interviews were conducted by the author.

Blankenship (1977) and Dillman (1978) discuss the advantages of telephone interviews in standard survey research. These include the ability to reach a large number of survey respondents in a short period of time, low cost, lack of interviewer bias, greater level of cooperation, and usefulness in approaching special universes.

Questionnaire Construction

Questions in the survey instrument were designed to ascertain background, knowledge, understanding, perception, attitude and behavior on the part of the electronic editors. In other words, the survey instrument was designed to seek demographic, cognitive, affective, and behavioral information.

Because the survey instrument was addressed to specialists

highly familiar with the subject matter of the survey, the questions were much more technical and specialized than if they had been prepared for the general public.

A lengthy, personal interview was conducted with one of the electronic editors, Curtis Patton of the Atlanta Journal-Constitution, prior to construction of the survey instrument. This interview served many of the same purposes as a focus group discussion--it provided insight into the general topic of videotex and into the relationship of the electronic editor to the publication of the electronic edition. The Patton interview was very helpful in ascertaining what questions should be included in the survey instrument.

The questionnaire (see Appendix A) was designed, and redesigned after pre-testing, to obtain background information about each of the electronic editors, factual information about the electronic publication practices at each of the 11 newspapers, and opinion, or value-judgment, information about the new technology. A number of open-ended questions were included in the questionnaire. Oppenheim (1966) suggests that the chief advantage to open-ended questions is the freedom that they give to the respondent, allowing him to let his thoughts roam freely, unencumbered by prepared replies. The respondent is free to express his ideas spontaneously, and Oppenheim believes this spontaneity often is extremely worthwhile as a basis for generating new hypotheses.

The use of the open-ended questions is usually restricted by researchers because of the coding problems that they generate. However, because there were only 11 respondents, it was not anticipated

that the open-ended questions would be a problem in this study. When all of the questionnaires were completed, an appropriate classification and coding scheme was devised for the answers to the open-ended questions.

The questionnaire, with the exception of the open-ended questions, provided pre-listed answers for each question. These answers were not read to the respondent; they were on the questionnaire only to aid the interviewer in recording responses as they were made. Space was provided for writing down any response which did not correspond with one of the pre-listed answers.

Research Design

Using the Haskins (1981) Notational System, the following research design was devised.

	t_1	t_2	t_3
P_1	--	--	M_{1-n}

- Legend: P_1 = the electronic editors of the 11 newspapers taking part in the AP/CompuServe home information retrieval project
- M_{1-n} = questionnaire via telephone interview eliciting demographic, cognitive, affective and behavioral information
- t_1 = time preceding the survey
- t_2 = time preceding the survey
- t_3 = first week of June, 1982

Data Analysis

The information obtained from each of the editors was compiled for purposes of comparing and contrasting the various practices in the production of the electronic editions and for comparing and contrasting the attitudes about electronic newspaper voiced by the representatives of each of the newspapers. Tables have been included to help illustrate the written description of the findings. Additionally, a videotape showing representative content from each of the 11 newspapers participating in the home information retrieval project was made and is included with the written findings as further illustration of this pioneering venture in the field of electronic newspaper publishing.

The research findings were not subjected to statistical tests. Champion (1981) suggests that the lack of randomization and the small sample size prevent the data from meeting certain very basic tests of assumption. He also suggests that a good researcher using common sense can interpret the results of findings based on small populations without subjecting the data to statistical procedures.

IV. FINDINGS

The Associated Press/CompuServe home information retrieval project officially came to a close on June 30, 1982, two years after it began. The information contained in this chapter was derived from telephone interviews conducted over a one-month period with representatives from each of the newspapers participating in the experiment. The interviews (see Reference List, Dates of Interviews) were conducted between June 9, 1982, and July 13, 1982. Diversions created by two major conventions, the American Newspaper Publishers Association Production Management Conference in Dallas and Videotex '82 in New York City, as well as summer vacations, accounted for the extended time period required for the interviews. The average interview lasted about 40 minutes, although actual length ranged from less than 15 minutes to one-and-a-half hours. All but one of the newspaper representatives answered all the questions in the questionnaire and seemed to want to talk at length about the project.

In the course of the interviews, each newspaper representative discussed the content of his or her respective publication. A videotape, showing selections from each of the electronic newspapers, bears out the information supplied in the interviews about the content and structure of the electronic editions. The videotape accompanies this dissertation (see Appendix C for a list of the table of contents).

This chapter is divided into four major subdivisions. The first contains composite data about the electronic editions. Both the text and the accompanying tables are designed to help paint a verbal picture

of these first electronic publications. The second section comprises a case-by-case description of the electronic editions at each of the respective newspapers, the third section is a presentation of opinion data derived from the open-ended questions posed to each of the newspaper representatives on the drawbacks, the benefits and the future of videotex, and the fourth section describes the content of the videotape of the electronic editions.

A Composite of the CompuServe Electronic Newspapers

The Associated Press was the catalyst for this venture into electronic publishing. Lawrence G. Blasko, director of information technology and deputy director of communications for the Associated Press, spearheaded the project for the AP and supplied brief background details about the project in a telephone interview. The initial contact between CompuServe and the Associated Press was made in November of 1979. At that time, Blasko said, CompuServe was interested in expanding its time-share computer operation and the AP was under pressure from its members to explore the videotex technology: both operations were equally interested in getting an experiment launched. Blasko said the AP sent out the call for newspapers interested in volunteering to participate in the experiment and about 80 to 100 papers responded. CompuServe selected 12 newspapers to participate, of which 11 eventually became active participants. (The Chicago Sun-Times dropped out of the experiment after very brief participation to concentrate on its KeyCom operation carried over WFLD-TV).

The experiment was undertaken with the idea that it would be

geographically representative of the country: the 11 newspapers participating stretched from San Francisco on the West Coast to Framingham, Mass., on the East Coast, and from Minneapolis in the North to Atlanta in the South (see Figure 1). The papers ranged from a small circulation size, 46,328 at the Middlesex Daily News, to the sizable 1.4 million circulation at the New York Times. Each of the 11 newspapers contained a wide range of standard newspaper fare except the St. Louis Post-Dispatch, which contained only classified advertising.

Table 1 reflects the amount of time each paper actually produced an electronic edition. The Columbus Dispatch, located in the same city where CompuServe is headquartered, was the first paper to participate. The Dispatch, in fact, had been producing an electronic edition for six months before a second newspaper even signed on. The Minneapolis Star-Tribune, which participated in the experiment for only nine months, was on-line the shortest length of time. The length of time between the decision to participate and the actual production date at each newspaper ranged from two-and-a-half to six months (see Table 1). The bulk of that delay time was spent at each newspaper in preparing the newspaper's front-end computer system (which normally sends editorial matter to a typesetter and not a telephone line) to be compatible with the CompuServe computer.

While each newspaper had its own distinct flavor, there were similarities among all the electronic publications. One common characteristic was that each had a small staff in comparison to the total number of newsroom employees working for the respective print publications at each newspaper. Table 2 shows the number of full-time and

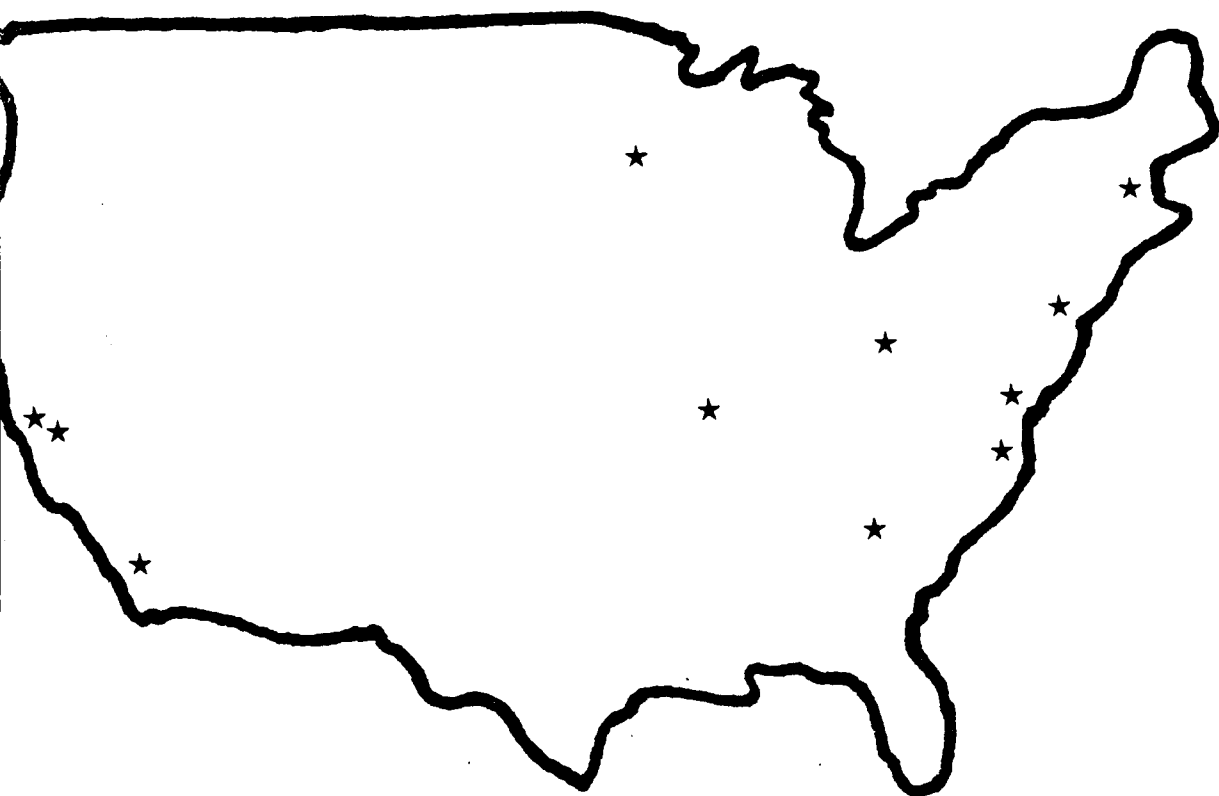


Figure 1. Location of Newspapers with Electronic Editions

TABLE 1
TIME SPENT PUBLISHING AN ELECTRONIC EDITION

Newspaper	Sign On Date	Length of Time Between Decision and Sign On	Total Length of Time on CompuServe
Columbus Dispatch	July 1980	*	24 Months
New York Times	January 1981	*	18 Months
Virginian-Pilot and Ledger-Star	February 1981	3 Months	17 Months
Washington Post	February 1981	4 Months	17 Months
San Francisco Chronicle	March 1981	5 Months	16 Months
Los Angeles Times	May 1981	6+ Months	14 Months
St. Louis Post-Dispatch	May 1981	*	14 Months
Minneapolis Star-Tribune	May 1981	4 Months	9 Months**
San Francisco Examiner	June 1981	*	13 Months
Atlanta Journal- Constitution	September 1981	2.5 Months	10 Months
Middlesex Daily News	September 1981	5 Months	10 Months

*Information not available.

**Participation ended in December 1981.

TABLE 2

STAFF SCHEDULING FOR ELECTRONIC EDITIONS

Newspaper	Full-Time Employees	Part-Time Employees	Days Per Week With Electronic Staff	Hours Per Day Staffed
Columbus Dispatch	0	2	6	7
New York Times	1	1	7	7
Virginian-Pilot and Ledger-Star	2	0	7	8
Washington Post	4	4	7	6
San Francisco Chronicle	1	0	5	7
Los Angeles Times	2	0	7	8+
St. Louis Post-Dispatch	0	1	*	*
Minneapolis Star-Tribune	3	5	7	*
Atlanta Journal- Constitution	3	2	7	14
San Francisco Examiner	2	1	7	*
Middlesex Daily News	1	2	7	8

*Information not given.

part-time electronic employees, the number of days the electronic newspapers were staffed, and the average hours per day staffed. The number of full-time employees ranged from a low of zero at the Columbus Dispatch to a high of four at the Washington Post. Four of the newspapers had no part-time help for the electronic staff, while one, the Minneapolis Star-Tribune, had a high of five part-time employees. The part-time employees at all of the newspapers divided their responsibilities between work on the electronic edition and other tasks at their respective publications. The Minneapolis paper and the Washington Post, each with eight employees, had the largest electronic staffs. Both the San Francisco Chronicle and the St. Louis Post-Dispatch had only one person on the electronic staff. Almost all of the newspapers staffed their electronic editions seven days per week, averaging about one eight-hour shift per day (see Table 2).

There was just about an even split among the 11 papers as to whether the electronic editor had autonomy over what copy went into the electronic editions, or whether that decision was made by other editors for the print editions and then carried out by the electronic editor in the course of a day's work. The electronic editor had autonomy at the Columbus Dispatch, San Francisco Chronicle, Los Angeles Times, Minneapolis Star-Tribune, Atlanta Journal-Constitution and San Francisco Examiner. Gatekeeping decisions were not made by the electronic editor at the New York Times, Virginian-Pilot and Ledger-Star, Washington Post or Middlesex Daily News.

With the exception of the St. Louis Post-Dispatch, which carried only advertising, the content of the remainder of the newspapers very

much resembled, in varying amounts, the content of a regular print newspaper: news, weather, business, sports, entertainment, and in half the cases, advertising. Each newspaper supplied news from the Associated Press wires in addition to a variety of other informational content. There was a wide disparity, as shown in Table 3, in the amount of content selected from the respective print editions to be included in the electronic editions. The amounts of print-version copy used ranged from a low of 5 percent at Minneapolis, where the staff made the greatest attempts to be innovative in content, to a high of virtually 100 percent at the Columbus Dispatch and the Middlesex Daily News, the two smallest newspapers taking part in the experiment. The staff of the Atlanta Journal-Constitution rewrote all of the copy (except the stories appearing in the in-depth categories) into a highly abbreviated form for the electronic edition. Five of the staffs selectively edited or rewrote shorter versions of some stories which appeared in their electronic editions, while the other four staffs merely shortened the headlines and then entered word-for-word duplicates of the stories from their respective print editions into the electronic database. None of the electronic publications contained pictures, graphics, comics or material in tabular form because of restrictions in the CompuServe equipment. However, 6 of the 11 newspapers contained advertising (see Table 3).

While standard news values came into play in the selection of copy for the electronic editions, the main criterion for story selection at many of the newspapers was consideration of the CompuServe subscriber. The electronic staffs were aware that the CompuServe audience

TABLE 3

COMPARISON OF CONTENT IN ELECTRONIC EDITION WITH PRINT EDITION

Newspaper	Fraction of Print Newshole	Rewrites All Stories Used	Stories Edited to Shorter Lengths	Contains Advertising
Columbus Dispatch	100%			x
New York Times	25%		x	x
Virginian-Pilot and Ledger-Star	10%		x	
Washington Post	80%			x
San Francisco Chronicle	50%			
Los Angeles Times	70%			
St. Louis Post-Dispatch				x
Minneapolis Star-Tribune	5%		x	x
Atlanta Journal- Constitution	65%	x*		
San Francisco Examiner	"minimal"		x	
Middlesex Daily News	100%		x	x

*Except those stories specifically labeled "in-depth."

was 98.3 percent male; had two years of post-graduate work; earned \$40,000 to \$50,000 a year, and, in at least half the cases, worked with computers. Additionally, they knew that the CompuServe customer spent less than 5 percent of his computer access time reading the electronic newspapers. With that in mind, they tried to select stories that a person fitting that profile would want to read. (The preceding information about the profile of the CompuServe subscriber was derived from proprietary research conducted by the Associated Press for CompuServe. It was made available to each of the newspapers participating in the project, but will not be released officially to the general public until the Associated Press report on the AP/CompuServe home information retrieval project is published in October 1982. The information was made available for inclusion in this study by a number of the electronic editors and by the Associated Press. See Blasko interview, page 145.

