COMMUNICATION RESEARCH TRENDS

Journalism, The Press and New Technology

In Japan, the newspaper Ashai Simbun has installed a computer system which transfers newsprint to the presses, photosets the print, automatically bales the 12 million copies in the required numbers for each district of the country, and loads them on to waiting lorries; all without the help of a single human being.

Though the degree of automation at the Ashai Shimbun is exceptional, newspapers throughout the world are beginning to exploit the power of the computer to revolutionize the work of journalists and printers. And not only the computer. The use of satellites for remote site printing and facsimile transmission, the replacement of news film by videotape, and the emergence of videotex all herald a profound transformation in the practice and organization of newsmaking.

As yet the implications of this technological change are but poorly understood. As always there is optimism on the part of some that technical developments will lead to significant improvements in the extent and quality of news coverage; others see the same developments leading to more standardization, more superficiality in reporting, and an increase in the power of a few media barons.

This issue of Trends highlights research that has begun to explore some of these issues. The following sections consider 1) the general implications for journalism and the press; 2) the impact of the computer on the organization of the newspaper and the work of journalists; 3) the consequences of technological change for newspaper print workers; and 4) the emergence of the 'electronic newspaper' and its challenge to the established press.

REVIEW ARTICLE

I: The Computer Reshapes the News Business

Over the past decade the computer has become the information tool of modern society. Integrated with advanced telecommunications, it is restructuring the global communication and information environment. At the heart of this restructing sits the journalist at a visual display unit (VDU). The research of Weischenberg and Smith is among the first to consider what kind and quality of news is likely to emerge from the alliance of journalists and VDU. Weischenberg explores the topic in the most general terms, while Smith focuses on the remaking of the printed newspaper.

Journalism in the Information Society

Siegfried Weischenberg. *Journalismus in der Computergesellschaft: Informatisierung, Medientechnik und die Rolle der Berufskommunikatoren.* (Journalism in the Computer Society: Computerization, Media Technology And The Role of the Professional Communicator). Munich: K.G. Saur, 1982.

What will be the future role and professional identity of journalists in the computer age? Weischenberg attempt to answer this question by developing a series of scenarios of the journalism of the future. He argues from existing trends in microelectronics, economics, and politico-economic power structures, but warns against a too simple extrapolation from trends in the United States. The study is concerned with information gathering, production, and management in both the established electronic and print media as well as the so called new media.

The first of Weischenberg's scenarios is built upon the technical developments in electronic editing. The combination of data processing and photocomposition has created a new and powerful editing instrument. Using a VDU in the newsroom, or even a portable computer in the field, the technically advanced journalist can enter stories into the computer system which can be edited on screen and eventually printed without having to be retyped. Such systems will in time eliminate the entire typesetting and page make-up department and the associated printing jobs. Eventually even photographs will be set using this system. The end result will be that journalists will be in total control of all work processes and their technology up to the point of printing.

The News Agencies Embrace New Technology

The second scenario derives from the rapid development of the main news agencies and their specialized services. The news agencies have invested heavily in new communication and computer technologies. For example, in 1984 the Australian Associated Press (AAP) introduced a video-editing system linking 10 of its 12 bureaux and

giving 150 journalists access to a data base in Sydney storing 900 million characters of information. Journalists at remote locations can now file copy directly into the system over telephone lines from portable VDUs. Reuters and *Time* magazine have also purchased the same system.

Investment in new technology has gone hand in hand with an expansion of the news agencies' functions. AAP for example retails information directly to the public through its *Corporate Report.* This is a news service containing about 150 pages of regularly updated information delivered by microwave to the computer terminals of corporate managers.

AAP is also linked to the financial service system developed by Reuters. Reuters' *International Monitor,* for example, covers financial markets around the world and delivers information to 40,000 terminals in 80 countries.[1] The importance of the computer to Reuters' business is aptly illustrated by the fact that the company now employs 639 technicians worldwide compared to 542 journalists.

The Growth of ENG

Weischenberg's third scenario deals with the rapidly developing technology of 'electronic news gathering' (ENG). ENG use by television news units is growing because of ENG's ability to give television news the same sense of immediacy as radio coverage of live events. The replacement of celluloid film by videotape has cut out the delay caused by the need to process the film footage. Though low cost direct transmission of video recordings is still a problem, it is one that is rapidly being overcome. In mid-1984 the British Independent Television News (ITN) announced that by 1985 it would have its own fully portable satellite earth station. This will allow reporters anywhere in the world to beam back ENG signals to London.

Standardizing The News

Finally, there is the scenario of multiple uses. The heavy investment in information gathering and data processing systems tends to increase standardization and economic and editorial concentration of power. For example, on-screen editing will reinforce the tendency to standardize news stories. Because VDUs can only display about 25 lines of text at one time, there is a possibility that this screen 'page' of information will become a new standard unit of text.

On a wider scale, the increased use of ENG combined with the expansion of news agency services is likely to strengthen still further the power of a few large agencies to set the news agenda. Newspapers will tend to rely even more than before on the agencies as sources of international and national news. Moreover, the big newspapers are likely to provide news, ready made, to radio stations, cable systems, teletext systems, and to public television for news summaries. It will be more of the same in electronic and new media, as far as the news is concerned.

Accompanying the technological trend towards standardization, is the economic trend towards concentration of ownership and control. Powerful newspaper proprietors in the mould of West Germany's Axel Springer, and Rupert Murdoch and Robert Maxwell in America and Britain, are ever more anxious to diversify their media interests. Rupert Murdoch, for example, has interests in broadcasting, satellite television and newspapers in Australia, America, and Britain.

