Unlocking Information Technology

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Computer technology has made vast quantities of information more readily available through accessible data bases. This article discusses the use of information technology and some of the problems that have prevented it from being more widely used. Also included is information on some rehabilitation-related data bases.

To reap the benefits from new information systems, society needs to learn how to implement and manage them. However, there is a time lag between the availability of knowledge and society's ability to understand and use that knowledge. Gee (1974) reported that the average length of time for adoption or adaptation of promising innovations in the United States is 7.4 years. Often it takes much longer for innovations to be accepted. For example, there were lapses of 22 years and 13 years, respectively, between the invention of television and xerography and their implementation for general use (Glaser, Ableson, & Garrison, 1983). Today, at least one generation has never known life without these two technologies, which are now seen as fundamental to our society.

The evolution of computers has resulted in the development of new methods and technology for information management. There is a problem, however, in that technology will help us manage information only to the extent that we are skilled in using the technology (Naisbitt, 1982). Because of the problems libraries are having with the public's lack of acceptance of automated information systems, it may be many years before the new information management systems are routinely used (Arnold, 1987). It is inevitable that eventually this technology will be used more widely if only because it is the only way to organize the ever-increasing amount of available information. Between 6,000 and 7,000 scientific articles are written each day, and it is projected that the rate will jump by 40% each year because of the new information management systems and the growing number of professionals and scientists who need information (Naisbitt, 1982).

Learning to use information resources will help rehabilitation professionals to efficiently locate and use, in the most cost-effective way, the large volume of information that is available. Information can be a tool for expanding knowledge, and the validated information gained can enhance the quality of the efforts of any rehabilitation professional. The key is to have the right information at the right time. Although knowing how to find and obtain needed information may be difficult, never before has such a large amount of information been more readily available or easier to use. Thus, one of the major problems facing information systems today is the fact that automated information systems are available long before the public understands how to access and use them.

Information is traditionally available through libraries, but many clinical rehabilitation professionals do not have immediate access to comprehensive rehabilitation libraries. As a result, they rely primarily on their own or shared experiences and the limited resources they encounter through professional net-
works. These informal methods for acquiring information are adequate when there is little information available on specialized topics. Personal networks have a limited capacity, however, and important information can easily be lost or forgotten. Information organized in a data base is always available, and there is no limit to the amount that can be included. In the last 10 years, because of automated information management, information on rehabilitation topics has increased dramatically. Today, information on almost any topic is available anywhere and anytime through computers and data bases.

**Data Bases**

Professionals often feel that information is only useful if it is on their desks or in their files. But how many books or articles fit in one's personal files? How many busy clinicians have time to read large numbers of journals for information relevant to their work and file all the articles so that they can be found again easily? Organization is the key to the usefulness of information, and it becomes critical as the volume of information increases.

Electronic storage mechanisms called data bases organize information. Data bases repackage information, they do not generate original data. Thus they allow individuals to quickly find information relevant to their work and in the context of comparative information. It takes only seconds or minutes for a system to search thousands of documents to locate specific information or possible solutions to problems.

Some data bases provide full text information (reproducing the complete document in the data base); most provide abstracts or brief information about a document, including how to obtain the complete document.

For any given problem, it is more cost-effective to use solutions that have already been found (to build on the information provided) than to spend time and funds to re-create a solution (reinventing the wheel). Using data bases does not preclude acquiring documents for a personal library, but having access to large quantities of information means one can be selective and choose the most current or the most relevant documents.

For example, many rehabilitation clinicians maintain an average of two file drawers of product literature for rehabilitation equipment. Rarely do facilities provide the funds to acquire and organize information from over 2,000 companies on all the rehabilitation equipment on the market. By using a data base for rehabilitation products, such as ABLEDATA, a clinician has access to the equivalent of 15 file drawers of product literature. After searching ABLEDATA for the equipment needed, the clinician can order the desired literature from specific companies rather than acquiring random samples of product literature through a hit-or-miss approach. If the data base is used only to locate alternatives to products routinely used, a quarterly search will be enough to update the information.

Of the 2,900 public data bases available, 109 have articles concerned with rehabilitation ("Database Directory," 1986). The National Rehabilitation Information Center (NARIC) provides an annotated list of all the data bases related to rehabilitation and their source information. Because searching 109 data bases could be an overwhelming task, it is recommended that one become an expert in searching just a few data bases (see appendix). For rehabilitation information, it is advisable to gain familiarity with ABLEDATA and REHABDATA. Whereas the other data bases include some rehabilitation information, REHABDATA provides nothing but information on rehabilitation literature, and ABLEDATA lists products that are useful to people with disabilities.

**Access to Data Bases**

Using information resources and data bases requires the learning of new skills. Accessing data bases directly does not require the ability to program a computer. However, because data bases are used on computers, it is important to have an understanding of how the basic features of a computer work, and it is essential to learn the formats and the searching logic and language of specific data bases. Rehabilitation professionals who do not want to learn to use a computer, or who do not have access to one, can call information centers and ask them to make the searches. Therapists who have a computer, but find it difficult to learn standard searching techniques for the data bases, can rely on "user-friendly" or menu-driven systems to make the searching easier. Those who use menu-driven systems may decide later to expand their skills and learn to search the standard systems. The goal is to obtain information, not to become a computer expert.

