Introduction: Vocational Rehabilitation Meets the Third Wave

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Alvin Toffler, author of the books *Future Shock* (Toffler, 1970) and *The Third Wave* (Toffler, 1980), brought to our attention the fact that civilization is changing. The First Wave was the agricultural revolution that changed hunter-gatherers to farmers. The Second Wave took the farmers off the land and into the factories during the industrial revolution. Now we are moving into the Third Wave that many call the information age. All of these revolutions took time and affected different groups in different ways, but all were characterized by a massive change in how people lived and conducted their lives.

As we move from an industrial society to an information society in the 21st century, we see great changes in our manufacturing processes. In fact, these are the first areas to be affected by the use of computers. Ask any autoworker in the 1970s. However, these changes are still in progress. Next affected were the more concrete office processes such as accounting and word processing. Where have all the typing pools gone? Now the change is affecting more professional areas such as rehabilitation. Today most rehabilitation professionals who work for state agencies are in traditional office environments. Most spend a good portion of time doing paperwork and meeting with or calling clients. In some offices, not much has changed since World War II except for a few computers sitting on the secretaries' desks. On the other hand, in a few agencies, everyone has a laptop, works virtually four days a week, and receives e-mail messages from potential clients for more information. Most state agencies are somewhere in between.

Most VR agencies now have Web pages. Their level of sophistication varies greatly, from a basic page of information to a complex series of pages containing information on local offices and state policy with links to other sites. A recent television advertisement for a regional Bell company depicts the boss asking a group of employees what they are looking at on their computers. One woman answers, “My son’s elementary school class has a new Web page.” Surprised, the boss says, “Why don’t we have a Web page?” The next scene shows the elementary school kids looking at the new Web page for the mom’s company. One of the kids asks, “Does it get a lot of hits?”

The question now for vocational rehabilitation (VR) is, “Does your Web page get a lot of hits?” Can VR keep up with the expectations and needs of our consumers as well as businesses in modern society? Our consumers are becoming more computer literate. Recently a VR counselor who is a novice computer user came to her supervisor for help. A client was requesting training to become a certified Novell engineer. She was having difficulty communicating with him about his career goals since her understanding of the field was so limited. Another client was assisted in setting up a home-based business. A few years ago, job opportunities for him would have been very limited since he has high-level quadriplegia and uses a mouth stick to work his computers. He is now developing and designing Web pages, does some programming, and consults with small businesses that don’t have an information technology department.

VR has historically been the expert in placing persons with disabilities into employment. To continue to do so, we must have current knowledge of how business works. When we help our consumers get ready for employment, they need to know what is expected from them on the job. Appropriate dress is just one of those things. In the new business world, dress can run the gamut from suit and tie to polo shirt and khakis to T-shirts and cut-off jeans. Working hours have also changed. People work any time and almost anywhere to get the job done. In this new paradigm, people have been observed at 11:00 p.m. in the Waffle House, laptop booted up, working on some project over coffee.

Can VR keep up with the changes and maintain effectiveness and credibility in the future? This is the obvious challenge affecting rehabilitation as we move into a Third Wave civilization. Many attributes give us a start in the right direction. Our staffs are well educated and open to continued learning. We are geographically dispersed and used to working in new and rapidly changing situations. Most of us

are familiar with technology since we have been applying various forms of assistive work technology to enable persons with severe disabilities to enter new fields of employment. To keep up, VR must move toward applying the new technology, specifically the Internet, in our normal work environment. As VR moves in that direction, work will be done in a variety of places and times. Rehabilitation may become a virtual organization working more effectively with the community and in the community.

Have You Talked to Your Rehabilitation Counselor Lately?

Or rather the question should be, How have you communicated with your VR counselor recently? Communication is the heart of our profession. Developing the counseling relationship with clients, the working relationship with our fellow professionals, and the business relationship with employers are all predicated on communication. Rehabilitation professionals are experts at individual and group communication.

In the past, VR relied on the available technology, the black rotary dial phone and the U.S. Postal Service. Eventually manual typewriters gave way to electric typewriters. The single-line phone started to develop buttons along with more lines. Copy machines made their debut, and we entered into the era of paper proliferation with a vengeance. Everyone needed a copy of everything to make it official. Case files acquired new thickness and file cabinets multiplied. For most of us the facsimile machine was our first introduction to electronic communications. The fax machine scanned documents, converted them into digital information, and transmitted them to another machine. Many people still working will remember when their office first got a fax machine. Usually that was after several years of doctors' offices asking them, "Can I fax that over to you?"

Starting in the 1980s the first computers made their appearance in rehabilitation offices. Many had been using mainframes for financial accounting and compilation of data. Often the first part of the computer seen in local VR offices was a terminal for clerical staff to enter data (usually financial) into a remote mainframe. Soon stand-alone computers (personal computers or PCs) were showing up on secretaries' desks, mostly for word-processing tasks. Typewriters were still needed for the carbon-packs and for business letters since the early printers were dot matrix and required continuous sheets of paper with holes in the side for the tractor feed.

Presently we are inundated with new means of communication. Voice mail has been added to our telephones, permitting short messages to be left and checked, even from remote phones. Tele-conferencing is easily set up and used when needed. Most of us have our own outgoing line and many more buttons than we will ever use on our phone. This points to the need for equipment to be easy to learn and simple to use. If it is too difficult, people tend not to use it.

E-mail has joined the fax machine, the mail, and the phone as a main means of communication. E-mail functions as a combination of letter writing and voice communications. It can quickly be broadcast to many people at the same time and can be ignored or read later according to the reader's priorities and interests. Usage varies greatly at this time according to staff interests and needs. Some are reluctant basic users while others communicate with clients, other professionals, and employers on a regular basis. E-mail is being used just like the phone was used for both formal and informal communications. Informal information networks cross hierarchy and agency/non-agency boundaries and are often very efficient in spreading information throughout an organization.

Access to the Internet has been fairly recent for rehabilitation agencies. While staff could dial into bulletin boards, such as the one hosted by the University of West Virginia since the late 1980s, the Internet started being available in the early 1990s (Zakon, 2000). We already see increases in access to information. Staff search for information about jobs, disabilities, laws, and community resources. Clients come to rehabilitation with information in the same areas.

The resources available via the Internet and World Wide Web continue to expand, change, and impact the world. "On-line revolution" and "information age" have become commonplace expressions in our society. Internet/World Wide Web informational access is rapidly becoming an integral part of our social, academic, and professional lives. Internets, intranets, and the World Wide Web offer an exciting yet challenging constellation of resources and options related to rehabilitation research, process, and outcome. There is a plethora of on-line resources related to rehabilitation research, community employment, disabilities, independent living, assistive technologies, legislation, advocacy, medical…and the list goes on. Accessing, evaluating, and managing files of Web-based resources are skill areas that can enhance rehabilitation efforts and consumer choice and open opportunities for successful employment outcomes. McFarland (1999) stated the following:

> Rehabilitation providers need to value the responsibility for their life-long learning, and to be active participants in their learning. The technological advances of the Internet and World Wide Web, distance learning, CD-ROMs, and the myriad of educational resources available provide extensive learning opportunities for the rehabilitation provider (p. 8).

Rehabilitation staff will need to develop knowledge, skills, and abilities for efficient and effective utilization of Web-based resources. Some of those skills are effectively operating software designed for navigating the Internet/World Wide Web and proprietary intranets, locating and assessing the desired information, getting the information to the personal computer, and managing a "personal file library" of on-line resources for efficient personal access.

How will VR use the Internet in the future? This is the question that we explore in this IRI document. Both challenges and opportunities abound. We offer a plethora of uses for the Internet gathered from the experiences of field staff in several states. The section on how to use the Internet provides some guidance on what is needed, how to navigate and, very important, how to classify the information that we spend time and effort gathering. Accessibility to information on the Internet for persons with disabilities is explored. Chapter 4 discusses the role of information technology in organizational change. The final chapter offers interim thoughts on the future of the use of the Internet and its implications for VR agencies and the profession of rehabilitation.

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1. The Why Chapter
Or: Do you realize the size of my caseload?

Jeanne Patterson, Jim Knauss, Doug Lawton, Roger Raybould, and Leon Oehlers

- Do you need a quick interest inventory to give a consumer?
- Do you need the spelling of a new medical term, but the office dictionary is 12 years old?
- Are you tired of returning 42 telephone calls each day?
- Do you need to know where the consumer's street is located?
- Does the consumer need a resume today?
- Do you know that the consumer's interviewing skills need work but lack the time to work with her?

Maybe it's time to use the Internet!

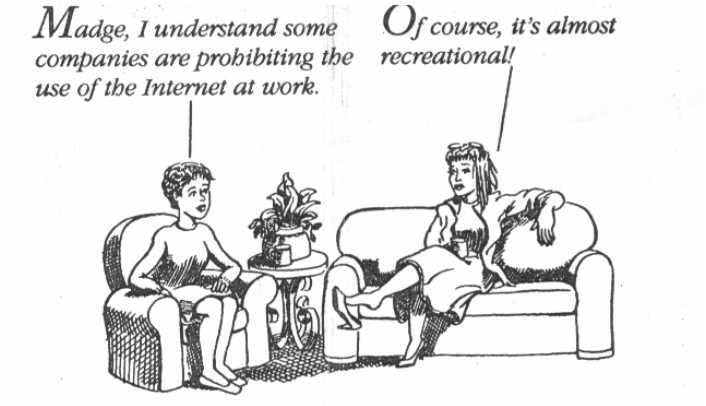
The Internet will never replace a rehabilitation counselor, but it can certainly facilitate the work of the counselor (Patterson, 2000) since Internet use is increasing daily. A recent Harris poll (Harris Interactive, 1999) indicates that 115 million people (56% of the adult population in the United States) are now using the Internet from home, work, or other access points such as the local library. As Harris noted, "This six hundred percent increase since late 1995 confirms that the Internet is the fastest growing technology in the history of the world" (p. 1). Internet usage has gone from 18% of the personal computer users being on-line in 1995 to almost 81% being on-line in 1999. Contrary to what one might expect, the educational level of the adults is not the distinguishing factor. More individuals

with high school diplomas are using the Internet than individuals who have completed all or part of a college education (Harris Interactive, 1999).

Internet technology offers benefits that accompanied earlier types of technology that are now taken for granted (e.g., fax machines, cellular telephones, copy machines) in terms of saving time and money and increasing communication. However, it offers *much more*, as described in the remainder of this chapter. If you are an Internet user, we hope that this chapter will give you many more ideas. If you do not yet have Internet access at work or are new to the Internet, we hope that this chapter will open a whole new world—and a preview of rehabilitation counseling in the 21st century.

What's in It for Me?

The Internet provides major benefits for the counselor, the consumer, and management in two major areas: communication and information. Examples of these benefits, which will be further explained in this chapter, are summarized in Table 1-1.



Cartoon reprinted with permission from Schaef, A. W. (1999, November 27). *For Women Who Do Too Much* [calendar]. New York: Workman Publishing.

One might argue that any benefit to counselors or consumers is also a benefit to vocational rehabilitation (VR) management in terms of enhancing the overall efficiency and effectiveness of the state rehabilitation program. Similarly, benefits that appear specific to counselors provide indirect benefits to consumers in terms of the knowledge and skills of the counselor.

Table 1-1. Examples of Benefits to Counselors, Consumers, and VR Management

Benefits	Counselor	Consumer	Management
Leads to faster communication	X	X	X
Saves money on office resources *(Occupational Outlook Handbook)*			X
Researches employers	X	X	
Identifies community resources	X	X	X
Increases visibility of rehabilitation services	X	X	X
Enhances consumer choice	X	X	X
Helps in resume preparation		X	
Helps in learning job-seeking skills		X	
Helps in learning job interviewing skills		X	
Provides information on prescription drugs	X	X	
Provides information on medical conditions	X	X	
Provides information on assistive technology devices	X	X	X
Provides information on job accommodations	X	X	X
Provides information on training programs and entrance requirements	X	X	
Administers interest/values inventories	X	X	
Provides information on Social Security/Medicare/Medicaid	X	X	
Provides information on careers	X	X	
Provides labor market information	X	X	
Offers continuing education (both pre-service and in-service)	X		
Assists in case management (e.g., locating addresses and telephone numbers)	X		
Lists requirements for jobs/careers	X	X	
Offers support groups		X	
Provides information in alternative formats	X	X	X
Allows telecommuting jobs	X	X	X
Provides information to referral sources	X		
Allows job applications on-line		X	

Using the Internet to Facilitate the Rehabilitation Process

Public VR agencies are operating more and more like private businesses. They are emphasizing streamlining, efficiency, quality, and customer satisfaction. Agencies are even competing for customers. Like private businesses, public agencies are maintaining a competitive edge in these areas because they have learned to harness the power of the Internet.

This unrivaled resource and essential tool has limitless uses and is ever changing. These two qualities of the Internet mean that individuals, companies, or agencies who are complacent, resistant to change, or unable to "think outside the box" may be left behind. The most successful will be those who continue to seek out new and inventive ways to use the Internet.

Many rehabilitation professionals and agencies are already using the Internet to an advantage. The next section describes some of the creative and practical uses they have discovered. This list is a starting point; remember that countless other uses are waiting to be discovered *by you!*

Creative and Practical Applications of the Internet for Rehabilitation Counselors

The Internet has applications in all phases of the rehabilitation process, from case-finding to post-employment services. This section describes many of these applications. In October 1999, a memo was sent on RehabNet requesting that state VR agencies identify creative ways that the agencies, counselors, and/or staff were using the Internet. The information in the following section includes examples provided by 30 rehabilitation professionals in 12 states. The respondents are identified through the use of their initials.[1]

Case-Finding and the Initial Interview

As state VR agencies implement innovative approaches to service delivery (e.g., the "virtual office," see Chapter 5), some rehabilitation counselors are making more home visits. Similarly, part of case-finding includes contact with and the

[1] Although the information is organized under major headings that relate to the rehabilitation process, Internet applications frequently overlap. For example, e-mail for communication can be used throughout the rehabilitation process in communicating with consumers, vendors, and referral sources.

education of various referral sources. Both of these activities require counselors to travel. Also, counselors frequently spend time providing consumers with directions (e.g., to the agency or to a training or evaluation site). One feature of the Internet that can assist the counselor with all of these activities is the availability of maps and up-to-date information on weather conditions.

D.A. uses http://www.mapquest.com/ to make maps and driving directions for consumers to help them find appointments.

Additional map sites:
- http://maps.yahoo.com/py/maps.py
- http://www.lycos.com/roadmap.html

Other uses:
- Find driving directions for home visits.
- Calculate mileage for staff travel reimbursements or travel maintenance.
- Check road and weather conditions before leaving town.

Advantages:
- Increases customer support.
- Is convenient for consumers.
- Improves counselor efficiency.
- Saves money by eliminating the need to purchase city maps.

Assessment and Vocational Planning

Rehabilitation counselors work with individuals with a wide range of disabilities. Part of the assessment process includes understanding the disability (e.g., its etiology and prognosis). Moreover, counselors frequently find themselves providing disability-related information to consumers. Also, there are times when a consumer does not need a full vocational evaluation but the administration of a simple interest or temperament survey could assist the counselor and consumer in their planning efforts. Another critical element of vocational planning includes career information (e.g., vocational requirements, the outlook on various careers, training options). The Internet has sites that can assist the counselor in all of these activities.

1. Disability Information

R.S. finds information on disabilities for her consumers through the Mayo Clinic (http://www.mayo.edu/) and other medical sites.

R.W. uses the Internet to (a) gain a working understanding of diagnoses for which she is not familiar, (b) locate support groups for consumers, and (c) identify literature developed by consumer groups that she shares with consumers.

S.O. finds the Internet helpful in providing information on uncommon disabilities.

R.M. served a consumer who had a rare disorder called sarcoidosis. Since neither the counselor nor the consumer knew much about this disorder, they sat together at the computer and used the Internet to learn about it and even found a support group. The consumer started a dialogue through e-mail with the support group, which helped her to answer her questions, gain independence, and adjust to disability issues. She uses "Ask Jeeves" (http://www.ask.com/) to find information.

J.F. used the Internet to quickly find information on acute lateral sclerosis, brain injury, multiple sclerosis, autism, and other disabilities. She says this makes the process of determining eligibility more efficient.

C.C. says that the Internet has saved him time and provided a wealth of knowledge. He had a consumer with "SLE" apply for services. By using the Internet, C.C. found that SLE is systemic lupus erythematosus, which is commonly referred to as lupus. C.C. uses http://www. medicineNet.com.

C.C. uses http://www.rxlist.com to find out about the side effects of medicine that could affect work or to learn why a medication had been prescribed when the consumer does not know.

Other medical sites:

- http://www.merck.com/pubs/mmanual *(Merck Manual)*
- http://www.geocities.com/morrison94/ (DSM IV information)

Summary of uses:

- Locate hard-to-find information.
- Find information quickly.
- Locate and share disability information with consumers.
- Purchase fewer manuals and reference books.

2. Career Guidance Information

R.W. has gained a better understanding of some jobs with which she was not familiar. Recently she used the Internet to find out what a "child life specialist" does and what it takes for someone to become one.

W.L. uses free on-line assessments and inventories with consumers because they help to provide qualitative information when considering employment options.

R.W. uses the Internet to research disability information, job trends, and the requirements and tasks of specific jobs. She feels that it facilitates productive discussions about the appropriateness and realities of jobs, which in turn has enabled consumers to make informed choices.

Other career sites:

- http://www.acinet.org/acinet/ (America's Career InfoNet)
- http://www.oalj.dol.gov/libdot.htm (U.S. Department of Labor *Dictionary of Occupational Titles)*
- http://stats.bls.gov/ocohome.htm *(Occupational Outlook Handbook)*
- http://dir.yahoo.com/education/higher_education/colleges_and_universities/united_states/complete_listing/ (Yahoo directory of colleges and universities)

Summary of uses:

- Access up-to-date career resources and manuals, such as the *Dictionary of Occupational Titles*, *Occupational Outlook Handbook*, and O*NET (The Occupational Information Network being developed to replace the *Dictionary of Occupational Titles).*
- Access career assessment tests and inventories.
- Find specific training programs, obtain copies of degree plans, and procure accessibility and accommodation information from on-line catalogs of colleges and training programs.

Advantages:

- Enhances consumer involvement.
- Improves efficiency and saves money.

Provision of Rehabilitation Services

In developing an individualized plan for employment, counselors must identify and locate products, vendors, and other services for consumers. By using the directories or locators that are available on the Internet, much of this hard-to-find information can be at the counselor's fingertips. Also, the Internet can provide access to e-mail. Because maintaining contact with consumers is essential to the counseling relationship and the timely delivery of rehabilitation services, e-mail facilitates communication between the consumer and counselor, who both may have schedules that restrict their availability by telephone. By recording a consumer's e-mail address at intake, along with the individual's address and phone number, and by including your e-mail address on your business cards and letters, the game of "phone tag" can be greatly diminished. For those consumers who have computers but no Internet access, the counselor can show the consumer how to get free e-mail.

1. Directories/Locators

C.K. needed records from the Florida VR program and Ohio State University and found their addresses using a directory (http://www.bigbook.com/).

Other directory sites:
- http://www.switchboard.com/
- http://www.theultimates.com/

Other uses:
- Find the most convenient office, store, or provider for consumers.
- Locate vendors who carry hard-to-find items.
- Find addresses for forms and documents when applicants do not remember them.
- Target the consumer's job search. For example, if the consumer has skills to work as a printer, type in "printing" and locate all the print shops in the area.
- Find consumers for whom you have lost contact.
- Find new referral sources. For example, enter "rehabilitation" in the category box and find all the rehabilitation centers in a particular area.
- Find new providers. For example, enter "training" in the category box and find all the training programs in the area.

2. E-mail Communication and Web Conferencing

P.D. uses e-mail to enhance communication with a consumer who has a significant speech impediment that makes oral communication inefficient. P.D. says, “It makes our conversation much more detailed and much more effective. It allows the consumer ‘to have a voice.’” Also,
e-mail is an accommodation for another consumer who has attention deficit hyperactivity disorder. The concrete and clear nature of an e-mail message is easier for the consumer to interpret than a voice mail message.

R.T. says many of his consumers who are deaf like maintaining contact using e-mail.

G.S. gives consumers the address for free e-mail so they can easily keep in touch with her and use it to send resumes
(http://lc3.law5.hotmail.passport.com/cgi-bin/login).

P.D. uses e-mail to maintain contact with a consumer who is looking for work. The consumer will e-mail information about the jobs for which she is applying, and P.D. replies with comments and suggestions related to the jobs.

R.N. routinely sends information updates to consumers. The information he provides includes new facts related to blindness, Social Security updates, information on new products or services, and dates of upcoming events. He also sends job leads to consumers who are looking for work and those who may be looking for advancement.

J.S. has a support group for job club graduates. If consumers cannot attend because they are working, he includes them by e-mail. J.S. calls this “electronic post-employment services.”

Both P.D. and M.L. use e-mail to maintain contact with consumers who have difficulty with daytime phone calls when they are working or in school. P.D. says this also saves her time because she can read the message when she finds the time; she does not have to stop what she is doing to take a call.

M.L. says many of her consumers use e-mail to communicate with her, particularly when their schedules make telephone contact difficult or inconvenient because they are attending college or working during business hours.

Another free e-mail site:

- http://mail.yahoo.com/

Uses:

- Use it as a communication accommodation.
- Use it to improve communication; instructions in writing prevent misunderstanding.
- Reach consumers whose schedule conflicts with your work hours.
- Locate jobs through employer e-mail postings.
- Send resumes to employers; send to several different employers at once.
- Send job leads to consumers via e-mail.
- Post group e-mails (see listservs in later chapters) to all college students or post information on job fairs to all consumers who are looking for employment.
- Receive progress reports and diagnostics by e-mail.
- Use it to save money: verifying receipt by e-mail reduces the need to send certified mail, and sending e-mail instead of letters reduces the cost of postage.
- Communicate with referral sources.
- Communicate with a group of individuals by using chat rooms or forums. Counselors who host a chat room or forum can address topics ranging from adjustment to disability to questions about the agency. Also, chat rooms are useful in conducting job clubs and providing resources and support for consumers. (See http://www.worksupport.com/forum, Web Forums.)

3. Other Sites to Enhance Services

A.W. identified information that an employer had requested about disability legislation. She also found information about community resources for a consumer who needed housing. She printed the information and shared it at a meeting with the consumer, his parents, and school personnel.

S.O. helped a consumer learn about another state's VR program in order to make relocation decisions (http://trfn.clpgh.org/srac/state-vr.html), and she also looked at the new location's job market at http://www.monster.com.

K.H. has used the Social Security Administration Web site to obtain updated Plan for Achieving Self-Support information and Social Security forms (http://www.ssa.gov).

C.S. uses the Internet for adjustment counseling. He has linked some consumers by e-mail to facilitate peer counseling.

M.G. conducted research on comparable benefits, which resulted in setting up the consumer with a Medicare supplement that paid for medications, physical therapy, and cognitive therapy that the VR program had previously provided.

R.T., who works in a rural area with a shortage of resources, located funding sources on the Internet for some of the local nonprofit agencies to help them provide additional services to his consumers.

R.N. routinely teaches consumers how to use the computer and the Internet so they can become empowered.

E.R. uses the computers in the library to teach consumers how to use the Internet to find employment.

C.C. has many consumers who are interested in Social Security issues such as the effect of work on their benefits. He uses http://www.ssa.gov to educate them with the most current information.

R.N. downloads official agency forms and e-mails them to consumers as needed. Since other professionals write to him for information or advice, he calls this his "WWW caseload."

Summary of uses:

- Identify support groups for consumers and families.
- Promote informed choice by sharing information with consumers.
- Use other agency Web sites for easy access to forms and other printed materials; this ensures you have the most current versions and up-to-date information.
- Form a peer support group on e-mail.
- Find comparable benefits (for training, http://www.students.gov/).
- Compare prices of items using the on-line catalogs provided by companies.
- Share information with other agencies.
- Teach consumers how to access information on the Internet.

- Maintain a list of frequently requested Web addresses and share it with consumers.

Advantages:
- Increases customer support.
- Enhances consumer involvement.
- Expands outreach efforts.
-
- Creates new services and opportunities.
- Improves efficiency.
- Saves money.

Job Development and Placement

The Internet can be used in all stages of the job development and job placement process. Many sites not only contain databases of jobs, but also offer advice on subjects ranging from resume development to interviewing and salary negotiation. The Internet may be used to acquire information on businesses and industry, identify job openings, and locate jobs and application information that would otherwise necessitate numerous telephone calls. Individuals may search general job banks or job banks specific to a particular career.

1. Applications and Job Openings

G.G. assists consumers in registering on-line with the local workforce center.

C.D. assisted a consumer in developing an unusual self-employment plan. The plan was for sewing authentic colonial period hats and purses. C.D. went on-line to locate companies selling goods that were closest in authenticity to materials used during that time period. This research provided her with cost estimates needed for the self-employment plan.

