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Educating For The New Technology

By

Elliott Parker
Before presenting some thoughts about the type of education and training appropriate to the emerging new technologies, it might be advisable to explain what is included in the term, "new technology."

Certainly there are many new information systems and distribution systems that have emerged from the convergence of telecommunications and computers or based on computers alone: teleconferencing, satellites, large data bases, and electronic mail.

In these discussions, only two main developments—the use of computers in the newsrooms and the electronic publishing and distribution of information—are used as examples. Note the use of the term "information." This is not an attempt to be trendy and use buzz words. The major component of many of the new videotext/teletext systems is not "news" the way most people conceive it. It can only be classed under the generalised idea of information.

The power of these systems lies in the ability to digitize previously disparate types of information and symbols. Verbal, text, and image information is now stored and processed as bits of electronic information. From the standpoint of a computer, they all look the same.

First, consider the computer in the newsroom.

Some thirty years ago the computer moved out of the administrative departments into the newsroom and became a "front-end system", i.e., that part of the computer that is in the newsroom, not the part that actually sets type and generates galleys for paste up. At its' simplest, a front-end system is an enhanced word processor. This kind of front-end system deals exclusively with text material. Using electronic
means, insertions, typeovers, and search-and-replace are standard functions.

The search-and-replace function is indicative of how the computer makes mechanical jobs easier. For instance, a writer has consistently written "color." The machine is told to change each use of "color" to "colour." It searches the story, finds each use, and changes it to the desired spelling.

What else might a front-end system do? A spell-check program might be installed to insure that all words are spelled correctly and consistently. A thesaurus program might be provided to furnish synonyms for headline writers or reporters looking for just the right word. Type in a word and synonyms are displayed. Pick the correct one. You don't even have to type it. The computer can also furnish the exact lengths for headlines or stories in a split second. It can also be used as a writing aid by counting words in a sentence and syllables in a word and calculating a readability figure. The newest software also checks grammar.

Many papers are now using the small, portable computers for remote reporting. The computers can be taken right to the event and the story is filed from the nearest telephone, eliminating travel time and cost.

By using the computer to calculate trends and show them in graphic form and utilizing the machine's number-crunching ability, the reporter can investigate trends and relate generalities to specific issues. Rather than running the government-supplied consumer price index, which of necessity, is a national average, the enterprising reporter with a computer can calculate the same index for local prices and products.

The preceding has talked about the processing of text. Text processing is not limited to any specific language. Any set of language symbols can be utilised.

The next big step in the totally computerised paper is pagination. Pagination is the process where the entire newspaper page is "assembled" on a VDT, including all the text, photographs, and other artwork. The entire page is output, with no need for any paste up. Currently only text is output by the typesetter which must then be pasted up in the correct position on the comprehensive, leaving windows for photographs. Although it is in experimental use on several newspapers today, pagination will not be heavily used until the cost of computer storage falls even farther.

The problem of storage is also currently limiting the use of computers in display advertising. Most newspapers find that a computer that outputs complete display ads saves time,
but the capital cost is prohibitive, except for the biggest publishers. Classified ads are a different situation. They are more suited to low-level computerization and capital cost is much less. While taking the call over the telephone, the ad taker can check the credit of the person placing the ad, give an exact price and generate a bill and envelope by the time the telephone is hung up. The computer also keeps track of how many days the ad should run and when it should start. For production, the ads can be sorted according to subject—all 1984 automobiles for sale go before all 1983 cars for sale, for instance.

In purely functional terms, this will mean changes in the role of the newspapers. It cannot only sort the car ads according to the year, the computer can sort them according to price and according to color and mileage. The computer sorts what we tell it to. It makes no distinction between advertisement and news.

Suppose the editor could tell the computer to select all the news about agriculture in Malaysia written in the last ten days. Not general agriculture, but rice cultivation in Kedah and Kelantan. Then suppose the reader/user can also do this over a small computer in the house. They could then have the information delivered directly to the house hours or days faster than a paper. What does this portend for newspapers, editors, writers and readers?