As this economic domination by a few powerful individuals and groups continues, journalists will have to ask themselves what their attitude should be. Journalists should not, argues Weischenberg, simply ignore these processes or be concerned simply to protect their own sectional interests. They need to develop a journalistic ethic and a revitalised professional self-understanding that comes to terms with the challenges posed by technical innovation. Journalists must fight for the highest standards in reporting and news coverage.

From Daily Record to Electronic Library

The daily newspaper, according to Anthony Smith, is being transformed from a daily universal register of news and entertainment into an electronic storehouse of specialized information packages. This transformation of the newspaper symbolizes the shift from a society of citizens interested in a wide range of public activities to a society of information consumers increasingly absorbed in private interests and local concerns.

The Newspaper Crisis

In its traditional form, and especially since its emergence as a mass popular medium in the late 19th century, the daily newspaper is a heterogeneous array of news, comment, entertainment and advertising. It is also a highly sophisticated information brokerage system, selling its loyal readership to local or national advertisers.

Smith analyses how this traditional idea of the newspaper is changing in the United States. He argues that by the mid-1960s the larger metropolitan dailies were undergoing a severe crisis of economics and confidence. Newspapers found their brokerage function under threat as their readers moved into suburbia from the north-east to the growing cities of the 'Sunbelt', changed their commuting habits and work patterns, moved into more single households and spent more time with television and radio.

Perhaps even more worrying for the press was evidence that readers were beginning to find large sections of their daily newspaper irrelevant. Individual tastes were better catered for by other media, including the growing number of specialist magazines. Even though most of them were local monopolies, the papers found their readership declining and their national advertisers deserting them for television and radio. In addition, newsprint and labour costs were rising sharply.

The Promise Of The Computer

Faced with this crisis, newspaper managements turned to the computer to help them to solve three major problems. First, the introduction of computerized typesetting offered a way of breaking the power of the print unions by reducing the number of skilled compositors needed. Second, the computer could enable newspapers to reorganize their circulation and subscription departments so that administrative costs could be cut and the readership be targetted more precisely. Third, computer storage of information offered the possibility of exploiting the accumulated information resources of newspapers in the form of general or specialized data banks, e.g. the *New York Times Information Bank.*

Computers, Printers, and Journalists

Of course, a newspaper is more than an information processing system. It is also a complex social organization with inherited traditions and customs, in fact a 'subculture'. The intrusion of the computer into this subculture has profound effects upon the journalists and printers at its centre.

For the skilled printer, the computer means the death of the compositor's craft. In the United States, for example, the International Typographical Union, (ITU), lost 25,000 members between 1967 and 1977. A combination of management ruthlessness and technological innovation has left the ITU in a highly vulnerable position. Even as it seeks to negotiate with employers over wage and manning levels, its future seems increasingly bleak.

Journalists are also finding that their traditional self-image and function is being reshaped. The computerization of news gathering begins to turn the journalist into a researcher and librarian. More and more time is spent collating and comparing the increasing amounts of data fed into the system by news agencies and by other

 1 Murphy, Les. "AAP-Wire Service Takes Off" *Media Information Australia,* No. 35 (Feb/Mar) 1985, p.36-40.

journalistic and non-journalistic sources.

Newsroom computerization underlines the extent to which news gathering and news writing have become a collective activity. The individual journalist is simply one element in a complex system and individual responsibility, and thus individual integrity, is consequently harder to preserve or even to identify. In the last resort the journalist's integrity is the integrity of the news gathering and editing system of the newspaper.

II: Computerized Newspapers and Electronic Editors

The general insights of Weischenberg and Smith need to be complemented by research into the day-to-day working of new organizations as they adopt new technology. Both studies in this section examine the impact of new technology in newspapers. Carter and Cullen apply organizational theory to explain how computerization affects the organizational structure of newspapers. Claudia Mast studies, from a communication science viewpoint, the planning, introduction and operation of an electronic editing system in one newspaper.

Organizing the Newspaper Around the Computer

Nancy M. Carter and John B. Cullen. *The Computerization of Newspaper Organizations: The Impact of Technology on Organizational Structure.* Lanham, MD: University Press of America, 1983.

Carter and Cullen visited newspapers at different stages of integrating computer technology. They designed a survey of US newspapers to discover how far the computer was actually affecting the manner in which raw news was being transformed into the finished print product.

The researchers hypothesized that the computer was a 'core' technology in newspaper organizations. It was core because of its effect on the central processes of workflow (controlling reporter's input, editing, page make-up, printing, and distribution), operational technology (input and editing via VDUs, typesetting), and information and administrative technology (bookkeeping, financial and personnel administration).

The Computer and Decision Making

Their study, though primarily concerned to investigate general organizational problems, raised a number of specific questions concerning the changing patterns of work and power within newspapers. In particular, they investigated the claim that computerization increased the power of editors and led to more centralised decision-making.

News decisions were most likely to be centralized in large organizations with a low level of computer usage. Newspapers with many specialized news and features departments tended to delegate news decisions to those departments. However, though some decisions may be decentralized (e.g. the choice or placement of headlines), others (e.g. editorial deadlines) are centralized at upper management levels. They discovered that, as newspaper size increased, the use of VDUs and the use of computers in administration tended to centralize news decisions.

