When Can I Put Down My Pen?
If I Put Down My Pen, Do I Get A Secret Decoder Ring?

by Raymond A. Frankle

TCP/IP, UNIX, LAN, WAIS, NREN, INTERNET, FDDI.

Do you remember the days when, if you ate all your cereal, your mom would save the box tops and send them in for a secret decoder ring? With this ring you could write and read messages that could only be understood by those who possessed this special piece of equipment. The rings were made of cheap plastic and never lived up to childhood expectations. As we grew up, we abandoned the childhood fanatasy of communicating secretly and relied on our pens, pencils, typewriters, and now PCs, to communicate with one another using well understood words and grammatical structure. However, the situation is changing dramatically. In order to understand the characters which appear at the beginning of this paragraph, we need more than a decoder ring.

The letters are not a secret message written in uncials, although for many of us they very well could be. Few librarians can interpret the meaning behind these characters which make up acronyms which have become commonly used in explaining ways to communicate. The library profession has developed its own set of acronyms over the decades which are used to describe bibliographic tools, associations, networks, and information resources. During our educational process to become librarians, we were trained to understand the concepts they stood for and how to use them in our libraries.

We are now confronted with a new vocabulary that is invading the profession. Trying to understand it is as difficult as trying to read classical Greek without having taken the appropriate time and energy to study the language. One of the major challenges facing the profession is the changing way in which information is stored, accessed, and retrieved. Many in the profession have the attitude similar to that of many Americans when it comes to a foreign language, "So what if it is Greek to me? If it is important, someone will translate it into English." Maybe that works for a foreign language, but it will not work for librarians who are faced with significant changes in the way information is stored and retrieved. Most librarians will have to understand not only the new vocabulary related to information and telecommunication technology but also the principles and economics behind them.

The major portion of this article deals with some of the significant areas that most librarians need to understand as they attempt to deal with technological change. It is written from the perspective of one library administrator who does not claim to know the answers, and is still struggling with the questions. It raises as many questions as answers. It is hoped that individuals will understand the importance of working together to help shape the future of the profession.

As a profession, we are woefully behind in understanding the implications of information in electronic accessible form. Unlike learning cataloging rules or Library of Congress subject headings, which represent some of the major intellectual foundations of organizing information, the new terms listed at the beginning of the article represent disciplines and knowledge that are foreign to most librarians. This situation has been compounded by the fact that since the mid-1970s, when it first began to install connections outside of Ohio, OCLC took responsibility for all the telecommunication connections. The only thing we had to know about this aspect of the system was that than if we had a problem, just call OCLC. They took care of everything that provided electronic and telecommunication access to their system. Libraries could devote their energies to learning how to catalog or do ILL using an electronic system instead of typing cards and forms. OCLC is still around and continues to provide telecommunication service for us. This may be sufficient for some libraries, but for many it is not. In

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order to access the database and information services which have developed in the past five to ten years, librarians must now be knowledgeable of telecommunication and computer technology. Such knowledge is required even if libraries do not wish to access external information sources. CD-ROM products have become common in most libraries. Librarians realize the limitations of having such powerful sources which can only be used by one individual at a time. In many institutions, plans are underway to network these machines. To do so requires special knowledge. Who has that knowledge? Librarians who do not have the knowledge must

turn to others to provide it. This can be both good and bad. However, it is at the crux of the problem for many of us. How we resolve these will have a major influence on what the profession will be like in the next ten years or so.

In his article Alan Blateckey cites some interesting statistics such as three new accessible databases appear daily and ninety percent of all information published since 1979 is/was digital. These statistics, coupled with the technology he speaks of, lead to different ways of seeking information and creating new knowledge. It is mind boggling to think that in the emerging, high-end technologies, all information in the Library of Congress can be transmitted in fifty-six hours or a little over days. The point is not that one would want to send that much data, but that a query could search that much. At such speeds, the existing, cumbersome barriers of creating knowledge fall dramatically. The pointers and classification schemes librarians have developed to store information sources become obsolete and irrelevant. When this point is reached, and it may not be that far away, different skills are needed to mesh patrons with the information they seek.

To adapt will require resources. Unfortunately, the historical dilemma libraries have faced is under-capitalization. The recent dramatic rise in the prices of numerous serial publications, coupled with reduced fiscal resources at many institutions, has made it difficult on the one hand to consider new initiatives, while on the other hand business can not continue as usual. Some institutions have canceled subscriptions, relying on the effectiveness of electronic networks to enable them to obtain articles from other libraries. Some libraries have used a portion of the dollars saved from the cancellations to provide expanded electronic access and document delivery to certain information sources. They have seen this as a way to survive and to improve service. Are they on the right track? The decision to provide information this way certainly saves space and processing costs. However, what is the true cost of the technology? Arguments are made that technology saves time. More investigation is probably necessary to know for certain. It is true that the user can access electronic information any hour of the day or night, but what did it take to enable the individual to access and use these sources? The literature indicates that unlike traditional bibliographic instruction programs, showing individuals how to use electronic resources is more labor-intensive and requires more one-on-one interaction. Do we have the staff resources to accomplish this?