The staffs of the electronic editions were very similar in their handling of copy for the electronic editions. Table 4 shows that 8 of the 11 newspapers withheld stories from their electronic editions until after the stories appeared in their print editions. Only the Atlanta Journal-Constitution and the Los Angeles Times released material into the electronic database before it appeared in print. All of the newspapers updated the copy in their databases daily, and half of the newspapers programmed their news copy to remain in the database for 24 hours. The only newspaper to deviate widely from the 24-hour practice was the San Francisco Chronicle which programmed news material to remain in the database for seven days. This was because the newspaper was attempting to create an archive of electronic copy for its readers

TABLE 4
COMPARISON OF NEWS CONTENT¹ AND TIME OF RELEASE
FOR PRINT AND ELECTRONIC EDITIONS

Newspaper	Post-Publication Release Time	Updates Copy Daily	Length of Time in Database
Columbus Dispatch	x	x	24 hours
New York Times	x	x	24 hours
Virginian-Pilot and Ledger-Star	x	x	12 hours
Washington Post	x	x	24 hours
San Francisco Chronicle	x	x	7 days
Los Angeles Times		x	24 hours
St. Louis Post-Dispatch	n/a	n/a	n/a
Minneapolis Star-Tribune	x	x	12 hours
Atlanta Journal- Constitution		x	24-48 hours
San Francisco Examiner	x	x	*
Middlesex Daily News	x	x	48 hours

¹Other types of content are programmed to remain in the database much longer.

*Information not available.

(see Table 4). Non-news or informational items, like movie, theater and book reviews, recipes, guides to adult entertainment, magazine abstracts, and airline schedules, supplied by the various electronic staffs in their respective databases, were coded to remain for much longer periods in the CompuServe computer. These periods ranged from 14 days to permanent storage.

Table 5 shows that all of the newspapers used wire and news service dispatches for copy for the electronic edition, and all but one of the newspapers used local copy in their respective electronic publications. Only the New York Times, which took the view that a national audience would not be interested in metropolitan New York news and sports, failed to enter local copy into its database. The staff of the Minneapolis Star-Tribune supplied the only electronic-staff-generated news copy in the experiment. However, it should be noted that a number of the other electronic staffs generated informational, non-news items for their databases (see Table 5).

Table 6 reveals the degree of consistency with which the electronic staffs entered copy into their respective databases. Only the staff at the Atlanta Journal-Constitution consistently rewrote and shortened all stories into a brief summary form. The Journal-Constitution stories were confined to one screen (about 75 words). With some exceptions, the standard practice at the other newspapers was to enter word-for-word or "selectively edited" copies of articles from the print editions into the electronic editions. One notable exception to this practice was the abstracting service of the Minneapolis Star-Tribune, which supplied one-page synopses of computer magazine articles. (It

TABLE 5

SOURCES OF NEWS STORIES APPEARING IN ELECTRONIC EDITIONS

Newspaper	Wire and News Service Copy	Local Copy	Electronic Staff Generated
Columbus Dispatch	x	x	
New York Times	x		
Virginian-Pilot And Ledger-Star	x	x	
Washington Post	x	x	
San Francisco Chronicle	x	x	
Los Angeles Times	x	x	
St. Louis Post-Dispatch			
Minneapolis Star-Tribune	x	x	x
Atlanta Journal- Constitution	x	x	
San Francisco Examiner	x	x	
Middlesex Daily News	x	x	

TABLE 6
MAXIMUM LENGTH OF STORIES IN ELECTRONIC EDITIONS

Newspaper	1-Screen Story	Varies in Length	No Page Limit
Columbus Dispatch			x
New York Times			x
Virginian-Pilot and Ledger-Star			x
Washington Post			x
San Francisco Chronicle			x
Los Angeles Times			x
St. Louis Post-Dispatch	n/a	n/a	n/a
Minneapolis Star-Tribune		x	
Atlanta Journal- Constitution	x*		
San Francisco			x
Middlesex Daily News			x

*Except for stories specifically listed in "in-depth" categories.

should be noted here that the Associated Press especially created a viewdata wire for the Knight-Ridder Viewtron experiment in Florida which contained shorter, punchier versions of stories from its regular wires. The stories are generally confined to one screen of information, or about 50 to 75 words. According to Blasko, however, the viewdata wire was not used experimentally for the CompuServe project and was made available to only one or two newspapers participating in the CompuServe project.)

The size of viewing space on the television screen placed a major constraint on the newspapers in terms of the headlines used for the electronic stories. All but one of the newspapers confined their headlines to one line which meant that 32 characters was the maximum count allowable for any headline. And, depending on spacing allocated at the beginning of the line for a story number, many of the newspapers were restricted to even shorter headline counts. This meant that almost all headlines had to be rewritten (shortened) by the electronic staffs. Each electronic editor agreed that preparation of copy for the electronic edition (particularly rewriting headlines) accounted for the bulk of his daily responsibilities. After the copy had been headlined and properly coded at each of the respective newspapers, it was sent to CompuServe high speed, computer to computer on a telephone circuit.

CompuServe placed a limit of 10,000 frames (also referred to as "pages" or "screens") of information on each newspaper participating in the experiment. The limitation was not found to be a problem at any of the newspapers except the Minneapolis Star-Tribune, where the limit was

met continuously. That problem was resolved when CompuServe increased the Star-Tribune limit to 15,000 frames.

Although the time for the experiment to be concluded was very near or had just passed when the interviews were conducted (the project officially ended June 30, but many of the newspapers agreed to continue supplying material to CompuServe until July 31 to enable the Associated Press to conclude its tracking research), most of the editors did not know what the plans were at their respective newspapers for continuing to produce an electronic newspaper. Those editors who did know that their papers were going to cease electronic publications cited economic factors as the main cause. They said there were not enough subscribers to justify paying the per page storage charges and the story turnover rate charges that CompuServe would have begun billing them for as independent information providers.

The people who were in charge of the electronic editions were, as a group, predominantly male, well-educated, and had only a layman's knowledge of computers before the experiment started. Table 7 shows that nine of the ten electronic editors were male. The lone woman in charge of an electronic edition was at the Middlesex Daily News, the smallest of the newspapers participating in the experiment. All of the editors were college graduates, half of them held a degree in journalism, and only one of them knew any more about computers before the experiment began than what could be learned from working on a VDT in a newsroom (see Table 7). The person at the St. Louis Post-Dispatch who was responsible each day for pushing the button to transmit the classified ads from the Post-Dispatch computer to the CompuServe computer

TABLE 7

DEMOGRAPHICS AND COMPUTER EXPERIENCE OF ELECTRONIC EDITORS¹

Newspaper	Male	Female	College Graduate	Degree in Journalism	Only VDT Experience
Columbus Dispatch	x		x	x	x
New York Times	x		x		x
Virginian-Pilot and Ledger-Star	x		x		x
Washington Post	x		x		x
San Francisco Chronicle	x		x	x	x
Los Angeles Times	x		x		
St. Louis Post-Dispatch					
Minneapolis Star-Tribune	x		x	x	x
Atlanta Journal- Constitution	x		x	x	x
San Francisco Examiner	x		*	*	*
Middlesex Daily News		x	x	x	x

¹Refers to chief respondent, not necessarily all electronic personnel.

*Information not available.

was determined to be a technician rather than an editor and was not included in this analysis.

In summary, the electronic editions published by the 11 newspapers participating in the AP/CompuServe home information retrieval project tended, for the most part, to be very similar in content to the print versions of each of the 11 newspapers. The news stories were for the most part word-for-word duplicates, and aside from the headlines which had to be rewritten from the print versions, the only really different facet of the electronic newspapers was found in the long-term storage of such items as reviews and recipes. In short, the newspapers generally took their print product and adapted it to fit the new electronic medium.

Description of the Individual Newspaper's Electronic Editions

This section contains information about each of the newspapers and its participation in the AP/CompuServe experiment. The newspapers are presented in the order in which the interviews were conducted (see Reference List, Dates of Interviews). All circulation figures are from the Editor and Publisher Yearbook (1981).

The St. Louis Post-Dispatch. The Post-Dispatch, the seventh newspaper to go on-line with CompuServe during the experiment, has a daily circulation of 253,508 and a Sunday circulation of 436,391. The newspaper is owned by the Pulitzer Publishing Company. The Post-Dispatch was the only newspaper of the 11 participating in the experiment to supply only advertising to the CompuServe database. Tom Young

of the Post-Dispatch supplied the limited amount of information made available about the newspaper's part in the experiment.

Advertising in the electronic edition was restricted to single column and classified advertising. The ads were updated every 24 hours, generally in the morning when CompuServe purged the preceding day's copy from its system. The computer system at the Post-Dispatch did not have to be modified significantly to begin operation with CompuServe. The "whole arrangement" with CompuServe was described as one of transmission only. The advertising which appeared in the electronic edition had already been entered into the Post-Dispatch's computers for use in the print edition, and so there was only the matter of a phone call to transmit the information from St. Louis to CompuServe in Columbus, Ohio. One person, who had other duties at the Post-Dispatch in addition to the electronic classified advertising, was responsible for the transmission daily. There were no extra personnel involved in the electronic edition.

There were no major problems associated with supplying material for the electronic edition; what problems there were were characterized as minor and of a technical nature having to do with software and hardware for the computer. Multi-column display ads were not included in the electronic edition because those ads were entered into a separate, much more technically advanced database at the Post-Dispatch which was not compatible with the CompuServe system. The single column/classified ads, which were all in the same type size, didn't have any "fancy" type-setting and didn't require any special equipment, hence the ease in computer-to-computer transmission.

A decision on whether the Post-Dispatch would continue on-line with CompuServe after the AP experiment was terminated had not been made as of June 9, 1982, although at that time the newspaper's management was reported to be "favorably disposed" to continuing the service.

The San Francisco Examiner. San Francisco was the only city in the country to have two newspapers participating in the project. They were the San Francisco Examiner and the San Francisco Chronicle. The Examiner was the tenth of the 11 newspapers in the experiment to go on-line with an electronic edition. It has a daily circulation of 155,889 and a Sunday circulation of 659,940. The Sunday edition of the Examiner is published jointly with the Chronicle. The Examiner is owned by the Hearst Corporation. Jim Sevens, general manager of the newspaper, who terms himself the "moving force" behind the Examiner's participation in the experiment, supplied the information about the electronic edition.

Two people worked full-time on the electronic staff and one person worked part-time. Copy for the electronic edition was estimated to contain about 10 percent of the content of the Examiner's regular print editions. Copy was selected by members of the electronic staff from early zone editions of the Examiner.

Because of the display limitations of the television screen, the electronic staff selectively edited the stories used in the electronic editions. The copy was not rewritten, but attempts were made to present stories in an abbreviated fashion. Aside from wire copy, stories were not updated as each new edition of the Examiner came off

the press since material for the electronic edition was not released to CompuServe until it had already been published in the print editions.

While standard news values came into play in selection of copy for the electronic edition, the main criterion was consideration of the CompuServe subscriber who was known to be a computer hobbyist ("buff" and "freak" were also used to describe the CompuServe computer user). The electronic staff also tried to consider what stories would be unique to the Examiner, since the Examiner was not the lone information provider in the system. Story selection, headline revision and copy preparation were the most time-consuming aspects of the electronic staff's job.

As of June 9, 1982, no decision had been made as to whether the San Francisco Examiner would continue publishing an electronic newspaper after the AP/CompuServe experiment ended.

The Virginian-Pilot and Ledger-Star. The Virginian-Pilot and Ledger-Star, located in Norfolk, Va., are owned by Landmark Communications, Inc. The Virginian-Pilot has a circulation of 126,323, and the Ledger-Star has a circulation of 95,654. Combined, their Sunday circulation is 202,600. The newspapers, which provided a joint edition for CompuServe, were the third publication to go on-line in the experiment. The electronic edition was placed under the supervision of Bob Bettencourt, business development manager of the Virginian-Pilot and Ledger-Star.

There were two full-time workers for the electronic edition and no part-time workers. The electronic edition was staffed seven days a week. The content of the electronic edition included news, weather,

sports and feature stories. Classified ads were included in the system for a time, but were discontinued when they were determined to be too difficult to categorize properly. The bulk of the stories in the electronic edition came from the morning newspaper. The electronic staffers took the hard news out of the morning paper and edited it for inclusion in the CompuServe database. Stories generally were not released to CompuServe prior to publication in the print editions. Hard news was programmed to stay in the computer only 12 hours, and the staff updated the news daily. Reviews were programmed to stay in the computer for a much longer period of time. It was estimated that about 10 percent of the content of the regular editions of the Virginian-Pilot and Ledger-Star was used in the electronic edition.

Decision-making about what stories to include in the electronic edition was left to the two full-time workers on the electronic staff. The bulk of their workday was spent in copy preparation, particularly headline writing since all the headlines from the regular editions had to be rewritten to fit on one line containing no more than 30 characters for the electronic edition.

The electronic staff worked in a room isolated from the rest of the newspaper staff. The bulk of the Virginian-Pilot and Ledger-Star staff members were described as indifferent to the electronic project, so much so that most of the employees did not know how to get into the system for the electronic edition.

Start-up cost for getting the newspaper on-line with CompuServe once the decision was made to join the project was about \$50,000. The newspaper spent an additional \$100,000 on advertising and in taking the

system to computer and home shows for demonstrations. The newspaper also utilized coupon-type ads in a number of newspapers advertising the experimental system. Management at the Virginian-Pilot and Ledger-Star estimated that it would cost a newspaper \$2 million to purchase the necessary hardware and software to start an independent videotex newspaper, and another \$250,000 annually to operate the system.

Funding for the Virginian-Pilot/Ledger-Star electronic project came from the Landmark Communications research and development fund and did not in any way affect newsroom budget operations at either of the two regular newspapers. As of January 1, 1982, funding for the electronic edition was assumed by the local papers, but management estimated the operating expenses through June to be minimal.

Once the decision was made for the newspaper to take part in the AP/CompuServe experiment, the Virginian-Pilot/Ledger-Star was on-line within three months. The 90-day period was used for inter-linking the newspaper and CompuServe computer systems, for writing the menus for the newspaper, and for training personnel.

At the end of the experiment, the newspaper planned to terminate its electronic edition.

The Los Angeles Times. The Times was one of the largest newspapers participating in the AP/CompuServe experiment. It was the sixth paper to go on-line with CompuServe. It has a daily circulation of 984,233 and a Sunday circulation of 1,270,538. The newspaper is one of the holdings of the giant Times Mirror Company. Doug Speer, planning manager of information systems for the Los Angeles Times, was placed in

charge of the newspaper's electronic edition. He supplied the information about the Los Angeles edition.

Two people worked full-time on the electronic edition. There were no part-time workers. The edition was staffed at least eight hours a day, seven days a week.

A morning newspaper, the Los Angeles Times prints numerous editions, the earliest of which goes to press at 8 p.m. the night preceding the day it is dated. Copy was released daily for the CompuServe edition prior to the time the print edition had time to get into all readers' hands. Stories were sent piecemeal throughout the day to the main CompuServe computer. Stories were frequently updated, but not necessarily every time a new edition of the regular newspaper was printed.

The content of the electronic edition, which included about 70 percent of the content of the regular editions, contained news, weather, sports, features, editorials, and both display and classified advertising. The stories used in the electronic edition were word-for-word duplicates of the stories appearing in the print editions. There were no quotas on the number of stories sent in any one category, since the philosophy was to create an electronic representation of the whole print newspaper. The only exception was that no tabular matter could appear in the electronic edition because the CompuServe computer was not programmed to handle it.

Headlines in the electronic edition were rewritten versions of the headlines used in the regular newspaper. The headlines were restricted to one line of no more than 32 characters.

The Los Angeles Times contains six sections in its regular editions and the electronic staff felt that through the CompuServe menus, which acted as a table of contents for the electronic edition, the news in each of these sections could be structured for readers. Inability to provide an opportunity for browsing, in the sense that a person can thumb through a regular newspaper, was considered to be a limitation of the electronic newspaper. Experienced editors worked on the electronic edition and were given a free rein in selecting what stories to include in the edition every day. They were guided by their standard news values and by a consideration of what they thought the reader of an electronic newspaper might want to read. Since none of the stories for the electronic edition were either rewritten or cut, there were not considered to be any major problems in copy preparation. Rewriting headlines and coding the stories were considered to be the most time-consuming aspect of the electronic staff's responsibilities.

There was a 10,000-frame limit on the amount of copy that could be entered into the CompuServe database at any one time, but the staff never reached that limit. Stories were programmed to stay in the database for either 24 or 48 hours. Reviews were programmed to remain in the database for either 30 or 60 days.

The electronic editors worked in the main Los Angeles Times newsroom. The relationship between the electronic staff and the regular staff was considered to be very amiable, and the attitude of most of the rest of the reporters and editors at the paper toward the electronic edition was considered to be fairly ambivalent. There was a certain

amount of interest expressed, but most people were wrapped up in their own responsibilities.

