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A Public Broadcaster's View of

Teletext in the United States

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We cannot automatically assume that a system that
provides a valuable service in Europe will provide
an equally valuable service in the U.S. The infor-
mation communication environments are different.
Instead of a Hardware-related text-broadcasting sys-
tem, the U.S. should have a flexible data trans-
mitting system that could be used with sophisticated
decoders or even home computers. Some, perhaps most,
of the content should be program-related.

See p.5- software supplied via teletext

Broadcast teletext is coming to the U.S. and coming soon -- that much is certain. The enthusiasm we feel for the vast possibilities of this important technology is rapidly catching on all across the country. Broadcasters have a serious interest in it. CBS, for example, in association with Electronic Industries Association, has conducted experiments at its station KMOX in St. Louis that establish beyond doubt that teletext is feasible in the U.S. And, as we shall explain, KCET, the member station of the Public Broadcasting Service in Los Angeles, will soon be conducting some rather different experiments of its own.

The question American broadcasters and regulators must face now is how teletext will be applied in the U.S. The applications are virtually limitless. Which ones are chosen will determine the future of the technology -- how quickly it is put into use, where, and by whom. We have learned a great deal from observing how it has been applied elsewhere. We are learning more every day. Our conclusion, based on these observations and on our own knowledge and research, is that the way teletext is applied in the U.S. ought to be -- must be -- different.

This conclusion reflects in part the existing American information marketplace. Thanks to our efficient telephone system, Americans have access to vast data bases through computer terminals. Many businesses and now some private individuals can call on data bases as general as Telecomputing Corporation of America's "The Source," a Prestel-like service using standard computer terminals or home computers, or as complex as the one offered by "LEXIS," a computerized key-word file-search system used by attorneys to research legal cases.

Even television is playing a role in the information marketplace. Apart from the numerous channels broadcasting a wide variety of entertainment and news, a relatively new service, cable television, covering the nation by satellite, is growing rapidly. Largely because the cable operators need to fill their excess cable space, they have have programmed full band-width video channels with scrolling text, each channel devoted to a different topic. For example, Channel C in New York carries program guide information. Another channel has up-to-the-minute news from Reuters. Still another channel has stock market quotes. A fourth and fifth are programmed with competitive prices of consumer goods. A service called UPI Newstime uses slow-scan television not only to bring audio reports on the day's happenings, but also to provide newspaper-quality pictures of the events.

Ted Turner in Atlanta is ready to inaugurate what could be the ultimate in information delivery: a twenty-

four-hour broadcast news program with news, weather, and sports from around the world and distributed across the U.S. via satellite. Naturally one cannot forget the radio with its round-the-clock news stations and all-day sports.

The regular telephone also gives access to the time, weather, stock market quotes, your daily horoscope, or even a joke to brighten your day.

Americans are beseiged by tons of printed matter every day. Almost every organization, from the smallest church group to the largest corporation, sends out news-letters. Most professions have dozens of specialized journals addressing issues important only to that field. Of course hobbyists are served by tremendous amounts of information, from how-to-do-it shows on cable television or videocassette to literally thousands of monthly magazines.

As one can see, information is not lacking to the American consumer. Take, for example, the rotating full-page text of the cable system. Each page is on the screen for twenty seconds: ten to write it on, ten to read it. A twenty-page cycle would take about six-and-a-half minutes for the viewer to read if he wanted to read it all. This compares favorably with a teletext system with an average access time of fifteen seconds per page; but of course the advantage of teletext is that you can get the information when you request it and it doesn't take up a full band-width channel.

We are not saying there's no advantage to teletext. But we are saying we cannot automatically assume that a system that provides a valuable service in Europe will provide an equally valuable service in the United States. The information communication environment is different.

You may be excused for wondering if we believe that broadcast teletext has any future at all in the U.S. We do. The idea of stretching the present tele-vision system to provide a new service is extremely attractive. The technology is there, and it will happen just as surely as broadcasting itself happened. What strikes us, when we consider the possibilities embodied in this idea, is that to broadcast a certain number of pages over and over again in the vertical interval is a waste of spectrum. We are convinced that a carefully chosen American system must, and can, avoid this.