Beyond the rudiments of showing an individual how to logon and search an electronic file, many librarians are finding that the person requires additional knowledge of the hardware and software. Who should teach these skills? As an example, much of the census data is being issued in electronic form. When it was produced in printed form, a user could scan the document and ascertain that it contained the information he needed. More than likely it contained tables, charts, and graphs that were applicable to his needs. To carry the example further, the individual, if he so desired, could have purchased the document from the federal government. Now the user must have a basic knowledge of how to operate a PC, an understanding of file structure, an ability to download information, and skill to manipulate that information using a spreadsheet or database. In addition, to use it any place but the library, the patron must have access to a fairly powerful PC. Whose responsibility is it to provide such equipment? Can it be done within present resources? Will librarians provide more information, but less help? Because access is machine-intensive, librarians may be inadvertently limiting the number of individuals who can use the information.

So far we have not considered how to handle those patrons or librarians who, no matter how good the training, cannot effectively use electronic technologies. Will we create a caste system where there will be those individuals who can "navigate" the electronic networks and those who cannot? Will one individual's services be worth more than another's? What should patrons expect from a librarian regarding electronic access? If they cannot obtain what they need from a librarian, to whom will they go?

Libraries and the organizations to whom they report must seriously consider training issues. This is no small matter. Effective ongoing programs must be developed and put into place before new technology is introduced and then sustained to continually enhance skills. Libraries have depended on professional organizations and networks such as SOLINET to provide training. As good as many of these have been, each library needs to consider training and development an ongoing, supported, and rewarded activity within its own organizational structure. If it does not, there is little hope that

its staff can continually keep up with the changing electronic environment. Library administstors must give staff both resources and time to develop skills. One hour of training without time to experiment and make the new skill a part of the individual's knowledge base will be a failure.

On a more global scale, library education needs to consider how it is preparing graduates for the new technologies. Again, this academic preparation must go beyond learning how to operate a PC or use OCLC.

Beyond these immediate needs looms

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a more perplexing issue. How long will the information survive in the electronic format that it is in? It was created to be used in a certain medium with a limited range of hardware. What happens when the hardware is not produced any longer? Currently, hardware is changing every three to five years. Even OCLC has admitted this and is basing its systems on available technology. It no longer has equipment manufactured specifically for its own system. Unfortunately, the migration from one level machine to another does not assume compatibility of files or software programs. What happens then to the structures and training we put in place under the older technology?

Many libraries are canceling their subscriptions to print materials in favor of electronic alternatives. The difficulty may be that several years from now, that information may not be accessible, because in many instances libraries do not own the electronic data and, if technology changes, the information may have to be repurchased in another medium.

A similar situation exists concerning electronic media in general. As much as we complain about acidic paper and its life expectancy, we have given little thought to the preservation of information that is produced electronically. We are just assuming that it will be there. There is a growing body of evidence that it will not. At present, the federal government has records from the 1960s and 1970s in elec-

tronic form that it cannot read because of medium deterioration and because the hardware on which the information was created no longer exists. For a profession which has considered the preservation of human knowledge an important part of its responsibility, we are not doing enough in the way of considering the ramifications of immediate access and use in relationship to long-term availability.

Perhaps the most difficult area of all is dealing with the network and telecommunications component of change. For many libraries, access to any network is still a dream. For others, being a member of OCLC will satisfy their needs. However, there is an increasing number of libraries for which much more is required concerning network access. How do they meet that need? Except in rare instances, libraries cannot act by themselves. They are part of a larger organizational structure. With some exceptions, librarians have not exerted a major role in network planning within the context of their parent organizations, and even less on the national and local level. If America is a society which depends on quick access to information, then this must change.

Several times over the past couple of years, I have heard various speakers talk about networks as the highways of the future. That may be an accurate analogy, but we should stop to think about who designed those highways and who is designing the new network "highways." Have you ever noticed that the new vocabulary to describe networks and electronic media hardly ever uses words like "type," "reading," "literacy:" words librarians understand. Librarians are used to dealing with words written on paper. Many librarians have become familiar with the industry responsible for printing books and journals. In some instances, they have influenced those industries. Other librarians know how to organize these materials to keep similar items together. There are those in the profession who specialize in helping individuals locate and use the printed word. This is made somewhat easier by the fact that from childhood on, schools have stressed skills which use and manipulate the written word.

This is not dissimilar to learning to drive in high school. Most of us probably consider ourselves good drivers. However, many of us take our cars for granted. Few know anything about repairing a car if it breaks. We do not want to know how it works, just that it does. Unfortunately, the problem arises when the car breaks down and we are not only helpless, but stranded. This is how we have treated our knowledge of networks. Others of us have assumed that because we can drive a car, we can automatically drive an eighteen-wheeler. Even if we could get the truck moving, we have no concept of how heavily regulated the trucking industry is, the complexity of the freight system infrastructure, or the most cost effective means to get to point A from point B. So it is with the networks and telecommunications. Once we want to move from OCLC as our sole network connection to networking our CD ROMs on a local network to providing our users with access to sources on INTERNET, we have entered a whole new, unfamiliar arena. What does it take to get there? One can read articles, even in this issue, on some of the technical details of establishing a LAN or connecting to an external electronic source. However, little is usually said about the long term implications and commitments.