The research also found that large and medium-sized firms tended to add more copy editors as they computerized than did smaller ones. In large firms copy editors increased in importance as their ability to manage larger amounts of data increased. In smaller firms this greater productivity was a means to cut down on labour costs.

Carter and Cullen found, as expected, that the computer significantly reduced the number of production jobs available. Contrary to expectations, however, they found that trade union influence was still a significant factor in the implementation of computerization. They also found that the majority of 'new' jobs in computerized newspapers were those associated with the technical operation of the computer system, i.e. computer managers, technicians, programmers, etc.

Electronic Editing And The Job Of The Journalist

Claudia Mast. *Der Redakteur am Bildschirm: Auswirkungen moderner Technologien auf Arbeit und Berufsbild des Journalisten.* (The Editor At The Screen: Effects of Modern Technologies On The Work And Professional Image Of Journalists). Kontanz: Universitätsverlag Konstanz Gmbh, 1984.

VDU screens have made their appearance in newspaper editing rooms and have set off powerful controversies about the job definitions of those writing the newspaper. Mast's study argues that, at least in one newspaper, the work of journalists has not been fundamentally altered. In addition, the new technology has made it much easier to produce an up-to-date newspaper, without loss of journalistic quality.

Mast's research lasted over three years during which she observed the planning, preparation and introductory phases of a production and editing system at the *Augsburg Allgemeinen,* a large regional newspaper in Bavaria. According to Mast her research presents an example of the right way to introduce and evaluate an editing system. Intensive participation by journalists in the planning and decision-making as well as tailoring the technology to the actual demands of editing, have decisively furthered the acceptance of the new system.

Factors in Technology Acceptance

Mast details the factors that influence the acceptance of the new system. Among the most important were: first, the participation of the editors in the planning and decision-making phase. This resulted in the identification of the editors with their systems. Providing information before the installation and courses of instruction helped individuals overcome difficulties and anxieties. Statements of the administration about personal development and the voluntary nature of VDU work for editors reduced tensions.

Second, the professional self-understanding of the role of a regional newspaper editor. The journalists at the *Augsburger Allgemeinen* had a rather pragmatic understanding of their job which allowed them to feel that new technology could be helpful. Diffuse fears, such as loss of creativity through the new technology, quickly lost weight when the individual had some practical experience.

Third, the job responsibilities of different journalists. Journalists who, in addition to writing, had to deal with planning and coordination saw real advantages in the new technology, e.g, the capacity to go to print soon after events take place because of later make-up times as well as quicker production. Journalists can also layout their material ready for printing, e.g, calculating exactly the length and the position of headlines. Their influence on the final form of the work is increased.

Electronic Editing and Changing Work Patterns

Mast also details the areas in which the work of journalists underwent change. The three most important were: first, in work content and organization. The editing system brought more accuracy, planning, and organization, but also clarity and flexibility in journalistic work. Layout is now an editorial function. The organisation of the work has changed less than anticipated. In most aspects the disposition, production, layout and make-up run the same as before.

Second, in editorial responsibility. The editors have control over their product, which they can alter more flexibly. The responsibility for the article in its totality now lies in the hands of the author. Until now greater responsibility and control has been exercised by editors who did not write the stories. And, third, in the shape of the completed newspaper. The faster time to print the paper (there is a 50 minute later make-up on the average in all departments) increases the possibility of up-to-the-minute coverage. Editors have more time to work on articles or to await news agency stories. Journalists have more time to do research. The newspaper itself is better printed but otherwise is much the same as before.

III: The Rise Of The Computer And The Decline of the Printer

The introduction of the computer into newspaper production threatens to eliminate some printing jobs entirely, and is forcing major adjustments in well established work patterns. For the people at the receiving end of this technological change the present period is a traumatic one. The following two studies discuss this social upheaval in the context of the British newspaper industry. Roderick Martin examines the problems from the point of view of the sociology of industrial relations, while Cynthia Cockburn brings a marxist/feminist critique to bear on the printing worker's experience of technological change.

Industrial Relations and the Politics of Technological Change

> Roderick Martin. *New Technology and Industrial Relations in Fleet Street.* Oxford: Clarendon Press, 1981

The years 1975 and 1979 were years of crisis in the British national newspaper business. In 1975 both management and unions believed that *joint* action was required if the press was to overcome its problems. Martin's analysis reveals how the goal of a joint management/union approach foundered on differences of personality, perception, and policy within both camps. The newspaper proprietors were acutely suspicious of each other, and the national union leaders were not only mutually suspicious but also distrusted by many of their own followers.

In the mid-1970s newspapers appeared to be in long-term decline. They were losing their appeal to both readers and advertisers in the face of competition from commercial television and local newspapers. In addition the cost of newsprint nearly doubled between 1973 and 1974, while the economy was in a period of inflation and recession.

Fleet Street owners, and politicans too, blamed the newspaper crisis on poor management, excessive trade union power, and technical backwardness exacerbated by market conditions. National trade union leaders were inclined to pin most of the blame on management, but they also blamed shopfloor workers for putting sectional interests ahead of the interests of workers in the printing industry as a whole. For management and politicians the remedy for the crisis was to reduce costs, primarily by introducing new printing technology. National trade union leaders sought to protect their interests by working with management to get an industry-wide agreement on technology and employment.