The annual cost of producing an electronic newspaper at the Los Angeles Times and the amount of money that the newspaper had involved in the whole experiment was considered proprietary information and was not available. The newspaper's management did report that no newsroom budget funds were utilized for the electronic edition.

Once the decision was made to participate in the AP/CompuServe experiment, more than six months went by before the paper went on-line with an edition. The time delay was "mostly technical" in nature, with only a few days necessary for training personnel. As of June 15, 1982, the management of the Los Angeles Times was "reviewing its options" on continuing to produce an electronic edition.

The Columbus Dispatch. The Dispatch in Columbus, Ohio, was the first of the 11 newspapers in the AP/CompuServe experiment to go on-line with an electronic edition. It has a daily circulation of 199,041 and a Sunday circulation of 334,888. The newspaper is owned by the Dispatch Printing Company. Jim Crowley, a copy editor at the newspaper, was placed in charge of day-to-day operation of the electronic edition.

There were no full-time employees of the Dispatch on the electronic edition. Two people worked part-time, including Crowley who worked part-time on the copy desk for the print edition and part-time on the electronic edition. The second part-timer divided responsibilities between writing sports and entertainment reviews and preparing electronic copy. The electronic edition was staffed fully six days a

week and local copy was transmitted to CompuServe six days a week and retained in the database over the seventh day.

There are five editions of the Columbus Dispatch. The first is on the streets by 9 a.m. and the last by 11:30 a.m. daily. Copy for the electronic edition rarely was released (5 percent of the time or less) in the electronic edition before it first appeared in the print editions. Material normally was released for the electronic edition at 6 p.m. daily when CompuServe allowed non-business customers access to the company's central computer.

Stories were entered piecemeal into the newspaper's computer, allowing for immediate updates of stories. The Columbus Dispatch system was set up to allow the Associated Press to update stories through its hourly transmissions. Since the electronic edition was not on-line for the bulk of the CompuServe customers until 6 p.m., there was not a need to update copy as each of the five print editions came off the presses. Virtually 100 percent of the text appearing in the print newshole was used "in one form or another" in the electronic edition. Content of the electronic edition included, in addition to the textual duplicates of local reporter's stories from the print editions, stories from the Associated Press viewdata wire (the wire developed by AP for the Knight-Ridder Viewtron experiment featuring short, punchy versions of wire stories), and stories from a number of other wire and news services. The electronic edition even contained an interactive crossword puzzle.

The Dispatch almost became the first newspaper in the CompuServe system to offer graphics. The paper had a computer program worked out

for transmitting animated political cartoons, but the cartoonist left Columbus for another newspaper about the time the newspaper was ready to go on-line with the cartoons.

The Dispatch contained a "Special Interest Group" offering in the electronic edition. It was a division of the special "CB" program developed by CompuServe which allowed users nationwide to converse back and forth by writing messages on their computer screens. Response to the electronic visiting or chatting was termed very good and a wide group of people regularly participated. A "talk show" was in the planning stage for users. The Dispatch arranged to monitor the service at all times. All messages entered into the system were available for reading by any CompuServe subscriber.

On the average, between 100 and 150 items were sent to CompuServe every day for the Columbus Dispatch electronic edition. The number increased substantially for the Sunday edition which included between 500 and 800 stories. There were no quotas established for the number of stories sent from any particular category (such as sports, hard news, editorials, etc.). The practice was to send as many stories as the staff had time to handle. If the CompuServe computers went down, however, then the staff had to prioritize and send those stories deemed most important for the day.

The Columbus Dispatch never found the 10,000-frame limit on copy entered into the system to be a problem.

Headlines that were used on stories in the print editions rarely could be used verbatim in the electronic edition because of the space constraints of the computer screen. The electronic staff rewrote all

the heads to fit on one line of no more than 27 characters. The electronic staff found no satisfactory way to rank or structure the stories in the electronic edition to parallel the way headline size, story placement and page makeup structure the news for readers of traditional newspapers. In June, 1982, the Columbus Dispatch was exploring a cable system of electronic news delivery that would allow different type sizes to be utilized for the various stories, thereby somewhat helping to show readers what stories are the most important. The necessary equipment was priced at between \$175,000 and \$185,000, and there was only a 50-50 chance that the expenditure would be made.

The main criteria used at the Dispatch for story selection for the electronic newspaper were standard news values, with an extra consideration given to the type of audience that CompuServe serves. Because of the nature of the CompuServe audience, stories selected for the "front page" menu category of the electronic edition were different from the stories on the front page of the regular newspaper. Readers of the Dispatch's electronic edition apparently liked the content, Crowley said, because the newspaper consistently improved its ranking among CompuServe competitors. (CompuServe ranked the 11 newspapers every month in accordance with user time spent reading each newspaper. The Columbus-Dispatch went from eighth out of 12 places when the rankings first began to a consistent fourth or fifth place by the end of the experiment. The New York Times, the Washington Post, and the Los Angeles Times, the three largest newspapers in circulation taking part in the experiment and three of the most respected newspapers in the country, consistently ranked in the first three places in electronic

readership. Even though there were only 11 newspapers participating in the experiment, there were 12 places ranked each month because Compu-Serve calculated user access to the Associated Press wires as a separate category. The AP wires could be read only by calling up an individual newspaper; however, credit for the access was given to the AP and not to the newspaper through which it was accessed, hence the twelfth category. These rankings were furnished to the 11 papers only, and were not available to the public.)

Aside from an occasional technical problem with the computer system, there were very few problems involved in copy preparation for the electronic edition. Loading data, locating stories not headed properly in the newsroom computer system, and keeping an eye on the "Special Interest Group" correspondence were considered to be the most time-consuming aspects of the electronic job.

There were no special rules that governed work on the electronic edition that did not also govern work on the print editions. However, the electronic staff members said they attempted to be extra mindful of copy going into the electronic system since there was no back-up to catch errors. (Copy for the print edition normally passed before four or five people at the Dispatch before publication.)

The Columbus Dispatch did not provide a separate newsroom for the electronic staff. The attitude of most of the other reporters and editors at the paper toward the electronic edition was termed as one of resentment, with many of the regular staffers referring to the electronic edition as "a joke" and accusing the electronic staffers of doing nothing but playing electronic football all day.

Start-up costs for getting the electronic edition on-line were judged to be minimal: the newspaper used its existing computer equipment, no new personnel were hired, and CompuServe supplied the transmission nodes (telephone hookups) linking the newspaper with the central computer at CompuServe. CompuServe also supplied a spec (specifications) sheet, a "computer tree" which supplied the Dispatch with its first framework for the electronic edition, and a person to train the electronic staff in how to prepare copy for the system.

As of June 22, the Dispatch had informally agreed with CompuServe to continue publication of its electronic edition after the official termination of the AP experiment on June 30, 1982.

The Washington Post. The fourth newspaper to go on-line in the AP/CompuServe experiment was the Washington Post. It has a weekday circulation of 541,074 and a Sunday circulation of 762,825. The newspaper, which has two electronic publications, is owned by the Washington Post Company. Hal Logan, manager of electronic publishing research and development for the Washington Post Company, was responsible for both the electronic edition prepared for CompuServe and for the full-text computerized version of the Post which is entered into Mead Data's NEXIS information retrieval system (see pages 28, 43). Logan supplied the information about the Washington Post's electronic edition.

Four people worked full-time on the CompuServe electronic edition and four others worked part-time. The edition was staffed five-and-a-half or six hours a day, seven days a week.

Depending on day of week, the Post publishes three or four print editions. The earliest edition hits the streets about 11 p.m. nightly,

but material for the electronic edition was not released until 6 p.m. the next day. Therefore, copy was not updated in the electronic edition as each new print edition was published.

Content of the electronic edition included all material from the Capitol edition of the print newspaper except for material in agate type and non-staff written materials (to prevent possible violation of copyright laws, the Post did not run any freelance or syndicated copy in its electronic edition). A ballpark figure for the fraction of the content from the print newshole which was used in the electronic edition was 80 percent. The Post at one time included classified advertising in its electronic edition, but the advertising was being eliminated at the time of the interview.

The stories which appeared in the electronic edition were word-for-word duplicates of the stories which appeared in the print editions. Non-news stories, such as features, columns, editorials and sports, were all handled in the same manner as straight news. There were no quotas on the number of stories entered into any category of the database.

In an effort to take advantage of the archival capabilities of the electronic edition, the Washington Post provided a service in the electronic edition that was not possible in the print editions. When the newspaper printed a series of articles, all parts of the series were accumulated in the database until the concluding article had appeared in print. That allowed readers, who might have missed a day, access to all of the information at one time.

As with the other newspapers providing copy for the CompuServe

subscribers, the Post electronic staff had to rewrite all headlines for the electronic edition. Unlike many of the other newspapers, however, the Post did not restrict headlines to just one line of 30-character count or less. Headlines frequently exceeded one line.

Since CompuServe restricted its information providers to using only one type size and type face, the Post found no satisfactory way to differentiate for readers the importance of one story from another except by listing stories by category and then ranking them numerically. That process was considered less than desirable.

Standard news values were used in the selection of copy for the electronic edition, but those decisions were made by the editors of the regular editions in the course of their daily gatekeeping. People who worked on the electronic staff were more copy-handlers than decision-makers.

Technical problems with the computer were considered to be the only major irritant associated with copy preparation for the electronic edition, and rewriting headlines and coding stories were considered to be the most time-consuming aspects of an electronic staffer's job. There was no pattern to the way stories were entered into the database every day; the staff generally approached the copy randomly. Generally, stories were coded to stay in the database for 24 hours, but reviews were coded for longer periods.

The philosophy at the Washington Post was to integrate the electronic publications with the regular print newspaper and that was reflected by the fact that both the CompuServe and NEXIS staffers worked in the same newsroom with the rest of the newspaper's staff. Sentiment

on the part of the other reporters and editors at the Post toward the electronic edition was varied. Some of the staff were apprehensive, others were interested "only because they thought they should be compensated by this new potential revenue-producer for the newspaper," and still others were said to be genuinely interested in the new technology. All of the workers on the electronic staff had been associated previously with the print staff and the working relationship was termed amiable.

Funding to produce the electronic edition came from the advance systems division of the Post Company. The newsroom budget was not affected in any way by the electronic edition. Start-up costs for getting the Post on-line with CompuServe were estimated to be between \$25,000 and \$50,000. The newspaper already had computer terminals, but a modem, phone lines and programming were all needed. Personnel constituted the main expense in electronic costs. At the Post, reporters were earning \$30,000 a year and editors generally were paid 10 to 15 percent more than reporters in 1982.

Once the decision was made to join the AP/CompuServe experiment, about four months went by before the newspaper went on-line. During that time period, databases were built, pages were put together, and representatives of each of the participating newspapers met to consider such issues as content, subscriber revenue and market research.

As of June 22, the Washington Post was planning to continue publication of an electronic edition after the AP/CompuServe experiment was over on June 30, 1982, but not necessarily with the same vendor.

The New York Times. The Times, the second newspaper to go on-line with an electronic edition in the AP/CompuServe experiment, was the largest of the newspapers represented in the survey. It has a daily circulation of 820,239 and a Sunday circulation of 1,413,104. The newspaper, which has a worldwide reputation for excellence, is owned by the New York Times Company. Don Murphy, an executive with the New York Times Syndication Sales Corporation, was in charge of the electronic edition for the New York Times. Murphy supplied the information about the edition.

One person worked full-time on the edition and one person worked part-time. The electronic edition was staffed seven hours a day, seven days a week. The Times is a morning newspaper which publishes several editions. The first of the editions is generally off the presses and on the streets in New York City about 9:30 p.m. the evening before the day the paper is actually dated. No material was released in the electronic edition until it had first been published in a print edition. Therefore, with this post-publication guideline, much of the copy in the electronic edition was nearly 24 hours old before it was even released electronically.

The copy for the electronic edition, which included a number of news categories as well as some specialty interest areas, was entered piecemeal into the CompuServe computer. Generally, it was sent in the order of editorials, op-ed matter, news analyses, sports and features, with hard news and business news entered into the system last. Between 25 percent and 33 percent of the content of the print editions was used in the electronic edition, on the average. The actual amount varied

according to the section of the newspaper--60 percent to 70 percent of the national news written for the print editions appeared in the electronic edition, but 0 percent of the local news appeared in the electronic edition. The Times withheld metropolitan New York news and most sports news in deference to the national nature of the CompuServe system. Initially, the content of the electronic edition was limited to stories which were syndicated by the New York Times News Service, but later on in the experiment, the electronic staff had direct access to the New York Times computers and the same material which appeared in the regular editions of the Times. There were no classified ads in the electronic edition, however, there were ads for such New York Times specialty products as subscriptions and books.

The stories that were used in the electronic edition were not all word-for-word duplicates of the same stories which appeared in the regular editions. Most of the stories were edited by various editors on the news service staff. Generally, the editors took the stories "out of New York Times style and put it in wire service style." Most of the stories also were shortened from the bottom.

There was no formal quota system for the number of stories that were included in any one category. However, an informal quota was maintained through an attempt to keep between 10 and 15 stories each in the international and national files, and by running at least 10 business stories a day. Additionally, the staff conscientiously watched for stories dealing with high technology and included them for the many computer and business experts who subscribed to CompuServe.

Headlines in the electronic edition were restricted to one line

of 32 characters or less; consequently, almost all the headlines had to be shortened from their print-edition version. Sometimes abbreviations were used.

Stories were entered into the database for time periods ranging from one day (for hard news stories) to 60 days for such items as movie, book and play reviews.

The electronic staff felt that no really satisfactory method had been devised for weighting or ranking stories for the CompuServe readers; however, they found that if they categorized all stories of a similar nature (e.g., the Falklands crisis), readers could easily find all related stories which appeared in any given edition.

Availability of already-written material was the initial criterion used in selecting copy for the electronic edition, but later on in the experiment, standard news values were the prevailing factors. The electronic editor had autonomy in making decisions about what copy to include in the edition, but, in actuality, he mostly acted on gatekeeping decisions made earlier by editors on the print staff.

There were no real problems involved in the day-to-day operations of the electronic edition. Copy preparation was the most time-consuming aspect of the electronic job.

There was virtually no contact between the staff for the electronic edition and the regular staff, because the electronic newsroom was not even in the same building as the regular Times news and editorial offices. The electronic edition was housed within the New York Times Syndication and Sales Corporation facilities. The NYTSSC is an arm of the New York Times News Service. Until the tail-end of the

experiment, most of the reporters and editors at the Times were "oblivious" to the experiment.

The electronic editor was not familiar with the operating costs of the electronic edition or the funding arrangements made to get the newspaper on-line with CompuServe. Also, he did not know whether the New York Times planned to continue its electronic edition after the AP/CompuServe experiment was terminated.

The Middlesex Daily News. The Middlesex Daily News in Framingham, Mass., was the smallest of the newspapers participating in the AP/CompuServe experiment, and was the last of the newspapers to go on-line with CompuServe. The newspaper has a daily circulation of 49,597 and a Sunday circulation of 53,272. The newspaper, which serves a number of suburban communities in the Boston area, is a part of the Harte-Hanks newspaper chain. Vicky Ogden, state editor of the newspaper, was placed in charge of the electronic edition and given the title of video news editor. Ogden supplied the information about the Middlesex edition.

One person worked full-time on the edition, and two others worked part-time. The electronic edition was staffed fully six days a week (Monday through Saturday) and partially on Sunday when some sports were entered into the system.

There are seven different zoned editions of the Middlesex Daily News. The earliest one is on the streets by 11 a.m. daily, and the latest by 2:30 p.m. No local copy was pre-released in the electronic edition before it appeared in the print editions. A deadline of 6 p.m. was set for the electronic edition. Between noon and 6 p.m. daily,

features and soft news were entered into the system. The local breaking news and business news was entered between 6 p.m. and 8 p.m. This was done to keep the most important news at the top of the CompuServe menu selections. Wire copy was entered throughout the day, and then updated between 6 p.m. and 8 p.m. No local copy was updated, but that was not inconsistent with the print newspaper practices: each of the regular editions is zoned, therefore the local copy changes entirely by edition and is never in the paper long enough to be updated.

The electronic edition was estimated to contain close to 100 percent of the copy contained each day in the newshole of the print edition. The electronic edition contained news sections for all of the seven regions served by the print editions. For example, the Eastern Massachusetts menu offered a selection of 36 different communities. Sub-menus for each of the communities contained story selections about local events. Generally, there were at least three story selections per town, per day. These selections changed daily. The stories that were used in the electronic editions were word-for-word duplicates of stories that appeared in the print editions. The only abbreviated, or summary, selections in the Middlesex Daily News electronic edition appeared in a section called "Headlines." The top five or six stories of the day were boiled down to make up the equivalent of an index (with teasers) in a regular newspaper, and then included in the electronic edition.