C.D. worked with a consumer whose vocational goal was medical illustrator. The consumer did not know how to present her work during the application process. She used the Internet as a research tool and discovered how to do her portfolio.

V.J. identifies job leads for consumers that otherwise would not have been as accessible.

J.S. worked with a consumer who completed tractor-trailer training and earned a commercial driver's license but had no on-the-road experience. Together they checked local job openings on-line and sent out resumes. When that did not work they searched Yahoo (www.yahoo.com/) using "truckers" as the keyword. The consumer posted a message explaining that he had a commercial driver's license but no experience. He got a response and was directed to http://www.jobsearchonline.com. This site listed 35 national carriers who were hiring. After completing an application on-line that went to all 35 carriers, he received responses from five. Following a local interview he was hired as a driver trainee. Although this consumer had no Internet access at home and no computer skills, he was able to successfully broaden his networking efforts.

R.Z. uses http://www.choiceemployment.com/ as a placement tool.

Other labor market and job search sites:

- http://www.ecola.com/ (Listing of hundreds of newspapers on-line)
- http://www.doleta.gov/region.htm (Department of Labor Employment and Training)
- http://www.100hot.com/jobs/ (Go2Net's hot 100 job sites)

Other uses:

- Gain background information on a company by reviewing the company home pages before applying for positions.
- Register on-line with state workforce centers.
- Conduct a job club by e-mail or in an agency chat room.
- Establish a job-leads bulletin board.
- Use on-line classified ads. Most major newspapers are on-line, and some allow searches by keywords.
- Locate hard-to-find job information.
- Answer employers' questions about the Americans with Disabilities Act and accommodations (http://janWeb.icdi.wvu.edu/kinder/).
- Use one of the hundreds of job posting Web sites to find job leads around the world.
- Use job readiness tools that are available on-line.

2. Employment and Training

D.T. is working with a consumer who is doing distance learning at http://www.c-cad.org for an introduction to Microsoft course.

C.D. worked with a consumer who expressed an interest in jobs directly related to the Internet. They used http://www.Webmonkey.com to find detailed descriptions of jobs involving the Internet, such as Web producer, user interface tester, and desktop support engineer. The information was current and listed the specific training and experience that was required for these jobs.

Another Internet opportunity site:
- http://www.usdla.org/ (United States Distance Learning Association)

Uses:
- Consumers who are unable to work outside their home now have new job opportunities through Internet-based self-employment or telecommuting jobs.
- Several colleges now offer classes over the Internet, and some offer full degrees. This creates opportunities for both consumers and staff.
- New types of jobs are being created by the growth of the Internet.

Advantages:
- Creates new services and opportunities for training and employment.
- Convenient for consumers.
- Enhances consumer involvement.
- Improves efficiency.

Counselor Continuing Education

Maintaining professional competence is a life-long challenge for rehabilitation counselors. The Internet offers numerous resources for counselors, ranging from the ability to stay abreast of legislative trends to completing degree programs.

R.W. finds the Internet to be a useful tool in keeping up with legislative issues and trends in the field of rehabilitation through Web sites for national and local rehabilitation associations.

L.L., a counselor, is earning her master's degree in rehabilitation through the Internet.

A.W. subscribes to e-mail newsletters and shares these with other counselors and school personnel. She also found information that helped her study for the certified rehabilitation counselor examination.

Other continuing education sites:

- http://www.ihdi.uky.edu/projects/dvr/telecomm.htm (Kentucky Department of Vocational Rehabilitation—Telecommuting project)
- http://distance.gradschools.com/ (Distance Gradschools.com—Listing of advanced degrees, including degrees in rehabilitation counseling, that can be earned over the Internet)
- http://www.rce.usu.edu/info/ (A distance education program offered by Utah State that can be accessed anywhere in the United States)

Other uses:

- Follow state and national legislation (http://thomas.loc.gov/, Thomas—Legislative information on the Internet).
- Identify topics and training materials for staff meetings.
- Maintain certified rehabilitation counselor certification by taking college credit classes on-line.
- Expand networking capabilities and share ideas and Web sites with others.
- Procure a copy of the Rehabilitation Act Amendments of 1998 (http://www.ed.gov/offices/OSERS/RSA/RehabAct.html)
- Locate motivational materials (http://www.epinc.com/index.htm) Economic Press—Daily motivator).
- Maintain professional competence by reading journals and newsletters at the Web sites of professional organizations.

Advantages:

- Promotes professional growth and networking.

General Uses: VR Agencies

The advantages of a "Web presence" for state VR agencies are noted in the following examples. These range from posting brochures and providing maps on agency locations to addressing frequently asked questions, offering virtual tours, and providing links to other helpful sites.

1. *Brochures.* On-line brochures are a convenience for customers.[2] They also reduce incoming information calls, printing, and postage. Including brochures from other organizations on the VR Web page may redirect a visitor to a more appropriate provider, which even further increases efficiency.

   Sample Site: http://www.dli.state.pa.us/ovr/publish.htm#print (Pennsylvania Office of Vocational Rehabilitation—Brochures)

2. *On-line manuals.* Manuals that are available on-line reduce printing cost, allow an individual to search by keyword, ensure that everyone is operating with the most current version of a document, expedite revisions of documents, and offer accessibility from remote locations. Access to manuals and forms can also benefit others, e.g., community rehabilitation programs.
   Sample Site: http://www.dwd.state.wi.us/dvr/provinfo.htm (Wisconsin Division of Vocational Rehabilitation–On-line manual and standards for community rehabilitation programs)

3. *Press releases.* Press releases keep customers informed of changes. They can facilitate outreach for new agency programs and services or be used as a public relations tool to promote the positive accomplishments of the agency.
   Sample Site: http://www.rehab.cahwnet.gov/pubinfo.htm (California Department of Rehabilitation Public Information)

4. *Employer information and services.* Employers can easily access information about VR.
   Sample Sites: http://www.state.fl.us/vocrehab/employerservices.html (Florida Division of Rehabilitation—Employer services);
   http://www.mrs.mjc.state.mi.us/bs/index.html (Michigan Rehabilitation Services—Business services)

5. *Searchable databases.* Searchable databases allow customers to find the information they need quickly and easily without having to involve direct staff time.
   Sample Site: http://www.wa.gov/dshs/dvr/ (Washington Division of Vocational Rehabilitation—Searchable database)

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[2] The term "customer" includes all customers of the agency, e.g., consumers of rehabilitation services, vendors, and other agencies.

6. *FAQ.* Frequently asked questions can be addressed on the agency Web site. These often include a map and directions to the office, eligibility requirements, instructions on how to access services, personnel directories, and helpful links. Sample Site: http://www2.state.ga.us/departments/dhr/vocrehabga/faq.html (Georgia Division of Rehabilitation Services—FAQ)

7. *On-line applications.* Consumers can apply for services on-line, which increases referrals, saves time, and adds convenience to customers. Sample Site: https://www.dwd.state.wi.us/dvr/scripts/Application_I.asp (Wisconsin Division of Vocational Services—On-line application)

8. *Links to related rehabilitation sites.* Links to similar agencies and services, such as workforce, mental health and mental retardation, Social Security, colleges, and schools, promotes a more informed customer and a more efficient referral system.
   Sample Sites: http://www.dwd.state.wi.us/dvr/partner.htm (Wisconsin Division of Rehabilitation—Partners relationships site);
   http://www.temple.edu/inst_disabilities/atlend/ (Pennsylvania Assistive Technology Lending Library)

9. *Links to rehabilitation information.* Customers can do self-directed searches when links are provided. For example, links to the Social Security Administration, Americans with Disabilities Act, and assistive technology sites can answer many informational calls. Similarly, links to colleges, financial aid, career guidance, labor market, and job readiness sites can provide information to consumers as they develop the individualized plan for employment.
   Sample Site: http://www.works.state.mo.us/mw2a.htm (Missouri Works—Job-seeking information)

10. *Virtual tours.* Virtual tours can save consumers time, allow them to become more at ease, and give them a better perspective on their options.
    Sample Site: http://Web.nysed.gov/vesid/Queens/tour2.htm (New York, Queen's District Office, Vocational and Educational Services for Individuals with Disabilities—Virtual tour)

11. *Customer satisfaction.* A Web page that includes a comment or suggestion section can provide valuable information to the agency and should enhance customer satisfaction. By recording the number of times a page is accessed on

the Web, the agency can identify the areas of greatest interest to consumers and also determine if the agency or program is marketed to the extent possible.
Sample Site: http://www.rehab.state.tx.us/consumer_news_survey.html (Texas Rehabilitation Commission—Consumer survey)

12. *Recognize employers and consumers.* Both employees' and consumers' extra efforts can be acknowledged on the agency Web page.
Sample Site: http://www.state.ar.us/ars (Arkansas Rehabilitation Services—Newsletters)

Advantages:

- Staff spend less time responding to informational telephone calls and answering questions.
- Less printing of forms, directories, manuals, and brochures results in reduced costs.
- Direct customer access eliminates the need to mail paper copies.
- Detailed information about the program and its services is available worldwide.
- People whose limitations prevent or hinder travel and people who live in remote locations have better access to services.

These advantages translate into (a) easy access and convenience for customers, (b) the ability to increase consumer input and enhance consumer involvement, (c) the promotion of new partnerships, (d) the creation of new services and opportunities, and (e) the ability to save money and improve efficiency.

Counseling Benefits and Considerations

A number of Internet applications have been highlighted throughout this chapter, including some that relate directly to counseling (e.g., support groups, chat rooms). Nearly every disability group now has one or more pages devoted to information and sharing. These consumer Internet sites and their chat rooms or support groups can extend the local resources of the rehabilitation counselor. This is especially beneficial in terms of "(a) individuals with less common disabilities which may preclude sufficient numbers in one physical location, (b) individuals who live in rural areas or for whom transportation may be difficult, (c) individuals who cannot attend meetings at the time they are scheduled, and (d) individuals who are not yet ready to discuss their issues but would benefit from the experiences of others"

(e.g., abuse issues) (Patterson, 1999, p. 72). Other benefits include immediacy (e.g., 24 hours a day) and cost-effectiveness (Weil, 1996).

The use of these support groups or consumer Internet sites has limitations as well as benefits. Rehabilitation counselors have an ethical responsibility to discuss both the limitations and benefits with consumers. The issues that present ethical considerations for rehabilitation counselors (Sampson, 1998) include the following:

- *Quality of resources and services offered on the Internet.* As discussed in more detail in chapter 3, the value, quality, validity, or sincerity of various sites, assessments, job search tools, and other Web resources can vary widely. The user must be constantly cognizant of this.

- *Individual readiness for Internet use.* Although the Internet provides ready access to a multitude of self-help resources and vast fields of information for individuals wanting to find employment, the quantity of the information can be overwhelming. This alone can be critical, without even discussing the potential issues involved if the individual has difficulty making choices or discerning differences in quality or appropriateness.

- *Availability of user support when needed.* One of the ethical principles in rehabilitation counseling is nonmaleficence (do no harm). If Internet resources of questionable quality or validity (or those simply inappropriate for the particular activity) are used by a consumer who is not prepared for or is incapable of discerning the impact of the information, damage could be done without the counselor being available to mitigate or prevent it.

- *Credentials of resource and service providers.* Because the very nature of the Internet makes it very difficult if not impossible to establish criteria for all potential resources and services, the validity of an Internet resource's information, the credentials of a Web site's author, or the certifications of Web tools are all concerns to be considered by the counselor.

- *Lack of practitioner awareness of local conditions and events.* Although this may not be an issue for local VR counselors themselves, it may impact information sought or received from the Internet. Whether it is job market information that overlooks local labor market fluctuations or distance training

that does not take into account peculiar local industry needs, these can negatively affect the consumer.

- *Confidentiality and user privacy on the Internet.* The lack of confidentiality of e-mail transmissions, computer-generated case notes and other electronic file records, Internet-based assessments and vocational evaluations, and on-line job applications and resume databases provides an opportunity for misuse of this information.

- *Equality of access to Internet-based career resources and services.* In the field of rehabilitation, equality of access extends beyond socioeconomic level. Counselors must be sensitive to accessibility issues related to various Web sites, particularly for individuals with sensory or cognitive impairments. The availability of accessible hardware and software can negatively influence or preclude access to the Internet by VR consumers.

These issues highlight the need to discuss security features with the consumer, if the counselor and consumer are going to use e-mail to communicate. Similarly, consumers should be cautioned about the accuracy of information that is available on the Internet. Although support chat rooms can provide valuable assistance to an individual, misinformation can also be provided. Assessment is also an issue. As Internet use continues to grow, it is likely that consumers will elect to take some free tests that are available on the Internet. The counselor may need to address issues related to reliability and validity. Although the extent of WebCounseling will vary by individual counselor, all rehabilitation counselors should review the guidelines that have been established by the National Board for Certified Counselors (see Appendix 2).

As evidenced by the comments from 30 rehabilitation professionals and the examples they provided, the advantages of using the Internet *far outweigh* the disadvantages! As one counselor stated, “The Internet is an invaluable tool for the VR counselor and the individuals he or she serves. It places a virtual, living library of information at the user’s fingertips. Access to rich, up-to-date information improves service quality and eventual rehabilitation outcomes.”

The capabilities of Internet-based delivery of VR services will continue to grow rapidly if not exponentially. It is reasonable to expect that the increasing efficiency and cost-effectiveness of this tool will provide even greater availability of its

resources to both counselors and consumers. However, the Internet is not a perfect system. The search engines that provide access to the information can provide an overwhelming amount of information, as well as "miscellaneous" or unrelated information. Other chapters in this document can assist counselors in learning how to "read" Internet addresses, which will help them more quickly discriminate between useful sites and non-useful sites and determine the quality of the information based on the source.

Summary

Throughout its long and illustrious history, the public VR services system has embraced and endured many political, ideological, and technological changes; however, a high degree of human interactivity between the professional and consumers of VR services remains the foundation of the program. Gathering, assessing, and sharing information are among the cornerstones of the VR process. The Internet provides VR with another tool to enhance consumer choice and improve the quality of services and employment outcomes.

Employer partnerships are also built on person-to-person relationships. Contacting employers, providing employer consultation, and securing employment occur in real time and in the real world. The Internet can serve as a valuable vehicle for information exchange, communication, and job development for all partners in the employment process.

A VR agency Web site can serve as the gateway to vital information related to VR employment and rehabilitation services for both the consumer and employer. VR agencies have recognized the value of a Web presence as a cost-effective strategy for public relations, product/service support, and recruitment of qualified applicants for employment.

In conclusion, the Internet is a strategic information resource for (a) developing employment development and consulting for employers, (b) accessing job opportunities, (c) gathering information related to employment trends and job support, and (d) assisting consumers in the job search process.

As Leiner et al. (1998) noted, "One should not conclude that the Internet has finished changing. The Internet, although a network in name and geography, is a creature of the computer, not the traditional network of telephone or television

industry" (p. 15). How does the Internet relate to VR service delivery? Where is it taking us? What does the future hold? These are important questions to be explored in relation to accomplishing full integration of the Internet as a VR resource tool. Improved strategies for employment development, increased consumer choice, interconnected work environments, and improvement in quality of life are all possibilities of effective professional utilization of this technology.

Almost 20 years ago, the Eighth Institute on Rehabilitation Issues (IRI) on Computer-Assisted Rehabilitation Delivery stated:

> A counselor is the recipient, processor, interpreter, and dispenser of information. The computer is an excellent filing cabinet, a manipulator, and organizer of information but it cannot interpret or use the information. A counselor is as effective as the way (s)he uses available management and client-related information, which in turn frequently is determined by the accessibility, timeliness, and accuracy of the information (Downing et al., 1981, p. 47).

Finally, a statement in the Eighth IRI concerning computer technology is equally relevant today in addressing the Internet:

> It is difficult to write about the future—the future is no further off than tomorrow (p. 47).

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2. The How Chapter: Computer Competency and Information Literacy

David J. Brooks, Don Barrett, and Leon Oehlers

This chapter deals with the technology and skills vocational rehabilitation (VR) professionals need to use the computer and Internet. Beyond basics of computer competency, this chapter approaches the subject of information literacy. "Information literacy" could be generally defined as the ability to access, evaluate, organize, and use information from a wide variety of sources. The VR professional who is able to find *quality* information and organize it efficiently is empowered. This chapter also deals with several search methods and tips and tricks to stay organized, evaluate Web sites, and develop a personal Web reference library. Finally, it discusses issues of accessibility.

Scenario: All I Do Is Point and Click, Right?

It's Friday afternoon, and the computer technical support person arrives to install the e-mail upgrade and browser software on Iris's desktop computer. While the technician takes over the office for a few minutes, Iris, a VR counselor, meets with a client in the break room to go over some forms. Upon returning to the office, she finds the technician has installed the software. The technician proclaims that her desktop computer is, at long last, wired to the Internet and gives a brief demonstration on which icon to "point and click" to get to the Internet. Web sites flash across the monitor. The demonstration concluded, the technician hands her a policy statement to circulate among staff regarding proper use of the Internet and use of e-mail for personal business. With little time for in-depth questions, the

technician packs her software-laden briefcases and moves on to the next district office to install the software on three more computers before the day is through.

Iris gazes at her computer screen and exclaims, “Who knew it would be this simple? This is terrific! All the information on the Internet is now available at the click of a mouse. All we have to do is ‘point and click’! Just think of the possibilities!” High fives and congratulations—the whole office is now wired to the Internet.

The phone rings. A caller is holding on line two. Surfing will have to wait because of the time the technician took to provide the demonstration. Perhaps there will be time when the waiting room is not so full of clients, the next crisis passes, and the phone calms down. A client is ushered into the counselor’s office. Iris closes the Internet browser and switches to the client information forms within the agency management information system, thinking to herself, “Monday will surely be a better day to surf. Well, not Monday, but another day. How hard could it be? All I have to remember is to ‘point and click,’ right?”

> The Internet is easy to use, but hard to learn. —Unknown

Computer Literacy

> We define a computer literate professional as one who has acquired the knowledge and experience necessary to utilize computers intelligently and efficiently within his or her discipline (Office of Academic Computing, 1997).

Can the person who has the computer skills to play Galactic Warrior be considered computer literate? While using a joystick to slice and dice your digital opponent may be entertaining, having computer skills of this nature does not qualify one as computer literate. Neither would we counsel a person in search of employment that word-processing skills alone are adequate for the job seeker to be competitive. But what computer skills does a rehabilitation professional need to use a computer intelligently and efficiently within the VR discipline?

Within recent years the public VR program has made significant progress in exploiting computers for tracking client services information as well as for other production tasks. VR agencies take advantage of computer software such as word

processors, spreadsheets, calendars, graphic design tools, and chart makers. Computers are even used to make banners for holiday and retirement celebrations. Computer skills are rarely taught to VR professionals unless the training is directly related to operating software used by the agency. The computer literacy classes available teach topics such as keyboard commands, operation of the file system, use of the mouse, and other basic skills needed for routine computer operation. A typical curriculum might require a student to name the parts of the computer, demonstrate how to save a file and transfer a file from one folder to another, or search for information on a CD-ROM. While this approach to training serves the purpose of learning to operate the machine, computer training for its own sake accomplishes little. Computers are tools for accomplishing specific tasks, and if a task is not performed regularly, the computer skills learned are quickly forgotten. Nevertheless, having basic computer skills is a prerequisite to gaining access to the information available not only to the public VR program, but also to the business and professional world.

Computer literacy courses teach how to use a computer, but not when or why (Johnson & Eisenberg, 1996). The when and why for VR professionals means using computers to facilitate the VR process and solve VR problems. It means having the knowledge to search, locate, evaluate, and apply information and knowledge in new ways to accomplish rehabilitation outcomes. This use of computers has been neglected or at least underdeveloped for VR professionals. Since bad information is often worse than no information, how are VR professionals to use the computer and Internet with confidence?

Certainly the Internet opens new vistas of information that were once inaccessible to VR professionals, but unlimited access to information brings with it certain problems and responsibilities. To think critically and act responsibly in the interest of consumers, VR professionals must have a good understanding of the dynamics of the Internet. In a time of unprecedented information access and a rapidly changing society, discriminating users of information are needed.

The Information-Literate VR Professional

> Knowledge is of two kinds. We know a subject ourselves, or we know where we can find information upon it. —Samuel Johnson (1709-1784) (Bartlett, 1992)

Information literacy *assumes* computer literacy. Knowing how to use a computer is one thing, but knowing the why, when, and where to look for information is another. Information-literate VR professionals should be able to know how to find the data and information they need quickly and be able to communicate it to others to solve problems.

What Is Information Literacy?

"Information literacy" could be generally defined as the ability to access, evaluate, organize, and use information from a wide variety of sources. It's all about ending the search through useless information and finding answers to questions (Carlson, 2000). Becoming information-literate VR professionals means (a) having an understanding of different media and technologies, (b) using the ability to think critically, (c) having an understanding of ethics, (d) evaluating information properly, and (e) communicating to put the information to work for people with disabilities. These are the skills that can bring about personal empowerment—for the VR professional as well as the individual with disabilities. Becoming information literate means understanding the information monster and taking steps to tame it.

Understanding the Information Monster

To experience the information monster first hand, merely enter a single keyword using a popular search engine. You will likely receive many thousands of hits. This is but one example of what happens when most of the obstructions to information have been removed. At once you have more information than you can sift through to locate the exact information you need. The temptation is to accept the first thing that comes along because of time pressure or to simply discount the use of the Internet as a professional rehabilitation tool. After all, who has the time to waste?

Before computers were linked together to form the Internet, reference librarians provided a convenient shortcut to research questions. The librarian shortened the information search by helping to filter out irrelevant information sources. The Internet is nothing like a trip to the library. There are no reference librarians to act as a go-between, nor is the information neatly organized in a central card catalog filing system. Instead of linear information management tools such as the Dewey Decimal System, the Internet is a conglomeration of many communication channels. While finding information on the Internet may not be as straightforward

as the Dewey Decimal System, it is a myth that the Internet is chaotic. While it may take some time to become familiar with the territory, the user should be comfortable with some level of ambiguity. It changes every day as pages are updated. Servers that worked yesterday no longer respond. E-mail disappears into the vapor, never to be retrieved. Get used to it.

The Internet is growing so quickly that human ability and current technology cannot keep up with it. While some information is credible and high quality, some is not. Information is added but nothing is taken away. Information comes from all directions in multiple forms. Only you, the information consumer, can judge whether the information you receive meets your current needs. The Internet is an unregulated ocean of information for which the terms "navigation" and "surfing" are well suited. Unfortunately, most traditional information management practices are too linear and specific: they were pipes developed for a stream, not an ocean (Alesandrini, 1992).

Computers have the capacity to access countless information sources in a single search. They provide more printed information than you have the time or ability to read, evaluate, or use. The capacity of a computer wired to the Internet far outstrips the ability of the inexperienced mortal at the keyboard to choose which information should be retrieved. The Internet takes off all the controls.

So the problem, then, is not how to find a needle in a haystack. Rather, the problem is how to find *the* needle in a stack of needles. It begs the question, If the computer user has unlimited access to information, can a VR professional learn to locate, retrieve, synthesize, and apply the right information in the right place at the right time? Theoretically, those who possess high-quality information should provide better service than those who have no access to the information. Clearly if information is empowering in an information economy, those with the highest quality information are more empowered than those without the information.

Mastering the Information Overload Monster

The problem of information overload may be an underlying reason why many VR professionals do not use the Internet effectively. The common complaint of counselors is "I don't have time to surf the Internet." People may perceive information overload because the information they receive does not fit into their current mental models for understanding the world. Perhaps the issue is not too

much information, but information that is not usable or meaningful (Imel, Kerka, & Wagner, 1999).

To master the information monster, you must "understand the relationship between data, information, and knowledge: *data* are raw facts and figures, *information* is data organized into a meaningful context, and *knowledge* is organized data and information that have been understood and applied" (Gilster, 1997). There is a learning curve to master communications software, Web browsers, news readers, and the concepts underlying their use. Some of the specific skills involved are discussed in the next section.

Developing Computer and Information Competencies for VR Professionals

The following is an adaptation of an article written by Doug Johnson and Mike Eisenberg in *Emergency Librarian*, a Canadian journal for library scientists. Even though the article was written to emphasize the teaching role of school librarians, the applications for rehabilitation are clear. The VR professional should be sufficiently skilled to apply a variety of available software products to facilitate the rehabilitation process. Computer skills should be sufficient to take full advantage of emerging software designed specifically for rehabilitation use. The following competencies are offered for consideration by VR human resource trainers when designing computer training. They are presented on two levels simultaneously. The primary level deals with actual computer operation skills. The secondary level addresses effective problem solving and application of the information.

Basic Computer Skills

Among basic competencies relevant to the VR professional are:

- Knowing and using basic computer terminology.
- Operating various pieces of hardware and software, particularly the operating system, to handle basic maintenance.
- Being able to connect and operate the computer to access information networks and to read and follow guides and manuals of operation.
- Demonstrating a basic understanding of computer programming syntax.
- Understanding the impact of information on careers, society, their own lives, and the lives of others.

- Continuously improving their own technology skills to be an effective VR professional.