And so what is the answer? How should teletext be applied in the U.S.? After long study and consideration, we believe that the best application is a mixture of general information for the viewer and program-related teletext -- a truly new service, and one that really puts the technology to work.

With program-related teletext, the viewer tunes in not only a show, but also a specific teletext broadcast that goes with it. The actual content of these teletext broadcasts we will come to; but first note the immediate advantages of program-related teletext: it adds something to the program, it uses the spectrum more efficiently because it is broadcasting something new with each new program (and in fact can use the spectrum far more efficiently than this, as we will show), and it is brand new to the U.S., not a variation on an existing service.

Specifically, we can foresee a teletext system on KCET that would operate on three levels, all of which could operate simultaneously. Level 1 would be a very small magazine of revolving pages, say 10 or 15. It would be broadcast constantly and would include the day's (or week's) program schedule, general information and local news, and other information about KCET.

Level 2 would be program-related notes. The possibilities here are both obvious and exciting. On news broadcasts, the viewer would be able to read more details about subjects in which he had a particular interest. For example, we have had floods in California and the Federal government is going to offer aid. But what kind of aid? To whom? Where do you get the kind for you? What's the telephone number? All of this would be available. On opera broadcasts, the viewer could call up detailed program notes, just as if he were watching in person. The possibilities for sports programs are also interesting. So great is the American sports fan's appetite for statistics that a teletext service packed with statistics related to the event being broadcast would surely be an instant success. These are just three examples of what could be done with Level 2, program-related notes. It's clear that one could program interesting, useful notes for every program on the air.

Level 3 is the most intriguing. It is viewer interaction with the program. In its simplest form, viewers could be given a multiple-choice question, with each choice corresponding to a teletext page. When the viewer pushes the number representing the answer of his choice, he sees whether he was right and, if he was wrong, an explanation of why. Since only a few pages would need to be broadcast, and only at the precise moment in the program when they were needed, access to any one of them would be virtually instantaneous.

Another means of interaction is somewhat more complex and requires a more sophisticated decoder. Suppose, as an example, that your daughter is learning the word "smile" on the children's program Sesame Street, but she has not quite got it. She asks the set for help.

It not only spells the word letter by letter, it pronounces it for her as well. Or imagine an episode of the popular American public television program on the stock market and American economy Wall Street Week on the subject of how an investor should analyze his portfolio. As the guest explains what to do, the viewer is actually doing it at home with raw data and software supplied via teletext. Obviously this interaction is accomplished through software downloaded at the user end. This assumes that the teletext decoder will be connected not only to the television set, but also to the home computer -- and why not? Why should we assume that the decoder will be built into the television set at all? It may very well make sense to put it into the home computer instead, or even to put the computer into the television set, especially with the type of infinitely flexible teletext we advocate.

Yet another possible means of interaction would involve software provided on cassettes through stores or by schools. The software would be activated by the teletext signal. This way, viewers at different educational levels could use different software and thus interact with the same program in different ways, according to their age and ability.

As public broadcasters, we would like to put special emphasis on the educational value of interaction. It is well known that children spend an enormous amount of time watching television -- hours every day, on average. On public television we have always tried at least to make it time well spent. But there is not much doubt that the big advances in education come when the child feels personal involvement with the lesson -- when they interact. This, in our minds, is what makes the potential of Level 3 so exciting.

This is the end we're working toward. But what is the means of getting there? We have looked at every existing teletext system that we know of and have been impressed by them all, and each one has its own advantages. We have been interested in those approaches that have been designed not solely as a system for transmitting text, but rather as a data-transmitting system. In our minds the system should not be shackled by its hardware. It should not care what data are transmitted over it. The system we envision should be a transparent system so that all types of data can pass through it.

The French have developed a system that involves some software processing at the user end. Because the user has a microprocessor with memory, it isn't necessary to send pages of text over and over again, but rather only once. After that, the broadcaster need send only updates of pages, leaving the rest of the time free for a wide range of additional services. A flexible and expandable

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