In addition to the duplicated news content from the print editions, the electronic edition also contained some items not found in the regular newspaper. More Boston, Cambridge, and Cape area news was

included for the benefit of CompuServe subscribers from the Northeast. Additionally, entertainment listings, including a movie clock, and theater, film and book reviews, were offered. Unlike news content, which was updated in the electronic edition daily, the reviews were programmed to stay in the system anywhere from 30 to 60 days for the benefit of readers. A small amount of classified advertising also was included in the electronic edition. It was selected from classified ads which had appeared in the print editions, and then merely recoded for entry in the CompuServe system. The ads were real estate, service or automotive in nature.

There were no quotas for the number of stories which appeared in any one section of the electronic newspaper. As in the regular editions of the newspaper, the philosophy for the electronic edition was to strive to achieve a balance in the news, feature, sports and editorial offerings.

Because of the space limitations on the television screen, all headlines had to be rewritten and shortened for the electronic edition. There was a one-line, 30-character limit for each headline.

The electronic editor made an attempt, through the electronic edition's "Headline" section, to let the readers know what the most important stories were in the paper on any given day. Additionally, the electronic editor attempted to rank the news for the reader by sending the most important stories to the system last, thereby assuring that they would appear high up on the electronic edition menu since the computer feeds stories from bottom to top. With a breaking news story,

killing any previous copy and sending a new "write-through" assured that the story would appear high up in the system.

Decisions about what copy would appear in the paper were not made by the electronic editor alone. The philosophy at the Middlesex Daily News, from the beginning of the project, was that the electronic edition would mirror the print edition. Therefore, since gatekeeping decisions were made for the print editions every day anyway, the electronic editor borrowed heavily on what already had been done and what judgments already had been made. Standard news values were the main criteria used in selecting copy for both print and electronic editions.

Coding and recoding stories and classified ads were the most time-consuming aspects of the electronic job. Technical problems dealing with the computer were bothersome for the staff when the Middlesex Daily News first went on-line with CompuServe, but after those problems were cleared up, there were few difficulties in preparing copy for the electronic edition. Occasionally, there was a shortage of terminals since the electronic staff did not have its own separate newsroom. On those occasions the electronic staff yielded to the regular staff under the philosophy that time is money and the regular paper had to get out.

The relationship between the print and electronic staff was considered to be close, and "fascination" was the word used to describe the attitude of most reporters at the paper toward the experimental publication. Most staffers, however, did think the electronic newspaper was too expensive.

The Middlesex Daily News never reached the 10,000-frame limit established by CompuServe as the maximum allowable content. Stories

were coded to remain in the system for periods ranging from 48 hours to 30 days. All news stories were coded for two days even though the news was updated daily. This was done for the benefit of the staff demonstrations of the system. Stories that were coded for one day could only be read by CompuServe's non-business customers during the 12-hour period from 6 p.m. to 6 a.m. At 6 a.m. each day, the central computer in Columbus purged all copy from the newspaper system that had not been coded to remain for a longer period. Since the staff made most of its demonstrations of the electronic newspaper during normal business hours, the news was coded for two days so that empty news files did not appear during demonstrations.

Two special guidelines were utilized by the electronic staff that were not adhered to by the regular staff. Both had to do with the confining nature of the computer screen. Because everything looked the same on the screen, the electronic staff developed a "purist attitude" about the news. Only hard news was introduced into the system--fillers, soft news and "off-the-wall" features or news stories were not used. The other special guideline dealt with timing. The staff entered an average of 200 stories a day into the computer for the electronic edition. Only by leaving a recap of the lead news story of the day until the last piece of copy handled could the staff be assured that the main story would appear first in the system, thereby indicating to readers the importance of that story.

Harte-Hanks supplied the capital for the electronic newspaper out of corporate funds. No Middlesex Daily News funds were involved in the experiment. A five-month period went by between the time the

newspaper decided to take part in the experiment and actually went on-line with CompuServe. Technical problems were blamed for the lengthy delay. A decision on whether the Middlesex Daily News would continue publishing an electronic edition after the AP/CompuServe experiment was terminated had not been made as of June 30, 1982. That decision was to be made by Harte-Hanks management.

The Atlanta Journal-Constitution. The Atlanta Journal-Constitution was the ninth newspaper to go on-line with CompuServe in the Associated Press experiment. When the project started, the Atlanta Journal and the Atlanta Constitution were published as two separate newspapers. However, in an economizing move, the two papers were combined in the spring of 1982 into one publication. The combined Sunday circulation of the two newspapers (prior to their merger) was 533,548. The Atlanta Journal-Constitution is owned by the Atlanta Newspapers Group, a subsidiary of the Cox Enterprise chain. Curtis Patton, an executive news editor, was placed in charge of the electronic publication and given the title of editor of the electronic edition. Patton supplied the information about the Atlanta operation.

Three people worked full-time on the electronic edition, and two others worked part-time. The electronic edition was fully staffed 14 hours a day, 6 days a week. On Sundays, one person worked an eight-hour shift.

At the start of the experiment, the Constitution editions came off the presses in the mornings and the Journal editions in the afternoon. Copy was often pre-released for the electronic edition, sometimes by as much as five hours before it appeared in print.

Copy for the electronic edition was sent piecemeal from Atlanta to the CompuServe computer in Columbus. Stories frequently were updated each time a new edition of the newspaper came out, although sometimes this merely meant shifting items in the electronic menu.

The content of the electronic edition, which was estimated to include 60-65 percent of the news from the print editions, comprised weather, sports, features, editorials, columns, and such specialty informational items as recipes, stock information, and airline schedules. During the last few months of the experiment, the electronic edition also contained sporadic amounts of classified advertising, some free advertising, and electronic coupons.

All of the copy which was entered into the electronic edition was rewritten from the version which appeared in the print edition. Headlines for the stories were restricted to one line containing no more than 30 characters. The electronic staff rewrote the stories to fit onto one screen (a screen contains 16 lines of 32 characters each and holds approximately 50 words). There was not a quota for the number of stories appearing in any single category of news, but attempts were made to keep at least ten stories each in the "front page," international, national, state and metropolitan Atlanta news categories. The electronic staff entered approximately 120 stories into the database daily.

The main stories in the electronic edition, those that appeared in the "front page" category, were backed in so that the last story entered appeared at the top of the menu. The electronic staff attempted to alert readers to major breaking news stories through the positioning

of the headlines in the "front page" menu. An exclamation point was used at the end of the headline of very important stories in an attempt to signal the reader that the story was more than routine. For example, on the day that the Egyptian leader, Anwar Sadat, was assassinated, the headline for the story in the electronic edition (once his death was confirmed) read: Anwar Sadat Shot, Killed!

Standard news values were used as the main criteria in the selection of copy for the electronic edition, although some weight also was given to consideration for the type of subscriber served by CompuServe. The electronic staff was responsive to requests made through the electronic letters to the editor. For example, one letter writer wanted more stories on motor sports, so the staff included more stories on motor sports. Feedback from readers through the electronic letters to the editor was utilized by the staff for additions or modifications to the electronic edition.

Audience consideration was given to the types of stories that were entered first into the database every day. In deference to the CompuServe business customers who had access to the electronic newspapers during the working hours, the electronic staff made an attempt to enter sports, business and weather information into the computer first.

Decision-making on all copy to be included in the electronic edition was the responsibility of the electronic editor, who had been given permission from top management at the Journal-Constitution to run whatever information he chose in the edition.

Preparation of copy was considered to be the most time-consuming

aspect of the electronic job at Atlanta, the only newspaper in the experiment which rewrote all the print copy for the electronic edition. On a daily basis, this meant writing the headlines, rewriting all the news and feature copy, and coding classified ads for transmission to CompuServe. The electronic staff also had the tedious task of typing the airline schedules every two months when they were changed and updated by the airlines.

Technical problems with the Journal-Constitution computer and an occasional problem with the CompuServe computer were cited as about the only problems involved in copy preparation for the electronic edition. Attempts to enter copy into the system during the first month that the Atlanta paper participated in the experiment were termed "nightmarish." When the computers were working properly, the task of transmitting copy from computer to computer was described as quite simple, requiring merely the push of one button. At peak performance, stories were often transmitted to CompuServe within one-and-a-half minutes after being entered into the Atlanta computer. On days when the computer didn't work well, stories often were still in the Atlanta system more than 30 minutes without having been transmitted to Ohio.

News content was programmed to stay in the computer system one day for stories appearing in the Journal and two days for stories appearing in the Constitution. Reviews, recipes and airline schedules were programmed to remain for much longer periods.

The newsroom for the electronic edition was located on the same floor as the regular newsroom, but it was in a room isolated from the rest of the staff. The relationship between the electronic staff and

the other reporters and editors at the newspaper was considered amiable. However, most of the rest of the staff was considered to have a negative attitude toward the electronic edition itself, in many cases feeling threatened by it.

Once the decision was made to join CompuServe, about two-and-a-half months went by before the electronic edition was on-line. Technical preparations and problems were responsible for the bulk of the delay in sign-on. Additionally, the electronic staff noted that the instructions sent via the mail from CompuServe on operating the computer equipment were "mumbo-jumbo" not readily comprehensible to a staff not versed in computer operation. The electronic editor, consequently, traveled to Columbus, Ohio, to visit the CompuServe operation and learn the computer operation first-hand.

Funds for the electronic edition did not come from the newsroom budget, but rather from the newspaper's research and marketing monies. Total cost to initiate operation of the electronic edition was estimated at \$50,000, with an annual budget given, via a "calculated guess," at \$300,000. The Associated Press did not provide any of the funds involved in establishing the electronic edition in Atlanta.

The Atlanta Journal-Constitution, which consistently was the fourth most-read electronic newspaper in the experiment (behind the New York Times, Washington Post and the Los Angeles Times) was "invited and encouraged to remain on-line" with CompuServe following the termination of the Associated Press experiment. However, as of June 30, 1982, the management of the Atlanta Journal-Constitution terminated its publishing agreement with CompuServe. Economic reasons were cited for the decision.

The San Francisco Chronicle. The San Francisco Chronicle, one of two San Francisco newspapers participating in the AP/CompuServe experiment, was the fifth newspaper to go on-line with CompuServe with an electronic edition. It has a daily circulation of 474,001 and a Sunday circulation of 659,940. The Sunday paper is produced jointly with the San Francisco Examiner, which also participated in the AP/CompuServe experiment. The San Francisco Chronicle is owned by the Chronicle Publishing Company. Kenneth E. Wilson, the executive news editor of the paper, was in charge of the electronic edition, and supplied the information about the Chronicle.

One person worked full-time on the edition and there were no part-time workers. The electronic edition was staffed seven-and-a-half hours a day, five days a week through the Chronicle's regular copy desk. The electronic editor worked a normal shift from 5 p.m. to 12:30 a.m. Sunday through Thursday. No copy was entered into the CompuServe edition on either Friday or Saturday because, under the joint operating agreement held with the Examiner, the news section on the weekend was the responsibility of the Examiner's staff.

The first Chronicle press run begins at 8 p.m. for the next morning's newspaper. Copy was released into the CompuServe system beginning with the 7 p.m. sign-on. The stories were sent piecemeal to CompuServe. Copy was updated, but not necessarily "faithfully," as new editions of the paper came out. Content of the electronic edition was substantially the same as the print editions, with the exception that syndicated features and all non-Associated Press wire service items (except those appearing on the front page of the regular editions) were

deleted from the electronic edition. The syndicated material and non-AP wire material were deleted because the management at the Chronicle believed that contractual agreements were violated otherwise. However, any stories which appeared on the front page of the regular newspaper that were syndicated or non-AP wire were used in the electronic edition anyway (with appropriate attribution) because Chronicle management felt page one material had to be included intact in order to make the electronic newspaper as "real world" as possible.

About 50 percent of the content of the regular editions appeared in the electronic edition. Stories used in the electronic edition were word-for-word duplicates of their print counterparts. No advertising appeared in the electronic edition.

Typically, about 100 stories were entered into the CompuServe database daily. In an attempt to make the Chronicle's electronic newspaper somewhat different from all of the other participating newspapers, an archival approach was adopted. Stories were entered into the system by day of the week and programmed to remain in the system for seven days. That way readers could call up stories they might have missed on any day in the preceding week.

As with the other participating newspapers, headlines for the electronic stories had to be shortened from their print versions. They were limited to one line of no more than 30 characters. Attempts were made to paraphrase as closely as possible. No satisfactory alternative was devised during the experiment for structuring the news in terms of relative importance for the reader.

Standard news values were used in ascertaining the content of

the electronic edition. The format and story selections were made by the executive news editor initially, and then later by the copy desk. The decisions reflected the gatekeeping already done by the various section and desk editors for the print editions. Copy was sent to CompuServe in a haphazard fashion every day, with no particular order followed. The general practice was for the electronic editor to take stories as they became available and enter them into the system.

The electronic newsroom was located within the regular newsroom at the Chronicle. The relationship between the regular staff and the electronic staff was termed amiable. Staff response to the paper's electronic edition was termed non-existent, with no real interest shown on the part of any of the reporters or editors.

The San Francisco Chronicle's total investment in the experiment, over a two-year period, was estimated at \$250,000. The Associated Press did not supply any of the capital necessary to get the electronic edition established, and none of the funds involved in the operation came from the newsroom budget. About five months went by between the time the newspaper made the decision to participate in the experiment and when it actually went on-line with CompuServe. The bulk of that five-month period, which was termed painful because of the problems of dealing with a host computer 2,000 miles away and endless long distance telephone calls, dealt with computer preparation.

Plans for continuing an electronic publication were tentative as of July 6, 1982. According to management, "Nothing is on the immediate horizon . . . we're anxious to keep up with our contemporaries . . . it's possible we will continue our electronic edition and stay on in a revised form."

The Minneapolis Star-Tribune. The Minneapolis Star-Tribune, located in Minneapolis, Minn., was the eighth newspaper to go on-line with CompuServe during the AP experiment. The Minneapolis Star and the Minneapolis Tribune were published as separate newspapers when the experiment began, but early in 1982 the two papers were merged into one publication for economic purposes. The combined Sunday circulation of the newspapers was listed (prior to the merger) as 606,593. The newspaper is owned by the Minneapolis Star and Tribune Company. Steve Poulter of the newspaper's research and development staff was editor of the TriStar Videonews, the name given by the Minneapolis Star-Tribune to its experimental project. Poulter, who was opposed to the use of the term "electronic newspaper," supplied the information about the TriStar Videonews.

The editor, an advertising manager, and a clerical helper worked full-time on the Videonews staff, and five others, a copy editor and four news assistants, worked on a part-time basis. The Videonews was staffed seven days a week, primarily during the day-time working shift.

When the Star and Tribune were separate newspapers, there were several press runs daily at the Minneapolis papers. During the very first weeks of participation in the experiment, there was an effort to make the Videonews a product very similar to the Star and Tribune and consequently, stories were entered into the database and updated frequently during the course of a day. However, when early feedback did not indicate that there was much interest in the standard local newspaper offerings, the staff geared up its efforts to "take a more magazine approach." The Videonews did retain some news (primarily in

digest or summary form and with breaking news available via the AP wires), but concentrated on three main areas--high technology, business and entertainment--for the duration of the experiment. The magazine approach and the types of information offered were directly related to the type of subscriber--the computer hobbyist--that made up the CompuServe audience. Ultimately, less than 5 percent of the content of the Star and Tribune was used in the Videonews.

When the experiment was first started, the staff was coding stories to remain in the computer 24 hours or less. Within the course of the nine months that Videonews was available, however, the decision was made to code only the hard news stories for the 24-hour period. Many of the in-depth articles and analytical background articles that were reprinted verbatim from the Star were coded to remain in the system 15 to 30 days. Movie reviews, recipes from the food section and micro-computer articles were entered into the system permanently. The staff initially sent about 100 stories, or 3,000 to 4,000 CompuServe pages, a day into the system. By the end of the experiment the number of stories had dwindled to 20 to 30 per day. This was due primarily to two things: the fact that the items that had been coded for permanent storage in the system were rapidly mounting to an unwieldy number (in terms of what the staff felt the average CompuServe user would have the time or inclination to access), and the fact that there was not a reading audience for much of the material that the staff had been preparing. For example, copy entered into the system represented the full spectrum of local reporting in all of the Star-Tribune's zoned community sections. The technology of videotex allowed the staff "to cover clear down to the

neighborhood" news, including such highly localized information as pot-luck dinners in various neighborhood churches and schools, and sports news and statistics for every team from the pros to high schools in the Minneapolis area. The Videonews editor eventually did not consider it efficient use of his staff's time, for instance, to be entering information about community news in Excelsior (an area of Minneapolis) when there was only one CompuServe subscriber in Excelsior to begin with.