Definition of the Information Problem

The VR professional should define the information problem and plan the information search efficiently and effectively by:

- Brainstorming to define or refine information problems. This includes developing research questions or perspectives on various topics related to solving rehabilitation and employment problems.
- Using e-mail and on-line discussions (listservs and newsgroups on the Internet) to communicate and facilitate cooperative activities with others.
- Using desktop conferencing, e-mail, and on-line discussions on global networks.
- Understanding and abiding with Internet etiquette customs.

Information Seeking

The VR professional should determine the range of possible resources and evaluate them by:

- Assessing the value of various types of electronic resources for data gathering, including databases, CD-ROM resources, commercial and Internet on-line resources, electronic reference works, and community and government information electronic resources.
- Identifying and applying specific criteria for evaluation of computerized electronic resources.
- Using e-mail, listserv, and newsgroup forums to query such groups as part of a current literature search.
- Using a computer to generate modifiable flow charts, Gantt charts, timelines, organizational charts, project plans, and calendars to organize complex information problem-solving tasks.

Location of Information

The VR professional should demonstrate how to locate technological and information resources effectively by:

- Locating and using appropriate computer resources and technologies within the agency, such as on-line catalogs, databases, full-text resources, multimedia, resource centers, computer stations, CD-ROMs, scanners, digital cameras, etc.
- Locating and using appropriate computer resources beyond the agency and local-area network, including productivity software, Internet technology including Web sites, browsers, gophers, file transfer protocol sites, on-line public access library catalogs, and other resources.
- Knowing technology support and computer experts available within the agency and elsewhere who might provide assistance.
- Conducting self-initiated electronic surveys through e-mail, listservs, and newsgroups.
- Using organizational systems and tools specific to electronic information sources that assist in finding specific and general information, i.e., indexes, tables of contents, user's manuals, legends, graphic clues and icons, cross-references, logic strategies, timelines, links in the text, knowledge trees, uniform resource locators (URLs), etc.
- Using stand-alone CD-ROMs and databases.
- Using search tools and commands available for searching the Internet (directories, search engines, meta searches, etc.).

Synthesis

The VR professional should organize and communicate results of the information problem-solving effort as evidenced by:

- Classifying and grouping information properly using a word processor, database, or spreadsheet.
- Using word processing or desktop publishing software to create printed documents applying keyboard skills to at least twice the rate of handwriting speed.
- Creating and using computer-created graphics in presentations.
- Using database file management software to create original databases.
- Using presentation software effectively.
- Creating hypermedia and multimedia productions with digital video and audio.
- Creating World Wide Web pages and sites using hypertext markup language (HTML).
- Suggesting solutions for visual and auditory accessibility issues experienced on the Web by people with disabilities.
- Properly citing electronic sources in footnotes, endnotes, and bibliographies.

- Coaching clients in the uses of electronic job banks and job resource centers to help them discover occupational and job placement information.

Use of Information

After finding potentially useful information, the VR professional should be able to evaluate it and extract the relevant information. The information should be presented for use in VR settings to achieve rehabilitation outcomes. The competencies related to this task include:

- Viewing, downloading, decompressing, and opening documents and programs from Internet sites and archives.
- Cutting and pasting information from an electronic resource to a personal document.
- Taking notes and outlines with a word processor or similar productivity program.
- Recording electronic sources of information in order to cite them in footnotes and bibliographies.
- Using electronic spreadsheets, databases, and statistical software to process and analyze statistical data.
- Evaluating information to determine quality and appropriateness.
- Applying ethical and legal principles related to information technology, such as copyright, and applying professional ethics related to the rehabilitation profession.
- Applying the information to achieve VR outcomes.

Evaluation

The VR professional should be able to judge the effectiveness of the search as applied to the information problem-solving process. The focus of this area is to concentrate on how well the final product meets the original task (*effectiveness*) and how well the information problem-solving process was applied (*efficiency*). Evaluation is also subject to supervision review (Johnson & Eisenberg, 1996).

Training to Remedy Skill Deficits

Upon reviewing staff competencies, supervisors and administrators may want to provide training. The following factors should be considered when developing a training plan:

- Find local computer training that emphasizes the efficient use of productivity software such as word processing, spreadsheets, and database software. Contact your agency human resources department or training unit for recommendations. The human resources department makes agreements with state vocational schools, consultants, and others for computer training.

- When negotiating training contracts, talk to the people who will perform the training sessions. Require the trainer to use hardware and software that is accessible to individuals with disabilities. If they are unable to comply, find another trainer.

- Purchase software that is accessible to staff with disabilities and other prospective staff members.

- Buy commercially available hardware and software manuals and distribute them among field staff. It is hard to download the information from the Internet if you cannot get a manual that describes in detail how to access the Internet in the first place.

- Identify the person in each unit who is already computer literate, has an interest in computer technology, and is willing and able to teach others. This person may be a supervisor, a rehabilitation counselor, a technician, or a secretary. If training funds are tight, you may consider training this person with the understanding that he or she will instruct other staff members. Create opportunities to grow your own specialists, consultants, and other experts within the unit.

- Create a learning environment that includes experimentation with the Internet. Administrators should consider sending a clear message to supervisors and counseling staff that it is permissible to experiment with the Internet as long as policy is not violated. Experimentation may mean downloading recipes or joining a newsgroup for dog fanciers, but eventually these competencies learned in low-risk situations will be applied in work situations.

- Provide staff with several pages of Internet site addresses that are rehabilitation related. (This, of course, requires that the leadership of the agency is sufficiently computer and Internet savvy to make the recommendations.)

- Consider expanding and re-thinking the role of the rehabilitation technician or secretary. As counselors take on more of the responsibility for word processing and other chores, the role of the technician can shift to that of an information specialist. To be effective as a counselor, quality information is needed to make plans and make decisions. A rehabilitation technician who is skilled in searching, locating, evaluating, and retrieving information would make a real contribution. This could include gathering information for the case file or medical records as well as finding resources on the Internet that apply to the rehabilitation problem to be solved. In this way the technician becomes a full partner in the rehabilitation process.

Getting Started on the Internet

The hardware required to access the Internet is little or no different at work than at home. At a minimum the following are required:

- A personal computer (either Macintosh or IBM-compatible) with at least 16 megabytes of RAM, but the more the better.
- Netscape 4.0 or greater, Microsoft Internet Explorer, or similar browser.
- A high-speed modem.
- An Internet service provider (ISP) connection capable of supporting the use of browser software. The ISP provides the gateway to the Internet.
- An e-mail account.
- A paid telephone bill. The computer is connected to the ISP either through a telephone line or your local-area network.

The term *browser* is short for Web browser, a software application used to locate and display Web pages. The two most popular browsers are Netscape Navigator and Microsoft Internet Explorer. Both of these are graphical browsers, which means that they can display graphics as well as text. In addition, most modern browsers can present multimedia information, including sound and video, though they require plug-ins for some formats.

At this time all state VR agencies provide the browsers and ISP connections; however, they may not be available to all staff. If, for some reason, you are unable to access the Internet at the office, it is relatively inexpensive to get your home computer hooked up to it. Check at your local bookstore or computer software merchant. But first, you may want to check your junk mail for the CD-ROMs that browser companies such as America Online or CompuServe frequently send out. These offer a free trial period for their services as well as the browser software you need to get on-line and access the Web.

With the Internet connection established, VR professionals can begin searching. Pitfalls and strategies for searching are described in the next section.

Smart Searching

The Web search engines are very important and useful resources and are playing a major role in the information age. However, the search engines are currently lacking in comprehensiveness and timeliness. The current state of search engines can be compared to phone books that are updated irregularly and have pages missing but are the best tool available to find information. Those who want to disseminate information on the Web generally register their pages with the search engines. Some engines will “index” Web pages (meaning record by keyword) within a few days and some within a few months. However, there is no guarantee that the page will ever be listed. Many people report that they cannot get engines to index their pages at all, or that previously indexed pages have been dropped from an engine. Consider the following before relying solely on your favorite search engine:

- As of February 1999, the publicly indexable Web contains an estimated 800 million pages; 83% of sites contain commercial content and 6% contain scientific or educational content. Only 1.5% of sites contain pornographic content.
- No one search engine can search the entire Internet. Search engine coverage relative to the estimated size of the publicly indexable Web has decreased substantially since December 1997, with no engine indexing more than about 16% of the estimated size of the publicly indexable Web. There may be a point beyond which it is not economical for search engines to improve their coverage or timeliness. “The engines may be limited by the scalability of their indexing

and retrieval technology or by network bandwidth…. Larger indexes cost more to create and slow the response time on average" (Lawrence & Giles, 1999).
- Coverage of search engines varies dramatically. The coverage of the engines is increasing slower than the size of the Web (Table 2-1).
- Professional journals on the Internet are largely inaccessible to non-subscribers.
- Dead links are common. The percentage of dead links returned by the engines increases as the Web grows. (Tip: Although the number of dead links is increasing, you may be able to take the link, remove the last part of the URL so that you have only the base address, and then click on further links from the home page to get to your desired point.)

Table 2-1. Statistics for Search Engine Coverage/Percentage of Invalid Links*

Search Engine	Northern Light	Snap	AltaVista	Hotbot	Microsoft	Info Seek	Google	Yahoo	Excite	Lycos
Coverage of estimated size of Web (%)	16	15.5	15.5	11.3	8.5	8	7.8	7.4	5.6	2.5
Invalid links (%)	9.8	2.8	6.7	2.2	2.6	5.5	7	2.9	2.7	14

* (Lawrence & Giles, 1999).

Pitfalls of Searching

In light of the above, novice Web users make serious mistakes when using search engines to find information.

Big mistake #1: Performing a query using one keyword only. You will probably spend long hours looking at useless documents that do not contain the information you want. You will find databases, catalogs, data, pictures, books, videos, and other information most people never heard of, in places you never knew existed. You will be tempted to read articles in journals you didn't know existed. You didn't know you needed them and wouldn't have missed them had you not used only one keyword. A new occupational hazard of Internet users will be recognized

due to repetitive clicking: carpal click-finger syndrome. (Hint: Avoid using the word “the.”)

Big mistake #2: Practicing search engine brand loyalty. Find one search engine and stick to it, no matter what. Tell all your friends about it. Ignore the advice of others concerning their choice of search engines.

Big mistake #3: Believing in the “perfect 10 hit” search. Comedian Jerry Seinfeld stars in a credit card commercial involving stopping the gas pump exactly at $20, executing “the perfect squeeze.” The computer equivalent of the “perfect squeeze” is pulling off the “perfect 10 hit” search. Theoretically the search engine of your choice should deliver 10 hits, with each hit retrieving exactly the right information from a possible 800 million Web pages. Ten perfect hits, no more, no less. The crusade for the perfect 10 is probably perpetuated by the belief that taking a class in Boolean logic search techniques will enable you to pull it off with your favorite search engine.

Big mistake #4: Succumbing to hyperlink hypnosis. Without a well-thought-out search plan, it is likely that your search will end in frustration. Resist the urge to follow random links. Read and follow the warning label on prescription bottles to avoid hopping around on the Web with the attention span of a circus monkey. Remember that computers are machinery too. If you reach Monty Python’s Flying Web site (http:// www.flyingwebsite.com), you know it’s time to get back to work and stop wasting the government’s money.

Big mistake #5: Choose one. (a) Breaking one of those sand-filled stress balls over your keyboard. (b) Dropping an ice cream cone on your keyboard. (c) Washing your keyboard in the break room sink.

Cartoon courtesy of Mr. David Titus, http://www.toonman.com.

Searching Tips

Time spent learning about search engines and how to pose a query is time well spent. The more you are familiar with the nuances of search engines, the more efficient you will become. Effective problem solving starts with critical thinking. What information do you need? Consider that effective problem solving using the Net is like making a patchwork quilt. Information is pieced together from multiple sources to reach a solution. Your plan may include information resources such as on-line databases, videofiles, government documents, journals, magazines, newspaper articles, newsgroups, and even posing a question to a listserv.

Become familiar with a few trusted sources of information. Identify a few sources that provide reputable and reliable information, such as the National Clearinghouse of Rehabilitation Training Materials (http://www.nchrtm.okstate.edu), the National Center for Dissemination of Disability Research (http://www.ncddr.org), their full-text research link (http://www.ncddr.org/forms/ registrysearch.html), and the ERIC Clearinghouses (http://www.accesseric.org/). All are in the business of collecting, organizing, and synthesizing rehabilitation and disability-related information. They can also point you in the direction of other sources.

Define the problem. Lack of sufficient definition of the problem will affect the outcome of the search. Defining the problem helps to identify the information needed to solve the problem.

Choose the keywords and phrases carefully. Because of the nature of search engines, the selection of the wrong keyword makes the difference between failure and success. Brainstorming techniques often help to stimulate thinking. Your ability to find the information you seek on the Internet is a function of how precise your queries are and how effectively you use search services. Poorly constructed queries return poor results; good queries return good results.

Plan the search. Use several different sources of information. (Did you check with your local library?) Because information is organized in many different ways, use more than one search engine or directory. Because the Internet consists of multiple communication channels, information will be found on different channels. Use as many as practical.

Understand the tools. A search engine is a computer program that performs searches. A search method is the way a search tool requests and retrieves information from its Web site (Habib & Balliott, 1997). Different tools and

methods are used to accomplish different tasks. It depends on the type of information problem you face.

Use the directory search method when appropriate. Directories are best for general information queries, and search engines are best for searching for specific answers to specific queries. Yahoo! (http://www.yahoo.com), LookSmart.com, and Britannica.com are not actually "search engines," but directories. Directories are identified by the way their databases are organized by subject areas. They are hierarchical in nature by subject, with subcategories related to the parent topic. Using a directory to answer general questions saves time and effort in searching. Their emphasis on including the main page for particular Web sites rather than all pages of a Web site makes them the first step in Internet search strategies. Their databases include a large number of businesses, organizations, and government and educational institutions. Use directories for product searches, especially if the company name is unknown.

For example, your client uses a wheelchair. However, he and his attendant moved to an apartment where the entrance to the bathroom door is too narrow for the wheelchair. The objective of the search is to locate as many different products that might be a solution. The client suggests that an aviation aisle transporter like the one they use in airplanes might be a reasonable alternative. To compare a large number of devices, Yahoo! would be one place to start the search for a product of this nature. "Adult stroller," "aviation aisle chair," or "disabled" AND "air travel" are possible keywords or phrases used in the advanced search area.

> *Directory Method Tip:* Choose a subject search when you want general information on a subject or topic. Often, you can find links in the references provided that will lead to specific information you want.
> *Advantage:* It is easy to use. Also, information placed in its database is first reviewed by skilled persons to ensure its value.
> *Disadvantage:* Because directory reviews and indexing are so time consuming, the number of reviews is limited. Thus, directory databases are comparatively small and their updating frequency is relatively low. Also, descriptive information about each site is limited and general (Habib & Balliott, 1997).

Use the search engine method when appropriate. Search engines are often the first search tools Web neophytes use. However, they can quickly produce a bad case of

information overload. Those who use them best use them with knowledge of searching techniques and an awareness of search engine shortcomings. Use this tool when you have a specific question that requires a specific answer. Unlike directories that find only the front page, they search *all* the pages on a Web site. When you pose a query to a search engine, it matches your query keywords against the data it has in its databases to present a listing of possible documents meeting your request. Where the directory searches wide, search engines search deep. They rummage through the entire Web site to find a match and often produce overwhelming numbers of hits, commonly in the multiple thousands. While the number of hits is high, the relevancy to the information needed is often low. The document you need may be buried deep in the thousands of hits.

Using a search engine to obtain information on unique product names, geographic locations, people's names, or scientific papers on a specific topic is often quite effective. Popular search engines are AltaVista (www.altavista.com), Google (www.google.com), Hot Bot (hotbot.lycos.com), and Northern Light (northernlight.com).

Example #1: Computer technicians use search engines to solve specific computer-related problems. They submit a query using a string of words surrounded by quotes, for example, an error code. A search often not only reveals the solution, but also puts the technician in touch with hundreds, if not thousands, of others who have experienced the same problem.

Example #2: A client needs information on a specific drug for diabetes mellitus and its side effects. A search on GLUCOPHAGE® provides information on the drug, including clinical pharmacology, indications, dosage, administration, warnings, contraindications, precautions, overdoses, and patient information (RxList, http://www.rxlist.com/).

> *Search Engine Method Tip:* Choose a keyword search to obtain specific information, since its extensive database is likely to contain the information sought.
> *Advantage:* Its information content or database is substantially larger and more current than that of a directory search tool.
> *Disadvantage:* A search engine is not very exacting in the way it indexes and retrieves information in its database, which makes finding relevant documents more difficult (Habib & Balliott, 1997).

Use the meta search method when appropriate. A multi-engine search tool (sometimes called a meta search) utilizes a number of search engines in parallel. The search is conducted via keywords employing commonly used operators or plain language. It then lists the hits either by search engine employed or by integrating the results into a single listing. The search method it employs is known as a meta search. Several meta search engines are Dogpile.com (http://www.dogpile.com), Meta Crawler (http://www.metacrawler.com), the Big Hub (http://www.thebighub.com), Momma.com (http://www.momma.com), and All One Search (http://www.allonesearch.com/).

> *Meta Search Engine Tip:* Use meta search engines to speed up the search process and to avoid redundant hits.
> *Advantage:* Meta search engines are tolerant of imprecise search questions and provide fewer hits of likely greater relevance.
> *Disadvantage:* A meta search is not as effective as a search engine for difficult searches (Habib & Balliott, 1997).

Use Boolean logic and terminology. The crusade for the "perfect 10 hit" search aside, Boolean search techniques are worth the trouble it takes to learn them. Structured searches, or "Boolean" queries, while known to help obtain more precise search results, can be difficult for some users to learn. Few VR professionals have studied library science; however, borrowing from the librarian tool kit will save a great deal of time and energy in the long run. Use the following terms to formulate more precise searches.

- AND requires that both terms are present somewhere within the document being sought. Use AND for terms that are different to increase the number of relevant hits. Example query: "bread" AND "butter" retrieves pages with both terms present.
- NOT excludes any document containing the term. Use NOT to reduce the number of irrelevant hits. Example query: "bread" NOT "butter" retrieves documents that mention all kinds of bread but never use the word "butter."
- NEAR requires that one term must be found within a certain number of words of the other term. Example query: "bread" NEAR "butter" retrieves pages with both terms present. NEAR also retrieves pages with "bread" appearing with "peanut butter," "almond butter," and "unsalted butter."

- OR requires that at least one of the terms is present. Example query: “butter” OR “margarine” retrieves pages with butter or margarine. Both “butter” and “margarine” may or may not be mentioned in the same document.

If you obtain too many results, try formulating more precise queries. You may also want to try searches of a phrase or string of words, in which words used together are put in quotation marks. Examples include “treatment for diabetes” and “the quick brown fox jumped over.”

It is beyond the capability of this monograph to delve deeply into the use of Boolean logic and the nuances of terminology use. However, two tutorials on the subject are available on-line:

- *Search Like the Pros (Version 0.2)* from the Syracuse University Web site (http://florin.syr.edu/webarch/searchpro/search_like_the_pros.html).
- *How to Search the World Wide Web: A Tutorial and Guide for Beginners,* by David Habib and Robert Balliott (http://www.ntu.edu.au/business/other/sch_tutr.htm).

Post an appeal for help to a newsgroup. Posting an appeal for help on a listserv or a newsgroup is a popular way of seeking information via the Internet. (A listserv is a list of e-mail addresses identified by a single name, such as mail-list@rehabcity.org. When an e-mail message is sent to the mailing list name, it is automatically forwarded to all the addresses in the list.) Often the information you need that is not easily found on a Web page resides in the memory of a fellow human being. Ideally, a question posted on a listserv or newsgroup would be among the last avenues explored; therefore, it is common courtesy to exhaust all of your regular information resources. Anyone who has conducted research appreciates knowing that the person who is asking a question has taken the initiative to help himself first. Vague questions are normally ignored by most newsgroup members, but in some cases hostile remarks are the result. Thus, the term “flamed.” If you have tried to answer your own question, the chances are that some thought has been devoted to the subject. Pose your question in a direct, specific way. Specific questions are easier to answer and draw more helpful suggestions from the members of the group. Remember that this is a very democratic media. Anyone may post a question. Anyone may post an answer. Separating opinion from fact is sometimes a challenge.

Know the group to whom you appeal. Successfully asking for help first depends upon being familiar with the newsgroup or listserv. There are rules for appropriate discussion and different "house rules" on whether questions from "outsiders" are welcome. Chances are that your question has been asked and answered by someone else. Newsgroups will frequently post a frequently asked questions (FAQ) area to save the time and energy of participants. The best maintained newsgroups have FAQs that are updated regularly, so even current event questions can be addressed by looking there first. The site http://www.eskimo.com/~jlubin/disabled contains a collection of newsgroups that are available via the site's *Categories* menu, i.e. *Disabilities/Medical Newsgroups*. Another source is Deja News (http://www.deja.com)

Use push technology. Push technology automatically downloads information from the World Wide Web to your computer in the off hours. The next time you open your search engine, news articles on topics you selected will appear, or products you wanted have been "pushed" to you for review. Some consider it a time saver when looking for a specific item to purchase using the Internet. Entrypoint (http://www.entrypoint.com) is a free service.

Evaluating Internet Sources of Information

To successfully use the Internet, you must be able to judge the quality of the information. Incorrect information or misleading information often appears as valid and credible as high-quality information. While it would be best to gather all the information and then evaluate it, most evaluation is done on the fly. Here are some suggestions to help analyze the data collected for value, relevancy, quality, and suitability.

Web Site Source and Motivation

First, look at the URL address to get a clue on the motivation of the Web site (Marine, Kirkpatrick, Neou, & Ward, 1992):

- COM: Domain for commercial businesses and organizations with a profit motive.
- EDU: Domain for degree-granting institutions, such as colleges, universities, libraries, research institutes, local and state school districts, and health science centers.

- GOV: Domain for non-military national government organizations. Some state agencies are registered as GOV (e.g., hawaii.gov).
- MIL: Domain for military organizations.
- NET: Domain for Internet infrastructure related to actual operation of the Internet.
- ORG: Domain for nonprofit organizations, technical support groups, and professional societies and associations.
- US: Domain for people in the United States who have computers at home or small corporations who want to register their host geographically. State government often use this domain as well.

Also ask other questions about the site:
- Who is sponsoring this page?
- Can I verify the legitimacy of the organization?
- Who is the author and what are the author's credentials?
- How knowledgeable is the individual or group on the subject matter of the site?
- Can the facts be verified? For example, is a bibliography included?
- Are the dates the document was written, revised, and placed on the Web provided?
- Are sources of graphs, charts, and data offered?
- Is contact information for the author or producer provided?
- Are the biases stated or easily identified?
- Is the advertising separated from the content? (Todd, 1999)

Content
- Who is the audience?
- What is the purpose of the Web page and what does it contain?
- How complete and accurate are the information and the links provided?
- How valuable is the information provided in the Web page (intrinsic value)?
- What is the relative value of this Web site compared with the range of information resources available on this topic?
- What other resources (print and non-print) are available in this area?
- What are the date(s) of coverage of the site and site-specific documents?
- How comprehensive is this site?
- What are the link selection criteria if any?
- Are the links relevant and appropriate for the site?
- Is the site inward-focused, outward-focused, or both?

- Is there an appropriate balance between inward-pointing links ("in-links" i.e., within the same site) and outward-pointing links ("out-links" i.e., to other sites)?
- Are the links comprehensive, or do they just provide a sampler?
- What do the links offer that is not easily available in other sources?
- Are the links evaluated in any way?
- Is there an appropriate range of Internet resources—e.g., links to gophers?
- Is multimedia appropriately incorporated?

Structure

- Does the document follow good graphic design principles?
- Do the graphics and art serve a function, or are they decorative?
- Do the icons clearly represent what is intended?
- Does the text follow basic rules of grammar, spelling, and literary composition?
- Is there an element of creativity, and does it add to or detract from the document itself?
- Can the text stand alone for use in line-mode (text-only) Web browsers as well as multimedia browsers, or is there an option for line-mode browsers?
- Is attention paid to the needs of the disabled—e.g., large print and graphics options, audio, alternative text for graphics?
- Are links provided to Web "subject trees" or directories—lists of subject-arranged Web sources?
- How usable is the site? Can visitors get the information they need within a reasonable number of links (preferably three or fewer clicks)?

Other

- Is appropriate interactivity available?
- When it is necessary to send confidential information over the Internet, is encryption (i.e., a secure coding system) available?
- How secure is it?
- Are links to search engines available, or is a search engine embedded in the Web site? (Grassian, 1998)

Creating and Organizing Web Resources: Building a Personal Resource Library

This section reviews techniques for creating, organizing, and maintaining a personal library of Web-based resources. By having such a library, users won't have to remember and type in so many URL addresses, nor will they have to search the Internet each time they're looking for a particular Web site. Instead, once they locate a page, they can store the information for easy access later. The discussion will center on two widely used browsers in the Windows 95/98 environment: Netscape Navigator/Communicator and Internet Explorer.