The user can select very specific items of information. Like magazines, newspapers may find the future in segmentation and fragmentation. Electronic media had always paid attention to audience segmentation and some people speak not of broadcasting, but "narrow casting." In the past, there has been much concern voiced about the media homogenizing the audience, now the worry is about fragmenting the audience. Some people are already paying to have "electronic magazines" available to them. They make up their own magazine, depending on what they want to see and the "magazine" is never in traditional, bound and printed form. Of course, newspapers have known about zoned editions directed to particular areas for years.

Once the output of the reporter is captured in electronic form, the whole paper is available for instant retrieval. Not only can other people in a group look at the story at the same time, short-circuiting the linear flow of copy in the traditional paper-oriented newsrooms, but it can be sold to outside interests at a profit. Remember that a newspaper is a prime example of information gathering and processing.

Papers are becoming more aware of the fact that they are, in fact, information providers, not just newspapers. People pay money for information, so some newspapers are using their
files to generate profits for the company. Having the information on-line also means that there is little use for the traditional clipping morgue. Information on previous stories can be called up on the terminal. Not only can the papers' own information be called up, data from other sources can be examined. Generally, the more information available the better the resulting story is.

Photography is one of the last areas to be digitized. This is, again, the problem of computer storage for photographs. Technology is not a problem. If an institution is willing to pay, the systems are available for purchase. For practical purposes, Sony introduced the first electronic still camera in 1980. It used no film, but a small disc of magnetic material as small as those used by computers and word processors. During the 1984 Olympics, two Japanese newspapers experimented with the use of Canon electronic cameras. The "picture" can be transmitted to the main computer just as easily as text. AP, UPI and Duetsche Press-Agentur use electronic darkrooms to eliminate conventional printing, sizing and cropping of photographs.

Some newspapers in Europe and North America are already putting their reporters' material on a cable link and distributing up-to-the-minute stories to subscribers through their television sets or computers.

Newspapers look on this type of experimentation as a means of keeping their options open in the evolving information age as technologies, such as videotext and teletext, become more widespread.

A teletext system, such as Singapore's SBCTEXT, uses a part of the television signal to carry "pages" of information which can be viewed on a TV set with the appropriate decoder. The type of information may be news, weather, stock market and financial facts, advertisements, or games—to list just a few.

The main difference between teletext and videotex is that a teletext system is one-way, i.e., you cannot "interact" with the system. Videotext, on the other hand, is two-way and you can ask the system questions and it will answer. A variety of information have been provided on these systems. News, of course, is the obvious choice. But, many people see the news portion as being relatively unimportant compared to other uses. The system can furnish video games, link people up to banks, libraries, travel agencies, the local community center, the local agricultural information center, or just "talk" to other people.

At the present time, and for the foreseeable future, it appears that both teletext and videotext will be of most use to the business and professional community because they have
the money to spend on this type of technology. These technologies are "solutions looking for problems to solve." There is no indication that many individuals are willing or able to pay for this kind of service. Intrinsically, there is nothing that says only certain people should have access to this technology, while others are denied access to the information. Current social philosophy, however, is not moving in this direction.

With this cursory overview of a few technologies, what does this suggest for training and educating future media practitioners?

To begin with, it will be impossible for Asian mass communications training institutions to look upward to more developed countries to see what is adoptable or adaptable, even if they wanted to. Those institutions that might have served as a model or at least a point of departure, are also attempting to find answers. Some broad trends are emerging, even if specific questions and answers are still being sought.

The primary factor that is emerging is the blurring of lines between formerly discrete and separate sequences. Newspapers are moving into electronics, broadcasters are emphasising news, and videotext/teletext is blurring everything together. Educators may not be able to consider training people for media-specific jobs. The requirements will be more generic—educations will be forced more and more to present to their students the basics of communication, rather than training for specific forms. Training will more and more emphasise the skills of information gathering and editing that are common to all fields, rather than training for specific industries or media. Students will not only be cross-trained, but better able to take their place in the developing media world.