The Print Unions Divided
Martin's study concentrates on the union response to new technology. A unified approach was hampered from the start by the structure of unionization within the newspaper industry. There were five major unions and a number of smaller ones. Each of the five big unions represented a different class of workers, with a particular set of interests to defend. The NGA (National Graphical Association) which represented the compositors, and SLADE (Society of Lithographic Artists, Designers and Engravers) were skilled craft unions at the top of the earnings ladder. NATSOPA (National Society of Operative Printers, Graphical and Media Personnel) and SOGAT (Society of Graphical and Allied Trades) organized the unskilled and semi-skilled workers. Finally, journalists were represented by the last big union, the NUJ (National Union of Journalists).

The differences between the NGA and NATSOPA approaches to new technology highlight the divisions between printing workers which eventually resulted in a failure to agree any joint union strategy. The NGA adopted a position of conditional acceptance of new technology, hoping to maintain its traditional monopoly over the input of text for typesetting. It was successful in keeping some control over the pace at which compositors' jobs were lost, but it could not prevent the seepage of work from traditional print shops to less unionized printers. In its attempt to retain the monopoly over 'keyboarding' the NGA came into conflict with other unions which were organizing workers who were taking NGA jobs, e.g. those unions representing clerks who were beginning to input advertising copy directly.

NATSOPA represented the machine assistants and the other semi-skilled workers in the print room, working under the supervision of NGA members. The national leadership of NATSOPA saw in new technology the chance to break down the traditional craft exclusiveness of the NGA and to upgrade their members in skills, status, and pay. In the end, however, the NGA successfully persuaded newspaper managements in Fleet Street to introduce new technology based on existing demarcation lines. Even provincial newspapers made no major move, at this time, to change the existing organization of work. There were, however, reductions in the workforce. From NATSOPA's view point it was the arrangement of maximum disadvantage.

The Newspaper Owners Disappointed
Martin concludes his study with an analysis of the fate of new technology in three newspapers: the *Financial Times,* the *Daily Mirror,* and *The Times.* In each case new technology turned out not to be the saviour it was meant to be. The *Financial Times* was unable to reach a satisfactory agreement with its unions and had to suspend its development plan indefinitely. The *Daily Mirror* successfully introduced the new computerized system and then discovered that as all text was being input twice, once by journalists and again by compositors, it was not reducing labour costs as it had hoped. *The Times* suffered from an acrimonious dispute with its printers and suspended publication between November 1978 and November 1979.

Martin argues that a significant part of the reason for these failures was an initial sanguine expectation based on a too simple view of the American experience. The newspapers failed to take into account that their unions were more united and powerful than the US unions, that British managements were weaker and more divided than US ones, and that the US had a level of expertise in computing that was, at that time, not available in Britain.

From Linotype Operator to Typist: Printers Face Change

Cynthia Cockburn. *Brothers! Male Dominance and Technological Change.* London: Pluto Press, 1983

Martin analyses the politics of change; Cockburn studies the experience of change. The goal of the research was to reveal the contradictions experienced in the lives of printers in a period of technological change. Cockburn sees these contradictions as points of tension and stress within a capitalist and patriarchal society. The printers experience these contradictions both as workers and as men.

She conducted in depth interviews with a sample of fifty NGA craftsmen from four newspapers, two in Fleet Street and two regional newspapers. She also interviewed managers and technicians. The interviews covered apprenticeship, old and new technology, the newspaper firm, women as competitors and colleagues, union policies, the relationship between skilled and unskilled workers; and feelings about class, home life, domestic relationships, newspaper production and the future of work.

Skilled Past and De-skilled Future

The first major contradiction identified by Cockburn is the power relationship between male workers. The skilled Linotype operator has always looked upon himself as a member of an élite group. Now he finds himself operating a typewriter keyboard at a VDU. The very cleanliness and quiet of the new technology makes him feel that the printing shop has become an office, and he a typist. He feels that he has lost status both as a man and as a craftsman. Once he looked down on the unskilled, now he looks down upon the de-skilled version of himself.

Cockburn argues that as a result of experiencing this contradictory emotional state the skilled worker may follow one of three courses. He may retreat into bitterness and cynicism; he may embrace the new technology as a road to further advancement; or he may begin to rethink the relations between skilled and unskilled workers. The erosion of craft status and pay differentials may stimulate a change of attitude regarding other workers and thus be a spur to a new solidarity among printing workers.

Male Solidarity and Sex Equality

The second contradiction lies in the relationship between male and female workers. Traditionally, the compositor has seen women print workers as cheap and unskilled labour that threatened men's livelihood. Moreover he has argued that the work of a compositor was too dirty and hard for a woman. Now as the computer begins to change the nature of the compositor's job it becomes ever harder for men to argue that such work is unsuitable for women.

Today the compositor is caught with mixed feelings. His wife, who once would have stayed at home, is now going out to work. The compositor feels that she should, of course, have equal opportunities and equal pay. But he also feels that women should not take his job. He finds himself angry with himself. In trying to resolve this tension the craftsman may retain a double standard and keep home and work entirely separate, or he may begin to rethink his attitudes to women and work. Some men are able to avoid the problem because their wives stay at home to look after their children.

The Experience of Technological 'Progress'

The third contradiction is that between belief in and experience of technological 'progress'. The craftsman finds himself a victim of an ideology he believes in. He once believed that the introduction of new technology could be beneficial, enabling the newspaper to expand and to bring new jobs to a more prosperous industry. However, in a time of economic recession the printer finds that new technology is primarily a means of saving labour. Redundancy and unemployment are experienced. The craftsman finds himself a victim of people who think as he does. His response can be to stick to the ideology of progress and fight to be one of the few who get the new jobs; or he can become sceptical and detached; or he can rethink his ideology and redefine what he means by skill.