Both browsers offer support and training. Microsoft's Internet Explorer browser offers on-line support in the Help menu, which includes a help topics file, on-line Web tutorial, product news, frequently asked questions, and technical support links to the Microsoft home page. The web tutorial selection in the Help menu links the user to the Complete Internet Guide and Web Tutorial (http://www.microsoft.com/insider/Internet/default.htm), which offers complete on-line information on browser basics, advanced searching techniques, and many other topics. The latest browser version of Netscape Navigator, Netscape Communicator, has a Help menu where the user can access the internal help contents file as well as on-line links to the Netscape Communicator Reference Library and technical/product support and information.

Creating a Resources Information List

Browser software provides tools that allow the user to create an organized folder/file and menu/submenu system for labeling and indexing frequently accessed Web site pages. Netscape Navigator/Communicator uses the Bookmarks tool, and Internet Explorer offers a similar function called Favorites.

Bookmarks (Netscape Navigator/Communicator). The Bookmarks tool marks or flags a Web page and adds it to the Bookmarks-bookmarks.htm file list. Bookmarking tools allow the user to rename bookmarked pages and/or folders, create/label new folders for filing resources, and arrange folders into a logical file system.

To add a Web page to your bookmark list, begin by having the desired page on your screen. Then do *one* of the following:

1. Right-click the mouse to display a pop-up menu. Scroll down and select Add Bookmark.

2. Place the cursor on the Bookmarks icon on the Netscape Navigator/Communicator's Location tool bar, left-click, and then select Add Bookmark from the Bookmarks menu.
3. Place the cursor on the Location or Netscape icon on the Netscape Navigator/ Communicator's Location tool bar. The cursor will display a "gripping hand." Hold the left mouse button down while "dragging" the Location icon over to the Bookmarks icon and then release. *Note:* the Bookmarks menu will appear during this technique. You do not have to select any of the menu items, just "drag and release."
4. Press the Ctrl key plus the D key (Ctrl + D).

After any one of the four methods, the displayed Web page will be added to the Bookmarks-bookmarks.htm resource list.

To access a specific bookmarked Web page, go to the Bookmarks menu by activating the Bookmarks icon on the Location toolbar or pressing Ctrl plus B. Once in the bookmarks menu, simply click on the desired site. The arrangement of the Bookmarks-bookmarks.htm list can be changed by accessing the View menu at the top of the Bookmarks-bookmarks.htm window. Bookmarked Web pages can then be arranged by name, location, date created, or date last visited.

Favorites (Internet Explorer). Favorites operates in a way similar to Netscape Navigator/ Communicator's Bookmarks-bookmarks.htm file list. To add a Web page on your screen to the Favorites list, display the Favorites menu by activating the Favorites icon on the tool bar, opening Favorites on the top menu, or right-clicking to display a pop-up menu. Then select "Add to Favorites." The Add to Favorites dialog box displays the name of the Web page resource in the Name box. The user can accept the current name or change the name by typing the desired text in the Name box. Selecting OK adds the Web page resource to the Favorites resource list. Through the View menu, Favorites can be arranged by name, type, size, or date.

Organizing the Resource Lists

As with any reference library, organization is the key component for efficient access and utilization of resources. Netscape Navigator/Communicator's Bookmarks and Internet Explorer's Favorites offer a flexible filing system for organizing Web-based resources. Both offer powerful tools for (1) labeling,

grouping, and filing similar Web page resources and information into a logical and user-defined system and (2) adding descriptive comments, renaming, and/or changing the arrangement of individual resources or folders. For example, the user may choose to organize the Bookmarks or Favorites resource list according to general topic areas in folders labeled legislation, Social Security, medical resources, employment resources, disabilities, transportation, support groups, etc. The user can further expand the folder system by adding subject-specific folders under a general topic folder—e.g., head injury, cerebral palsy, and developmental disability subfolders under the main folder on disability. Bookmarks or Favorites can be moved in, moved out, and copied to the desired subject folders. Thus, the Bookmarks or Favorites list can be organized as a directory tree similar to your computer's folder and file directory.

Netscape Navigator/Communicator. Netscape Navigator/Communicator 4.0 and subsequent upgrades provide the option of adding bookmarked resources directly into folders. The user can open the Bookmarks menu using the Bookmarks icon on the Location tool bar and select File Bookmark. The Bookmark-bookmarks.htm menu list now displays folders and bookmarked resources. Folders that contain subfolders have an arrow to the right of the main folder name. Scroll, locate, and select the desired folder or subfolder where the bookmarked Web page is to be filed. This will place the bookmarked Web page in the selected folder. This is called bookmarking on the fly and offers the user a very convenient way of filing bookmarks directly from the Bookmarks menu.

Organizing bookmarks into folders is very similar to organizing word processing and/or program folders on your personal computer. Netscape Navigator/Communicator offers many tools for creating, labeling, adding descriptive text, and sorting resource folders. All of this can be accomplished by using the Edit Bookmarks tool that appears in the Bookmarks menu.

Under the Edit Bookmarks tool, add a folder by selecting File, selecting New Folder, and then naming the folder and selecting OK. Bookmarked Web pages or links can then be moved or copied to specific folders. In addition, new folders may be put under existing folders. Here are two methods for moving a Developmental Disabilities folder under a Disabilities folder:

- Drop and drag technique. Open the Disabilities folder. Select and highlight the Developmental Disabilities folder on the Bookmarks menu list while holding down the left button on the mouse. "Drag" the Developmental Disabilities

folder to the Disabilities folder and “drop” it by releasing the left mouse button. The Developmental Disabilities folder now appears as a subfolder under Disabilities.

- Cut and paste technique. The Cut and Paste tools can be accessed by either opening the Edit menu at the top of the Bookmarks-bookmarks.htm window or by right-clicking the mouse to access the pop-up menu. First select and highlight the folder to be moved, i.e., Developmental Disabilities. Select Cut. Once Cut is selected, the folder will disappear from the list and be posted to the computer’s clipboard. Now, locate and open the Disabilities folder. Open the Edit menu and select Paste. The Developmental Disabilities folder now appears under the Disabilities folder.

Netscape Navigator/Communicator includes other tools in the File, Edit, and View menus that can help create a user-friendly Bookmarks reference list.

File menu:

Copy: moves bookmarks as well as folders to multiple locations or folders.
New Separator: inserts new separation entries in your folder/bookmark list organizational tree.
Import: allows the user to import other Bookmark files to add to the existing Bookmark-bookmarks.htm list.
Save As: allows the user to save bookmarks.htm files to a disk or another folder on the computer.
Add Selection to Personal Toolbar: places selected Web site links from the Bookmarks-bookmarks.htm list onto the Netscape Navigator/Communicator’s Personal Toolbar, i.e., places a labeled button on the Personal Toolbar. Activating the Personal Toolbar button will take the user to the desired Web site or page. This tool is very convenient for quick user access to frequently visited Web sites.
Create Shortcut: places a selected bookmarked link on the Windows 95/98 desktop. The shortcut can be double-clicked on the Windows desktop, and Netscape Navigator/Communicator will activate and display the linked Web page.

Edit menu:

Undo and Redo: allows the user to “undo” or “redo” current changes to the Bookmarks list.

Cut, Paste, Copy, Delete: allows the user to cut and paste as well as copy or delete bookmarks and/or folders on the Bookmarks list.
Select All: highlights all bookmarks on the Bookmarks list.
Find in Bookmarks: allows the user to type in the name of a desired bookmark in a dialog box and search the Bookmarks-bookmarks.htm list for a specific Web page resource.
Bookmark Properties: gives the name selected for a specific bookmarked Web page and displays the location (URL), i.e., Web site page address. *Note:* keystroke shortcut commands for each of the above menu choices are displayed in the File and Edit menus.

Internet Explorer. To place a new bookmark in a specific folder, open the Favorites menu with the Favorites icon on the toolbar or from Favorites on the Internet Explorer top menu. Select Add to Favorites and then *Create in* >>. The dialog box will display the organizational tree of folders, which the user can select from. The Add to Favorites dialog box also gives the user the option of creating a new folder during this procedure.

Organizing and arranging Internet Explorer's Favorites resource list utilizes the same techniques as discussed for Netscape Navigator/Communicator, i.e. "drag and drop" and "cut and paste." However, Internet Explorer adds another option: a convenient series of automated buttons and windows under a menu called Organize Favorites. The buttons include Move, Rename, Delete, Open, and Create a New Folder.

A final option for organizing is to begin with a display of the complete list of Favorites, which can be accessed by opening the Favorites menu and selecting More Favorites. Once a folder or Web page resource is highlighted, the user can access a pop-up menu and utilize the Open, Send To, Cut, Paste, Copy, Create Shortcut, Delete, Rename, and Properties tools. Also, the user can activate a toolbar from the View menu that displays active buttons for accessing many of these tools, i.e., Cut, Copy, Paste, Undo Move, Delete, Properties, Large Icons, Small Icons, List, and Details.

Creating Shortcuts and Resource Folders for the Windows 95/98 Desktop

Both Netscape Navigator/Communicator and Internet Explorer provide the tools to create and name shortcuts. By using shortcuts, the user can go from a text

document to a specific page on the Internet with a press of a button—rather than getting out of the document, going into the browser, and selecting the page from the Bookmark or Favorites list. This is a very convenient technique for quick and ready access to frequently used Web pages.

The user can also file Web pages on the desktop using the Save As option. This allows the user to access a Web page from his or her other directories rather than going into the browser and choosing from among the bookmarks.

Access Also Means Accessibility

Of course, no discussion of the use of the Internet by the VR professional is complete unless we guarantee accessibility to the Internet by the VR counselor who is disabled. As we outfit our offices and thus our staff with information technology (IT) designed to make the Internet an everyday part of our work life, we must pay full attention to the needs of our disabled colleagues—those who are blind or partially sighted and thus can't use standard screen output; those who have functional limitations in the use of their hands and thus can't use a mouse or a standard keyboard; and those who are hearing impaired and are thus unable to avail themselves of audio-enhanced multimedia computer and Web-based applications. Fortunately, assistive technology solutions abound, ensuring that there's enough Net for all of us.

If you are a VR professional who is disabled, you should learn exactly how your disability will affect your computer use. If you are not already a computer maven yourself or familiar with the assistive technology available to you, get a good needs assessment from a qualified assistive technology specialist—someone who knows the breadth and depth of available solutions and who is trained and adept at helping people zero in on their specific needs and potentials. Are you visually impaired? Mobility impaired? How severe is your disability? What specific tasks can you perform without assistive technology, and what will you need specialized equipment to do? The more comfortable you are with these questions and their answers from the outset, the more productive and comfortable you will be with the

solutions you pick. Your understanding of your needs can serve as an accurate guide to finding the most viable and worthwhile assistive technology solutions.

As they relate to the Internet, problems faced by the disabled professional generally fall into two major areas, depending upon the nature of the disability—input and output.

Input Problems

Input means putting data and commands into the computer. For non-disabled persons, the keyboard and the mouse are the standard input tools. Many individuals who have functional limitations in their hands, arms, or upper body have difficulty either typing text into the computer or using a mouse. For those who have difficulty typing, a number of improved speech-recognition systems are available on the market that can serve the same purpose. Kurzweil Voice, Dragon Naturally Speaking, and IBM Viavace are three of the most common. The user starts out by reading very specific material supplied by the manufacturer so that the software can learn the qualities of the voice. After the training period, the voice-input system can be used to input text and numbers into the computer or to give the computer commands such as print, open file, or even "click here." Using these packages, any number of other software programs can be operated, such as electronic mail messaging software, browsers, word processors, or spreadsheets, and the operating system can be navigated as easily as if one was using the keyboard.

As computer processors become ever more powerful, these programs will continue to increase in their accuracy and in the speed with which people can verbally enter data. For now, they do work and serve as a satisfactory alternative to not being able to enter data at all. They aren't perfect, however, and those who use them should be prepared to expect errors in recognition as they use speech input. There is a joke at Microsoft, which illustrates this point. One of the groups working on speech recognition at Microsoft is known in the company as the recognized speech group. However, on the oscilloscope that is used to map out visual representations of specific speech patterns, the name of their group looks just like the phrase "wreck a nice beach." Thus, the group has been dubbed the "wreck a nice beach" group, which illustrates the complexities of the accurate phonetic representations of the English language. These programs will only improve as time goes on and are well

worth the investment for those who must use them, especially if they have no other options for entering data or controlling their computers.

For those whose functional limitations are less significant, allowing them to input data and commands via the standard computer keyboard, alternative keyboards and alternative mice are available. The keyboards may require less pressure, be shaped differently than the standard keyboard, or minimize strain on the hands and wrists. Also available are foot-operated mice, mice of all shapes and sizes, and track balls, which allow for the movement of the mouse via a spinning ball housed in a sturdy non-moving case. Using this strategy, an individual with motor coordination problems can use any digit or part of the arm to move the ball within the case, making it easier to accurately navigate the mouse cursor to the desired position. Simple foam, jell-filled, or other wrist rests can also help the inputting of data by reducing strain on the wrists and forearms.

On the software side, Word Prediction software can make it easier to input material by anticipating words and completing them as their initial letters are typed, thus saving numerous keystrokes for the user. In addition, Windows has built in a number of specific accessibility features designed to assist those with mobility impairments. The Accessibility applet, part of the Windows family Control Panel, has “Sticky Keys,” which, when activated, allow modifier keys such as control, shift, and alt to act as if they are being held down concurrently with other keys, even though they are pressed sequentially instead. This makes it possible for individuals to enter key combinations, even though they may be unable to hold down one key while striking another. Another tool in the Accessibility applet allows individuals to adjust the repeat rate of keys, thus eliminating the possibility of repeating unwanted keystrokes by holding down a key too long.

Output Problems

The standard output device on computers today is the monitor or computer screen, and to a much lesser extent, speakers either attached to the computer’s processor or to a sound card in the back of the machine.

Audio Web content, such as Real Audio or similar formats, can cause accessibility problems for those with hearing impairments. However, by following good accessible Web design practices such as those outlined in the Web Content Accessibility Guidelines (http://www.w3.org/wai), Web developers can eliminate

audio presentation problems. They may use techniques such as closed captioning (using SAMI, SMIL, or QuickTime) or presenting text equivalents for audio data that can be downloaded and read separately. Although individuals with hearing impairments may experience accessibility problems with this audio material, such material is pretty rare as of this writing. If it should become more popular, it is likely that text or captioned equivalents will be provided by those wishing to publish for the rehabilitation community.

As you might imagine, those with visual impairments experience the most difficulties with computer output while browsing the Web and performing other tasks. The Web and computer environments are presented spatially and relationally, thus creating particular difficulties for the visually impaired, who, through the use of Braille or speech output, process information linearly and sequentially. Individuals who are blind or visually impaired experience very specific problems related to browsing the Internet that they may not experience with other software. This section, then, focuses on possible solutions for the Internet.

Those who are totally blind can choose between two basic types of Web access technology, specialty talking browsers and mainstream browsers in combination with screen reader technology.

The two most common specialty browsers are the IBM Home Page Reader and the Productivity Works PW Web Speak. Both were written to provide a specialized user interface to the blind surfer seeking information from the Internet. Although they require installation of a sound card in the computer, they come with their own speech generation software. However, error conditions, the appearance of messages from other software packages, and the need to have constant access to operating system prompts and commands necessitate the nearby presence of a general screen reader to ensure full independent computer operation by the blind user.

At the other end of the spectrum are mainstream browsers such as Netscape and Internet Explorer. These are browsers that can be used to surf the Web in conjunction with screen readers such as Jaws for Windows, Window Eyes, and Slimware Window Bridge. These specialized screen readers read the Web page, including properly labeled links, out loud to the blind individual or present it with Braille displays. For those who are avid Braille readers, it can take time,

experimentation, soul-searching, and examination of the ways in which information is processed to decide whether to use speech or Braille.

Although this trend is waning, some individuals who are blind still use DOS-based communications packages such as Telix, Procomm, or Commo with DOS-based screen readers to dial into Unix-based shell accounts, where e-mail packages such as Pine and character-based browsers such as Lynx are used to surf the Net.

Whatever solution is chosen—be it Braille or speech, screen reader or specialty browser—it will be useful for reviewing rehabilitation data on the Internet. Most of the rehabilitation documents are composed of straight linear text and some simple form-based search engines.

This reliance on textual materials will eliminate many of the factors that others will need to consider when choosing an assistive technology. For example, the text-based browsers—Lynx, Home Page Reader, and PW Web Speak—do not support Java Script as of this writing. Java Script is a specialty language that supplements HTML and provides added features such as animation, pop-up windows, and data validation. Since some search engines rely on Java Script to gain access to certain databases, searching some sites could pose a problem if Java Script remains unsupported in the solution chosen. In all candor, the serious blind surfer usually uses a combination of options. For example, the author of this section uses Home Page Reader for complex table navigation and Internet Explorer and a screen reader for general browsing. Beginners, however, should fully learn one software program before adding others to the browsing arsenal.

For individuals who are not totally blind and can read the screen with some magnification, the solution is much simpler. A number of screen magnifiers are available, such as ZoomText Xtra (http://www.aisquared.com) and Magic (http://www.hj.com). Their features and attributes change almost weekly as competition drives them to be ever better.

Factors to Consider When Choosing Assistive Technology

Depending upon the interactions between the IT and assistive technology departments and the way in which a given state makes IT procurement decisions, the individual with a disability may or may not have input into the computer,

browser, and assistive technology that is chosen. Those who do have input will want to consider the following factors:

1. Ask assistive technology and IT experts to discuss the various options available in your particular environment. To learn about the latest available solutions, ask them to loan cassette issues of magazines such as *Access World* from the American Foundation for the Blind, *Bitstream* from Shrink Wrapped Computing, and *Sound Computing* from Dean Martineau.
2. Consider using what friends and colleagues use. They may be able to provide training and support. On the other hand, individuals shouldn't sacrifice their needs for uniformity. Individual preferences, abilities, and specific functional limitations can make a huge difference in the type of device that will be most helpful.
3. Consider the availability of high-quality and immediate technical support.
4. Experiment with various types of assistive technology. Consider preparing a test script to try with several options. Remember that you will have to live with the solution you choose, and it should be appropriate, meet your needs, and be personally appealing as well.

Once everything is in place, tutorials can help the professional with a disability learn to use the Internet. Numerous written and audio tutorials are available from CrissCross Technologies, Henter-Joyce, and others.

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3. Surf's Up! Consumer Use of the Internet

Jim Sarno and James O'Brien

The preceding chapters discussed the whys and hows of the Internet. This chapter focuses on the use of the Internet by the consumer and the counselor. The vocational rehabilitation (VR) counselor plays a key role in enhancing Internet accessibility for the consumer and in maintaining the counselor-consumer relationship, which is the focal point of the services provided through the public VR program.

We have attempted to address a broad spectrum of possible uses of the Internet, while providing samples of existing Internet resources. By no means are the sites referenced in this document, the only sites for the specified content, nor are they necessarily the best sites. These are simply sites that we hope will set the stage for new surfers just dipping their toes in the vastness of the Internet, as well as share some new resources with the old cyber-pros.

Addressed below are the benefits of consumer access to the Internet, examples of information and resources available on-line, VR's role in facilitating Internet use and access to information, and some of the cautions to be exercised when surfing the Web. While we generally think of consumers when referring to "clients," we also chose to challenge that mindset by recognizing that business is also an important consumer of VR services—and a consumer who is on-line.

Ride the Wave! The Benefits of Consumer Access

The number of Internet users worldwide is projected to be over 250 million (International Data Corp). That number reflects how the Internet has steadily extended its span of influence by touching more lives each day. Internet access has become more available as the cost of computers and Internet service provider (ISP) fees have decreased. As the Internet becomes more populated, Web site designs are better reflecting the needs of their users. Web site accessibility for people with disabilities is becoming as important as architectural accessibility. In a recent *Wall Street Journal* article, Fred Fay, one of the country's leading disability rights advocates, said, "The Internet is a great equalizer, putting people with disabilities on an equal footing with people without disabilities" (Fay, 1999).

The majority of people, 44%, who go on-line use the Internet to get information (CRC International). Access to information is a significant part of the rehabilitation process and of the principle of consumer choice. Although Internet census numbers suggest a densely populated "Net," many people are not connected. The rehabilitation counselor can make the Internet accessible to consumers who do not have access and promote its use for those who do.

The consumer's use of the Internet to obtain information in no way lessens the importance of the counseling relationship. It must be remembered that "the foundation of rehabilitation counseling is one of empowerment in which individuals exercise control over their own lives" (http://www.siu.edu/~rehabrct/). Whether the consumer uses the Internet or the library to get information, the rehabilitation counselor's role in applying that information in a workable plan for employment is crucial and is a service that clearly sets the VR program apart from any other existing employment program.

So What's Out There? Examples of Information Available

Agency Services and Information

Informed consumers are involved consumers, and providing access to information about the VR agency's services and processes can better help them participate in the VR program. Most consumers of VR services find out about service options, the rehabilitation process, and agency policies through interaction with VR staff. Limited information, or in some cases misunderstood information, may lead to difficulties in the counseling relationship and limit the possibilities of informed consumer choice. When the consumer has access to information before making

contact with the agency, he or she can become familiar with services while deciding whether to pursue an application.

Creating and promoting this on-line interface between the consumer and the VR agency is the first step. Many options are available in developing a computer interface for consumers, including a formal Internet site on the World Wide Web, an intranet site with in-office kiosks to access the information, and a PowerPoint presentation or Word document with embedded links to outside Internet sources. Some options can avoid the policy restrictions and time delays occasionally experienced by agencies in developing a formal Web presence.

For example, in Washington State, an interested consumer has access to all program publications and details about eligibility criteria and the rehabilitation process from the agency Web site (http://www.wa.gov/dshs/dvr). The Web site offers a "What's New" section for sharing information about recent program changes, public forums, and other agency business that may be of interest to the public. An office locator section allows a consumer to locate an office nearest to him or her and obtain a map, driving directions, and bus route information. If there are additional questions, the Webmaster can be contacted by e-mail from the Web site. Additionally, an on-line comment card is available to solicit input for site improvements.

Information about vendors, such as job developers and training programs, may also be made available from the VR agency site in order to facilitate informed choice in the rehabilitation process. In addition, portal sites (i.e., Web sites that serve as starting points to other destinations or activities on the World Wide Web) can be created by VR staff who have some basic experience with HTML programming or a basic Web page design application such as FrontPage Express. These custom portal sites can provide links to area schools, employment programs, medical information, and other Internet resources that will help the consumer be self-directed. Well-organized disability-accessible sites with recognizable icons are generally more user friendly for the consumer than a Netscape Bookmark or Internet Explorer Favorite URL file system.

An example of such a portal site is one created by Washington State Department of Vocational Rehabilitation's Northwest Region. This site is a job resource center Web site (http://snonet.org/ dvr/start/start.htm), which is used as the default page in consumer resource areas. The site was developed and is maintained by a regional

staff person. Rather than placing this on an intranet and limiting use within the office, it was placed on the Internet using a free community Internet service provider. This allows for consumer access outside of the job resource center and VR, from any computer at any time. Internet access to these resources is then also available to consumers with significant barriers in accessing services, whether related to disability or distance to the VR site.

Medical and Psychological Information

The consumer has access to an abundant amount of medical and psychological information on the Internet. The consumer could access this information by doing a search using a search engine such as Yahoo, Excite, WebCrawler, Google, or Medical Word Search (http://www.mwsearch.com), which searches major sites, or by going to a site that has been identified as a reliable resource. A good recommendation to give to a consumer is to use more than one search engine when seeking information, since different search engines have different information in their databases.

The following example outlines how a consumer needing information on attention deficit hyperactivity disorder (ADHD) located it using Yahoo in an on-line search. On Yahoo's home page, the consumer entered ADHD in the search box and received 91 site matches. The consumer then chose sites and assessed their relevance. The first match was titled "ADHD Owner's Manual," which provided a definition, an overview of the demographics of the ADHD population, treatment options, and a link to other resources. Not a bad start for a shot in the dark!

The consumer could have also begun with a site like the Job Accommodation Network home page (http://janweb.icdi.wvu.edu), which has a reputation for providing good information on disability issues. Entering the *JAN Web Site* home or activating the *Points of Interest* link, the user can access links on Social Security, the Americans with Disabilities Act (ADA), medical and health care, adaptive technology, and specific disability resources. Under the heading "*Disability Resources*" is the link called *Web Sites by Specific Disability*. The consumer would simply click on this link to go to the web page *Information Resources by Specific Disabilities*. Under the heading for *Cognitive and Developmental* there is a link for *Attention Deficit Disorder*. Clicking on the *Attention Deficit Disorder* link will take the consumer to the heading *Attention Deficit Disorder/ADHD*. Clicking on the link *ADD Resources* will take the

consumer to an ADD resource site at (http://curry.edschool.virginia.edu/curry/dept/ose/categories/add.html) that provides access to the definition of ADHD, the DSM IV criteria, the treatment of ADHD, support groups, and resources for parents. The two search activities (*JAN* and *ADD Resources*) just described will provide some good information to the consumer that can be used with the counselor in developing a sound plan for employment.