And so, because of the nature of the computer hobbyist audience and the tendency of the Videonews to reach a national rather than a local audience, the content of the database was weighted heavily in the direction of technology and entertainment. The technology categories included "Personal Computing Today" and "High Technology Today." The first category focused specifically on computers and the second on more generalized news in communication technology, (satellite development, etc.). For the computer section, Videonews hired a Minneapolis free-lance writer to contribute computer software reviews regularly for publication. Additionally, the staff provided an abstracting service of articles from ten small computer magazines. The abstracts, which were generally one CompuServe-length-page reviews of the articles, were cross-indexed by subject matter into 150 different categories. They proved to be very popular with the CompuServe subscribers--also with the print newspaper staffs. In one of the few reverse roles of the experiment, editors of the Star picked up a number of reviews and other material from the Videonews and reprinted it in the regular newspaper.

The entertainment section contained schedules of where plays,

films, concerts or live entertainment were available in the Minneapolis-St. Paul area. The Star and Tribune contained entertainment listings for Minneapolis, but excluded St. Paul, which had a rival newspaper. Another Videonews service which differed from the print editions was the inclusion of two movie listings, one giving all of the movies in the area by title, the other by geographical location.

On major news stories, Videonews initially provided one-to-two screen summaries rewritten from the lengthier versions which appeared in the print newspapers. However, by the end of the experiment, the staff was not rewriting articles, but merely sending the first 24 lines of the print version of the original news story as a bulletin form. News digests were prepared daily for international, national and local news. The digests generally appeared as one long story consisting of 10 to 20 extended paragraphs, each with its own small headline. The summaries were not determined to be very popular, but the staff felt the approach was the best way to pack a lot of news together. The news summary was the only format the staff found for attempting to address the fact that no equivalent to a newspaper front page existed as an aid to readers in structuring the items in the database. The editor felt, however, that the nature of the medium and the way that people use it did not require the kind of structure found in a regular newspaper.

The electronic editor or one of the members of his staff made the decisions about what copy appeared in TriStar Videonews. The editor said the bulk of a staff member's work day was spent in preparation of copy, while his own day was divided among supervising the staff, checking copy to be entered into the database, looking for new material and creatively designing the product.

No serious problems were involved in preparation of copy for TriStar Videonews, but a number of "little things" proved to be a nuisance to the staff at the beginning of the experiment. The newspaper had an Atex front-end computer system and until it was adapted to be compatible with the CompuServe computer, there were unexpected problems. For instance, the Atex computer was programmed in such a manner that the number of spaces appearing between characters did not matter--the computer automatically justified the spacing correctly. The CompuServe computer was not programmed similarly, however, and until some software was developed which automatically made adjustments in the spacing, the CompuServe computer left big holes in some of the copy appearing in the Videonews. Until the problem was resolved, copy often appeared on the screen looking like "it had been shot full of holes."

Early in the experiment, the Minneapolis staff began to get complaints from CompuServe that it was consistently filling the 10,000 page-limit and bumping up against other information stored in the CompuServe computer. The situation was resolved when CompuServe raised the Minneapolis page limit to 15,000 pages. In turn, the Videonews staff tightened the stories in the database and became more conservative in the kinds and numbers of stories transmitted.

The TriStar Videonews also contained advertising, which created a "challenge for the ad manager to develop since there was no basis for any pricing and not too many people in the area were CompuServe subscribers." Two Minneapolis companies--General Mills and Investors

Diversified Services (IDS)--became regular accounts. General Mills advertised catalogues for some of its mail order companies.

The newsroom for TriStar Videonews was located in the planning department of the Star-Tribune, one floor above the regular newsroom. However, because of the availability of terminals, the Videonews staff worked in the regular newsroom. The relationship between the two staffs was termed amiable, and the attitude of the rest of the reporters and editors at the newspaper toward the TriStar Videonews was described as "fitting a perfect bell-shaped curve of disinterest."

In October of 1980, members of the Newspaper Guild at the Star-Tribune went out on strike for four weeks. Among grievances, the Guild was concerned about jurisdiction of reporters' copy and getting a share of revenue generated in the re-publication of material appearing originally in print in the newspaper. However, by May of 1981, when the newspaper went on-line with CompuServe, there "didn't seem to be that much interest or concern with the strike issues." By the latter stage of the experiment, the primary talk among employees at the Minneapolis papers "concerned what was going to happen" as a result of the merger of the Star and Tribune, rather than anything to do with videotex.

Funds for participation in the AP/CompuServe experiment came from research and development monies at the newspaper and were not a part of the newsroom budget. The Minneapolis newspaper participated in the experiment only from May through December of 1981. However, undated, static material was left in the database until the end of the experiment on June 30, 1982. As of July 13, 1982, the Minneapolis Star-Tribune had no immediate plans for additional electronic publishing ventures.

The Electronic Editors' Perceptions of Videotex

Each of the newspaper representatives interviewed was questioned about drawbacks, benefits and future prospects for videotex ventures in the United States. This section represents the insights provided by them. Additionally, a summary of a telephone interview conducted with Lawrence Blasko, the AP coordinator of the project, is included at the end of this section.

Tom Young, St. Louis Post-Dispatch. Young, an executive with the Post-Dispatch, said that his newspaper had been pleased with its participation in the experiment from the standpoint that the number of subscribers grew during the time period that the newspaper supplied advertising in its electronic edition. He cautioned, however, that the growth of videotex was not an automatic given for the future just because the foundation had been laid.

Jim Sevrens, the San Francisco Examiner. Sevrens, the general manager of the San Francisco Examiner, feels that a number of drawbacks exist for newspapers publishing an electronic edition, particularly those in the AP/CompuServe experiment.

First, we've got to figure out the question of the technology itself. Right now, videotex is technology in search of a demand.

Secondly, Sevrens said the newspaper publishing industry in general is facing a big threat from AT&T and the giant company's desire to infringe on newspapers' traditional message unit. Thirdly, he feels that one of the biggest lessons that the newspapers participating in the experiment learned is that they were competing with the Associated

Press, as well as with the other newspaper and CompuServe informational offerings, all the time they participated in the experiment. That was a problem, he said, from the standpoint that a newspaper loses its natural geographic boundaries and "local franchise" when it goes national. He said the fourth drawback dealt with the fact that the CompuServe computer offered no key word search, only menus in its operation. And lastly, he suggested that working on an electronic edition is "not a sexy job," but rather, one that offers only a sterile environment compared to what newspaper editors are more accustomed to.

Sevrens combined his reflections on participating in the experiment with his vision of what the future holds for videotex.

A value-added network will appeal to businesses and some consumers, but should newspapers take an offensive or a defensive position? It's challenging right now because we don't know where it is going. Currently a newspaper has control over its distribution . . . it is a local franchise. This new system changes that and raises questions about being purely an information provider or a system operator as well. How do you try and structure something with these basic elements?

Sevrens, who described himself as the initial "mover" at the Examiner as far as interest in new technology is concerned, is the general manager of the San Francisco Examiner. A veteran newspaperman, he said he "grew up in the newspaper business" and has been active in the profession all his life.

Bob Bettencourt, the Virginian-Pilot and Ledger-Star. Bettencourt, the business development manager for the Norfolk papers, feels that there are a number of drawbacks facing electronic newspapers right now. These include cost, a not-very-sophisticated delivery system, substandard software packages and slow timing in the retrieval of information

and a need for simple computer programming education for the masses.

Bettencourt thinks one of the most serious of these drawbacks right now is the method of delivery.

There are only about 30 characters on a line and 16 lines on a frame. The aggravation of reading those frames can be unbelievable . . . scrolling drives you crazy . . . the quality of transmission on some televisions is terrible and tv sets with a bad focus are nearly impossible to read.

Bettencourt sees the real potential for videotex in the ability to deliver to individuals information (not necessarily news) in an efficient, immediate and economic manner. He doesn't foresee the widespread adoption of videotex until the generation of young people who are now in high school are in the work force. The time is probably three to eight years away, he believes, before people are comfortable using the system and it is priced at an affordable rate for everyone.

As for the CompuServe experiment, Bettencourt said that it provided a wealth of information for the participating newspapers.

We found out through the national CompuServe research that less than 5 percent of the system users wanted to read the newspaper. Instead, they wanted to access computer-related information. That's not so surprising when you consider their high tech backgrounds. But, even when terminals were placed into homes of non-computer users, those people chose to access information, not news. They wanted restaurant reviews, updated ball scores, stock prices, and computer games.

Bettencourt said it was good for the participating newspapers to find out that people didn't necessarily want to read hard news in the electronic newspapers.

People don't want hard news. Yet that's exactly what we gave them. We've all taken the daily newspaper and converted it to convey the same information, only in an electronic form. We need to use the electronic edition more sensibly. We have 74 and 78 percent market penetration

with our print editions. With that kind of readership, why would we want to turn around and create a third product that mirrors what the first two already provide? What we need to be putting into the electronic editions is information that doesn't get put in the regular newspaper because of a lack of space. We need to be putting in Little League ball scores, community bulletin board information, social news. We need to provide information retrieval for the things that people want to know--the things that will make them go home in the evening and call up a local database and not a national newspaper.

Bettencourt does not predict that a large number of newspapers will get involved in publishing electronic editions in the immediate future. He said the economy will prevent a large-scale investment this year.

Newspapers in Los Angeles, Washington and New York have strategic planning departments which are prepared to look at the long run. Below markets of this size, though, most newspapers take a passive, or at best, a semi-active role in innovations. The idea is to keep up-to-date with new technology and then be ready to move when the time is advantageous.

Bettencourt said he placed his own newspaper in the category of those publications which will be keeping up to date with the new technology, but will not be making any major investments in videotex until there is a larger market demand. He said the proprietary nature of the AP/CompuServe experiment prevented him from revealing actual numbers, but he did say that the actual number of CompuServe subscribers in the Norfolk area right now is less than 100 people. He said the Virginian-Pilot and Ledger-Star would need at least 2,000 subscribers to justify production of an electronic newspaper.

Bettencourt, who holds a bachelor's degree in business administration and a master's in personnel administration, has been in the communication business since 1967. He has extensive background in both

television and newspapers. He described himself as having "been through the corporate development mill" with Landmark Communications--he held ten positions in 15 years. Five years of his media experience came from work in cable television, the medium he thinks will make the best vehicle for videotex delivery. In addition to his responsibilities as business development manager for Landmark, he teaches one course a semester at Old Dominion University, usually in marketing or communications.

Doug Speer, the Los Angeles Times. Speer, the planning manager of information systems at the Los Angeles Times, brings a technology and marketing perspective into his views on the drawbacks and benefits of videotex. As for drawbacks:

At this stage electronic newspapers are an unimaginative product. They must change, they must offer multiple services in order to be valuable. I think it's a matter similar to developing other new products . . . the biggest thing to be aware of, and also the most difficult to do, is to develop an understanding of the marketplace . . . and it's just too early to tell here.

Speer also suggests that newspapers need to determine how they want to enter the marketplace--whether as an information provider (such as the Los Angeles Times), a system operator (such as CompuServe), or as an information broker which gathers services and information from other companies and in turn supplies it to its own customers.

Speer sees electronic publishing services as the primary benefit of videotex, and he emphasized the fact that videotex eliminates geographic barriers found in the more traditional forms of print communication.

As for the future of videotex in the United States, Speer said he didn't foresee the technology reaching a critical mass until the late 1980s or the 1990s. Transactional services such as banking, information retrieval, and game playing are the most likely uses for the technology, he predicts.

Speer, who has a degree in accounting, has an extensive background in computer operations. He has experience in tabulation, systems development, computer programming and software development.

Jim Crowley, the Columbus Dispatch. Crowley, a copy editor who headed up the day-to-day operation of the Columbus Dispatch electronic newspaper, said he felt that having to structure the process to a computer orientation is one of the major drawbacks of the videotex process as far as newspaper reporters and editors are concerned. Additionally, he said that keyboarding 175 items a day is a very mundane task that provides little challenge for the reporter or editor. As for CompuServe itself, he said he feels that the fact that the system is menu-driven rather than key word operational is a drawback.

I equate calling up a story in the electronic edition as being very similar to going into a McDonald's restaurant and being forced to place my order after first going through a very long menu: Choice one, a hamburger with catsup; Choice two, a hamburger with onions; Choice three, a hamburger with pickles; Choice four, a hamburger with lettuce; Choice five . . . etc. Under the key word concept, you could just tell the computer "Quarter-pounder" and immediately get what you want.

Crowley said he feels that the major benefit of electronic newspapers is the speed with which they can provide information to their readers. As for the future of videotex in the United States, Crowley

said more sophisticated delivery systems need to be developed. He suggested that the systems need to operate on key word search and be increased to 1200 baud (horsepower) from the present 300 baud. He believes, however, that despite its infancy now, videotex is the up and coming medium of the future.

As for the CompuServe experiment, Crowley feels that it has met with only limited success. The reasons for this, he says, are due partly to the nature of the CompuServe subscribers and partly to the nature of the newspapers themselves.

According to information made available to us by CompuServe, access time of all 11 newspapers combined only amounted to 5 percent of the system usership. This means that 95 percent of the time subscribers were using CompuServe for some other purpose than reading the newspaper. That is not surprising considering how much CompuServe has to offer and considering that most of these men are computer programmers who work daily with highly sophisticated computers. The system really doesn't meet the standards of a hardcore computer buff. Our classified ads, at 300 baud, for instance, are just too slow.

He added that he felt the newspapers participating in the experiment haven't done enough to come up with "whistles and bells"--something other than what all the other newspapers had to offer. He said he believes the "Special Interest Group" service of his own newspaper is an appropriate effort to personalize the system for CompuServe users and take advantage of the interactive qualities of videotex.

Crowley has been in the newspaper business since he was graduated from Kent State University in June 1977 with a degree in journalism. He has experience as a reporter (covering general assignments and the police and county government beats), and as a copy editor. Other than VDT experience in the newsroom, he had no previous computer experience

prior to his assignment with the electronic edition. Besides his newspaper responsibilities, he currently is attending school part-time, working toward a law degree. Crowley indicated he would like to continue working with the electronic edition once the experiment is over if the newspaper's management decides to continue the operation.

Hal Logan, the Washington Post. Logan, the manager of electronic publishing research and development at the Post, said that editors and reporters right now are facing some serious motivational problems in connection with videotex.

There is no creativity involved in the production of an electronic newspaper. The staff is not challenged--we've been through three different editors for our CompuServe paper in a year. The problem for editors and reporters is that videotex is a different medium (than newspapers) and we don't know how to write for it yet. Frankly, full text, unadorned by graphics, is unattractive.

Logan said the staff learned a lot about the technology of videotex during the experiment, but now the challenge is to find out best how to present the product. He said that the Washington Post, as well as the other papers participating in the experiment, had the opportunity to "stick a toe into the electronic waters" in a low-risk, low-cost manner. Unfortunately, he said, "we didn't produce the best product."

Logan said that part of the challenge in dealing with the electronic edition is conceptual in nature. The medium is not really broadcast, he says, because there are no moving pictures and no sound, and yet it's not a print medium either because it lacks the tactile experience that comes from reading a newspaper or other printed material.

On the positive side, Logan believes there are several major selling points to electronic newspapers. He suggested three:

Electronic newspapers allow information to be distributed in a much more wide area than is currently possible with printed newspapers. Electronic newspapers provide new communications opportunity; stories can be updated hourly (even though that capability is still more a potentiality than a reality). And electronic newspapers allow people to be more selective in the stories they read . . . that last point, however is a very sharp double-edged sword.

As for the future of videotex in the United States, Logan said he feels the technology is going to be "significant." He doesn't see videotex becoming a mass medium soon, but when it does, he sees it as a powerful tool of advertisers, who will be able to utilize the technology for positioning a message between a consumer's awareness of a product and the actual purchase of the product. Videotex can provide an "interest step" in advertising, he said.