Such individual dilemmas, when multiplied many times, can become, according to Cockburn, a catalyst for social change. Unlike most advocates of radical social change, however, she emphasizes that such change must take place in the sexual as well as the social sphere.

IV: New Media, New Journalism?

How will teletext and viewdata affect the practice of journalism and the content and coverage of news? The two studies in this section approach these questions from different perspectives. David Weaver's study is the first serious attempt to describe and evaluate the practice of videotex journalism. The article by David Dozier and Ronald Rice is a provocative critique of the design assumptions behind current electronic newspaper systems.

Rewriting The News: Journalists And The Electronic Newspaper

David H. Weaver. *Videotex Journalism: Teletext, Viewdata, and the News.* Hillsdale, NJ: Lawrence Erlbaum Associates, 1983.

Teletext and viewdata systems are still a long way from being electronic newspapers. They provide little original news, and rely almost entirely on repackaging news from wire services and other news media. Journalists working for such systems do almost no independent reporting; they spend most of their time rewriting and editing stories provided by other people.

These are the main findings of David Weaver's study among journalists and executives working for teletext and viewdata systems in Britain, the Netherlands, and Belgium. Most of the journalists were employed by British services, either by the teletext systems of the BBC (CEEFAX) and independent television (ORACLE), or by the Viewtel viewdata service run by the *Birmingham Post and*

Mail newspaper. He interviewed executives and journalists in the Netherlands and Britain, administered questionnaires to journalists in Belgium, Britain and the Netherlands, conducted his own observations, drew on audience surveys, and compared British teletext news output with BBC television news and newspapers.

Videotex News Limitations

The limitations and deficiencies in current electronic news delivery systems are of concern to all who care about the development of high quality journalism. The ease with which these systems can respond quickly to the latest news stories, tends to make them too event-oriented. They tend to play down controversial issues and to over simplify complex news stories.

There is also the danger that by relying on a limited set of news sources videotex systems help reinforce a closed circle of news in which local and alternative views are increasingly absent. In addition, the capacity of viewdata systems to supply specialized information to specific target groups may lead information providers to put a low priority on coverage of public affairs.

Improving Videotex Journalism

To help create a better quality of videotext news, Weaver suggests a number of remedies. First, videotex journalists should be hired to report news as well as to edit and repackage it, and not be isolated from other journalists in the same broadcasting organization or newspaper. Second, audience surveys of teletext and viewdata users

should be available to journalists to give them a better idea of their audience. They could learn what uses are being made of their work, and could identify what kind of wanted information is not currently being offered.

Third, experienced editors and journalists should be hired in order that the journalistic content be of high quality. Fourth, the capacity of computers to store large amounts of data should be used to allow news stories to run as long as they need to, at least on viewdata if not on teletext. Quality news reporting is difficult to do in 80 or 90 words. Fifth, teletext news stories should refer to other news sources to encourage viewers to go beyond the limited data available on the screen. Finally, news content should be highlighted in videotext indexes and guides, the cost of services should be kept as low as possible, and there should be strict anti-monopoly controls.

Redesigning The Electronic Newspaper

David M. Dozier and Ronald E. Rice. 'Rival Theories of Electronic Newsreading' in Ronald E. Rice (et al.) *The New Media: Communication, Research, and Technology*. Beverly Hills, CA: London: Sage, 1984.

Before the true electronic newspaper can emerge, videotex designers will have to devise strategies for making videotex reading a pleasurable as well as a purposeful activity. This is the basic argument of Dozier and Rice's application of newsreading theory to existing videotex systems.

Present electronic newspaper designs are implicitly based on uses and gratifications theory. They cater for users who are actively seeking specific items of information. As a result they appeal very little to people who use newspapers as a medium of entertainment. Dozier and Rice consider that an alternative design strategy based on the play or 'ludenic' theory of newsreading is needed.

Two Theories of Newsreading

The uses and gratifications perspective assumes that media use, including newsreading, serves purposes external to the activity itself. These purposes include pleasure, entertainment, and fantasy, as well as task or work related goals. Uses and gratifications suggests that electronic newsreading is a purposeful search for information to satisfy an explicit need.

Play or 'ludenic' newsreading theory asserts that the process of newsreading is intrinsically pleasurable. This theory suggests that people who read newspapers primarily to accomplish certain tasks are non pleasure readers who generally tend to be non-readers as well. On the other hand some people treat newsreading as a formal game, or ritual, following highly individualized paths through different sections of the newspaper. Pleasure newsreaders skip about with no particular ritual, reading bits here and there. Newsreading is a way to pass the time, entertainment.

Limitations of Present Designs

Existing electronic newspapers have been slow to penetrate the mass market. One of the reasons for consumer resistance is undoubtedly the design of the system. Readers serarching for information have to work their way through a sequence of menus, or indexes, sometimes as many as 14, in order to find specific items. Scanning and browsing are difficult. Search trials show a success rate in information seeking of only 50 to 60% using these methods.

The Electronic Micro Newspaper

Rather than providing access to one massive and forbidding data base, the electronic newspaper based on play or 'ludenic' theory would consist of a selection of information packages. Each of these 'micro' newspapers would be designed to enhance the newsreading 'play' of a particular segment of the audience.