Almost everybody has their own ideas and opinions of where the media are going, but no one disputes the fact that the foreseeable future will be one of transitions and drastic changes as new communication technologies are available for information processing and distribution.

Personal and societal response to change may have to be emphasised in formal courses. The last three decades have seen tremendous changes in Asian societies and if current prediction are even partly correct, the next few decades will see even greater changes. Some change will be normal societal change that challenges society, but communication students must be aware of the use and abuse of information in society. Through either government or commercial institutions, most Asian societies define what types of information are appropriate for people to know. As new technology forces open channels of communication, it will be possible for the
communication world, political world, or any other "world" to remain static.

This should not be another excuse for highly abstract theoretical concerns, but rather a reason for putting communications study into a wider context: the needs of the society and the needs of the student. This approach would explain how scholars and communicators think, what methods they use, and their relation to society.

A generic approach to communications also gives immediate advantages to students facing their first entry-level job. It means they can look at a broader range of jobs and in the future will be better able to handle jobs that we cannot even envision now as technology restructures traditional communications as well as life and careers in general.

In addition to this generic approach to communications, students must continue to be trained in the specifics of their field. They must learn to use and understand what machines can do. It is inherent in the term mass communication. Some kind of machine is required any time communication is desired with a mass of people, whether it is a TV camera, a printing press, or a computer. Practitioners have the right to expect a minimal level of skills competence from students they hire, although they sometimes expect a university to be merely a training ground for specific skills for their industry.

"Computer literacy" is now heard around the world wherever educators gather. There is little agreement on exactly what computer literacy is, especially among the experts, but here it is defined as basic knowledge of how to operate a terminal, how a computer operates, what the computer does and its implications for society.

Programming may be fun, may be educational, may be creative, it can certainly be considered as "nice, but not necessary" for students or any one else in communications. In fact, from a strictly career standpoint, was we look down the road, there will be fewer and fewer programmers required. The VDT must be considered a tool for accomplishing a particular job and at the same time people must realise it is more than just another machine.

No one who has seen the psychological, social and organisational changes in a news room (or any other office) after the introduction of VDT's would ever again be able to consider the machine just another tool. The flexibility and versatility of a VDT can change not only the news flow, but the actual quality of writing and editing.
Computers may also have application in teaching such topics as language and writing. The danger is that the quality of thinking and the ability to synthesize coherent thoughts is overpowered by rote learning. Computer-assisted instruction may increase scores on SAT and GCE tests, but neither addresses the quality of thought.

Parenthetically, teachers must also be made aware of how the computer will affect their lives. There is something humbling when the teacher realises the student knows more about the machine than the teacher.

Finally, let's get down to business. A course may be called media management, media economics, or part of some broader course, but students will require a better grasp of financial and management concerns. They need not be skilled accountants, but they should at least have some knowledge of general economics, media economics, and the place of commercial concerns in communications. There is an emerging trend for governments to shift control and operation of communications to private concerns whose duty is to make a profit. It is important for the student to understand business philosophy, practice, and the impact information has on business and maybe more important, the impact business has on information.

Students must also be conversant with contemporary management. Obviously, mass media is a team effort of creative, intellectual people. This, however, is not how most students were educated or raised. Traditional management is "boss" management, not as the current phrase says, "people-centered." Students will have to deal with the rigid, class- and status-conscious structures and at the same time, initiate the type of management required for effective production in the information world.

In short, the growing use of computers generates a host of paradoxes. Rather than a "paperless" society so dear to the hearts of the futurists, in fact, more paper is used. Rather than a decline in employment, computers require more people (although at a different level). Teachers may be forced to reconsider exactly what teaching is all about.

Nor is the field of communications spared. Computers will force, or allow, both communication educators and practitioners to reexamine their work. The new technology can both centralise and decentralise media. Readers/users may become their own editors. And educators may include more general education in addition to more specific skills training.
We may be forced to find out why people really buy a newspaper, what effect TV has on society, and what kind of information people really need and want.