A graduate of Harvard, Logan has a bachelor's degree in economics and a master's degree in business administration. He worked as a reporter for the Post from 1972 until 1978, briefly covering economics and then spending several years as a political reporter. He left the paper in 1978 to work on his MBA degree, and then returned in 1980 to the Post as assistant to the publisher. In June 1981 he became manager of electronic publishing research and development.

Don Murphy, the New York Times. Murphy, who headed the New York Times's electronic edition, said he thinks one of the biggest drawbacks of videotex right now is the high cost of the product. He said that for the amount of money it costs to purchase a whole print edition of the New York Times, a CompuServe subscriber can read only about 25

frames of information. As for drawbacks for reporters and editors working on videotex publications, Murphy said it is easy to get very bored unless the staff member has something more to do than just edit copy.

On the positive side, Murphy said the major benefits of electronic publications deal with timeliness and meeting specialized needs of individuals.

The possibility of putting timely news before a reader almost as fast as the news event occurs is very attractive. Another major benefit is the computer's facility to arrange items in an order that the customer wants.

Of the CompuServe experiment, Murphy said he thought that it had been a good learning experience, particularly for learning how not to put out an electronic newspaper.

We weren't imaginative for 14 months. Now we are rewriting copy and undertaking some different editing styles. That is helping the product. We have to make adjustments--not continue putting out the same kind of newspaper--that is the key to success.

A graduate of the University of Pennsylvania with a degree in history, Murphy has worked at the New York Times Information Service, as well as with the New York Times Syndication and Sales Corporation. He currently is working on a Ph.D. in history at New York University. If the New York Times continues publishing an electronic edition, Murphy said he would like to continue in his present position. He said he had particularly enjoyed being involved in the market research and planning aspects of the videotex project and would welcome the opportunity for additional challenges in those areas.

Vicky Ogden, the Middlesex Daily News. Ogden, the video news editor of the Middlesex Daily News, felt lack of access by the general public was one of the biggest drawbacks of the videotex system of news delivery.

If people don't have home computers, they obviously can't make use of electronic newspapers. We are not a mass medium. We need more of an audience.

As for the major benefits of electronic newspapers, Ogden said she believes they offer the best of both broadcasting and newspaper journalism to reporters and editors.

Both the whole story and an abbreviated summary can be provided for readers. One of the most exciting things for print reporters is the idea of getting the whole story to the reader just moments after a news event has occurred. The videotex system can do so much more than a regular newspaper system.

Because of its interactive capabilities, Ogden believes that videotex represents "the Cadillac of the future of communications." She says that 20 years may pass before videotex is a widely used medium, but she does believe that it will be widely used, particularly because of society's orientation toward high tech. As she puts it:

Life is more and more designed to meet the needs of individuals. Things are more sophisticated and so are people. Communication is going to be more sophisticated. My gut reaction to videotex--it enthuses me. We (people in the news business) haven't caught up with the technology yet . . . we aren't yet over being afraid of its newness because everything is changing so fast. But videotex opens up whole new communications possibilities and the creativity will get exciting.

Of the CompuServe experiment, Ogden said that she felt that all of the electronic editors in the experiment tried to put out an electronic newspaper that merely duplicated the efforts of their respective print newspapers.

We still need to find out how to use it (videotex) best, rather than just using it to mirror what we already have. The two-way interactive capability of videotex, which sets it apart and above other media, is something we haven't really explored enough. The notion of two-way communication is very important. It is the barometer to watch.

A graduate of Ohio State University, Ogden holds a degree in journalism. She has been in the newspaper business for five years and was a reporter and bureau chief before being named state editor (a title she holds concurrently with video news editor). If the Harte-Hanks management opts to continue publishing an electronic edition, Ogden said she would like to continue her association with the special edition. She stipulates, however, that she'd like to see some changes made in the database and some other adjustments made before continuing in the position.

Curtis Patton, the Atlanta Journal-Constitution. Patton, an executive news editor of the Atlanta Journal-Constitution and editor of Atlanta's electronic edition, said that from the standpoint of economics alone, the future success of electronic newspapers is ensured.

The cost of newsprint has quadrupled in the last five years. Newspaper labor costs are prohibitive. There are now 2,100 employees at the Atlanta newspaper. In the future, with videotex, you could eliminate all but somewhere between 350 and 450 of those people. You'd need 250 reporters, 50 advertising salesmen and roughly 50 technicians. When you compare that number with the 2,100 we have now, you can see that at the outside we'd be cutting labor costs 80 percent.

In general, he said the only real problem now facing publishers interested in electronic publications is acceptance by the public. But, he added there hasn't yet been great acceptance of the new medium within the newsroom either. As for technical drawbacks of videotex publishing,

Patton said he thought the lack of color graphics hurt the publications.

If we were geared to do graphics and had them at our disposal we would be more like a broadcast medium. As it is now, we are just like a newspaper except that we are restricted by so many things . . . no graphics, no boldface type, no different type faces or sizes. Everything looks the same.

Patton, a graduate of the University of North Carolina, holds a degree in journalism. He has been in the newspaper business since 1968, and has worked for the Miami News, the Chicago Daily News, and at the Chicago Sun-Times where he was the Sunday editor before accepting the executive news editor position in Atlanta. Patton said if the Journal-Constitution resumes publication of an electronic edition, he would like to head up the operation again "if it contained graphics and advertising."

Ken Wilson, the San Francisco Chronicle. Wilson, the executive news editor of the San Francisco Chronicle, was one of the most articulate of the editors interviewed on the development of electronic newspapers. He prefaced his remarks by saying that among the electronic editors of the 11 participating newspapers, he had become "famous as the downbeat;" however he hastened to say that he felt the project had been "a very worthwhile experiment."

On the drawbacks of videotex, Wilson was particularly vocal:

All systems so far are not user friendly. Anything that is menu-driven is tedious, dull, difficult. Particularly difficult to read is the scrolling--it fries your brain. Another drawback comes from what you get on the screen. You may get information on the screen, but I think that a regular newspaper can give you understanding, and that is one of the most important aspects of the relationship between newspapers and their readers. From understanding comes knowledge. We're in the communication business and

we should present information in an interesting form and make it relate to the reader. This seems to be very difficult to do on the screen. To me, the printed newspaper is well-organized and still a very particularly remarkable document. We're going to have to go a long ways to find something comparable.

Additionally, Wilson sees serious problems for editorial staffers working on electronic newspapers.

Basically, our CompuServe editor spends an entire shift just entering codes and rewritten headlines into a computer. The work is deadly dull. It is tedious, rote, uncreative, dumb, mind-boggling work. It has meant a staffing problem. No one wants to stay in the position as soon as they figure out that the work is just pabulum. The work doesn't have to be this way, and shouldn't be this way.

He said the dullness problem arose because "we tried to take the product of work already performed and broker it for something else and it just doesn't work. The results have proved it."

By results, Wilson was referring to the fact that the Chronicle had anticipated that there would be a demand for an electronic newspaper in the San Francisco area because of the proximity of the "Silicon Valley" (a designation given the Santa Clara Valley because of the large number of computer-related businesses located there). A marketing study indicated that 40,000 to 50,000 personal computers were owned by individuals in the San Francisco area and the Chronicle's management had anticipated the paper would have a head start in the market because of it. But Wilson said the electronic newspaper "hasn't been a local bonanza."

Wilson sees cost efficiency and speed as the two major benefits of electronic newspapers.

The cost of producing the Chronicle is prohibitive and the distribution methods are archaic. We need to find alternate

ways to disseminate the news and this looks like a strong possibility. One of the best things about electronic publishing is that it allows the reader to be his own gatekeeper. He can pick what news he wants to read when he wants to read it.

Wilson, a veteran newsman, has been in the newspaper business since 1939, and has been with the San Francisco Chronicle for 22 years. He is a journalism graduate of the University of California at Berkeley. He also has spent a year as a Nieman Fellow at Harvard. He said he spent six or seven years in planning for the Chronicle's computerized editing system and was informally known as the newspaper's technology wizard. Consequently, becoming involved with the electronic edition was a "natural thing" for him to do. He said that while he is personally very interested in electronic publishing, he thinks that electronic editors should be young (thirtyish), have an entrepreneurial background, be interested in technology, and look at videotex as a business opportunity.

Steve Poulter, the Minneapolis Star-Tribune. Besides little things like not being able to browse through a database the same way a person browses through the daily newspaper, Poulter, the editor of TriStar Videonews, feels that there are two major drawbacks to the concept of computer-delivered newspaper reading. The first, and most obvious, is cost to the consumer. He said that consumers today face the same situation that television viewers faced in the late 1940s and 1950s: the user must make an expensive front end purchase in order to take advantage of the technology. The second drawback he sees as even bigger than the first:

People are going to have to change their habits. Using and getting information in this manner is very different. Yankelovich, Skelly and White conducted research that revealed that a morning newspaper is like a bracer which prepares individuals to re-enter the world daily so they can talk to people. The evening newspaper, though is like a reward. . . . Following their conceptualization, electronic information delivery provides quite a contrast. It's one thing to have fast access to the score of last night's game, but you can't use the computer to get a feeling for what is going on around you. . . . Sitting down in front of a screen and getting information for information's sake is not necessarily a pleasant thing to do.

On the positive side. Poulter envisions electronic publishing as a way to avoid some of the "oppressive energy costs and people costs of paper publishing." He predicts that electronic publishing will be a major force in both business and consumer environments someday but that it won't replace newspapers. Rather, he said, it will provide information that people "truly want and need." Within the context of all the services that videotex can provide, Poulter can see electronic publishing as being only a small part of computer-to-computer communication. He said that if newspapers were isolated from all the rest of videotex services they would represent only a very small portion of the pie. Despite this isolation, he said newspapers face a tremendous challenge.

For 40 or 50 years there has existed a formula concept of what a newspaper is. Despite changes, there has never been a real revolution. Newspaper thinking is in a rut. . . . Newspapers haven't had to develop a new product in ages.

He added that if there has been an overall lesson for all the newspapers participating in the CompuServe experiment, it was that the newspaper industry is not prepared to develop a new medium.

Poulter, who has been in the newspaper business for ten years, holds a bachelor's degree in journalism from Iowa State University and

an MBA from the College of St. Thomas. He worked at the Des Moines Register for a year before joining the staff in Minneapolis. He had held a number of newsroom positions: copy editor, editor of the Star's community action line, and slot man, among others. His knowledge about computers was confined to VDT operation prior to the CompuServe experiment. He indicated that he would like to work again with an electronic publication if the opportunity arose.

Lawrence G. Blasko, the Associated Press. The Associated Press was the impetus behind the AP/CompuServe experiment and one of the primary people responsible for the project was Blasko, director of information technology and deputy director of communications at the AP. Blasko plans to release a detailed report in October to Associated Press members describing the proprietary findings of the experiment. While Blasko did not reveal what his conclusions or recommendations will be, he did say that he felt the project had been successful from the standpoint that "we learned what we set out to learn" and "we established some general principles." Additionally, he provided a list of questions which he said would be answered in the report:

1. Can it make money?
2. What do people look at in a database?
3. What is the relative importance of news in an electronic newspaper?
4. Is videotex a threat to traditional print publishing?
5. What is the best mix (of news, information, entertainment)?

6. What do you have to have (in the database in order to be accessed or read by subscribers)?

7. What can you do without?

Blasko said that computer printouts of the operational logging of the CompuServe databases would provide the bulk of the information on which he will base his report. The operational logging was accomplished via the CompuServe computer, which tracked such items as time of day of access, length of access, day of week (weekday vs. weekend), type of information accessed, specific newspaper content accessed, local vs. other database accessed, source analysis (what people access before and after the newspaper), behavioral variations by stimuli (response to promotions, advertising), and analysis of test panel (trial vs. repeat information usage, access cycle, other standard measures).

Blasko said that because the computer tracked and recorded every decision made by the subscriber, the operational logging made it possible to "look over the shoulder" of each CompuServe user and witness a "consumer in the raw."

Blasko said there had been some concern on the part of the Associated Press about the generalizability of the results of the experiment since the average CompuServe users were atypical of the American public (the final poll of CompuServe users during the experiment revealed that 98.3 percent were males, they were in a "very, very upper" income level, they were highly educated and most worked with computers in their jobs). Because of this concern, personal computers were placed in the homes of a number of people considered to be more representative of the average American. Blasko said the logging indicated,

however, that there was very little difference between the CompuServe usage of the regular subscribers and those people on the "average American placement panel."

He indicated that one of the most interesting sidelights emerging from the project was sociological in nature: the operational logging revealed that CompuServe subscribers spent 40 percent of their time on-line participating in two-way interactive "CB-type" conversations with other subscribers. Blasko said he was curious to find out "what it is about the feature that attracts people, when there are so many other ways to communicate that are obviously more personal and less clumsy."

Contents of the Videotaped Electronic Editions

A videotape was made to accompany this study as a further way of illustrating the initial efforts of 11 newspapers to produce electronic publications. The videotape, which runs slightly longer than four hours, begins by showing how a CompuServe subscriber signs on with the system and makes information or entertainment selections from an extensive array of choices. Then, beginning with the Columbus Dispatch, the first newspaper listed in the newspaper menu, the videotape displays subject matter from each of the 11 newspapers participating in the project. Included in the videotape are examples of news summaries, news-in-depth, sports, headlines, reviews, weather information, obituaries, school lunch menus, birth announcements, restaurant guides, "adult fare," classified advertising, airline schedules, World's Fair travel tips, and even an electronic horoscope. Both the frame-by-frame and scrolling capabilities are illustrated.

The videotape was recorded at super slow speed on one-half inch videotape using a Magnavox video cassette recorder. The counter was zeroed at the beginning of the videotape and a table of contents, utilizing the VCR counter numbers, was prepared (see Appendix C) for ease in finding particular newspapers or types of stories offered.

Summary of Chapter

A view of the Associated Press/CompuServe home information retrieval project which attracted the participation of 11 newspapers from around the United States is presented from four different angles in this chapter. These include a composite view, a detailed case-by-case view, a reflective view based on the insights of people who worked with the publications, and a videotaped view designed to illustrate the findings in the text and to act as an historical document.

V. CONCLUSIONS

The number of people subscribing to the CompuServe Information Service has grown eight-fold in the two-year period since the 11 newspapers participating in the Associated Press/CompuServe home information retrieval project began producing their electronic editions: from 3,600 subscribers in mid-1980 to more than 28,000 in the summer of 1982. Each time a subscriber chose to access any of the CompuServe offerings, the central computer recorded who, when, which menu item, and for how long. That means that a mountain of computer-generated data is available to the Associated Press for assessment of such details as "who read what and when?" during the experiment. The bottom line for Blasko's October 1982 Associated Press report (see page 145), and rightly so, will be an assessment of what will sell in the videotex market in 1982.

However, there are far more issues that can be addressed because of the experiment than just those generated by computer data or marketing objectives. The following represents the assessment of not only the experiment but also of the issues it has raised.

Assessment of the AP/CompuServe Experiment

The Associated Press/CompuServe home information retrieval project, conducted over a two-year period, represented a sizable investment in time, manpower, money and faith. In assessing the impact of the experiment, the first, and most important, finding is the realization that newspapers can utilize the newly created computer hardware and software necessary for videotex and succeed in producing an electronic

publication for national distribution. That was proved in this experiment, and that is, indeed, good news for the newspaper industry, which has seen its delivery system become the most labor-intensive, technology-poor part of the industry. In a sense, the experiment tells future managers of newspapers that they won't always be vulnerable to the price of newsprint, truck drivers' unions or the whims of 12-year-old children on bicycles. That was one of the most positive aspects of the study; many of the other findings are viewed more negatively, at least from the perspective of many of the participants.

The project above all else proved that groundwork in this new field has just barely been laid. Editors and publishers learned that they cannot take the traditional product, i.e., the daily newspaper, and expect it to conform automatically to new parameters. The consensus of the editors was that as a group they failed to develop an innovative, imaginative product to fit the new medium. Instead, they merely took an existing product, and in the words of one of the editors, "attempted to broker it into something" for which it was not designed. Certainly, future ventures in electronic newspapering call for less rigid adherence to long-standing journalistic practices and a need to develop a greater sensitivity to the unique characteristics of videotex. A new product must be developed for the new medium, and it wouldn't hurt to develop a new name for the product, either. A new title, something besides "electronic newspaper," would help editors to recognize videotex as something entirely different, something that is akin to both print and broadcast media, but yet is a new medium unto itself, deserving of its own name.