A successful ludenic 'micro' newspaper needs a clear idea of the newspaper readership it is trying to reach. Work oriented readers and 'pleasure' readers have very different expectations and demands. As far as pleasure readers are concerned, task oriented and goal directed menu searches should stop, at least temporarily, with the selection of the 'micro' newspaper title.

The electronic newspaper must ease the reader into its content. The printed paper does this by means of conventional devices: typography, headlines, sections, indexes etc. These give clues to the importance and meaning of various items. A new medium requires its own conventions, e.g. the use of the terms 'more/next' to guide the reader through a story on several screen pages.

Putting Journalism and Technology Into Perspective: The Need For Historical Research

"The organization of the technology of the newspaper reveals certain ideas about the nature of the reading public itself, about its assumed attention span, about its preferences for kinds of material, about its homogeneous nature and shared interests ... Printing from a stereotype plate symbolizes and embodies at once the 'massness' of the newspaper and its ephemeral quality. It expresses a special view of the nature of the knowledge appropriate to a newspaper, i.e. that it is culled rapidly from diverse sources and the nuggets thrust into mutual proximity and that the knowledge is interim and discardable. The new system of producing newspapers makes possible a different view of its contents, even though the primary motivation for the new technology arises from the changing circumstances of the newspaper as an industry."

Anthony Smith's observations about newspaper technology in *Goodbye Gutenberg* remind us that a technology is a cultural as well as a material artifact. Technological designs express the results of human choices, decisions, and objectives. To attempt to record and to understand particular technological changes, therefore, is to attempt to record and understand the values, attitudes, and purposes of particular groups and individuals. This in turn raises questions about the desirability of the values, attitudes and purposes which are being pursued.

Technological Change As A Political Issue

Once these questions are raised, researchers find themselves in the realm of ethics and politics. The problem of technological change becomes a problem of who decides how technological change is to be implemented, and who decides what social, economic, and political criteria are to be used in choosing one technical design or another. Who should decide such questions? What should the criteria be? What should be decided?

In a period of rapid technological change when old industries are being fundamentally restructured, new industries are coming into being, and people are faced with profound changes in their social, cultural, and economic environment, such questions are more than academic. They are the essential starting points for any informed public debate. Even articulating the questions is an act of political engagement.

The seriousness with which researchers like Siegfried Weischenberg, Anthony Smith, and David Weaver study the influence of technical innovations on journalism and the news business is also an ethical and political statement. These researchers are saying that the quality of journalism in modern democracies is important. The ways in which news is shaped and transmitted, by whom and for whom, influences society's political, and cultural life at all social

levels.

The Need for An Historical Perspective

Given these considerations it is vitally important that research in this area should seek to put current developments into historical perspective. Present technological systems are expressions of past choices and decisions. Without the historical perspective it is difficult, if not impossible, to identify those elements in the present which mark a significant break with the past. The historical perspective helps counter the tendency to believe that technological innovation in itself produces radical social or political change.

Historical research can describe and reflect upon both the experience of and the politics of technological change. In looking at the present transformation of the press by the computer, researchers could benefit from an understanding of what happened when the rotary press or the linotype machine was first introduced. The conflicts engendered among employers and workers by those past events are still influencing the attitudes and policies of managements and unions in the present. And as both Martin's and Cockburn's research suggests, divisions among unions will not be overcome as long as each union remains loyal to a historical tradition that emphasises the special rights and privileges of particular groups of workers.

Another area which would benefit from the fruits of historical research is that of the effect of new newsgathering technology on news content. The inventions of shorthand, photography and the telegraph have influenced both the content of news reports and the concept of journalism itself. Present day codes of journalistic practice and beliefs about the role of the journalist as detached observer are intimately related to past responses to new journalistic tools. Without this historical framework researchers will not be able to identify the extent to which journalists' uses of such tools as the VDU indicate a continuation of or a break with present ideologies.

Nowhere is the historical perspective needed more than in discussions about the new media. An understanding of how new information technologies enter the established communication environment can only come from detailed historical research. If the new electronic text delivery systems such as viewdata are to serve the needs of more than a commercial minority, they will have to be designed in quite different ways. The histories of the telephone, the radio, television, and the newspaper can alert us to the factors that condition the design, organization, and operation of new media. Understanding the past may give some hope of influencing present developments before the electronic newspaper becomes simply another means of recycling ever more limited and standardized items of news.

Jim McDonnell
Issue Editor

Current Research on Journalism and New Technology

CANADA

Prof Henry Overduin (Graduate School of Journalism, Middlesex College, The University of Western Ontario, London, Canada N6A 5B17) has co-authored a major unpublished study of North American videotex systems. He gave a paper "Videotex and News Values: Newzak for the Information Age?" at the First International Videotex Journalism Conference, Toronto, January, 1984.

FINLAND

Nils E S Enlund (VTT-GRA, Tekniikantie 3, 02150 Espoo, Finland) investigates newspaper prepress technology through The SISU Project, a large-scale research project sponsored jointly by eight prominent Finnish newspaper publishers, with additional funding from the Finnish Ministry of Trade and Industry. Its objectives are to: 1. Define and design an integrated computer-based prepress production process for newspapers; 2. Specify the necessary subsystems and their interconnections; 3. Analyze the effects of the introduction of such systems on job contents, staffing, quality, service level, and productivity.

FRANCE

Jean-Marie Charon and Eddy Cherki (Ecole des Hautes Etudes en Sciences Sociales, 54 Boulevard Raspail, 75007 Paris) have recently published *Vélizy ou les premiers pas de la télématique grand public* (CPE, 1 rue Descartes, 75321 Paris Cedex 05.