First, we must realize, which few do, that when a library decides to offer information to its users through electronic means, it has just set up a barrier between the reader and the information. I know all the arguments about how we can provide more information more quickly without regard to time or distance. But the fact remains, the reader must use a medium controlled by us or someone else to get to that information. Once a book is acquired and placed on the shelves, no further intermediary is required. In an electronic

environment who can foretell that what may seem free today will not have a charge tomorrow? Do all readers have equal access? If not, how does that square with the mission of most libraries to provide free and equal access?

I know very few libraries that are doing analysis of the true costs involved in providing information in electronic sources. Few can determine actual costs versus benefit derived for any phase of their operation.

Unfortunately, many librarians feel competent to meet the future if they can use a PC to do wordprocessing, create a spreadsheet, do online searching, and access BITNET. However, when it comes to understanding TCP/IP or packet switching such as X.25, the numbers drop off dramatically. Not everyone needs to be an expert, but everyone needs to understand better the implications for the user. What should a library do? No matter if it is a school, public, academic, or special library, it is faced with similar problems such as constrained (if not dwindling) resources, greater demands for service, limited staff resources, and a staff whose education and training for the most part did not include such areas as telecommunications, FCC regulations, imageoriented learning, and broadband capabilities, to mention just a few. Librarians need to ask themselves whether they wish to be in control; to lead, or be led? The choice is ours, but we must act. The decisions are not easy. The resource issue is not clear. However, we have an outstanding tradition within the profession of cooperation. We need to capitalize on that more than ever.

If we do not come to grips with, and provide leadership in the area of telecommunications and accessing information technology, the profession of librarianship will soon end. Even the term itself denotes the printed sources. To give just one illustration, there are over seven hundred thousand nodes on the Internet Network and nobody knows how fast it is growing. When last I checked, more than three hundred libraries had made their OPACs available through this network. Compare seven hundred thousand nodes with OCLC's twenty-two thousand member libraries. This not a completely fair comparison, but it gives a sense of where information handling is headed. How many of those Internet nodes were developed because a librarian thought or argued that it was important to do? To whom are the users of Internet turning to learn how to use the network or "navigate" it? Whether we as a profession like the trend toward using electronic means to communicate, store, retrieve, and create information is not material. What we need to recognize is that this is what is happening. There are many problems related to electronic access and standards, but these are being addressed. In just two years, the Coalition for Networked Information has had a substantial impact in getting computing people, publishers, and librarians to work together. In addition, Congress just passed legislation to create a National Research and Education Network (NREN). Estimates are that it will receive over one hundred million dollars in funding during its first year. Although it was originally conceived to make access to networks for scientific and academic communities, the final bill states that it is to support education, and libraries of all types. Are we prepared?

Who of us is conversant enough to describe to our supervisors the resources necessary to position our library to take advantage of these new powerful tools. Many libraries now have online catalogs. If terminals are hardwired to the central mainframe, the data is possibly being sent at 9600 bits per second. If we wish to move from a hardwired environment to one where we can take advantage of the large data files and higher communication speeds which exist today, our buildings, campuses, schools, and agencies must be rewired. Who will design such a project? Who will develop the standards? How will it be paid for? Will we cancel subscriptions to invest in telecommunications? All of these are hard questions. Before we can move to the new paradigm of information access and use, these questions must be answered. If librarians do not educate themselves to address them, they will have little impact in the new electronic information environment.

In times of declining and stagnant budgets, coupled with the maintenance of traditional library services and demands which seem to grow each year, coming to grips with change and the issues surrounding it is indeed of monumental importance. Part of the answer lies in librarians taking a leadership role in articulating the value of such transmission of information to learning, research, and economic development. If we are not prepared to give a coherent and far sighted response, we may need to consider how long we are going to remain a profession. Without support of an information infrastructure, it will not just be libraries that fail, but schools, universities, businesses, and other agencies.

The writing is on the wall, but it is not in secret code. We must do everything possible to prepare ourselves and our institutions to take full advantage of the new technologies. If we do not, the task will be done by others. If we are not prepared to help individuals blend data and images and use extremely large files, or show them how to weave through the already existing one hundred thousand databases on Internet, we are going to be passed by and relegated to an archival function.

We have to put down our pens now. We cannot wait until they run out of ink. We need to learn the secret code, not to be dispensers of secrets, but to serve as facilitators to unlock the mysterious new world of information technology. We need to move from rules and regulations for organizing information in a warehouse environment to working with a variety of disciplines to create an infrastructure that embodies the principle of free and easy access to information to all citizens and to make certain those individuals are able to find and manipulate that information to create new knowledge.