Two obvious conclusions about the experiment were drawn by a number of the editors. The first was that they learned "how not to put out an electronic newspaper," and the second was that no matter how good the product, if there is not a demand for it, there is no economically feasible reason to continue its production. At this stage, continuation of an electronic publication is not economically feasible for many of the participating newspapers until there are a great many more people in the United States with home computer systems. One of the newspaper executives neatly summed up the dilemma on two fronts--how to utilize it and who will utilize it--when he described videotex as "technology in search of a demand."

However, just because the participating newspapers did not develop a product that they considered to be an overwhelming new success does not mean that the experiment was unfruitful. Quite the contrary. The one overriding conclusion to be drawn is that as a communications medium, videotex potentially is an equalizer among the large and the small, the powerful and the weak. This comes about on nationwide delivery systems like CompuServe because the technology eliminates geographical barriers, destroying the concept of the "local franchise" that newspapers have enjoyed in their respective marketplaces all over the country. At this point, newspapers wishing to continue with electronic publications will have to resolve the issue of what kind of an audience they want to serve: do they want to be a national product competing at a high-powered level, or do they want to be a local product? Newspapers like the New York Times, the Wall Street Journal and some other

big newspapers are prepared to be national publications, but most newspapers have neither the staff nor the resources to compete at that level. The impetus for the survival of those newspapers seems to lie in their ability to serve their local areas well. The Minneapolis Star-Tribune found that it could not only provide news at the international, national, state and metropolitan level, but that it could provide news clear down to the neighborhood level, as well, in its electronic publication. This ability to provide a blanket of news and information that is relevant to a local or otherwise specific group, while leaving the national news to the "national newspapers" and the wire services, may well prove to be an economic trump card for many newspapers. At any rate, if videotex news delivery grows as it has been projected, newspapers will have to make a decision about what public or publics they intend to serve. The key to how that decision is made will be determined by whether the newspaper wishes to be an information provider only, or an information provider and a system operator, as well. The former opens the newspaper to competition from other system information providers, (a system like CompuServe, a telephone company, or both), whereas the latter provides the newspaper with a measure of control over competing stimuli, such as the wire services, other newspapers and other information providers.

The decision makers at each of the newspapers participating in the AP/CompuServe experiment will have to face these issues, but they can take a measure of satisfaction in having been farsighted enough to get in on the ground floor of the technology's development. If nothing else, their participation in the experiment has provided them with two

weapons: (a) production knowledge and (b) a strong claim toward territoriality, at least within their immediate marketplace if they choose an information delivery system over which they have control. The territoriality claim, especially for newspapers interested in catering to local markets, does not have to be contradictory to the equalization issue already noted. This is because of two factors. First, each of the newspapers got in on the ground floor of videotex research in its respective city, thereby automatically giving it an edge over other information providers interested in starting a rival videotex publication; and secondly, because of the sources and skills that have been acquired over a lengthy period, these newspapers are acting from a position of strength with their proven ability to gather and write the news. The key to keeping the edge over competing forces will be determined by control of the delivery system.

Two other major conclusions can be drawn about the AP/CompuServe experiment: one deals with computer technology, the other with personnel practices within the newspaper organization.

First the technology: the computers used to bring the newspapers into the home or office need greater delivery speed, better resolution, more efficient information searches, greater user friendliness and a lower price tag before widespread usage can be expected.

Second, those newspapers which allowed the electronic staff to have decision-making autonomy and creative input in the electronic publication seemed to have the happiest, most enthusiastic staffs. Where gatekeeping responsibilities and decision making opportunities were withheld, it seemed that problems with staff morale cropped up during the experiment.

Areas for Further Study

One of the primary benefits of the AP/CompuServe project was the identification of a number of areas worthy of additional study.

Newspaper reading habits. One of the conclusions likely to be drawn by the Associated Press, based on the computer printouts, is that because subscribers spent only 5 percent of their access time reading the newspapers, there must be something wrong with the electronic editions. That may be faulty reasoning per se. The novelty of the other informational and entertainment items available on CompuServe may have been a factor. The 6 p.m.-to-5 a.m. CompuServe access hours may have been a factor, too.

Comparative studies of time spent reading traditional newspapers as opposed to time spent reading electronic newspapers, as well as studies comparing (a) retention of information rates between the two forms of delivery and (b) comprehension of information obtained in traditional methods as opposed to videotex methods, seem obviously appropriate. Studies need to be conducted on how videotex technology affects traditional newspaper reading habits, e.g., how does the person who normally reads the traditional newspaper from front to back (or back to front for that matter) compensate in a system that seems difficult to scan and nearly impossible to browse through? Do readers of electronic editions spend more time reading in the morning or the evening (given that they have that choice)? Do they choose different lengths or types of stories or information to read at different times of the day?

As electronic publishing becomes more entrenched, will stories written for the new medium become substantially shorter, both in sentence length and overall composition length? Studies need to be conducted to ascertain whether traditional criteria such as the Flesch reading formula are valid for stories written for videotex. A Flesch sentence, which averages 19 words, may be too long for some videotex applications and it may be that through research new formulas or guidelines need to be developed.

Studies can be made to determine how much of any given story is read (dependent on presentation of a "long" as opposed to "short" story); whether the videotex reader has a preference for straight news writing or featurized (or even sensationalized) writing; or whether a reader ever looks at any given section of the "newspaper."

New applications for existing theory. All of the suggested studies are rooted in one or another area of theoretical study in mass communications. The theoretical perspectives that seem to lend themselves best to videotex study are diffusion of innovations, uses and gratifications, and agenda setting.

Within diffusion of innovations, studies could be made of the diffusion rate within the United States. How long does it take to achieve widespread use? Does it narrow or widen the gulf between the "haves" and the "have-nots?" Are the diffusion patterns the same for the European countries as well as for the United States? For the Third World countries?

In the past uses and gratifications research has often been criticized because it supposedly was tainted by vague conceptualization.

However, the interactive capacity of videotex is going to place so much emphasis on the individual and how he or she utilizes the medium, that it seems inevitable for uses and gratifications research to be conducted in connection with this new field. One of the logical places to start is with a study of the breakdown of user time spent accessing different items offered by the information system operator. In the case of CompuServe, participants said the computer tracking showed that the initial users of the medium spent 40 percent of their time on-line "conversing" with other CompuServe users by using their keyboards to type out messages to send back and forth. CompuServe users also were spending a good proportion of their computer time playing interactive video games. These uses of the medium need to be researched more. In the same vein, if it is a given that subscribers are very interested in the two-way interactive capacity of their computer systems, then newspapers and communications researchers need to be finding productive ways to make the news interactive, too.

A number of studies within the newsroom need to be conducted on job satisfaction. Electronic editors may be frustrated at producing this intangible, weightless product; or with talking to computers instead of editors; or with limits upon the depth of reporting they are allowed, or with the low level of literary quality of their product. How do photographers view the electronic medium, with its rudimentary capacity for graphics reproduction?

Implications for training of student journalists. In journalism education, major concerns are research, modification of curricula to

reflect the impact of the new technology, professional improvement of faculty members, and acquisition of hardware and software for use in classrooms.

The theoretical areas of diffusion of innovations, uses and gratifications and agenda setting have been suggested already as areas fertile for scholarly research within academic institutions. Researchers would also be well advised to pursue theoretical study of the impact of the demise of mass communications and the rise of personal communication, tailored to the specific needs of individuals.

The list of potential areas for research, as well as a list of suggested changes in communications curricula is too extensive to describe in any kind of detail here, but it should be noted that the impact of the technology will lead to attempted regulation of the medium which will in turn affect the legal, political and social environment of the United States.

Journalism schools need to be responsive to these changes--both in the classroom and in scholarly research. Traditional approaches to teaching media history, law, management, advertising, promotion, production and skills courses should reflect these changes. Skills courses in such areas as basic newswriting, editing and graphics are surely targeted for revisions in teaching traditional methodology--not in the basic fundamentals of newsgathering ethics, skills and values, but in the presentation of material. Course content should recognize the constraints of videotex and encourage creativity in developing and testing new ways to present information to consumers using the new medium. It may be that one of the best ways to find new avenues of creativity in

journalism education is to be mindful of the marriage of computerization and traditional communications responsible for launching the information age. Greater cooperation between journalism departments, broadcasting departments and computer science departments within colleges and universities might prove very fruitful. Additionally, there are obvious applications for marketing students (both classroom and research), and less obvious, but equally attractive prospects for students and scholars of interpersonal communication.

As important as it is that curricular modifications be made, it is equally important that journalism educators be able to integrate properly the knowledge of technological considerations into their teaching. Toward this goal, professional improvement experiences are essential in which faculty members could participate in workshops, seminars, demonstrations and actual newsroom operations designed to acquaint them with new methods adopted in the news industry since their most recent professional tenure. The American Newspaper Publishers Association and the American Press Institute particularly are attuned to changes in traditional approaches to communication and offer a number of excellent workshops and seminars.

One of the most practical ways to teach students about the latest technology in communication industry is through "hands-on" experience. To achieve this, journalism departments will need to acquire the computer hardware and software necessary to simulate the communication process via the teletext and viewdata technologies. This will provide a challenge to many journalism departments across the country which have faced growing expenses and declining budgets in

recent years. Keeping abreast of changes in journalistic tools has been a major financial consideration for many schools, particularly since the advent of computerized newsroom and production equipment. Yet, students of the information age need more than ever to be properly trained in the use of the electronic tools. It may be possible and quite practical for J-school administrators to make cooperative arrangements for use of computer equipment already available through other departments within their colleges and universities. Computer companies may also be willing to provide equipment at low, or no cost.

Social role of the new medium. Finally, any study helping to explain user salience of electronic newspapers, either perceived or real salience, seems worthwhile. There appears to be a danger that newspapers operated strictly with an eye on the bottom line might be persuaded to drop certain kinds of news coverage if computer tracking indicated that those stories were not heavily read. While that may be alarmist thinking, it could have very serious implications for the traditional watchdog role of the press in a democracy. Newspapers should maintain a central core of information that people not only want to read, but news that they ought to read whether they are interested or not. According to Robert J. Haiman of the St. Petersburg Times, democracy works only as long as there is a common database, a common agenda for all citizens to perceive, and if Americans are moving into a "me generation" in which the system no longer contains that common agenda of news information found in today's newspapers, then the future is sinister (White, 1980).

Muth (1980) writes that as information continuously accumulates to become knowledge, communication becomes the glue that binds units of information spread through society--through life generally--into deposits of knowledge, valuable deposits. Newspapers have traditionally provided readers with one of their frameworks for organizing information into knowledge. The onus is on newspapers to find new ways of fulfilling the watchdog role as the traditional print medium adapts itself to the world of electronic communication.

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- June 8 - Made initial calls to all newspapers.
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- June 9 - Jim Sevens - San Francisco Examiner.

June 9, 10 - Bob Bettencourt - Virginian-Pilot and Ledger-Star.

June 15 - Doug Speer - Los Angeles Times

June 22 - Jim Crowley - Columbus Dispatch.

June 22 - Hall Logan - Washington Post.

June 29 - Don Murphy - New York Times.

June 30 - Curtis Patton - Atlanta Journal-Constitution.

July 5 - Ken Wilson - San Francisco Chronicle.

July 13 - Steve Poulter - Minneapolis Star-Tribune.

July 21 - Lawrence Blasko - Associated Press.

APPENDIXES

APPENDIX A
QUESTIONNAIRE

Opinions About Electronic Editions of Newspapers

Dial Number (1) _____ - _____

HELLO, THIS IS SARA MANTOOTH CALLING FROM THE COLLEGE OF COMMUNICATIONS AT THE UNIVERSITY OF TENNESSEE. HAVE I CAUGHT YOU AT A BUSY TIME?

(If so, arrange time to call back, and terminate interview.) Otherwise, proceed.

I'M CALLING IN REFERENCE TO THE LETTER I WROTE YOU ABOUT VIDEOTEX AND MY DISSERTATION PROJECT. I'D LIKE TO TALK WITH YOU ABOUT YOUR EXPERIENCES WITH THE _____'S ELECTRONIC EDITION. I REALLY APPRECIATE THE FACT THAT YOU ARE TAKING TIME OUT OF YOUR BUSY SCHEDULE TO HELP ME. YOUR ANSWERS WILL BE VERY VALUABLE.

LET'S START WITH SOME BACKGROUND INFORMATION ABOUT THE PHYSICAL SETUP OF YOUR ELECTRONIC FACILITIES AND THE PERSONNEL YOU HAVE WORKING WITH YOU.

(1) HOW MANY PEOPLE WORK FULLTIME ON THE ELECTRONIC EDITION?

One _____
Two _____
Three _____
Four _____
Five _____
Six _____
Seven _____
Eight _____
Nine _____
Ten _____
Other (specify) _____

(2) HOW MANY PEOPLE WORK PART-TIME ON THE ELECTRONIC EDITION?

One _____
Two _____
Three _____
Four _____
Five _____
Other (specify) _____

- (3) HOW MANY DAYS A WEEK DO YOU HAVE PEOPLE IN THE OFFICE WORKING ON THE ELECTRONIC EDITION?

Seven _____

Six _____

Five _____

Other (specify) _____

- (4) HOW MANY HOURS A DAY DO YOU HAVE PEOPLE WORKING ON THE EDITION?

Twenty-four _____

Sixteen _____

Eight _____

Other (specify) _____

- (5) WHEN DOES THE PRINT EDITION OF YOUR NEWSPAPER FIRST HIT THE STREETS EVERY DAY?

Morning (specify time) _____

Afternoon (specify time) _____

Other (specify time) _____

- (6) WHEN IS MATERIAL FOR THE ELECTRONIC EDITION RELEASED EVERY DAY?

Time of Day (specify) _____

- (7) DO ALL THE STORIES GET SENT TO THE COMPUSERVE DATABASE AT ONE TIME, OR ARE THE STORIES SENT PIECEMEAL AS EACH ONE IS COMPLETED?

All at once _____

Piecemeal _____

Other (specify) _____

- (8) DOES YOUR NEWSPAPER HAVE MORE THAN ONE EDITION?

Yes _____ How many? _____

No _____

- (9) IF YOU HAVE MORE THAN ONE EDITION, DO YOU UPDATE THE COPY IN THE ELECTRONIC DATABASE EACH TIME A NEW EDITION COMES OUT?

N/A _____
No _____
Yes _____

- (10) WOULD YOU PLEASE DESCRIBE THE CONTENT OF YOUR ELECTRONIC EDITION?

- (11) DO YOU HAVE ANY IDEA WHAT FRACTION OF THE CONTENT OF THE PRINT NEWSHOLE IS USED IN THE ELECTRONIC EDITION?

100% _____
90% _____
80% _____
75% _____
Other (specify) _____

- (12) DOES THIS INCLUDE ANY ADVERTISING?

No _____
Yes (specify) _____

- (13) ARE THE STORIES THAT ARE USED IN THE ELECTRONIC EDITION WORD-FOR-WORD DUPLICATES OF THE STORIES IN THE PRINT EDITION?

Yes _____
No (specify differences) _____

- (14) DO YOU HANDLE NON-NEWS ITEMS--THINGS LIKE SPORTS, FEATURES, COLUMNS, EDITORIALS--THE SAME WAY THAT YOU HANDLE NEWS STORIES FOR THE ELECTRONIC EDITION?

Yes _____

No (specify) _____

- (15) DO YOU HAVE ANY QUOTAS FOR THE NUMBER OF STORIES THAT ARE ENTERED INTO THE DATABASE (FOR EXAMPLE, THREE SPORTS STORIES, TWO EDITORIALS, ETC.)?

No _____

Yes (specify) _____

- (16) DOES ANYTHING APPEAR IN THE ELECTRONIC EDITION (BESIDES THE ABBREVIATED STORIES AND MENUS) THAT DOES NOT ALSO APPEAR IN PRINT EDITION OF YOUR NEWSPAPER?

No _____

Yes (specify) _____

- (17) WHAT TERMINOLOGY DO YOU USE FOR STORIES WHICH HAVE BEEN SHORTENED FOR THE ELECTRONIC EDITION?

N/A _____

Page _____

Screen _____

Frame _____

Summary _____

Brief _____

Other (specify) _____

- (18) CAN HEADLINES USED IN THE PRINT EDITION BE USED VERBATIM IN THE ELECTRONIC EDITION?

Yes _____

No _____

- (19) IF HEADLINES CAN'T BE USED VERBATIM, HOW ARE THEY CHANGED?