Rene Eksl (GESTE, 42 rue de Galilée, 75116 Paris Cedex)

Serge Gauthronet (Arete-Association pour la recherche sur l'emploi des techniques, 35, rue Compans, 75019 Paris, France) among other projects is examining French policy on telematics and the relationship between employment and telematics.

ITALY

Intergovernmental Bureau of Informatics (IBI) (Viale Civiltà del Lavoro, 23, 00144 Rome) organized PRESSINFO: Press and Informatics Forum in Valencia, Spain, between 29th-31st October 1984. The 62 participants discussed the effects of the introduction of informatics in the news media and the coverage of informatics by the press.

JAPAN

Hisao Komatsubara (Japan Newspaper Publishers and Editors Association, Nihon Press Ctr Blg, 2-2-1 Uchisaiwai-sho, Chiyoda-ku, Tokyo 100) has written "Japanese Newspapers Look at New Media Technologies.' *Studies of Broadcasting*, no. 17, 1981.

Seisuke Komatsuzaki (Research Inst of Telecommunications and Economics, Nikko Gotanda Bldg., 2-29-5 Nishigotanda, Shinagawa-ku, Tokyo 141) has written 'Evolution of Communication Media and its Impact on Broadcasting'. *Studies of Broadcasting* No 17, 1981.

Tetsuro Tomito (Director General, Kanto Yuseikyoku, Ministry of Posts and Telecommunications) is researching the impact of the Captain (Japanese videotext) system on two-way communication and the impact of the teletext system on newspapers.

USA

Prof. John W Ahlahuser School of Journalism, Ernie Pyle Hall, Indiana Univ, Bloomington, IN 47405) is primarily concerned with the visual impact of electronic communications technology: how it affects readers/viewers and the journalists who work with the photo and graphics technology.

Prof. Eric Fredin (School of Journalism, Indiana University, Bloomington, IN 47405) is currently conducting experiments with a videotex system designed by graduate students in his course on videotex production.

Prof. Phillip O Keirstead (School of Journalism, Media & Graphic Arts, Florida A & M University, Tallahassee, Florida 32307) continues to study the application of computers to broadcast newsrooms and has edited and contributed to *The Complete Guide to Newsroom Computers* (Globecom Pub, 1982, 82 pp.)

Newspaper Advertising Bureau, Inc. (1180 Avenue of the Americas, New York, NY 10036) **Albert E Gollin,** Vice President and Associate Director of Research, studies the contents and effects of news and advertising in newspapers. The Bureau has published *Survey of Newspaper Involvement in New Telecommunications Modes* (1983 16pp), which lists reports and slide presentations on marketing and the new technology.

Conrad Smith (School of Journalism, The Ohio State University, 242 West 18th Ave, Columbus, Ohio 43210-11007) focuses on the impact of electronic newsgathering technology on the autonomy of newsworkers in local American television news shops.

Prof. David Weaver (Bureau of Media Research, School of Journalism, Indiana University, Bloomington, IN 47405) has just completed a chapter entitled 'New Technology and the Job' for a forthcoming book, *The American Journalist* (Bloomington: Indiana Univ Press, 1985). The chapter reviews related studies and analyzes data on journalists' perceptions of the effects of technology on their jobs from a national probability sample of 1,000 US journalists.

Prof. Richard D. Yoakam (Center for New Communications, School of Journalism, Indiana University, Bloomington IN 47405) has conducted research into the impact of videotape technology (ENG) on television news gathering and production.

WEST GERMANY

The International Association for Newspaper and Media Technology (IFRA), Washingtonplatz 1, D-6100 Darmstadt) is the Research Association for INCA-FIEJ, a worldwide association of about 600 leading newspaper publishing houses. **Friedrich W Burkhardt, Patrick V Drotos, Nils E S Enlund, and Philippe E Maeght** have written *Newspapers and Electronic Media: An IFRA Study* (IFRA 1983). It discusses information banks, videotex, teletext, newspapers in broadcasting and cable television, and video publishing.

Dr Claudia Mast (Elisabethstr. 28, 8000 Munich 40) lectures in social psychology at the Univ of Zurich and is interested in the ways in which new technologies affect office life, and the ways new media are applied in daily life. Her latest book is *Tageszeitung und Neue Medien* (The Daily Newspaper and New Media). (Universitätsverlag Konstanz, 1985)

Prof. Dr Siegfried Weischenberg (Institut für Publizistik, Westfälische Wilhelms-Universität, Bispinghof 3/E, 400 Münster) is studying the impact of changing communication technologies on the news media and journalism.

Specifically: 1. Changing media systems — the impact of telecommunication particularly on production modes of newspapers, e.g., making a permanent record of the degree of implementation of computerized editorial systems in W German dailies. 2. Computer-assisted instruction in journalism education. 3. The impact of computerized message production on the future of journalism. 4. Data bases and their benefits for journalists works — the conditions, cost, chances and risks of electronic archives in the media.

Bibliography on Journalism, and New Technology

Newspapers and Techology: General

Canada. Royal Commission on Newspapers. (Chairman: Tom Kent). *Report.* Hull, Quebec: Canadian Government Publishing Centre, 1981. Technological developments are discussed in Chapter 11, "An Industry in Transition", and Chapter 12, "Outlook and Issues". Peter Desbarats provided the key background research paper entitled "Newspapers in Transition".