Assessment Tools

Assessments available on the Internet range from the simple to the complex and are relevant to many phases of the rehabilitation process. Some are completely Web based and interactive, and others may require printing. Whether completing an inventory of work interests and aptitudes, exploring self-employment, researching the labor market and employer needs, or assessing job-seeking skills, interactive assessment information is made instantly available via the World Wide Web. Use of self-assessment tests between counseling sessions can increase consumers' involvement in plan development and make meeting times with the counselor more productive.

Two examples of interest assessments available on-line are the Career Interests Game (http://Web.missouri.edu/~cppcwww/holland.shtml) and the Career Key (http://www.ncsu.edu/ careerkey/). Both sites utilize the well-known Holland Scale. The Career Interests Game is designed to help consumers match their interests and skills with similar careers. Career Key shows similarities to the six personality types and then generates a personal list of jobs to begin researching. Consumers can print an eight-page hard copy version of the Career Key. These assessments are free and relatively simple to use, each taking only a few minutes to complete. Information can be printed to review along with other interest assessments.

An interesting collection of career surveys, knowledge assessments, personal preference inventories and health tests, plus some other tests referred to as "just for fun," are available at the Web site "IQ Personality Tests" (http://www.davideck.com/). While the VR counselor will need to use professional judgment in utilizing these assessments, it is recognized that only qualified professionals are to be used for testing personality and intellectual capacities of consumers. CareerPerfect.com (http://careerperfect.com) offers another example of

a simple “Work Preference Inventory” that can be taken and automatically scored on-line. Answering 24 brief questions presents one’s preferred work styles for use in career planning. High school students considering careers in the military might find “My Future” (http://www.myfuture.com/) interesting and useful. The site is colorful and is aimed at some of the contemporary issues facing graduating teenagers.

Many local sites offer interest assessments with links to local education and training programs as well as the labor market. An example of this is Plan for Tomorrow Today (http://www.wa.gov/ careerguide/), operated by the Washington State Workforce Training and Education Coordinating Board. Their self-assessment tool is designed to help consumers determine interests and aptitudes and then link them to descriptions of more than 330 occupations along with wage data and the local employment outlook. Using this site, one rehabilitation counselor stated, “I train all my customers in how [to use this site] to do an informed self-directed plan through assessment, pre-employment services, job search, education and training programs.”

Job seekers who have stalled in their search for employment or feel they’ve hit a career dead end can have their job-seeking strategies assessed and receive practical job search advice. Employment Search Readiness Inventory (http://www.careerWeb.com/inventory/) will evaluate whether a consumer is doing everything necessary to get the job he or she wants or earn a promotion. In the end practical advice is provided, and the information can be printed to use with other tools. Knowing how well we communicate with others is good information for any job seeker. The Interpersonal Communication Skills Inventory (http://www.queendom.com/ communic.html) helps consumers identify areas of interpersonal communication that might hold them back in locating or maintaining employment.

Caution and good judgment should be exercised whenever using information collected on the Web. It is important that a VR counselor research an on-line resource before using it for counseling and guidance. A good business practice is for the rehabilitation counselor to take the on-line assessment himself or herself before using it with consumers. For example, some assessment sites such as the Keirsey Character Sorter and the Keirsey Temperament Sorter II (http://keirsey.com) have stirred debate over issues relating to the misdiagnosis and treatment of ADD in children (http://keirsey.com/addhoax.html). Self-directed on-

line assessments, when used appropriately in the counseling relationship, can be very beneficial to both the consumer and the rehabilitation counselor.

The Resume

What about that resume—does it sell me? A question frequently asked by job seekers can be answered in an instant from numerous on-line resources. Access to advice about resume layout and design and the ability to review other job seeker resumes are offered through both local and national resume resources. An excellent first stop for anyone needing resume advice is the Job Hunter's Bible (http://www.jobhuntersbible.com/index.html). Dick Bolles, author of the job seeker's staple, *What Color Is Your Parachute?*, provides this comprehensive resource, which includes assessments, career advice, resume and cover letter resources, and much more. The abundance of information on this site makes it essential surfing for the job seeker.

Another commercial resume site, operated by Regina Pontow, is ProvenResumes.com (http://www.provenresumes.com/). This site provides resume tips for 35 career areas, with before and after suggestions and information on electronic resumes and using job banks. CareerPerfect.com (http://careerperfect.com) offers resume advice, electronic resume tips, and step-by-step instructions to create a keyword electronic resume. The site also provides guidance on cover letters, applications, and careers. All of the above sites provide access to on-line resume databases.

The rehabilitation counselor should caution consumers that submitting an on-line resume can be tricky. Often employers will ask for a resume to be sent in plain text (ASCII) or not as an "attachment." The rehabilitation counselor can work with the consumer in developing resumes that can meet the request of any employer. Whether one needs a plain text resume with no bells and whistles, a visual resume with fonts and type that rival a work of art, or a scannable resume that will ensure the resume facts survive an employer's scanning process, all are available on-line.

The Web offers many sites that provide free resume resources as well as commercial sites that charge a fee for on-line content and print publications. In

designing resumes for some professional occupations, using a fee-based site may be appropriate in order to get a higher level of quality information.

Labor Market Information

Knowing "what's hot and what's not" during career planning is a challenge for many rehabilitation counselors and consumers. The Internet is an excellent resource for locating accurate primary and secondary labor market information. Examples of sources for secondary information are America's Career InfoNet (http://www.acinet.org/acinet/default.htm) and the National Occupational Information Coordinating Committee (http://www.noicc.gov/). From both of these sites it is possible to narrow a search to a specific state.

Once a search of this information has been completed, the consumer can proceed to gather primary labor market information. Sources include employer Web sites, local on-line classified listings, job databases such as America's Job Bank (http://www.ajb.dni.us/seeker/), and industry-specific on-line databases. E-mail links from company sites to human resource departments also provide opportunities for virtual "informational interviews."

For example, a consumer beginning a search using Career InfoNet (http://www.acinet.org/acinet/ default.htm) can identify the labor market data for computer programmers in the Seattle area. From here, by conducting a keyword search in the *Seattle Times* classifieds, the consumer can view current job listings, job descriptions, and minimum qualifications. Continuing the search to an industry-specific site such as http://www.dice.com or http://www.techies.com gives additional information about current openings in the Seattle area. From here one can then go directly to employer sites such as Microsoft and view current openings. Using all of this information, the consumer can quickly determine what type of training is required, how open the labor market is, and what salary and benefit packages are offered.

Another Internet resource is O*NET, the Occupational Information Network (http://www.onetcenter.org). O*NET "is a comprehensive database of worker attributes and job characteristics. As the replacement for the Dictionary of

Occupational Titles (DOT), O*NET will be the nation's primary source of occupational information" (taken from "What is O*NET," on-line). The on-line version of this publication is still under development but is due to be released in the spring of 2000. O*NET can be combined with other on-line resources such as America's Job Bank and ALMIS.

Self-Employment

Nationally, self-employment is a vocational direction being chosen by many individuals with disabilities. While consumers and rehabilitation counselors may vary in self-employment expertise, generally knowledge of business startups, business plan development, and assessment of the personal characteristics that lead to a successful self-employment venture is limited.

An abundance of information on self-employment is available on the Internet. An important first step is to ask, "Do you have what it takes to succeed as an entrepreneur?" The Entrepreneur Test (http://www.liraz.com/webquiz.htm) is an interactive quiz that will help assess a consumer's entrepreneurial skills and personal characteristics.

From here the consumer should visit the home site of the Small Business Administration (http://www.sba.gov/). To locate information on self-employment, click on "Starting," which has links to small business resources, frequently asked questions, first steps, business plan outlines, research links, and free counseling through the Service Corps of Retired Executives or Small Business Development Centers. The consumer can also download a business startup kit.

Another worthwhile self-employment resource is EntreWorld (http://www.entreworld.com), "a world of resources for entrepreneurs." The "Starting Your Business" section contains information on entry strategies, business plans, networking, market evaluation, market demographics, competitive intelligence, and market research. The site also has numerous links and references to useful information for entrepreneurs. Consumers can also find Web sites for professional associations that provide networking opportunities and can be useful in developing self-employment.

Unfortunately, with the explosion of the Internet and the ease with which a person can develop a Web site, many Web-based scams related to self-employment, multi-

level marketing, and "homeworking" have surfaced. People with disabilities, the unemployed, and the underemployed are all easy targets for such scams. It is important that the rehabilitation counselor and consumer assess the legitimacy of these opportunities, and the Internet provides a number of excellent resources for this. The Better Business Bureau site (http://www.bbb.org/) provides a consumer tips section. On-line bulletins on work-at-home and telemarketing scams are available. The Federal Trade Commission's Web site (http://www.ftc.gov/) is another excellent resource for information on scams. From the home page, select "Consumer Publications" for access to the following: *Don't Get Burned by a Pyramid Scheme Campaign; Get-Rich-Quick and Self-Employment Schemes Campaign; Multilevel Marketing Plans; Work-at-Home Schemes; Profits in Pyramid Schemes? Don't Bank on It Alert;* and *Net Based Business Opportunities: Are Some Flop-portunities*. Other Web sites to consult when investigating potential self-employment scams include the National Fraud Information Center (http://www.fraud.org), The North American Securities Administrators Association (http://www.nasaa.org/), and the Internal Revenue Service (http://www.irs.gov/). These sites all provide consumer warnings and news bulletins.

Job Search and Employment

Job seekers use the Internet to identify job openings, research employers, apply for jobs, and post resumes. As with any other topic on the Internet, the amount of employment information available is overwhelming. Dick Bolles puts the vastness of the Internet job search into perspective when he says there are alleged to be over 100,000 job hunting sites on the Internet, and that's way too many to be useful to anyone (Bolles, 1999).

The Spring 2000 edition of *Newsweek,* titled "How to Use the Internet to Choose or Change Careers," provided over 200 pages of on-line resources and Web sites. This publication and its introduction, "Hunting for Jobs Is a Totally New Game," is a testimonial to the growth of the Internet as an important tool in the job search (Kaplan, 2000, p. 4). For example, the article reports that in 1995, when Microsoft began to recruit on-line, about 5% of the 8,000 resumes it received monthly were sent in electronically. Last year more than half were.

When a consumer is using the Internet in the job search, the counselor's role is not diminished. Using the Internet as the primary activity in the job search is seductive but not productive. Bolles (1999) states, "Out of 100 non-computer people who

search Internet job sites, 2 will maybe find a job, and out of 100 computer people who search job listings on the Internet, 45 of them may find a job." The perspective that the Internet is merely a tool in the traditional job search is an important message to reinforce.

The best recommendation a VR counselor can make to a consumer is to start with a gateway Web site—one that offers a start-to-finish guide through the job search. The Job Hunters' Bible is one such site, but the Riley Guide would be another excellent starting point. The Riley Guide (http://www.dbm.com/jobguide) was launched by Margaret Dikel in January 1994, and Dick Bolles describes this site as

> a justly famous site on the Web. It's terrific, always has been, thanks to its creator, Margaret F. Dikel (formerly Margaret Riley). What you get here is a manageable index of the job-hunting resources on the Internet, well organized, with extras like a wonderful summary of resume databases and job-search guides. If I could only go to one gateway job-site on the Web, this would certainly be it (Bolles, 1999).

For the consumer who is a confident and adventurous user, the various search engines can be used to find information that the Riley Guide has indexed, although searching this way would be more time consuming. Yahoo (http://www.yahoo.com) is a popular search engine whose home page provides a search capacity as well as connections to many information sources. When visiting Yahoo's home page, the consumer will see links to many categories of information, from weather to the stock market. One of the topic headings is "Business and Economy" and under that heading are sites focusing on business, finance, and jobs. Choosing to follow the link to jobs will connect with another Web page that deals with employment and work. The topics include career planning, wage and salary information, jobs, and other employment-related sites. By clicking on "Jobs," the consumer will be connected to hundreds of sites that post job openings.

The choices are overwhelming, and finding the most helpful site will take a hit-and-miss effort. This makes a gateway site so helpful, since it saves time and connects to the most relevant sites. Another recommended time saver is Wanted Jobs 2K (http://www.wantedjobs2k.com). This site is a meta search engine that queries 34 Internet job sites, such as Monster.com, Career Mosaic, and America's Job Bank. The consumer or counselor can download the Wanted Jobs program free

of charge. Once the program is downloaded, an icon will appear on the consumer's or counselor's desktop. The user will need to establish a profile by providing information such as name, e-mail address, current employment status, and reason for the job search. A user name and password is then established. If the consumer or counselor doesn't have an e-mail account, Jobs Wanted 2K offers free e-mail service. The returned employment information lists the job posting date, job title, name of the employer, location, and source. The source is the Internet job site where the posting is located.

Self-Advocacy and the Americans with Disabilities Act

Consumers' ability to advocate for themselves and become knowledgeable about disability law is another benefit in the age of Internet access. Literally thousands of Web sites are dedicated to the Americans with Disabilities Act (ADA), as well as local and state laws related to access and equal opportunity. A consumer who believes discrimination took place in an employment interview can not only review the details of the law, but also read case studies and previous court decisions related to his or her situation. Both the Equal Employment Opportunity Commission (http://www.eeoc.gov) and the Department of Justice Americans with Disabilities Act home page (http://www.usdoj.gov/crt/ada/adahom1.htm) provide very practical information.

From these sites, guidance on how to file a complaint or how to seek legal advice is easily located. Many local ADA resources provide links to resources for free legal assistance and community advocacy. Consumers can learn about employers' perspective on the ADA through such Web sites as the Society for Human Resource Management (http://www.shrm.org/). Interactive ADA quizzes are also available to assess consumer knowledge of the ADA (http://www.ctc.edu/~cbcwww/c_access/ada_quiz.html). Finally, the opportunity to share experiences with other individuals with disabilities who have experienced discrimination or faced barriers because of inaccessibility exists through e-mail, on-line forums, newsgroups, and chat rooms. An example is the Web site Justice For All E-Mail Network, "formed to defend and advance disability rights and programs" (http://www.jfanow.org). In short, networking on the Internet enables an individual with a disability to build a level of support and advocacy that previously was not possible.

In many instances, self-advocacy equates to education, and the President's Committee on Employment of People with Disabilities Web site (http://www.pcepd.gov) offers links to download the annual educational kit. This kit is an incredibly useful tool when helping employers, businesses, and the community understand disability issues. This site also offers numerous other resources for people with disabilities, including press releases, accommodation guides, and links to disability-related Web sites.

Support Groups

Communication is one of the main reasons the Internet is used. For the consumer who wants to connect with support groups, that communication may be electronic in the form of e-mail, chat groups, bulletin boards, or listservs. A listserv is an e-mail distribution list that facilitates discussion about a certain topic. A consumer can use one by simply adding his or her e-mail address. Onelist's eGroups at (http://www.egroups.com/)is a site that offers membership in various listservs. Onelist's home page provides an index of listservs or "communities" to join. Clicking on the mental health list, for example, will give the consumer access to 668 e-mail lists to join. The consumer can then join the e-mail list and receive messages from other group members who will pose questions and responses on mental health issues.

The consumer may prefer to use the Internet to find a support group that meets in the community. He or she could obtain this information through an Internet search. Using Google (http://www.google.com), for example—a newcomer that has already received *PC Magazine's* 1999 Award for Technical Excellence—the rehabilitation counselor and consumer could do a "Google Search" or try the "I'm feeling lucky" option. The former returns matches for "support groups"—all 53,900 of them. The latter option returns only the first match. In this case, the "lucky" match was to the Johns Hopkins University Information Network (http://infonet.welch. jhu.edu/advocacy.html), which offers a page of groups that provide information and support, indexed by disability. In the area of mental health, the site provided several options, including the National Alliance for the Mentally Ill (http://www.nami.org). The NAMI site then connects the rehabilitation counselor and consumer to the NAMI resource in their state.

Training and Financial Aid

Choosing a vocational or academic training program and paying for it is a daunting task. Many training programs and most colleges and universities have Web sites that offer information on programs, admissions, and financial aid. Assisting the consumer in finding this information is a valuable service that will enhance his or her ability to make an informed choice.

Many Web sites offer good information on training and funding. One site that counselors can recommend is FastWeb (http://www.fastWeb.com). FastWeb offers the consumer information on financial aid, admissions requirements, and on-line application for over 1,000 schools. It can calculate debt liability and estimate monthly payments, providing information important to the consumer in deciding on the best program. FastWeb also conducts a free search for scholarships after the consumer completes a profile with information on disability, ethnicity, heritage, hobbies, sports, and career goals. The personalized information assists the site in matching particular scholarships from its database of over 400,000. Results are communicated to the consumer by e-mail. If the consumer doesn't have e-mail, the VR counselor can assist him or her in setting up a free e-mail account.

FastWeb indexes information on schools by state and also alphabetically. If a consumer were interested in attending a school in Massachusetts, a search of that state would list over 140 schools. The schools listed include two- and four-year degree-granting institutions, culinary training programs, dental hygienist programs, appliance repair programs, and more. Each listing has a direct link to the school's official home page, where course information is listed as well as information on admission requirements, financial aid, and, if available, on-line application.

FastWeb is a good place to start the search. By no means does this Web site list every program in every state. It may take a more in-depth search of the Internet using a search engine to find a specific training program. A consumer who is interested in paralegal training and is not able to find a program through FastWeb can do a search on any of the search engines. Using Google and searching the keywords "paralegal training" will return over 11,000 matches. It is interesting that the first two matches list the cutting-edge and traditional educational mediums, "clicks" and "bricks"—a distance learning program via computer and a school/classroom-based program. With such options, the consumer can tailor a program that meets his or her needs. Distance learning is becoming more of an option for consumers who do not have geographically accessible training programs.

Distance Education

Distance learning opportunities are becoming more available as educational institutions bring course offerings on-line. Many times, distance education is a combination of interactive Internet-based learning, textbook reading, CD-ROM, and audiotapes and videotapes. Once again, for consumers with limited access to transportation or to a nearby training program in their field of interest, distance learning opens the door to new possibilities. The home learning environment can be successfully adapted to suit the individual's abilities and assistive technology needs—a challenge in some traditional classroom settings.

An excellent gateway for resources on distance education is the Region VI Rehabilitation Continuing Education Center's Distance Learning Resource Center (http://www.cei.net/~regionvi). This site provides a comprehensive list of links to distance learning and education, instructional learning guides, distance education clearinghouses, Internet resources, and more.

Distance learning and on-line education are discussed in greater detail in Chapter 5.

Sink or Swim? VR's Role in Facilitating Use and Access

Few adult education programs or career centers (one-stops) fail to feature the Internet in some way. The Internet intrigues people and attracts them to locations that can teach them more about it. Many local field offices of the public VR program have Internet access and the staff with the expertise to inform consumers about the Internet. Therefore, the availability of Internet access to consumers in local field offices is an attractive service that can be highlighted in a number of ways.

Many field locations conduct orientation sessions for new consumers. This is an excellent forum to announce the availability of Internet access and to describe how the Internet can be used in nearly every aspect of the rehabilitation process. Any brochures or posters that describe the services offered by the rehabilitation program can clearly identify Internet access as one such service.

The VR counselor can act as coach, mentor, and teacher to encourage consumers' experi-mentation and use of on-line resources. Some VR counselors build Internet activity into the counseling and guidance process, providing one-on-one guidance while using developed curriculums. Others use informal exercises and existing on-line tutorials. Instruction may vary in complexity and length based on the ability of the consumer and can also be given to family members to involve them in the rehabilitation process. An example of this is showing a consumer and family members on-line information about applying for entrance to a local college. Identifying this information during the meeting reduces confusion and the time involved in collecting information through personal visits and telephone calls. Whether the orientation is limited to one Web site, a simple assessment, or a lengthy overview of the entire history of the World Wide Web, this information will inspire the consumer to utilize the Internet.

For many rehabilitation counselors, finding time to provide training to consumers is a challenge. As stated by one rehabilitation counselor, "As a VR counselor I've shown many people how to use the Internet, but do we have enough time to do a thorough orientation? No." Developing a curriculum to use with consumers, creating in-house workshops, or gaining access to local resources that can provide basic training can alleviate the time commitment from such mentoring. Sometimes classes are also offered by colleges and local one-stop partnerships. In addition, Web sites are available that can take some of the mystery out of the Internet. For example, NetLingo (http://www.netlingo.com/) is an easy-to-use on-line Internet computer language dictionary. It is wise to provide access to Internet information in alternative formats. The use of resource books, videos, audiotapes, and handouts allows for different abilities and learning preferences. The book, *The Guide To Internet Job Searching* (Riley-Dikel, Roehm, & Oserman, 1997), is an example of a comprehensive resource on Web sites for job hunting and is an excellent addition to any job search center.

An added advantage of basic Internet instruction is developing a computer-savvy consumer. "Whether you majored in computer science or you have a passing familiarity with a keyboard, you cannot afford to pass up the new job market provided by accessing the electronic age" (Kissane, 1997, p. 87). In today's labor market, very few jobs don't require knowledge of the basic components of a computer.

Round-the-Clock Availability

While most VR offices and staffs are limited to working hours, the Internet never sleeps and has no time zones. Moreover, for many consumers, the hours of the standard workday are not convenient. The Internet provides the consumer with 24-hour-a-day access not only to the agency but also to the counselor. Some see consumer access to staff via e-mail as something to be avoided, but this method of increased access can be of great benefit to consumers and counselors alike. It not only provides another level of exceptional customer service, but it can assist the VR counselor in maintaining contact with a consumer and facilitate the VR process.

E-mail correspondence provides consumers with opportunities for putting their thoughts down on paper at any hour of the day and to take as long as they like in doing so. For consumers, being able to communicate by e-mail with their VR counselor provides a level of access that is not typical of a scheduled appointment. Meetings can be confirmed by e-mail, and work to be accomplished can be confirmed prior to each meeting, making meeting time beneficial for both parties. Access to free e-mail provides nearly everyone with even casual access to a computer the ability to communicate on-line. *Careers & the disAbled* considered electronic communication one of the ten most significant developments in the workplace for people with disabilities:

> From in-office e-mail to the Internet, computers have created a whole new form of communication, one especially conducive to people with disabilities…. When you're communicating on the Internet, the message is you, totally and completely (Kissane, 1997).

For consumers who choose out-of-state schools or have training or work schedules that prevent them from coming into a VR office during normal working hours, access to the counselor by
e-mail is both effective and reliable. Grade transcripts and financial aid information can be submitted without delay. Requests for tuition payments can be facilitated quickly and reliably, and accommodation issues can be addressed through on-line communication with disabled student services staff. As mentioned in chapter 1, confidentiality issues need to be considered, and the VR counselor should take responsibility for monitoring them and discussing them with the consumer.

Advertising and Marketing

If your agency is on-line, do your consumers know it? Getting the word out about agency Web sites and staff e-mail is where many public agencies fall short. Unlike private companies who can invest money and personnel in advertising a Web presence, public agencies tend to rely on word-of-mouth marketing of their Internet existence. As a result, many times the Internet-accessible VR agency is a well-kept secret to both internal and external customers.

Contributing to the marketing challenge is the fact that VR staffs themselves are often unaware of the existence and content of the agency's Web page. Training for new employees should include not only Internet basics, but also an overview of the agency's Web site and potential uses of the Internet in day-to-day business. Advertising the availability of consumer self-directed Internet access to the agency is a team effort.

Marketing of a Web presence need not cost a lot of money nor take the expertise of a marketing department. Begin by simply placing e-mail addresses on business cards. If the agency has a Web site, add this to the business card as well. Add e-mail and Web site addresses to all agency letterhead, brochures, and reports and at the end of correspondence. If already using e-mail, add the agency Web site address and the rehabilitation counselor's name to the end of e-mail correspondence using the AutoSignature feature of most e-mail software. Develop a simple flyer that promotes the agency Web site and include it in all outreach materials. Search engine listings and links from other sites promote traffic as well. Generally, a simple e-mail request to a Webmaster will get a site listed on other home pages. Attempt to link the agency home page or e-mail to other resources in the community that may serve prospective consumers.

Assessing Consumer Ability

Not every consumer will be capable of using the Internet. The rehabilitation counselor, acting in the role of coach and mentor, can assess the consumer's capability to utilize Internet resources. This can begin with very simple on-line activities, or short Web "tours" to assess the consumer's ability to grasp the basics of navigation. For example, assisting the consumer with logging into an assessment Web site and observing his or her comfort with navigation and use of the mouse and keyboard can quickly provide an assessment of whether additional use of on-line resources is within the consumer's capability.

The rehabilitation counselor can then assess the ability of the consumer to use the Internet through more structured one-on-one guided use. This can consist of demonstrations of what is on-line and relevant to vocational rehabilitation or homework assignments to be completed using the VR Internet connections, the library, or the consumer's home computer. This type of guided use is a more effective assessment of consumer ability than consumer self-directed use of an on-line tutorial.