Lengthened _____
Shortened _____

- (20) IF HEADLINES ARE SHORTENED, HOW MUCH ARE THEY SHORTENED?

To 30 characters _____
Other (specify) _____

- (21) IS THERE AN EQUIVALENT OF A FRONT PAGE FOR THE ELECTRONIC EDITION?

No _____
Yes (describe) _____

- (22) IS THERE ANY WAY IN YOUR ELECTRONIC EDITION TO RANK THE STORIES, OR IN SOME WAY WEIGHT THEIR RELATIVE IMPORTANCE--THE SAME WAY HEADLINE SIZE AND PLACEMENT ON THE PAGE RANK THE STORIES FOR READERS OF PRINT EDITIONS?

No _____
Yes (specify) _____

- (23) IF STORIES CAN'T BE GROUPED IN TRADITIONAL STRUCTURES, IS THERE AN ALTERNATIVE METHOD THAT SEEMS EQUALLY SATISFACTORY TO YOU?

No _____
Yes (specify) _____

- (24) WHAT IS THE MAIN CRITERIA USED IN SELECTING COPY FOR THE ELECTRONIC EDITION?

Standard news values (proximity, etc.) _____
Availability of written stories _____
Mandate from the editor or publisher _____
Wire service output _____
Other (specify) _____

- (25) DO YOU ALONE MAKE THE DECISION ABOUT WHAT COPY GOES INTO THE EDITION?

Yes _____
No (specify) _____

- (26) WHAT ARE THE MAJOR PROBLEMS INVOLVED IN COPY PREPARATION FOR THE ELECTRONIC EDITIONS?

Brevity of allowable space _____
Too few personnel _____
Difficult to update _____
Lack of time _____
Shortage of terminals _____
Equipment malfunction _____
Other (specify) _____

- (27) WHAT IS THE MOST TIME-CONSUMING ASPECT OF YOUR JOB?

Preparation of copy _____
Training personnel _____
Attending meetings _____
Giving videotex speeches _____
Other (specify) _____

- (28) WHAT LIMITS, IF ANYTHING, THE AMOUNT OF COPY IN THE ELECTRONIC EDITION?

Time and personnel constraints _____
Computer memory constraints _____
Other (specify) _____

- (29) HOW DO YOU DETERMINE WHAT STORIES WILL BE ENTERED FIRST INTO THE DATABASE?

Traditional front-to-back page of
print newspaper _____

Haphazard, no particular order _____

Rotating cycle of news, sports,
editorials, etc. _____

Not a problem, staff is large enough that all
copy is entered simultaneously _____

Other (specify) _____

- (30) HOW LONG DO STORIES STAY IN THE ELECTRONIC DATABASE?

One day or less _____

Two days or less _____

Other (specify) _____

- (31) ARE THERE ANY SPECIAL RULES THAT GOVERN YOUR WORK ON THE ELECTRONIC EDITIONS THAT DO NOT GOVERN WORK ON THE PRINT EDITIONS?

No _____

Yes (specify) _____

- (32) WHAT ARE YOUR PERCEPTIONS OF THE AUDIENCE BEING WRITTEN FOR IN CONNECTION WITH THE ELECTRONIC EDITION?

Computer hobbyist _____

Businessman/woman _____

Serious reader of the news _____

Other (specify) _____

- (33) DO YOU CONSIDER YOURSELF TO BE WRITING AND EDITING FOR NEWSPAPER OR TELEVISION?

Newspaper _____

Television _____

Both _____

- (34) WHERE IS THE LOCATION OF THE ELECTRONIC NEWSROOM IN RELATIONSHIP TO THE PRINT NEWSROOM?

Same floor, isolated room _____
Same floor, same room _____
Different floor _____
Other (specify) _____

- (35) HOW DO OTHER REPORTERS AND EDITORS AT THE PAPER FEEL ABOUT THE ELECTRONIC EDITION?

Enthusiastic _____
Resentful _____
Indifferent _____
Other (specify) _____

- (36) DESCRIBE THE RELATIONSHIP, PLEASE, BETWEEN THE PRINT STAFF AND THE ELECTRONIC STAFF.

Ambivalent _____
Amiable _____
Resentful _____
Other (specify) _____

- (37) HOW MUCH PER YEAR DOES IT COST TO PRODUCE THE ELECTRONIC EDITION?

Over \$100,000 _____
Between \$50,000 and \$100,000 _____
Less than \$50,000 _____
Other (specify amount) _____
No idea _____

Exact amount (if available) _____

- (38) DID NEWSPAPER MANAGEMENT HAVE TO REDUCE ANY PART OF THE NEWSROOM BUDGET IN ORDER TO PROVIDE FUNDS FOR THE ELECTRONIC EXPERIMENT?

Yes (specify amount) _____
What part of budget _____
No _____

- (39) WHAT WERE THE START-UP COSTS FOR THE NEWSPAPER IN GETTING THE ELECTRONIC EDITION ON-LINE?

\$500,000 or more _____
\$400,000 to \$499,999 _____
\$300,000 to \$399,999 _____
\$200,000 to \$299,999 _____
\$100,000 to \$199,999 _____
\$50,000 to \$99,999 _____
Less than \$49,999 _____
Don't Know _____
Other (specify) _____

- (40) DID THE ASSOCIATED PRESS SUPPLY ANY OF THE CAPITAL NECESSARY TO ESTABLISH THE ELECTRONIC EDITION AT YOUR PAPER?

Yes _____

No _____

What percent, or amount _____

- (41) HOW LONG DID IT TAKE TO GET THE NEWSPAPER ON-LINE ONCE THE DECISION WAS MADE TO ESTABLISH AN ELECTRONIC EDITION?

Six months _____
Five months _____
Four months _____
Three months _____
Two months _____
One month _____
Other (specify) _____

- (42) WHAT WAS INVOLVED IN THE PREPARATION PERIOD FOR GETTING THE NEWSPAPER ON-LINE FOR THE ELECTRONIC EDITION?

Training of personnel _____
Computer preparation _____
Practice copy preparation _____
Other (specify) _____

(43) DOES THE PAPER PLAN TO CONTINUE PUBLISHING THE ELECTRONIC EDITION AFTER THE ASSOCIATED PRESS EXPERIMENT IS OVER?

Yes _____
No _____

(44) IF SO, DO YOU WANT TO CONTINUE TO BE IN CHARGE OF THE ELECTRONIC EDITION?

Yes _____
No _____

(45) IF NO, WOULD YOU MIND TELLING ME WHY NOT?

Burned out _____
Too many headaches _____
Unenjoyable work _____
Not enough help _____
Not enough salary _____
Not challenging enough _____
Compromises traditional print standards _____
Other (specify) _____

I appreciate your taking the time to answer so many background questions. We're nearly finished, but before we stop I hope you will be willing to share your thoughts with me on a few general aspects of videotex.

(46) WHAT DO YOU PERCEIVE TO BE THE MAJOR DRAWBACKS OF THE VIDEOTEX PROCESS AS FAR AS NEWSPAPER REPORTERS AND EDITORS ARE CONCERNED?

- (47) NOW, FOR THE OTHER SIDE OF THE COIN, WHAT DO YOU PERCEIVE TO BE THE MAJOR BENEFITS OF ELECTRONIC NEWSPAPERS?

- (48) WHAT DO YOU FEEL IS THE FUTURE OF VIDEOTEX IN THE UNITED STATES?

- (49) WOULD YOU MIND SHARING WITH ME A FEW OF YOUR THOUGHTS ABOUT YOURSELF IN RELATION TO THIS ELECTRONIC NEWS JOB? HOW HAVE YOU FELT ABOUT BEING A PART OF THE ASSOCIATED PRESS/COMPUSERVE EXPERIMENT?

NOW, IF YOU WOULDN'T MIND SHARING A LITTLE BACKGROUND INFORMATION ABOUT YOURSELF, WE'LL BE FINISHED WITH ALL THESE QUESTIONS.

- (50) HOW LONG HAVE YOU BEEN IN THE NEWSPAPER BUSINESS?

(51) DO YOU HAVE ANY MEDIA EXPERIENCE OTHER THAN NEWSPAPERS?

Yes (specify) _____

No _____

(52) WHAT POSITIONS HAVE YOU HELD AT NEWSPAPERS?

Reporter _____

Copy clerk _____

Copy editor _____

City editor _____

Wire editor _____

News editor _____

Slot man _____

Managing editor _____

Other (specify) _____

(53) OTHER THAN USE OF VDT'S IN NEWSROOM OPERATION, HAD YOU EVER HAD ANY COMPUTER EXPERIENCE PRIOR TO ACCEPTING YOUR POSITION AS ELECTRONIC EDITOR?

No _____

Yes (specify) _____

(54) WHY DO YOU THINK YOU WERE PICKED TO HEAD THIS ELECTRONIC OPERATION?

(55) HAVE YOU WORKED AT NEWSPAPERS OTHER THAN THE _____?

Yes (specify) _____

No _____

(56) DID YOU ATTEND A COLLEGE OR UNIVERSITY?

Yes (specify) _____

No _____

(57) WHAT WAS YOUR MAJOR?

(58) DID YOU OBTAIN A DEGREE?

Yes (specify) _____

No _____

I REALLY APPRECIATE ALL THE TIME YOU HAVE TAKEN TO
ANSWER MY QUESTIONS ABOUT THE NEWSPAPERS. BEFORE
WE HANG UP, DO YOU HAVE ANY ADDITIONAL THOUGHTS OR
COMMENTS ABOUT VIDEOTEX OR YOUR ELECTRONIC EDITION
THAT YOU WANT TO MAKE?

THANK YOU AGAIN FOR YOUR COOPERATION. I WOULD BE
HAPPY TO SHARE A SUMMARY OF MY FINDINGS WITH YOU IF
YOU ARE AT ALL INTERESTED.

Not interested _____

Interested (mail) _____

ADDRESS _____

AGAIN, THANK YOU.

APPENDIX B

LETTER TO ELECTRONIC EDITORS

College of Communications

THE UNIVERSITY OF TENNESSEE, KNOXVILLE, TENNESSEE 37996-0313

Graduate Studies and
Communications Research Center
(615) 974-6651

June 1, 1982

Electronic Editor
One of Eleven Newspapers
Eleven Cities, U.S.A. 00000

Dear Mr. Editor:

I am a second-year doctoral student at The University of Tennessee, writing my dissertation on videotex in the United States. I have chosen to concentrate on the Associated Press/CompuServe experiment. That is why I am writing to you.

As the person in charge of the _____'s electronic edition, you have gained insight and expertise into a great many aspects of this new medium. I would very much appreciate it if you would be willing to talk with me about the videotex operation at the _____'s and your impressions of the electronic editor's role and responsibilities.

As a former copy editor and news editor myself, I know how busy you are. However, if you could find 20 to 30 minutes in your hectic schedule to talk with me by telephone, I believe I can obtain the information I need without monopolizing too much of your time.

I will be happy to provide a summary of the study. The groundwork that you and the other editors are laying in the publication of electronic newspaper editions will be very valuable to others in the media across the country who become involved in videotex. Perhaps you will be interested in seeing how the 11 editions offered through CompuServe compare and contrast.

I would like to call you early next week. If that is not convenient, please feel free to let me know via the enclosed postcard of a more convenient time and date.

Sincerely,

Sara Stone Mantooth

Enclosure

APPENDIX C

TABLE OF CONTENTS FOR VIDEOTAPE

TABLE OF CONTENTS FOR VIDEOTAPE

- 0000 Sign on
- 0014 Go to Columbus Dispatch
(CompuServe failed to receive transmission from the Dispatch on the day the videotape was made, consequently there is very little available for display)
- 0037 Go to New York Times
(includes the daily news summary--both page-by-page and scrolled--and examples of complete, i.e., non-summary stories
- 0110 examples of stories available in The Times electronic edition--also shows headlines that are limited to one line of 30 characters or less
- 0119 examples of business news in The Times
- 0116 The Times editorial/columns index
- 0182 The Times arts and leisure
- 0186 The Times review of the movie, "Blade Runner"
to
0228
- 0232 Titles of theater reviews in The Times
- 0245 Example of system problems that can arise in electronic information transmission
- 0247 Titles of book reviews in The Times
- 0261 Examples of stories in the science/medicine/technology menu in The Times
- 0270 News story on a National Science Foundation report on tele-tex and videotex impact on the future
- 0285 CompuServe system goes down
- 0286 CompuServe signs back on
- 0310 Examples of gifts that can be purchased via electronic shopping from The Times
- 0316 Front page replicas of The Times which can be ordered from the newspaper via E-Mail or regular channels
- 033 Go to the Virginian-Pilot and Ledger-Star
(Indexes, weather information, school lunch menus)

- 0354 Obituaries (national, not local)
- 0369 Birth announcements in the Norfolk area followed by court reports and wedding licenses
- 0411 Example of local columnist for the Virginian-Pilot/Ledger-Star
- 0419 WORLD'S FAIR FACTS
to
0434
- 0442 Go to The Washington Post
- 0450 Examples of sports offerings in The Post
- 0475 Restaurant guide offered in The Post
(Features a review of Alfredo's Garden restaurant--note: watch for updating of the selections in the restaurant category while the videotape was recording)
- 0509 Federal government report--file is empty
- 0547 Classified Ads in The Washington Post
- 0568 Go to The San Francisco Chronicle
(not many choices because of joint Sunday publication with The Examiner)
- 0588 Go to The San Francisco Examiner
- 0612 Review of Absence of Malice
(entertaining, funny, short--movie reviews are all on scroll providing a good opportunity to practice speed reading)
- 0632 Review of the "Blade Runner" (can be compared with different review of the same movie which appears in the New York Times)
- 0652 City-state news in The Examiner
- 0662 Story on housing in San Francisco
- 0666 Story on organized crime and pornography in California
- 0677 Story on government probe of the San Francisco sex business
- 0685 More on sex in San Francisco
- 0714 "Good Vibrations"
- 0724 Examiner/Chronicle classified ads (not on line yet)

- 0737 Story on PAC Man becoming a television series
- 0746 Sports in the San Francisco papers
- 0770 Go to the Los Angeles Times
- 0804 Example of an in-depth story included in its entirety (story
to is about earthquakes in California)
- 0888
- 0893 Go to the Minneapolis Star and Tribune
(Menu shows selections from the TriStar Videonews, the
name given to the electronic edition--news is last item
in a seven-item menu)
- 0896 Examples of shopping by computer
- 0922 Examples of movie reviews
(includes name of reviewer and the movie in the menu)
- 0942 Recreation and exercise in the Minneapolis area
(Includes lists of clubs, membership fees, etc.)
- 0950 Home Energy Guide
- 0956 Go to the Atlanta Journal-Constitution
- 0964 Free Guide to the World's Fair
(a hidden commercial on this new medium?)
- 0989 Sports in the Journal-Constitution
- 0994 Airline flights from Atlanta
to
- 1010
- 1030 Movie Reviews
- 1040 Journal-Constitution classified ads--simulated job search
- 1051 Go to St. Louis Post-Dispatch
(contains classified ads only in the areas of professional
jobs, automobiles and real estate)
- 1092 Go to the Middlesex Daily News
- 1116 Obituaries in the Framingham area
- 1137 Electronic horoscope
- 1162 Sign off

VITA

Sara Stone Mantooth was born in Peoria, Illinois on November 11, 1947. She attended elementary and junior high schools in the Midwest before moving to the Southwest. She was graduated from Albuquerque High School in June 1965. She attended New Mexico State University in Las Cruces, New Mexico for three years before transferring to the University of New Mexico where she received a degree in journalism in 1970.

She was employed at the Amarillo Globe News for a five-year period following her graduation. She held a variety of positions on the newspaper staff, including reporter, copy editor, news editor and assistant night city editor, before resigning to attend Texas Tech University in Lubbock, Texas where she obtained a Master's degree in mass communication in 1975. She was employed as an instructor in the journalism department at West Texas State University in Canyon, Texas from 1974 to 1980. During the summers from 1976 to 1980, she was employed by the news department of KVII-TV in Amarillo.

In the fall of 1980 she accepted a teaching assistantship at The University of Tennessee, Knoxville, and received the Doctor of Philosophy degree with a major in communications in August 1982.

The author is a member of Kappa Tau Alpha, the Association for Education in Journalism, and the Society of Professional Journalists, Sigma Delta Chi. Mrs. Mantooth has accepted a position as an assistant professor in the Department of Journalism at Baylor University in Waco, Texas after graduation.

She is married to David Mantooth.