Lepigeon, Jean-Louis and Dominique Wolton, *L'Information Demain: de la Presse Ecrite aux Nouveaux Media.* Paris: La Documentation Francaise, 1979. A comprehensive report, dealing specifically with France, Great Britain, Sweden and the USA, on the introduction of computers into the daily press. There is detailed analysis of the roles played by managements, printers, journalists and international organizations.

Smith, Anthony (ed). *Newspapers and Democracy: International Essays on a Changing Medium* Cambridge, MA: MIT Press, 1980. There are essays on 'Technology and the Press', by Smith; "The Newspaper of the Late Twentieth Century: The US Model"; by Tetsuro Tomita: "The New Electronic Media and their Place in the Information Market of the Future"; and by Pauline Wingate, "Newsprint: From Rags to Riches — and Back Again?".

Winsbury, Rex. *The New Technology and the Newsroom: Report on a Seminar of Asian Journalists, Colombo, Sri Lanka, December, 1979.* London: International Press Institute in association with Friedrich-Naumann-Stiftung, 1980. In addition to the proceedings, nine seminar papers are reprinted, three on Japan, two on Malaysia, and 1 each on Hong Kong, Korea, India and Indonesia. The most frequently mentioned technical problem was that of applying photocomposition to languages using non-roman scripts.

Historical Studies

Shaw, Donald L. "News Bias and the Telegraph: A Study of Historical Change". *Journalism Quarterly,* Vol.44, No. 1 (Spring) 1967, p.3-12, 31. Seminal article which argues that increased reliance upon telegraph delivered news by the US press brought about a sharp fall in biased stories about presidential campaigns in the 1880s.

Shaw, Donald L. "At the Crossroads: Change and Continuity in American Press News, 1820-1860", and "Some Notes on Methodology: Change and Continuity in American Press News, 1820-1860". *Journalism History,* Vol. 8, No.2 (Summer) 1981, p.38-53. Argues that press content between 1820 and 1860 underwent little change but that "speed displaced interpretation" helped by the telegraph, the steamship, and the railway. In addition, as newspapers became mass media they increasingly gathered their own news with their own reporters.

Electronic News Gathering

Shook, Frederick; *The Process of Electronic News Gathering.* Englewood, CO: Morton Publishing Co., 1982. Manual for journalists using ENG technology.

Smith, Conrad. "Newsgathering Technology and the Content of Local Television News". *Journal of Broadcasting,* Vol. 28, No. 1 (Winter) 1984, p.99-102. Suggests that newsgathering technology may have a negative effect on local television news content and on the autonomy of local news directors.

Yoakam, Richard D, and Charles F. Cremer. *ENG: Television News and the New Technology.* New York: Random House, 1984.

The Electronic Newsroom

Randall, Starr D. "Effect of Electronic Editing on Error Rate of Newspaper". *Journalism Quarterly,* Vol. 56, No. 1 (Spring) 1979, p.161-164. Study of one US newspaper which showed that a fully integrated electronic editing system leads to fewer errors in spelling, punctuation, sentence construction, hyphenation and typography.

Shipley, Linda J. and James K. Gentry. "How Electronic Editing Equipment Affects Editing Performance". *Journalism Quarterly,* Vol. 58, No. 3 (Autumn) 1981, p.371-374,387. Study of copy editors on newspapers in the US which have had VDUs for at least two years shows that VDU editing is slower but more accurate than the traditional method.

Printers and New Technology

Freiberg, J. W. *The French Press: Class, State and Ideology.* New York: Praeger, 1981. Chapters 4 and 5 examine the effect of the introduction of new technologies on the newspaper printers. Freiberg sees an ominous future of fewer and further de-skilled printers.

Marshall, Alan. *Changing the World: The Printing Industry in Transition.* London: Comedia Publishing Group, 1983. A critical analysis of the British printing industry. Argues that in the face of economic concentration, unemployment, and de-skilling, print workers must combine with workers in other information industries to ensure that workers' interests as a whole are taken into account in the 'information society'.

Rogers, Theresa F. and Nathalie S. Friedman. *Printers Face Automation: The Impact of Technology on Work and Retirement Among Skilled Craftsmen.* Lexington, MA: Lexington Books, 1980. Examines how printers perceive and experience the coming of automation to the New York newspaper industry.

The Electronic Newspaper

Ahlhauser, John W. (ed.) *Electronic Home News Delivery: Journalistic and Public Policy Implications.* Bloomington, IN: School of Journalism, Center for New Communications, Indiana University, 1981. Report of a conference held in 1980.

Ettema, James S. "Videotex for News and Business Data: Comparison of User Response to Two Information Retrieval Applications". *Telecommunications Policy,* Vol. 9, No. 1 (March) 1985, p.41-48. Comparison of user response to two information services on a prototype system showed that the business data service was rated more efficient and browsed in more than the news service.

Goetz, Gunter. *Der Markt für videotext: Konsequenzen fur Zeitungsbetrieb und Pressevielfalt* (The Market for Teletext: Consequences for Newspaper Concerns and Press Variety). Dusseldorf: Droste Verlag, 1980. Goetz foresees the general acceptance of teletext among the population and its successful integration into the existing broadcasting and publishing structures in Germany.

Mathien, Michel. "Presse Régionale et Administration face à la Télématique: Complémentarité Nécessaire et Séparation des Rôles". *Les Cahiers de la Communication,* Vol. 2, No. 6, 1982, p.531-553.