Another tool that can be used in the assessment is the Computer Literacy Survey developed by Ted Flanagan of the Massachusetts Rehabilitation Commission (Appendix 5). The survey was designed to determine the computer literacy and computer training needs of VR counselors. It has eight components: mouse skills, Windows, dialogue boxes, selecting, menu, help menu, printing, and miscellaneous. The survey is a very informal assessment; there isn't any scoring, passing, or failing. Many rehabilitation counselors have used the survey to assess basic computer skill levels of consumers and, in doing so, selected certain sections of the survey to use and eliminated others that were not appropriate. Responses from the survey can also be used to develop some skill workshops for consumers.

Once the consumer's level of use is determined through a simple assessment, further need for training can be identified if appropriate. Once again, introductory classes in the community, through one-stop centers, and at libraries are often free, and many are designed to match many levels of user ability.

An article in the Spring 1998 *Bulletin of the Washington Assistive Technology Alliance* stated, "With adaptive interfaces, access to information may be greatly enhanced by using the Internet, providing that information has been stored in accessible formats" (Johnson, Amtmann, & Zeiler, 1998). Consumers with severe disabilities whose Internet access may require some form of adaptive technology will benefit from a thorough assistive technology assessment. Results of the assessment will be helpful not only for Internet use but for vocational planning as well. Most computer-based assistive technology evaluations can assess a consumer's ability to navigate the Internet, although this may need to be specifically requested by the consumer and rehabilitation counselor.

Watch for Sharks! Cautions To Be Considered

Outdated or Inaccurate Information

The Internet is not controlled. Anyone can circulate any information he or she desires on the Internet. There is a vast amount of information on the Internet and, simply stated, some of it is good and some of it is bad. Robert Harris of Vanguard University of Southern California has written an article on evaluating Internet information sources for credibility and accuracy. His introduction begins with this analogy:

> Think about the magazine section in your local grocery store. If you reach out with your eyes closed and grab the first magazine you touch, you are about as likely to get a supermarket tabloid as you are a respected journal (actually more likely, since many respected journals don't fare well in grocery stores). Now imagine that your grocer is so accommodating that he lets anyone in town print up a magazine and put it in that section. Now if you reach out blindly, you might get the *Elvis Lives with Aliens Gazette* just as easily as *Atlantic Monthly* or *Time.* Welcome to the Internet (http://www.vanguard.edu/rharris/evalu8it.htm).

The VR counselor must emphasize that this caution applies to all Internet users, not just VR program consumers. Try searching the topic "reliability of Internet information." The return matches will be in the thousands, which indicates that it is an important topic that most users of the Internet want to be aware of. The VR counselor may want to recommend that the consumer do a little research on Internet information. A good place to start might be the University of Illinois' Web site, "Evaluating the Validity of Information on the Web" (http://illinois.online.uillinois.edu/IONresources/webeval/index.html). Chapter 2 also lists evaluation questions to consider.

Accessibility

Although the World Wide Web has quickly become very popular, with its highly attractive multimedia interface and huge network of information, it isn't always the most accessible medium for individuals with disabilities. Individuals with disabilities may be limited by the visual or auditory content of Web sites, and navigation within Web sites requiring fine motor coordination can be a challenge. Slow downloads and incompatible software due to outdated equipment are also frequent obstacles for individuals who cannot afford the latest in technology.

Assistive technology adds another interface challenge for many individuals whose adaptive equipment may not be completely compatible with the standard software used to surf the Web.

As designers become more aware of the need, and benefit, of universal design in creating Web sites, the above concerns will become less of an issue for individuals with disabilities. A recent article in the *Wall Street Journal* referred to "handicapitalism," a new term being used to describe people with disabilities as profitable marketing targets (Prager, 1999). Recognizing that people with disabilities are consumers and have money to spend is increasing access to products and services—including the Internet. However, until that time, it is important that the skill level of the user is assessed to ensure adequate access and provision of the appropriate technology. Ensuring equal access to Internet technology by consumers with severe disabilities is an important role of the VR counselor.

Many resources are available to assist designers in creating accessible Web sites. One such resource is BOBBY, created at the Center for Applied Special Technology (http://www.cast.org/ bobby). This Web-based application reviews and validates Web sites' HTML to test for accessibility and programming accuracy. Once a site has met BOBBY criteria, a logo can be displayed, indicating that the site is accessible to individuals with disabilities. Old software can also create difficulties for consumers. Testing Web sites using as many browsers as possible to ensure compatibility is also recommended (Burgstahler, 1998).

Everybody's Surfin'—Business as a VR Consumer

In times of low unemployment, reaching the greatest number of qualified applicants—quickly and with as little cost as possible—is a strategy employed by many businesses. A substantial increase in on-line recruiting by businesses has resulted in creative recruiting via the Internet, including virtual headhunting. "The Internet's ease of use and less intrusive style of recruiting has contributed to an on-line recruitment boom" (Kuczynski, 1999). The ability to reach larger numbers of applicants and use this technology to screen them also reduces the work of the human resource professional (Kissane, 1997). Another advantage of Internet recruiting is the ability to locate both the passive and active job seeker.

How Recruiters Use the Internet

Is business really using the Internet? According to a 1999 Society for Human Resource Management/CCH Inc. survey of high-tech recruiting methods, "the most often used 'high-tech' methods of recruiting were internal job postings via intranets or e-mail and job postings on the organization's Web site" (Summer 1999, p. 4). Another creative approach to recruiting being utilized by busy human resources staff is the "virtual job fair." Much like traditional job fair events where many employers advertise job openings in person and market the business through trade show displays, the virtual job fair takes place on-line. The events are typically time-limited and require that the job seeker have an electronic resume. In many cases registration is required, and clicking on a banner will usually take the job seeker to the virtual fair where he or she can submit a resume on-line and view current openings. One resource for locating virtual job fairs is Monster.com (http://www.monster.com), although many other recruiting sites are beginning to offer this service. Another example is Campuscareercenter.com (http://www.campuscareer center.com/), which is a virtual job fair resource for college students.

Businesses are looking for new Internet recruiting resources to locate potential applicants. This provides an excellent opportunity for VR counselors to promote job seekers with disabilities. Some VR agencies, such as Washington State Department of Vocational Rehabilitation, have provided businesses access to job seekers through an on-line resume database accessible from the agency's Web site (http://www.wa.gov/dshs/dvr). This was accomplished by working collaboratively with local employment security officials. The existing Talent Bank resume database was utilized, and through a custom interface employers are able to search specifically for job seekers with disabilities. Location and keyword searches can screen job applicants, and the resume is then made immediately available. National resources such as the National Business and Disability Council (http://www.business-disability.com) also provide an on-line resume database for consumers.

A high-tech approach to provide access to job seekers with disabilities is just one option. There are low-tech approaches to get the job seekers in front of recruiters. Simply listing the vocational goals of current job seekers on the VR agency Web site with a resume attachment or an e-mail link to request more information provides instant access to job seekers. Whatever the level of complexity, utilizing

the Internet to provide an immediate link to job applicants serves both business and the consumer.

Technical Assistance for Business

Although the Americans with Disabilities Act was signed a decade ago, business continues to struggle with the impact of the ADA on hiring and accommodating individuals with disabilities. Providing business with guidance, resources, and consultation about employment law is another opportunity for VR to provide responsive customer service through the Internet. Identifying a VR staff person who can act as an ADA consultant to business and promoting this on the agency Web site along with links to ADA Internet resources are ways to offer support and market VR services to business. For example, in Washington State, regional business relations consultants provide no-cost assistance to business on the ADA and are accessible by e-mail from the agency Web site.

Creating an on-line clearinghouse of practical information on the ADA, workplace accommodations, and hiring people with disabilities will enhance placement possibilities and build long-term relationships with business. On-line newsletters and e-mail broadcasts to interested businesses about hot issues in employment law and ADA are ways to maintain contact with business accounts, as well as an inexpensive and effective marketing tool.

Developing and maintaining relationships with employers utilizing the Internet also provides a method for obtaining current labor market information and job leads and facilitating job placement. Electronic communication is quick, simple, and a preferred method by many busy human resources personnel. As in many business development activities, a single point of contact for employers is preferred to reduce the possibility of overwhelming an employer. Creating a shared on-line database of contacts, or a shared Internet address book, that can record staff interaction will better manage employer contacts.

The downside of Internet recruiting for VR and the consumer is the inability to address disability-related issues during the initial business contact. Moreover, since disclosure of disability issues on an on-line resume or through e-mail could have a negative impact on the selection process, guiding job seekers on appropriate disability disclosure is essential. Consumers should be counseled not to reveal

disability-related information during the initial on-line contact or in a resume posting.

Conclusion

The relationship between the consumer and rehabilitation counselor remains the essential component in the rehabilitation process. Yet, the Internet's potential in being a positive factor for consumers in realizing their vocational goals cannot be ignored. The Internet is a tool, and it's a tool well worth mastering. As a result, the Internet is fast becoming part of the curriculum in many of the rehabilitation counseling graduate programs across the United States. The surf is definitely up, and Brian Wilson, the "greatest surfer" of them all, says it best:

> I tell you surfing's mighty wild
> It's getting bigger every day
> From Hawaii to the shores of Peru
> Let's go surfin' now, Everybody's learning how.

If you are not using the Internet, give it a try and catch the wave!

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4. Information Technology and Organizational Change

Robert Stensrud and Donna Ashworth

Many demographic and social changes affect the nature of the way we work. However, the advancement of computer and information technologies is having, and will continue to have, an especially profound impact on the way employees work and live (Hakken, 1993). For example, computer literacy is quickly becoming a prerequisite to many types of employment. Telecommuting is becoming commonplace, removing the restraints of brick and mortar of the traditional office. Many scholars believe we are witnessing the devolution of labor-intensive work and that we sit at the edge of the information revolution. According to Howard (1995):

> In the post-industrial information age, the balance of work has tipped from hand to head, from brawn to brain. Workers don't just run machines and push paper; they control information. And information is displacing capital as the essential resource for industrial success (p. 23).

Communications technologies and computer networking are making it possible for organizations to develop more flexible methods of production. We in vocational rehabilitation (VR) may not see ourselves as production workers, but we are in fact funded, among other things, by the number—thus production—of rehabilitates each year. These same technologies also support new patterns of communication and information access within organizations, which is facilitating the change in bureaucratic approaches to management, with the promise of vigorous internal networks, more effective collaborative work relationships, and significant reductions in hierarchical structures of control (Sproull & Kiesler, 1991).

These same technologies allow groups within organizations to coordinate geographically. Collaborative applications such as computer-based conferencing, shared databases, shared applications, project management, and video-conferencing can be used to help dispersed people work together. “As business spreads out around the globe, information proliferates, and competition grows ever more intense, computer-supported collaborative work will become perhaps the most important source of competitive advantage” (Dew, Leigh, Drew, Morris, & Curson, 1995). The idea of having individuals travel to all parts of a state for meetings, trainings, or workshops will dissolve. Access to this material can be provided in the workplace and/or in the home.

We are more familiar with the words “telecommuting” and “telecommunications.” The idea of telecommunication is not new. Since the 1970s, individuals have been working from their homes to avoid the commute to an office. The Europeans use the word “telework” when individuals within an organization utilize computer technology to work from their homes (Feng, 1998). Telework is the evolution of telecommuting.

Telework encompasses the entire organization and changes the way organizations perform work tasks. It involves taking individuals and their work out of the normal working context (e.g., the field office) through technological support, and relocating them to mainly, but not exclusively, the home. The VR professional can provide services from their homes, at the client’s work site, or anywhere those services would be needed. The field office or satellite office will be a meeting place for mundane responsibilities such as filing and will become more of a social gathering place. A team-telework solution can significantly improve the geographical flexibility for information workers such as VR counselors in the organization and execution of work (Feng, 1998).

The Internet and System Change

When a new technology is introduced into an organization, a predictable process occurs. Whether one considers telephones, copy machines, fax machines, or computers, organizations change through discrete, progressive steps. The same holds true when one considers how state VR agencies currently are adapting to the existence of the Internet as a resource for consumers and counselors. During the first stage of adaptation, organizations tend to be unaware of the new technology and only a few “innovators” know of its existence. These innovators may be

consumers, counselors, or other agency personnel. What makes them unique is that they have learned about the new technology through their own efforts. They probably have given more thought to its impact on them personally than to the impact on their employer. These innovators may have access to the technology at home before they do at work. They also tend to teach themselves about its use and network with others who share their interest in exploring it.

During the second stage of organizational adaptation, people who work with the innovators tend to learn of their pursuits and try to learn how the technology may relate to their jobs. These people could be called the "early users" of the technology. For them, the new technology is less a curiosity than a new tool with which to do their jobs. They bring a practical approach to its use. They also may be the first ones to get access to the technology at their worksite.

During the third stage of the process, the organization as a whole begins to recognize the value of the new technology and allocate resources to its exploration and use. At this stage, the administrative structure of the organization offers tentative support for using the technology and begins considering its applicability to ongoing operations. This stage of "tentative administrative support" includes workgroups that explore the technology's applications, experimental sites where the technology is put into use and studied, and managerial planning related to the cost and difficulties of introducing the technology to the whole organization. This is the stage during which systems change must occur. The organization as a whole must reconsider how work gets done and how the new technology can restructure that work to improve outcomes and processes.

During the fourth stage, the "use" stage, the technology is integrated into the operations of the organization. Everyone has equal access to the technology. They may not have equal competence or interest in its use, but the technology is available. During this stage, administrative systems and direct service systems are altered to use the new technology. The organization has adapted to the new technology and allowed it to affect everyday operations.

The Internet, as an emerging technology, can be expected to have a similar impact on state VR agencies. In many cases, the innovators who first introduced the Internet to VR were consumers who used it as an accommodation for work, social support, and self-advocacy. As the Internet became more known to VR personnel, its acceptance increased rapidly. This was more common among those people who

were comfortable with computers, however, and those who used computers less were reluctant to explore the applications of the Internet.

As VR personnel and consumers explored the use of the Internet, they found a tremendous array of resources that previously had been inaccessible. They found information pertaining to specific disabilities, job opportunities, educational programs, support groups, government databases, and more. The specific functions of electronic mail, listservs, chat rooms, and World Wide Web browsing allowed for the rapid and distant collection and exchange of information. This began to move many VR agencies into the "use" stage, where the nature of consumer-counselor, counselor-supervisor, and local office-state office were unalterably changed.

Information Flow and the Internet

Much of the change in these relationships occurred because the Internet altered how information flowed within, around, and outside the VR agency. While memos and telephone calls allowed the exchange of information, these tended to include only a limited number of people. When more people where involved, meetings, training sessions, and conferences tended to use one-way communication and could not effectively handle its exchange. Information flow between consumers and counselors also tended to be one-way, from counselor to consumer. Those points in the rehabilitation process that were specifically designed for the exchange of information were short-lived. Information flow between VR and other agencies also was severely restricted. Among local agencies, everyone was too busy learning to cope with their own new federal regulations to keep informed about events in other agencies. Local collaboration often perished under case loads, paperwork, meetings, and crises. Distant collaboration was impossible, being restricted to a few national conferences at which people could exchange ideas and anecdotes, only to return home and face the same issues they left.

The Internet gives people more information than they want. Rather than be confronted with too little information about a specific disability, the labor market for a certain job, or the cost of living in a distant community, today's rehabilitation counselors have at their fingertips far more information than they need (or often care for). As they contemplate this information, the consumers may come with their own plan of where to move and what to do based on their own Internet search. A consumer in Alaska with fibromyalgia may join a listserv and get

information from a researcher in Virginia about the best treatment for this condition. The consumer can take that information to his or her local physician and argue for a course of treatment other than what the physician prescribed. A counselor in one state can compare administrative interpretations of the Workforce Investment Act (P.L. 105-220) with counselors in several other states to determine how idiosyncratic their state's interpretation may be.

In each case the direction of information flow has changed, the number of information channels has increased, the speed of information movement has increased, and the availability of information has exploded. Given a computer, a modem, and an Internet provider, anyone can get information on anything. They may not, however, feel assured of the accuracy of the information they receive. Coping with this—the directional flow, the number of channels, the speed of movement, and the availability of information—will require a dramatic change in managerial practice. Add to that the fact that the Internet has no mechanism to qualify the information that is disseminated, and you have a tremendous challenge over the next several years for VR administrators and counselors.

The Role of the Counselor in the Internet Age

Recall what it was like being a counselor in the 1970s. Manuals such as the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM II) were simple and based on minimal research. Most diseases were somewhat understood and their treatments simple. Job placement involved subscribing to the local newspaper. In this environment, counselors did the best they could with minimal information. They were limited in their resources, and this constrained the scope of possibilities they could offer consumers. Like the backyard mechanic, counselors had to fix what they could with the few tools they had. Counselors in rural offices could easily feel isolated with too few resources to address many of their cases.

In the Internet age, the role of the counselor changes dramatically. The counselor's role changes from that of a channeler of information to a facilitator of information flow. In the 1970s, counselors got what information they could and gave it to consumers. In the Internet age, counselors point out sources of information for consumers to gather themselves. Counselors assist consumers in finding their own information and encourage them to think as broadly as possible about living and career options.

The counselor's role changes from that of an expert to that of a disability and labor market intermediary. In the 1970s, counselors were their own best resource. They would spend much of their time collecting information to assist consumers. The more they did this, the more they became an expert in providing information to consumers and were the person to whom consumers turned with questions. In the Internet age, all the information consumers need is available to them directly. Counselors need only know where to look and refer consumers to those resources. The locus of expertise shifts from the counselor to the consumer. Disability information, independent living information, and labor market information are things consumers obtain for themselves. Counselors guide, advise, and caution consumers as they pursue their own searches. The counselor's role changes from that of someone with limited resources to that of someone with overwhelming resources. Did you say you want to move to Santa Fe, New Mexico and seek employment as a self-employed businessperson? Let's look on the Internet and compare the average salary here with the average salary in Santa Fe. Then, let's examine the cost of the average home and the other costs of living here and in Santa Fe. We can examine the number of small business operators in that city and the number of small business failures per year. We can examine the labor force, the unemployment rate, and the number of people earning different levels of income. If you like, we can check the quality of the schools, the average commute time, the average weather, and the cost of auto insurance for your car. Do you want to move there? We can get an estimate for moving costs and apartment rental while you look for a house. We can connect you with any professional you may need from real estate agents to physicians. OK, so Santa Fe doesn't look so good. Let's look at Wichita, Kansas; Jackson, Mississippi; and Bellingham, Washington. When counselors had few resources, the placements were poorer but the decisions were easier. With the Internet, counselors and consumers have too many choices. Developing an individualized plan of employment could take some time if we want to be thorough.

The counselor's role changes from that of a person who emphasizes his or her interpersonal skills to someone who emphasizes his or her electronic skills. As the Internet facilitates communication by making it electronic, it also changes communication by removing personal contact. Employer development can be done by traveling to Web pages and communicating through e-mail. Contacts with consumers can be made through e-mail, and services can be provided by referring them to specific home pages on the World Wide Web.

Funding Challenges

When asked what keeps government from gaining more value from information technologies, the two major factors cited by those directly involved are “lack of long-term leadership” and “lack of funds” (Mechling & Fletcher, 1996). Budgeting is essentially making a distinction between saying “yes” to some proposals and “no” to others. Rehabilitation agencies are strapped for funds, so it isn’t surprising that many information technology (IT) proposals get a “no” and are left unfunded. It is to be expected and is not necessarily errant unless the wrong proposals are not getting funded.

Many believe that there is a systemic bias that makes government unsuccessful at identifying and funding appropriate IT projects. Private corporations have used technologies to improve their organizations due to pressures of a competitive market. The pressures on the public sector evolve around legislative mandates that may call for greater efficiency. These pressures are generally not life-threatening to any public organization; thus, the public sector has fallen behind in using IT to improve efficiency (Mechling & Fletcher, 1996). Government agencies try to improve by playing catch up, but their decisions are often poor, leading to embarrassing failures. Budget overseers then become ever more suspicious of further IT funding requests. IT projects, because they often involve new learning areas for organizations, are seen as risky regardless of their value. Governments tend to avoid risk, and therefore we find an underinvestment in projects that can’t be proven by experience.

Besides systemic bias, government budgeting typically focuses on the next year of spending. Government then tends to overlook multi-year and multi-agency opportunities in funding IT projects. There is also a reluctance to seek alternative funding sources. This results in making the funding of high-value IT projects harder than it should be. In a society based on information, with a public demanding better service, this is a problem.

All is not lost. Jerry Mechling and Victoria Sweeney with the Harvard School of Business offer the following directions for improving IT budgeting in government (Mechling & Sweeney, 1997):

- *Better participation.* Training those involved in the IT budgeting process and bringing in others who could add value but typically aren't heavily involved.
- *Better portfolios.* Defining what IT projects are best and increasing the investments in those areas that add value to the organization.
- *Non-tax funding.* Finding ways to fund projects that do not rely on the traditional tax levy budget.

Better Participation

Education. Managers generally know what results they are seeking, be it serving more individuals who are severely disabled or making more employer contacts, but they don't know much about how IT can assist with increasing the results they seek. Executive decision makers need to understand the value IT can add in goal attainment and, likewise, IT managers need to understand agency operations and organizational processes. Without the sharing of this information, IT managers and executive decision makers will lack the ability to work together to target areas where technology can have the greatest impact for the organization.

Strategic planning and performance measurement. Government agencies often neglect to include IT projects in the overall strategic plan. IT projects are seen as separate activities and aren't included in any of the agency's performance measures. Agencies need to develop IT projects that are integral to accomplishing the organization's goals.

Line leadership. IT managers and staff specialists propose and justify most IT projects. Many times these individuals do not understand the overall operational needs of the organization. This is often the purview of the line manager. The line manager should be involved in IT project development and budgeting. This would increase the efficiency of IT endeavors and allow the line manager the opportunity to have a better understanding of IT issues.

Oversight involvement. Executive office holders as well as legislatures rarely participate in any IT budgeting decisions. Some even see this type of participation as problematic. Too many questions. Too much education needed. Ironically, these individuals have the greatest ability to protect investments in IT. Informed allies in the legislature and administration can be a valuable asset to an agency's technology plan.

Contracting. Contracting routine IT to suppliers may increase IT investments. This would allow IT departments time to focus on strategic concerns that involve others in the organization.

Better Portfolios

Research and development and learning investments. Government needs to invest in "learning" with technology. Taking a time-out and using a totally new approach utilizing technology may result in new ways of improving processes. This involves a certain amount of risk. Not all approaches are going to be successful, and therefore it may appear as if the agency has wasted valuable resources. These failures, however, can lead to new directions not previously thought to be possible.

Infrastructure investments. Government can benefit from building an IT infrastructure that allows for sharing of data through local and wide-area networks as well as through the Internet. This will require a long-term commitment for updating and maintenance. Investing in the infrastructure will facilitate further innovative investments.

Cross-boundary investments. The push for sharing of information and monies across organizations gives a promising scenario for IT investment. Cross-boundary initiatives can bring organizations together for their shared interest. It can enhance the work processes of collaborating agencies and make government more accessible for citizens and private-sector organizations.

Non-Tax Funding

Revolving funds. Relying totally on a tax-based investment process for IT initiatives will certainly leave most organizations with the "short end of the stick." Agencies need to look at other nontraditional funding sources. One such option would be to establish a revolving fund that would be available for agencies to borrow from for their IT proposals. Agencies could repay the fund from cost savings from their projects.

Performance contracts. Performance contracting allows organizations not only to purchase equipment such as computer hardware, but also to document improvements in organizational performance as a result. Vendors are not paid until they've achieved the results for which the contract was written.

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5. Some Final Interim Thoughts

Leon Oehlers and Weyland Billingsley

The *thoughts* in this chapter may be "final" in respect to this publication, but the rapid changes in computer-based technologies and communications relegate any discussion, forecasts, or predictions to the realm of "interim"—thus the title "Some Final Interim Thoughts." The purpose of this chapter is to provide a few thoughts related to the current impact and future possibilities of the Internet in relation to (1) changes in the vocational rehabilitation (VR) work environment, (2) communications within VR, and (3) distance education within the university and continuing rehabilitation education programs. This discussion cannot, by any means, fully address the vastness of change and emerging trends in the world of computerization, communications, and Web-based informational infrastructures. Rather, it offers *some final interim thoughts*.

> The computer burst upon the scene around 1950. With its unprecedented power for analysis and dissemination of extremely varied kinds of data in unbelievable quantities and at mind-staggering speeds, it has become a major force behind the latest acceleration in knowledge acquisition. Combined with other increasingly powerful analytical tools for observing the invisible universe around us, it has raised the rate of knowledge acquisition to dumbfounding speeds. Francis Bacon stated "knowledge is power." This can now be translated into contemporary terms. In our social setting, "knowledge is change"—and accelerating knowledge acquisition, fueling the great engine of technology, means accelerating change (Toffler, 1970, pp. 31-32).