If access to a computer or the means to directly search data bases are not available, there are other ways to obtain information. For example, information specialists at NARIC who will search the data bases for a nominal fee can be reached by calling a toll-free telephone number (see appendix). Another way to indirectly access data bases stored at BRS Information Technologies may be available through medical or public libraries that have a subscription to BRS and include data base searching as one of their services. Local independent living centers or other rehabilitation service delivery programs, which may have access to BRS, may be other sources of information.
Cost of Data Bases

Cost may be another problem or concern for new users of data bases. The average hourly fee to search rehabilitation-related data bases is $45 plus citation charges. The average search, which requires 10 to 15 minutes of searching and printing time for 25 documents, costs $14 to $17. This may seem expensive, but when the time and costs for computer searching are compared with manual searching done by therapists who charge $60 or more per hour, the cost appears reasonable, particularly in light of the fact that the use of electronic tools will free up a therapist's time for more patient or client contact.

Conclusion

Currently few continuing education programs teach how to take advantage of the benefits of computerized information systems. Usually it is necessary for individuals to teach themselves. The resources listed in the appendix are meant to help with the process. Additionally, BRS Information Technologies conducts courses in various parts of the country and also offers a videotape course for those who wish to learn to search data bases through their system. One can also arrange to visit a program that provides search services and possibly arrange for training (e.g., through libraries, independent living centers, or NARIC).

In a large department of rehabilitation professionals, searching information systems may become a specialized activity. It is more efficient and cost-effective to have one or two staff members assigned to search an information system, because the more a person uses the system the more knowledgeable he or she becomes. If department experts can quickly and efficiently locate the information that is needed by co-workers, more information will be available to help the entire department make informed decisions.

Appendix

Sources for Computerized Information Systems

1. National Rehabilitation Information Center (NARIC) (soon to be known as the National Rehabilitation Research Resource Center)  
4407 Eighth Street, NE  
Washington, DC 20017  
800-34-NARIC  
202-635-5826  
NARIC is a rehabilitation library and information service. The center is funded by the National Institute on Disability and Rehabilitation Research (formerly The National Institute of Handicapped Research of the U.S. Department of Education). NARIC produces the REHABDATA data base.

2. BRS Information Technologies  
1200 Route 7  
Latham, NY 12110  
800-345-BRS  
518-783-7251  
BRS is a data base vendor with over 120 data bases available for on-line searching. ABLEDATA and REHABDATA are available through BRS.

Some Data Bases With Rehabilitation Information on BRS:

a. ABLEDATA: over 14,000 products  
Producer: NARIC  
4407 Eighth Street, NE  
Washington, DC 20017  
202-635-5826  
800-34-NARIC  
Commercially available rehabilitation products from over 1,800 companies. Describes equipment, provides manufacturer name and address, price, and other comments. Monthly updates.

b. AGELINE: over 16,500 documents  
Producer: American Association for Retired Persons (AARP)  
1909 K Street, NW  
Washington, DC 20006  
202-728-4895  
Bibliographic data base on all aspects of gerontology, including research on aging. Bi-monthly updates.

c. COMBINED HEALTH INFORMATION DATABASE: over 24,320 documents  
Producer: National Institutes of Health (NIH)  
Box NDTC CHID  
Bethesda, MD 20205  
Combines four health-related bibliographic data bases, including data bases on arthritis, diabetes, health education, and digestive diseases. Quarterly updates.

d. COMPENDEX: over 1,102,108 documents  
Producer: Engineering Information Inc.  
345 East 47th Street  
New York, NY 10017  
212-705-7615  
800-221-1044  
Contains bibliographic information on all aspects of engineering and technology, including rehabilitation engineering. Monthly updates.

e. ERIC (Educational Resources Information Center): over 589,019 documents  
Producer: Council for Exceptional Children  
1920 Association Drive  
Reston, VA 22091  
703-620-3660  
Bibliographic data base on special education materials. Monthly updates.

f. LINGUISTICS AND LANGUAGE BEHAVIORS ABSTRACTS: over 72,000 documents  
Producer: Sociological Abstracts Inc.  
PO Box 22206  
San Diego, CA 92122  
619-565-6603
Bibliographic data bases on language problems, speech and hearing problems, learning disabilities, and special education. Quarterly updates.

g. MEDLINE: over 1,603,025 documents
   Producer: NLM-MEDLARS
   8600 Rockville Pike
   Bethesda, MD 20894
   301-496-6193

   Bibliographic data base on medicine, including biomedicine and humanities as they relate to medicine. Monthly updates.

h. NURSING AND ALLIED HEALTH: over 46,257 documents
   Producer: Nursing and Allied Health Literature Corp
   1509 Wilson Terrace
   PO Box 871
   Glendale, CA 91209
   818-240-2819

   Abstracts from over 300 journals in the nursing and allied health fields. Bimonthly updates.

i. REHABDATA: over 16,000 documents
   Producer: NARIC
   4407 Eighth Street, NE
   Washington, DC 20017
   202-635-5826
   800-34-NARIC

   Bibliographic data base on rehabilitation, including commercial publications, government reports, journals, and unpublished documents. Monthly updates.

j. SPORT DATABASE: over 100,000 documents
   Producer: Sport Information Resource Centre
   333 River Road
   Ottawa, Ontario K1H 8E9
   Canada

   Bibliographic data base on all aspects of sports, including sports for persons with disabilities. Bimonthly updates.

References