Thoughts on Work Environments: Rehabilitation as a Net-Based Distributed Organization

Changes in where, how, and when people work started in the industrial age with second and third shifts, sometimes with people even working 24 hours a day, 7 days a week. As we move into the information age, the importance of geographic location has decreased. New ways of working have been pioneered by the high-technology industry. State rehabilitation agencies have the potential of becoming a strongly distributed organization. Many state agency sites (for example, vocational-technical schools) are dependent on a main physical location but have distributed operations (off-campus centers or classes at an employer's site). Others have centrally located services because of equipment needs or tradition. Rehabilitation services deal with relatively small numbers of consumers, often partnered with other agencies, facilities, or educational institutions. Rehabilitation for the most part imparts information to or counsels consumers. Such information service organizations often involve mobile teams that must be able to communicate effectively.

There is a continuum between an organization where all of the employees work in one location (centralized) and an organization where all of the employees work in remote locations (distributed). Many factors have to be considered when developing a central or distributed organization. Most organizations will be some type of mix, depending on the kind of work that is being done.

Centralized Work Environments

The following are considered advantages of centralization:

- *Interpersonal communication* is facilitated. A lot of informal communication happens every time someone walks down the hall and meets another person. The traditional office grapevine works very efficiently and is centered around the coffeepot or the break room. Although informal communication has both positive and negative aspects, it serves to bind the staff together. Organizational policy, the way the office is structured, or a lack of planning may break lines of communication.
- *Buildings* containing offices, meeting areas, computers, supplies, etc. usually house numbers of staff together. People know where the office and people are and can easily access them.

- *People expect* a centralized work environment. The public, community partners, and staff know that this is normal. Many people like the structure, knowing their place in the organization, and the stability in an ever-changing world that a traditional office presents.
- *Peer learning* often takes place when employees are closely located. Informal mentoring occurs, and new employees get answers to questions quickly.

The following are considered disadvantages of centralization:

- *Building costs* continue to escalate. Both staff and the public expect decent office space, which can become a large part of agency expenses.
- *Commuting* is an expense for staff and a toll on the environment. The efficiency of staff is also a consideration. For example, the average commuting time in the Atlanta metropolitan region is over 30 minutes each way. Spending an hour a day either in a car or on public transportation adds stress that staff don't need.
- *Population centers* where our consumers are found often change as population shifts. Large facilities are difficult to relocate. Transportation for consumers who live at a distance from the rehabilitation office becomes another barrier to providing quality services.
- *Work teams* change size according to changes in programs and funding. It is difficult to enlarge or downsize offices to meet the needs of rapidly changing work.

Distributed Work Environments

The following are considered advantages of distributed work environments:

- *Telecommuting* means more time to work, since the employee saves commuting time. Stresses of commuting are relieved, so employees should be more efficient. Various communication modes ease the ability of the employee to access his or her work. Employees may be working from their home, from mobile offices (cars), or from offices they have borrowed from another agency or school. Occasionally staff meet consumers in libraries, restaurants, or other public places. One counselor we know has a preference for Burger King but allows for consumer choice and will meet consumers at McDonalds.
- *Productivity* is expected to increase since there are fewer distractions. Many companies have found as much as a 20% increase in productivity from telecommuting workers (Hall, 1999). The *International Telework Association*

(Hall, 1999) estimates that as many as 14 million people in the United States currently telecommute and average 19.3 hours per week working from home.

- *Communication* is often made more efficient because distributed work requires more planning. Meetings cannot be called by walking around the office. More thought goes into what is being communicated and how the communication occurs.
- *Self-management* is developed. Employees have to put more thought into planning their activities. Often, when they are located in a large facility with many other employees, work comes to them. Even in this day of Franklin Planners and Day-Timers, many workers respond to daily activities with minimal planning. Working in a virtual environment requires long-term planning but also gives employees more freedom from supervision as well as more responsibility for completing the work.
- *Recruitment of workers* can focus on those who live in the territory being served. It is often a distinct advantage to hire a person who lives in the consumers' community. This is especially important in rural areas, where small population centers are widely distributed. These centers may also be difficult to serve without community involvement on the part of the rehabilitation professional. Such community involvement is difficult when the rehabilitation person commutes from a central location and is only there a limited time each month and then only during normal business hours.
- *Contract workers* or part-time staff may make sense in some areas if there is a small population or a person with specific skills is required, e.g., someone who knows American Sign Language. The ability to work from home or in a virtual location may make this type of worker more efficient. In addition to applying technology, this is a logical extension of the trend toward more flexible working conditions.
- *Collaboration* with other agencies, both public and private, has been a strong point of VR programs. This would be enhanced with the distributed work environments, as staff would be able to spend more time in the community. Hopefully these other agencies would be hooked into the VR communication network, allowing even closer working relationships.
- *Virtual office technology* is now nearly comparable to that of centralized offices. Faster modems, the integrated services digital network, and other technologies at affordable prices allow quick access to information and eliminate the need to go to an office with a local-area network. Laptop computers have as much power as many desktop computers and, as with all computer equipment, are dropping in price.

- *Teams* can be assembled quickly according to changing programs or shifts in populations served. Having communication available is the key here. If staff are experienced in working in virtual modes, they are more flexible in changing work sites and in developing collaborations with others. Without the barrier of being required to sit in a central office, teams can form quickly for special purposes, develop their program, call on outside resources, and complete their tasks.
- *Expertise* in new technologies and new methods of work will allow our staff to counsel our consumers on what they will experience in the evolving business world. Rehabilitation professionals will need expertise in the way that business is conducted, in order to work with the many consumers who will be working in distributed businesses and the information technology (IT) field. We will need a practical understanding of how work is done outside of the traditional organization.

The following are considered disadvantages of the distributed work environment:

- *Interpersonal communication* becomes more difficult. Accidental interactions are less frequent. Formal communication may also suffer. All types of communication require more planning. Team-building activities need to occur in order to build up camaraderie and a positive work spirit.
- *Organizational commitment* may be low since such commitment is often based on interpersonal relationships and team loyalty. Staff who are hired as virtual workers and never have an opportunity to build relationships with other workers are not as likely to stay in the organization as those who have bonded with co-workers.
- *Physical meetings* are more difficult to arrange when there is no central office space. Technology such as video conferencing can meet some needs as staff become more accustomed to its use. As such technology becomes more widespread, its use will also be comfortable for the general public and our consumers. Small meetings can take place in libraries, restaurants, or other public places. There will still be a need for larger meetings as well as private meetings with consumers and other agencies. These can be arranged by renting space on an as-needed basis, borrowing space from other agencies that continue to maintain large offices, or setting up field offices to meet those needs.
- *Traditional office environments* may be seen as more professional. Consumers, other agencies, and other professionals are used to meeting with rehabilitation staff in centralized offices with receptionists in the lobby and degrees on the

wall. Lack of a central work area may impact first impressions, but hopefully the rehabilitation counselor will overcome any negative impressions with professional knowledge and ability. It will require some judgment as to which location is appropriate for various types of meetings. Confidentiality and protection of the consumer's privacy are concerns in selecting meeting areas.

- *Burnout* may occur because the telecommuter has easy access to work at any hour of the day or night. The temptation is to think that they will do just a few more things or try to complete one more project. The day never ends, and the employee overworks himself or herself. All concerned need to recognize that this can be a real problem that may lead to isolation, family problems, and burnout.
- *Staff productivity* is questioned. Managers may wonder if the employees are actually working. It is more difficult to monitor employee activities if they are in multiple locations for most of the week. If they are working at home, are they distracted by the television or babysitting? Typical thinking is that abuse is less likely to happen when supervisors are closely located with their employees. Supervision comes down to two factors. One is trust. Everyone is more dependent on trust in the virtual environment. The second is a decision on job expectations and how they will be measured. In a centralized office, a supervisor may feel comfortable if an employee shows up every day, appears to be working, and does not cause problems. In the virtual office, the supervisor must have some objective measures to ensure performance. Being available to co-workers and consumers during normal business hours is usually one basic measure. Other measures may be referrals/plans/closures, feedback from consumer satisfaction surveys, and activities in the community.
- *The home office* can be a difficult part of the distributed work program**.** Not all staff have an appropriate place to work at home. The home may present distractions such as other family members, personal phone calls, or the ever-present television set. The employee may lack discipline to work at home or prefer not to work there.
- *Repair and maintenance* of computers and peripherals is more difficult with equipment scattered in many different locations. Employees are more responsible for set up and basic maintenance, with IT staff providing more limited services than in a centralized location.
- *Carrying equipment* may become a major endeavor. Staff will often have to transport laptop computers, printers, and files and references.
- *Worker's compensation* and liability coverage may be in question at times. Was the employee actually working when an accident happened? Would the

accident be covered by homeowner's insurance if it happened while the employee was working at home? Liability could also be a question for meetings at remote sites.

Requirements for Setting up a Distributed Work Environment

Personnel Policies

- *A virtual office policy* needs to be implemented to communicate appropriate expectations. Many state employees have not had experience working virtually and would need some guidelines about appropriate behaviors.
- *Flextime* has been employed in many offices for a number of years. Generally there are core working hours when employees are to be available for communications and meetings. Starting times and ending times are flexible. In order to meet the needs of consumers or other agencies, employees may have to work outside of the 8 to 5, Monday to Friday, schedule. They then have an option of trading that time for other time off.
- *Dress code* may be more flexible, but employees are expected to dress appropriately for each situation. Coats and ties are mandatory for many meetings but more casual clothes are expected for other times such as job placement in a manufacturing environment. Video conferencing also requires a certain dress code according to the type of meeting. Certainly the cartoons about workers appearing on camera wearing pajamas could be a supervisor's nightmare.

Information Availability

- *On-line information access* is here. As we move more and more information onto the World Wide Web it will be easily accessible to rehabilitation professionals and to the public at large. This will create a new type of consumer who is able to access federal legislation, state laws, and agency policy 24 hours a day, 7 days a week. There will also be more requests for information to be readily available on the Net. A number of sites that serve as "gateways" list a large number of related sites and make it much easier for those in the disability community to find information. The Regional Rehabilitation Continuing Education Programs (RRCEPs) sponsor such sites. The National Clearinghouse of Rehabilitation Training Materials at Oklahoma State University (http://www.nchrtm.okstate.edu) and the Region VI Rehabilitation Continuing Education Center (http://www.cei.net) are two examples. Obviously this information is available all the time. Since many

public libraries are providing Internet access, many consumers who do not own a computer are able to reach the Internet. Recently a person with a disability called for some specific information about a state agency. Although he did not have a phone in his apartment, he requested that the information be sent to him by e-mail since he had a free Internet e-mail account and used either the library or friends' computers to check his account. Already counselors are communicating with consumers, collaborative partners, and other agencies by e-mail on a regular basis.

- *Sharing of information* is essential. Staff will need to be able to access files, modify such files, and push information to others or pull information from colleagues.
- *Reference materials* may be provided in hard copy, but much of what rehabilitation staff need to access either is more readily available on-line or will be there shortly. Evaluation and testing materials often have software versions. The Career Information System in use in many states is available in both software versions and on the Internet. Medical reference materials are also becoming more available on-line.
- *Office records.* Some records need to be kept as paper records. However, scanners could be set up and a file system made available as part of the case management system. Some states have their consumers use a PIN number as an electronic signature, thereby eliminating the need to have a written signature on a piece of paper for the file records. This would enhance record availability for staff in virtual locations.
- *Backup of information* is even more important in a distributed environment. One solution would be to have consumer management programs based on servers. Staff could also have space on servers where they could back up files. Programs that automatically synchronize information when staff log into the server would be valuable in keeping all records updated.
- *Basic technology needs.* Each staff person would certainly need a computer powerful enough to handle current programs as well as enough memory and graphics capability to quickly load Web pages. This would usually be in the form of a laptop, since it is assumed that the staff person would be working in a variety of locations and would need the portability. The fastest possible modem would also be important. Fax capability is also very handy in sending documents when transmittal by e-mail is not feasible or a fax is used in place of a printer. A portable printer is required especially when individualized printed material such as work plans need to be shared with consumers. Access to the Internet is certainly a requirement. A great resource on technology needs in a

distributed environment is the Mobile Computing and Communications Web site (http://www.mobilecomputing. com).

The Georgia Experience

The Georgia Division of Rehabilitation Services started moving toward becoming a distributed organization in 1996. Field staff were reorganized into "hubs." The model configuration for each hub was six rehabilitation counselors, two account representatives, one work preparation technician, and two program assistants, all under an employment manager. Two new positions were created for this new business: the account representative is responsible for job development and developing relationships with employers, and the work preparation technician is responsible for assisting consumers with work readiness.

Being virtual was a key concept. All staff except for program assistants were provided with laptop computers and portable printers. Through a dial-up connection, the Internet was provided for each staff person. Communications were enhanced with e-mail through GroupWise. Finally a new case management system was implemented. The software is server based and uses an Oracle database. Staff enter data in English rather than the numeric codes that the old mainframe system required. While some time is spent in home offices, the purpose of being virtual was to be able to work in various locations in the community with the community.

Changing to a dispersed work environment has required a lot of flexibility of the staff. Most have adjusted to the new way of doing business. Having the account representatives out in the employer community has developed tremendous opportunities for persons with disabilities. At this time connectivity and reliability seem to be the biggest barriers. Finding available phone lines in some locations is difficult. Maintaining connections can be a problem in some areas. As available technology increases, these problems should be eased.

Thoughts on the Internet: Questions and Concerns

How can VR counselors use the Web in a positive way to communicate with others?

As counselors come in contact with and start using Web-based communication systems, maintaining a positive mode is very important. The basis for

communication is to enhance understanding between people. The Internet allows for text and graphic messages to be presented at the convenience of the consumer. One concern is that information be presented in an easily accessible form. We have all had the experience of trying to search an Internet site for information, only to end up going around in circles and becoming very frustrated.

What knowledge and skills will be required of VR staff?

Traditionally such core competencies as assessment, vocational counseling, and job development/placement have been required for the counselor to perform the functions of the job. As state VR agencies move into computer-based case management systems, computer skills are becoming a core competency. Until recently computers were used for basic data gathering. Now the counselor is directly imputting case management information in many states. Obviously the counselor will not be able to perform the job without the ability to function on a computer. Computer literacy questions are finding their way onto lists of interview questions, the expectation being that new staff will need training only on agency-specific software. Recruiting new staff is now done via Internet sites in many states.

How does the VR counselor provide vocational counseling/guidance information in a coherent method across the Web?

Do VR counselors provide vocational counseling and guidance information other than in a face-to-face mode? Most often the telephone is used, with the limitation that it is only audio communication. While we can gain a lot of information from tone and speech patterns, most counselors would prefer to be in the same room as the person they are counseling. Facial expression and body language convey much information. At present, the technology that provides video in addition to audio across the Internet is not very advanced. Pictures may be delayed, definition is not fine, and there is usually a limit to the size of the picture on the computer screen. Also both parties must have cameras and software. As this technology improves, video communication will become easier to use and more common.

Can the VR counselor assess and assist consumers across or through Web-based instruments?

Screening referrals, especially those that are self-referred, is often very labor intensive. Such a process could be primarily an information-sharing event that would give the prospective consumer information about VR, his or her role in developing a work plan, and basic eligibility requirements.

Already personality tests, interest inventories, and career guidance evaluations are available on the Web. What if consumers could log onto a site where they could not only do self-directed career exploration but also go through a battery of tests that would give them some objective information about their knowledge, skills, and abilities? This would not be possible for all consumers, but for many it would be helpful early in the rehabilitation process. It would also be a very economical service for VR programs to offer. Reliability and effectiveness are questions that arise when we talk about self-administered tests. Some of these concerns may be alleviated by the structuring of the tests, while others could be solved by use of video conferencing. Another option could be the use of a virtual reality scenario where the testing seems very traditional but is completely digital.

Technology called decision support software (DSS) is also available now via the Internet. DSS provides computer-assisted analytic tools to help individuals and organizations make more informed decisions. It can play an important part in assisting the counselor's career counseling and support activities. Two current examples are (1) WorkWORLD, a DSS program for Social Security Work Incentives and (2) DSS programs related to analysis of transferability of skills.

WorkWORLD is being made available by the Employment Support Institute (ESI) with the support of the Social Security Administration beginning March 2000. It can be downloaded to the counselor and/or consumer's personal computer from the ESI Web site (http://www.workworld.org), which provides the following description:

> WorkWORLD is decision support software for personal computers designed to help individuals with disabilities explore and understand how to best use the work incentives associated with various federal and state disability and poverty benefit programs. It automates the computation of benefits, and takes into account the complex interaction of income, benefit programs, and work incentives (Employment Support Institute, 2000).

A number of software packages for *transferability of skills* exploration and assessment are available for use in the field. These software programs simplify the oftentimes complex task of determining transferability of skills during career counseling activities. This software generates reports that can be included as part of an initial vocational assessment, as the basis for a local labor market survey, or

even as an evidentiary document for expert testimony appearances. By accessing transferability of skills software on the Internet, the VR agency need not install the software on its computers, thus eliminating computer compatibility problems and ongoing purchases of software upgrades. Since the software is located on the server and accessed through the Internet, it takes up no space on agency hard drives. The counselor can work at home, at the office, or on the road. One such software program available from the TRJ company is called the U.S. Transferable Skills Analysis. The Internet-based software is used to determine transferable skills and then the results are submitted to TRJ on-line. The company completes the report based on the Dictionary of Occupational Titles database and then returns the report via e-mail in portable document format. TRJ claims that the turnaround time for a report is around 10 minutes, depending on Internet traffic and the number of users hitting the site at the same time (http://www.vocrehab.com). Lots of 10, 100, or 500 reports can be purchased at increasing discounts, and an e-mail message accompanies each report indicating the remaining paid reports available. This type of software has been applied widely in private rehabilitation and in worker's compensation settings.

How can we provide for more open information presentation and/or explanation rather than protectiveness of information?

This question involves several areas. Regarding making information available on the Internet, we have to decide what information we want to make available—what would be useful for staff, consumers, and other interested parties. Second, we need to structure the information so that it is easy to access. Finally, we need to market the information effectively so that consumers and others who need it will be aware of it. Certainly the Web site address needs to be on all agency marketing materials, such as business cards and brochures. Having a link to the VR page on other Web sites such as those posted by vocational technical schools, colleges, community disability groups, hospitals, and other medical-related sites would also let the public know about the VR Web page.

How do we maintain chemistry between the rehabilitation team members?

Collaborative tasks in our line of work include brainstorming, planning, scheduling evaluations and staffings, coordinating and delivering services to customers, and field service. Some work will be made easier through technology, while other work will be made more difficult. Teamwork is critical in developing VR programs for consumers. Staff will be working in new ways, often virtual or distributed geographically and using new technology. Care must be taken that the technology

does not create a separation between people. Computer usage can be time consuming, especially for new users who are trying to develop competence in various software packages.

Information overload is already a problem. How do we manage all the information we receive?

> The issue is a rational reallocation of decision-making in a system that has over-stressed centralization to the point at which new information flows are swamping the central decision-makers (Toffler, 1980, p. 411).

If Toffler thought that things were intense in 1980, what would he think in 2000? We do not have to deal only with massive amounts of information but also with decreased response time. Mail allowed time to read and respond. People were used to getting a piece of paper, reading it, and then letting it lay on their desk while they decided how to respond. Today e-mail often carries the expectation of quick turnaround. While this is more efficient and may lead to higher production, does it really lead to better decision making? Dean and Dudt (1997, p. 1) offer the following insights related to the role of technology in our lives:

> Curien (1995) states that we are entitled to ask whether the gathering, processing, and dissemination of enormous amounts of information is essential to our well-being. The answer is obvious: we must not only embrace the information age but be able to control its direction and future. Curien's question is underscored by several irreversible processes. First, technology is here to stay. There is no turning back to simpler days of blackboards and flip charts. Second, technology will continue to develop at an increasing rate of change. Third, there will be more applications of technology in all areas of life, including work, home, and recreation.

Iris, VR Counselor of 2010, or "What do you do when your refrigerator talks to you about work?"

"Good morning, computer!"
"Good morning, Iris. Is this personal or work time?"
"Work."
"You have four e-mail messages since yesterday, but only one is urgent."
"Let me review all according to priority."

"First, Iris, the urgent message is a new policy on priority categories from the state office that goes into effect today."
"Thanks. Download the voice version to my car computer so I can review it during my drive this morning."
"OK, Iris. Next John Smith has confirmed your virtual meeting for 10:00 a.m."
"Confirm."
"You have a new application from Mary Xu, who states a disability of visual impairment. She is not entered in the state Workforce or Social Service system. She has given you a release for two doctors, and the information has been received from their computers. Preliminary analysis indicates eligibility for visual impairment. Proceed?" [The computer screen has presented the medical reports on screen.]
"Yes. Mary is eligible for services. Please give her the first available open date for appointments when I will be meeting consumers at the South Metro office."
"Finally, your work group meeting has been scheduled for Tuesday at Los Compadres Restaurant at 12:00, since there was not a conference room at the North Metro office."
"Thanks, computer. Is there anything else?"
"Yes, Iris. Please, no sharing at Los Compadres. The refrigerator tells me you are 10% over the calorie allotment you requested for the month."
"@$%*&#."
"Oh, by the way, would you please call me Hal?"
"Really, computer. I think you have a virus in your humor module. Should I have you re-programmed?"
"No, Iris, but you did ask me to schedule this afternoon to catch up on case histories."
"Thanks a lot! Paperwork and more paperwork!"
"Sorry, I don't understand the term 'paperwork.'"
"Ancient history. It means something that never ends."

Thoughts on Web-Based Distance Education: Rehabilitation Education on the Information Superhighway

Development of Web-based software and personal computer technologies is changing the landscape in the educational delivery system. Industry and higher education institutions implemented training and academic coursework utilizing Web-based training almost as soon as the World Wide Web became available to the general population. In fact, many accredited universities offer complete

programs of study utilizing Web-based training within their distance education programs.

Distance education is not new. Many universities, continuing education organizations, and businesses have used the distance learning format for many years. They have utilized *low* as well as *high* technologies, i.e., print/correspondence, audio/video, teleconferencing, television, satellite, computer assisted, etc. Then came the World Wide Web. The current and future benefits of computer-mediated instruction via the World Wide Web were immediately recognized by many higher education institutions as well as industry.

Distance education course delivery using this high-tech Web-based training approach is presenting new challenges to rehabilitation educators. Development and utilization of Web-based training in distance education programs for rehabilitation counseling education within the universities is fast becoming a reality. The same is true for many of the Regional Rehabilitation Continuing Education Programs, Community Rehabilitation Programs for Rehabilitation Continuing Education, and Regional Rehabilitation Research and Training Centers. The Rehabilitation Services Administration (RSA) continues its support of universities in developing and enhancing distance education. RSA's support is evidenced by its commitment to awarding long-term grants focused on distance education. This has fostered increased awareness of the role distance education can play in meeting the current and future need for qualified rehabilitation counselors.

The *1998-1999 Annual Program Reports* for the Council on Rehabilitation Education (CORE) included a profile report from 81 CORE-accredited rehabilitation counseling education programs. The profile report revealed that 30 (36.6%) of the programs offered courses via distance education and 15 (18.3%) offered degrees via distance education. Some have implemented distance education strategies utilizing Web-based training. Others are planning to do so.

The World Wide Web has added another "technology tool" for overcoming both time and distance in reaching an increased number of students. It assists educators in reaching those students who cannot travel to the traditional classroom due to distance and in providing educational opportunities for persons with full-time employment who would otherwise find it difficult to attend scheduled classroom instruction. It also provides educational accessibility for persons who find it difficult to participate in the traditional classroom environment.

However, the movement toward implementing distance education utilizing the World Wide Web presents many challenges for both the student and the rehabilitation educator. At a minimum, students must possess basic computer, word processing, electronic mail, and Internet knowledge, skills, and abilities. They must assume greater responsibility for their own time management and learning within the virtual classroom community. Formal Web-based instruction requires educators to learn and utilize computer/Web technologies and "courseware" for content design and delivery. Web-based distance education also requires educators to utilize new methods and techniques for a virtual classroom. These skills and abilities will become more important in the future as new Web-based teaching technologies evolve. The studies of Cyrs and Smith (1988, 1990), Chute, Balthazan, and Posten (1988), and Thach (1994) (as cited in Cyrs, 1997) identified areas of competence for teaching at a distance:

- Course planning and organization
- Verbal and nonverbal presentation skills
- Collaborative teamwork
- Questioning strategies
- Subject matter expertise
- Involvement of students and coordination of their activities at field sites

These areas of competence appear similar to the competencies required in traditional didactic methods of teaching. However, distance education methods and technologies require a "rethink" for course design, presentation, and delivery. This is especially important as Web-based instruction and Web-based multimedia technologies proliferate as the distance learning medium of choice. Without a doubt, the future of rehabilitation education will involve distance education as well as more computer-mediated Web-based instruction. Cyrs (1997) makes the following cogent argument related to implementation of distance education:

> Anyone who says that teaching at a distance is the same as traditional teaching is dead wrong. Instructors need more planning time, more instructional support, and additional training to modify courses for all of the potential delivery formats for distance teaching (p. 18).

Numerous issues, opinions, and questions concern distance education as well as the implementation of Web-based training technologies for VR pre-service and continuing education. Suffice it to say that Web-based instruction will continue to

be developed and implemented within rehabilitation education programs. It is beyond the scope of this discussion to delve into the debate. The following resources are highly recommended for further review. The first two provide excellent discussions of specific issues related to distance education and Web-based training in rehabilitation education. The third provides an on-line gateway to accessing resources on the Web related to distance education and related topics. The last reference provides an on-line resource for exploring, learning, and discussing Web-based training.

- *Rehabilitation Education, Vol. 13, No. 3, 1999* (official journal of the National Council on Rehabilitation Education). "This special feature of *Rehabilitation Education* is devoted to distance education and is an effort to initiate a discussion of the various models of implementation and the advantages and disadvantages of distance education" (Smart, 1999, p. 183).
- *Rehabilitation Education, Vol. 13, No. 1, 1999* (Special Issue: Continuing Education for Rehabilitation Personnel). Discusses life-long learning in the VR environment, implications of the VR Comprehensive System of Personnel Development for rehabilitation education, instructional strategies and distance technologies, and evaluation of continuing rehabilitation education.
- *Region VI Rehabilitation Continuing Education Center's Distance Learning Resource Center* (http://www.cei.net/~regionvi). Provides a gateway to distance learning resources on the World Wide Web. Provides links and summary reviews for accessing distance education instructional learning guides, distance education clearinghouses and Internet resources, links to on-line articles/commentary and copyright issues, featured distance education programs in rehabilitation, distance education training and associations, a distance learning bibliography, national university links to rehabilitation counseling programs, and distance learning products and services.
- *Web-Based Training Information Center.* Established in 1994 by Tim Kirby, this nonprofit site (http://filename.com/wbt) is a resource service and discussion forum. Kirby is credited with coining the terms *Web-based training* and *Web-based performance support system* in 1994. The site provides a primer, discussion forums, surveys, Web resources, glossary, and help section.

A Brief Overview of Distance Education and Web-Based Training

Willis (1995) provides the following broad definition of distance education that includes both technology and occasional face-to-face communication.

> At its most basic level, distance education takes place when a teacher and student(s) are separated by physical distance, and technology (i.e., voice, video, data, and print), often in concert with face-to-face communication, is used to bridge the instructional gap (p. 2).

It should be noted that low technology, high technology, or a combination of each can provide the instructional bridge in the distance learning environment, i.e., print, teleclass/ teleconferencing, audio and/or video, computer-assisted instruction, satellite transmission, interactive television, Web-based training, etc. When the instructor and student are communicating at a distance in "real time" via telephone or other interactive two-way communication technologies, then the instruction/learning is termed *synchronous*. The term *asynchronous* is used in distance education when the instructor and student are separated by physical distance and the instruction/learning/communication occurs at different times.

Web-based training course content development and design by the educator/instructor usually involve the use of specialized software called *courseware*. It is designed specifically to assist the educator in designing the structure of the Web-based course. Web-based courseware usually includes text-based technologies such as bulletin boards, chat rooms, and other instructor-to-student/student-to-student electronic communication features. One of the main features of Web-based courseware is that it provides the instructor and student a means of navigating the Web course via "site maps," navigational icons/text, and provides internal and external "hyperlinking" within the course and to resources on the World Wide Web. Effective utilization of specialized courseware design features, rich course content, and a high degree of interactive communication can provide the student an extremely rewarding learning experience.

Web-based instruction has been viewed and utilized predominantly as an asynchronous instructional medium. However, integration of PC-based interactive multimedia technologies are rapidly changing our view of Web-based distance education. The introduction and integration of real-time two-way audio and video over the Internet is impacting and redefining Web-based training instructional design, methodology, and content delivery. Web-based training is evolving into a powerful integrated tool for *synchronous* communication between instructor and student. Whether synchronous or asynchronous, creating a "learning community" by incorporating a high degree of interactive instructor-to-student and student-to-

student dialogue is a key ingredient for effective teaching at a distance. As multimedia and communication technologies continue their evolution, the Web holds an even greater promise as a high-tech tool for course content delivery and instructor-student communication in the distance education environment.

Can distance education via the Internet provide increased accessibility to rehabilitation pre-service and continuing education? Can Web-based training increase learning? Can Web-based training provide a cost-effective medium for delivery of rehabilitation education? Can Web-based training and/or other distance education approaches adequately address the person-to-person counseling component of VR counseling and service delivery? These and other questions are currently being debated. Research, assessment, and discussion of Web-based training in rehabilitation education will be a priority topic of the future. Gilbride and Strensrud (1999) state, "While the promise of Web-based instruction is strong, the necessity of ensuring quality educational outcomes cannot be understated" (p. 224). Willis (1995) adds, "Educators must remain focused on instructional outcomes, not the technology of delivery" (p. 3). Likewise, Warn (1999) states that distance education design needs to focus on a learner-centered approach. It is important to remember that the medium is not the message. An essential element of a quality distance education program is understanding the needs of students—their competency in using a selected technology, their work/life experiences, interests, age, cultural background, etc. Interactivity between the student and instructor as well as among students is critical to distance learning. This is particularly important when utilizing the Internet for content delivery. Actualizing the full potential of formal Web-based instruction as well as learning the new teaching-learning methods will continue to challenge the rehabilitation educator and student into the future.

The Internet/World Wide Web and Web-Based Training: Thoughts of Future Possibilities

Many of the future possibilities of distance education via computer-mediated technologies are in development now. We are literally "rewiring" the world for the next generation of information dissemination on the Internet. Rehabilitation education and Web-based training will be very much a part of these future possibilities. A few thoughts on the future are as follows:

- *Increased bandwidth.* The future of Web-based training on the World Wide Web is inextricably linked to advances in audio/video transmission technologies, i.e., bandwidth. The University of Texas' *Distance Education: A Primer* (see Glossary) defines bandwidth as "a measure of the capacity of a communications channel. The higher a channel's bandwidth, the more information it can carry" (Fudell & Hardy, 1998). The most commonly used access mode to the Internet/World Wide Web is the standard telephone line and dial-up modem. The integrated services digital network has a much higher bandwidth than standard telephone lines while remaining a "dialable" telecommunication service that can be leased and used at the user's business and/or residence. The T1 digital carrier line has the greatest bandwidth, transmitting data at 1.544 Mbps. It is primarily a point-to-point transmission line requiring point-to-point installation. T1 can handle compressed video and "streaming video." Bandwidth is critical to the future of the World Wide Web, both for commerce and distance education. Future implementation of advanced audio/video, as well as three-dimensional virtual modeling, into Web-based distance education holds great promise as a future possibility.

- *Next Generation Internet and Internet2.* Two monumental collaborative initiatives are now under way. *The Next Generation Internet* is a project of the Presidential Advisory Committee on High Performance Computing and Communications, Information Technology, and the Next Generation Internet, which was established in February 1997 (http://www.hpcc.gov/ac). This committee envisions an Internet infrastructure that will support high-quality video, mobility, access to information in under one minute, constant connectivity, and "intelligent agent" software proliferation. *Internet2* is a project of over 150 participating U.S. universities working with government and industry. Participants are developing new technologies for high-speed, high-performance data transmission and global networking for accelerated research information exchange and dissemination. The Internet2 project is not intended to be a physical replacement network for the current Internet but rather a research and development project for new technologies. The technologies to be developed are sure to improve and enhance distance education. More information related to *Internet2* is available at the University Corporation for Advanced Internet Development home page (http://www.internet2.edu).

- *Improved accessibility of Web-based training courseware.* Soon Web-based training courseware will be designed or redesigned so that it is universally accessible for persons with visual disabilities.

- *Two-way interactive audio and video.* Rapid advances will occur in the development, design, and implementation of computer-mediated interactive communication. Synchronous audio communication and real-time video of individuals and/or groups will become commonplace in the distance education environment.

- *Three-dimensional presentation technologies.* Rehabilitation education will partner with medical schools for access to three-dimensional presentations and software for the study of anatomy, body systems, and aspects of specific physical and mental conditions. There will be advances in the development, design, and implementation of three-dimensional presentations within rehabilitation education for enhancing Web-based training, e.g., demonstration of assistive technologies.

- *Push technology*. "Push" software technology for the Web allows a source Web site to automatically "push" updated or new information to users' computers when they may be away from their computers. Once the software is installed, users can configure their computers to perform a "search and retrieve" function to download new or updated information at the source Web site. The push function will activate, send the information, and electronically notify the user that the information has been sent. Currently, this technology is being employed by on-line news services, other data update services, and certain government Web sites. Future Web-based distance education programs will utilize this technology as educator-designed instructional Web sites become more sophisticated and information focused.

- *Internally linked legislative and rehabilitation related documents.* Future possibilities include a move toward internal hyperlinking of legislative and other government agency documents. Creating internal hyperlinks within a lengthy document related to key parts, keywords, and key phrases allows publication of a hypertext table of contents or inclusion of document site maps that rapidly take the user to the desired section of the document. Additionally, document-specific search functions will be better utilized at on-line archive sites, i.e., sites from Congress, on-line journals, government agencies,

rehabilitation research and training centers, and government-supported research. This will be particularly useful for rehabilitation educators, students, VR counselors, and administrators.

In summary, the World Wide Web is proving to be a dynamic tool for rehabilitation education and research. Utilization of Web-based training can enrich the learning experience, whether used as the primary distance education medium or in combination with traditional and/or other distance learning technologies. In the near future, the Internet's impact on learner outcomes, cost-effectiveness, and increased educational accessibility will be assessed. In his study of the educational accessibility, learning improvement, and cost of Web-based training, Owsten (1997) stated, "We saw that a strong case exists for the Web in all three areas. The case is rooted in how educators are actually using the Web today, not solely on hypothetical advantages" (p. 33).

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APPENDICES

1. Glossary

This glossary is not all-inclusive. It is composed primarily of terms used in the primer developed by Fudell and Hardy at the University of Texas (http://www.utexas.edu/cc/cit/de/deprimer). For an excellent listing of multiple glossaries related to the Internet/World Wide Web terms, telecommunication terms, digital terminology, and distance education terms, visit the University of Wisconsin-Extension Distance Education Clearinghouse (http://www.uwex.edu/disted/glossary.html).

analog: A means of storing and transmitting sound, pictures, or other material as an electrical wave (or waveform) that is a facsimile, or analog, of the original signal. This analog signal, or waveform, may be amplified, attenuated, or otherwise altered but retains the characteristic of its original signal. Example: The sound that comes from my stereo speakers is basically the same waveform that was created by the microphone in the studio, even though it has been stored on a phonograph record. See also digital.

aspect ratio: The ratio of width to height of a pixel or display screen. Display screens are usually about 5:4, although square pixels (1:1) are considered preferable.

asynchronous: Communication characterized by time-independence. That is, the sender and receiver do not communicate at the same time. Examples: electronic mail and voice mail.

audioconference: A conference, most frequently over the telephone system, between two or more remote locations with live audio transmission.

bandwidth: A measure of the capacity of a communications channel. The higher a channel's bandwidth, the more information it can carry. Example: T1 has greater bandwidth than ISDN.

baud: A communication channel's maximum information-carrying capacity in symbols (state or level transitions) per second. The baud rate coincides with bits per second only for two-level modulation with no framing or stop bits. The term causes much confusion, and it is preferable to refer to "bits per second" (bps), "bytes per second," or "characters per second."

bit: A binary digit. The unit of information that can take one of two values, such as true or false or zero or one.

BRI: Basic Rate Interface. An ISDN channel consisting of two 64-Kbs "bearer" channels for voice or data and a 16-Kbs control channel.

broadcast quality: An ambiguous term generally used to describe a video signal of high quality. Strictly speaking, however, broadcast quality defines a signal meeting FCC criteria for broadcast. Example: This amateur VHS camcorder footage is not broadcast quality because the quality of the recorded signal is not good enough to merit using it in our video program.

byte: The smallest addressable unit of digital storage larger than a bit and smaller than a word. A byte now consists of eight bits.

codec: A hardware circuit that converts analog video or audio signals into digital code and vice versa. A codec (short for COder-DECoder) uses techniques such as delta modulation and pulse code modulation.

compressed video: A method currently used to transmit images electronically. Compression of sequences of images is necessary because of the huge volume of digital information inherent in video. For instance, a CD-ROM with a memory capacity of about 650 megabytes can store only 30 seconds of a video segment without video compression. With compression, an approximately 70-minute-long video program can be stored.

computer conferencing: Interactive sessions between networked computers whereby data, documents, and/or video and audio are shared. The term encompasses both data conferencing and desktop video conferencing. Web

chat, whiteboards, and Web-based conferencing may be used in computer conferencing.

desktop publishing: Utilization of microcomputer-based technology for the preparation of printed materials. Example: Using Adobe PageMaker or Quark XPress to design and lay out a newsletter for printing.

dialable: A line that can be dialed much like a telephone to any other site that has compatible equipment. Contrast to fixed connections, which always connect the same two points.

digital: A method of recording, transmitting, or reproducing sound, pictures (video), or other material by sampling an analog signal and translating those samples into digital information, or data. The digital signal, as opposed to an analog signal, bears no resemblance to its original form unless it is converted back into analog form. Example: Unlike with my old phonograph, the musical information on my CDs is a bunch of binary data that bears no resemblance to the sound waves that were present in the studio and picked up by the microphone.

e-mail: Electronic mail. The system whereby messages are automatically passed from one computer user to another through computer networks. Most e-mail systems allow "attachments" of files of different formats to be sent along with the text in the message body.

frequency response: A term describing by frequency limits the reproduction or transmission characteristics of a device or circuit. Example: The frequency response of an audio CD is 20 hertz to 20 kilohertz, which is nominally the same as human hearing.

GIF: Graphics Interchange Format. A standard format for compression of images. Images on Web pages are commonly stored in the GIF or JPEG formats.

hertz: Standard measuring unit for frequency measured in cycles per second. Named for Heinrich Hertz, a German physicist. Abbreviation: Hz.

HTML: Hypertext markup language. Coding used to publish documents on the World Wide Web which allows links to information in files on any computer connected to the Internet.

Internet Explorer: A Web browser software developed by Microsoft.

Inverse Mux: A device used to combine, or bond, ISDN channels to allow greater bandwidth, as required for a compressed video transmission. Also known as an IMUX or Inverse Multiplexer, an Inverse Mux is used on both ends of the transmission to allow the codec to "see" the aggregate bandwidth instead of the separate bonded channels. Example: Since we acquired an Inverse Mux at the UT Network Operations Center, we can transmit multichannel ISDN videoconferences to and from anyone similarly equipped.

ISDN: Integrated Services Digital Network. A fairly recent offering in the telecommunications industry, ISDN is a dialable, digital service available to most residences and businesses that offers much higher bandwidth than standard telephone service. ISDN lines come in two basic formats, BRI (Basic Rate Interface, capable of 128k of bandwidth, several of which can be aggregated by an Inverse Mux) and PRI (Primary Rate Interface, capable of 1472k bandwidth). Example: We got so tired of waiting for Web pages to download over our telephone modem line that we got an ISDN line that's much, much faster.

JPEG: Joint Photographic Experts Group. A standard format for compression of images. Images on Web pages are commonly stored in the JPEG or GIF formats.

kilo: Thousand (10^3). Abbreviated "K." Since computer specifications are usually binary numbers, it often refers to the precise value 1,024.

Kbps: Kilobits per second. Example: The telephone companies commonly use a 64 Kbps channel for digitized two-way voice conversations.

KBps: Kilobytes per second.

LAN: Local-area network. A computer network that spans a local area such as a building or campus. See also WAN.

Listserv: Mailing list management software that scans e-mail messages for the words “subscribe” and “unsubscribe” to automatically update the list.

mailing list: A list of e-mail addresses grouped together as an alias such that a message sent to the list goes to the entire group. Some mailing lists are simple “reflectors” which redirect mail sent to them to the list of recipients. Others are “moderated” or filtered by humans. Mailing lists allow members of a class to collaborate on a project without ever needing to meet face-to-face. Majordomo, Listproc, and Listserv are mailing list processors.

microwave: High frequency radio waves used for point-to-point transmission of audio, video, and data. A straight line of sight between the sending and receiving antennas is required.

modem: An electronic device that converts serial data from a computer into an audio signal in order to transmit data over a telephone line.

Netscape Navigator: Web browser software developed by Netscape.

Network: A set of nodes, points, or locations connected by means of data, voice, and video communications for the purpose of exchanging information.

NTSC: National TV Standards Committee. Administered by the FCC, this U.S. colored television standard broadcasts at 525 lines of resolution that are transmitted at 60 half frames per second.

on-line: Available for immediate use. Example: I tried to get on-line with my Internet service provider, America Online, but I was unsuccessful.

packet: A data unit sent across a network.

packet switching: The system that enables data to travel expediently across a computer network by breaking messages into packets which are individually routed between hosts, with no previously established communication path. Packets are routed to their destination through the most expedient route. The packets of a single message may follow different routes. The destination

computer reassembles the packets into their appropriate sequence. Packet switching is used to optimize the use of the bandwidth.

POTS: Plain old telephone service.

PSTN: Public switched telephone network. The public telephone network.

Quicktime: Multi-platform multimedia software developed by Apple that delivers synchronized graphics, sound, video, text, and music.

RF: Radio frequency. Radio frequencies are electromagnetic signals that range from microwave to radio in length.

satellite conference: A conference between different locations where the communications links are made between orbiting satellites and various points on earth. Communications satellites provide telephone, television, and data services between widely separated locations such as universities or television stations in different cities. The technique involves the transmission of signals from an earth station to a satellite. The satellite has equipment that receives the signals, amplifies them, and transmits them to earth. Receiving stations then pick up the signals and provide the communications link.

streaming: Playing video or sound in real time as it is downloaded over the Internet. Data is decompressed and played (by use of a Web browser plug-in) as it is transferred to your computer over the World Wide Web. Streaming requires a powerful computer and fast connection since the file is not stored on your computer.

synchronous: Communication occurring between parties that are temporally synchronized. That is, communication that occurs between people at the same time, although not necessarily in the same place. Example: Internet chat is synchronous; e-mail is asynchronous.

T1: A general term for a digital carrier, typically leased from a local or long-distance provider, capable of transmitting 1.544 Mbps of electronic information. A T1 line is point to point, as opposed to a dialable ISDN line. T1 lines may be used fractionally or at their full bandwidth. E1 is the

approximate European equivalent, prevalent also in Mexico. Example: The UT video network is composed primarily of leased T1 lines that carry compressed video and Internet data between UT components.

transponder: The part of a communications satellite that receives transmission from the ground (an up-link site) and retransmits it back to earth (a down-link site). Example: On the
C-band satellite Galaxy 9, orbital location 123 degrees west, transponder 22 operates at a frequency of 4140 MHz and has horizontal polarity.

ubiquitous: Existing or being everywhere at the same time.

up-link: The process of sending video, or data, up to a communications satellite, where it is down-linked to a receiving site. Example: The local PBS station is going to up-link our teleconference so that it will be viewable by anyone with a C-band dish.

URL: Uniform resource locator. An address on the World Wide Web. *For an excellent listing of multiple glossaries related to the Internet/World Wide Web terms, telecommunication terms, digital terminology, and distance education terms, visit the University of Wisconsin-Extension Distance Education Clearinghouse* (http://www.uwex.edu/disted/glossary.html).

Usenet: A distributed electronic bulletin board system which allows users to post and read articles on it. It is international in scope and is probably the largest decentralized information utility in existence. Newsgroups, postings on Usenet, provide a mechanism for class collaboration and communication.

videoconference: A video communications session between two or more remote locations, with live, animated image transmission and display. TechWeb Technology Encyclopedia provides a more detailed definition and history of videoconferencing, including a discussion of various protocols and systems.

WAN: Wide-area network. A computer network that connects LANs or single computers in different geographic areas together.

Web chat: A system that allows two or more logged-in users to set up a typed, real-time, on-line conversation across the World Wide Web.

Web page: A location on the World Wide Web, identified by a URL, which contains a block of data. A Web page is stored on a server as a file written in HTML. Web pages for distance education classes often provide a course syllabus and hypertext links to related Internet resources and class materials.

whiteboard: An electronic bulletin board which allows users across a network to collaborate in real time.

World Wide Web: A distributed information retrieval system in which documents formatted in hypertext markup language are linked via hypertext transfer protocol to other documents, as well as audio, video, and graphics files. By using a Web browser and clicking on hot spots, computers are connected across the Internet. Use of the Internet has exploded with the development of Web browsers such as Mosaic, Netscape Navigator, and Microsoft's Internet Explorer, which use a graphical user interface.

X.25: An OSI (Open Systems Interconnect) standard protocol which describes how data passes into and out of public data communications networks. Other protocols related to packet switching are X.3, X.28, X.29, and X.75.

XModem: A widely available protocol used for file transfer between modems. Also referred to as the "Christensen" file transfer protocol, XModem uses 128-byte packets with error detection. It is fairly slow but reliable. Improvements to the protocol were made and released as YModem and ZModem.

YABA: Yet Another Bloody Acronym. Used in response to statements like "I transferred the JPEG file over the POTS line since I didn't have access to an ISDN or T1 connection."

YModem: File transfer protocol between modems which can use larger packets (1 kilobyte) than those used in XModem (128 byte).

ZModem: A modem file transfer protocol with error checking and crash recovery.

zip: A compressed archived file created by PKWare's PKZIP or a compatible archiver. Compressing files allows faster transport across computer networks.

2. Standards for the Ethical Practice of WebCounseling[3]

The relative newness of the use of the Internet for service and product delivery leaves authors of standards at a loss when beginning to create ethical practices on the Internet. This document, like all codes of conduct, will change as information and circumstances not yet foreseen evolve. However, each version of this code of ethics is the current best standard of conduct passed by the NBCC Board of Directors. As with any code, and especially with a code such as this, created for an evolving field of work, NBCC and CCE welcome comments and ideas for further discussion and inclusion.

Further, the development of these WebCounseling standards has been guided by the following principles:

- These standards are intended to address practices which are unique to WebCounseling and WebCounselors.
- These standards are not to duplicate non-Internet-based standards adopted in other codes of ethics.
- Recognizing that significant new technology emerges continuously, these standards should be reviewed frequently.
- WebCounseling ethics cases should be reviewed in light of delivery systems existing at the moment rather than at the time the standards were adopted.

WebCounselors who are not national certified counselors may indicate at their Web site their adherence to these standards, but may not publish these standards in

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their entirety without written permission of the National Board for Certified Counselors.

The **practice of WebCounseling** shall be defined as "the practice of professional counseling and information delivery that occurs when client(s) and counselor are in separate or remote locations and utilize electronic means to communicate over the Internet."

In addition to following the NBCC Code of Ethics pertaining to the practice of professional counseling, WebCounselors shall:

1. Review pertinent legal and ethical codes for possible violations emanating from the practice of WebCounseling and supervision.
   Liability insurance policies should also be reviewed to determine if the practice of WebCounseling is a covered activity. Local, state, provincial, and national statutes as well as the codes of professional membership organizations, professional certifying bodies and state or provincial licensing boards need to be reviewed. Also, as no definitive answers are known to questions pertaining to whether WebCounseling takes place in the WebCounselor's location or the WebClient's location, WebCounselors should consider carefully local customs regarding age of consent and child abuse reporting.

2. Inform WebClients of encryption methods being used to help ensure the security of client/counselor/supervisor communications.
   Encryption methods should be used whenever possible. If encryption is not made available to clients, clients must be informed of the potential hazards of unsecured communication on the Internet. Hazards may include authorized or unauthorized monitoring of transmissions and/or records of WebCounseling sessions.

3. Inform clients if, how, and how long session data are being preserved.
   Session data may include WebCounselor/WebClient e-mail, test results, audio/video session recordings, session notes, and counselor/supervisor communications. The likelihood of electronic sessions being preserved is greater because of the ease and decreased costs involved in recording. Thus, its potential use in supervision, research, and legal proceedings increases.

4. In situations where it is difficult to verify the identity of WebCounselor or WebClient, take steps to address impostor concerns, such as by using code words, numbers, or graphics.

5. When parent/guardian consent is required to provide WebCounseling to minors, verify the identity of the consenting person.

6. Follow appropriate procedures regarding the release of information for sharing WebClient information with other electronic sources.
   Because of the relative ease with which e-mail messages can be forwarded to formal and casual referral sources, WebCounselors must work to ensure the confidentiality of the WebCounseling relationship.

7. Carefully consider the extent of self-disclosure presented to the WebClient and provide rationale for WebCounselor's level of disclosure.
   WebCounselors may wish to ensure that, minimally, the WebClient has the same data available about his/her service provider as would be available if the counseling were to take place face to face (i.e., possibly ethnicity, gender, etc.). Compelling reasons for limiting disclosure should be presented.
   WebCounselors will remember to protect themselves from unscrupulous users of the Internet by limiting potentially harmful disclosure about self and family.

8. Provide links to Web sites of all appropriate certification bodies and licensure boards to facilitate consumer protection.

9. Contact NBCC/CEE or the WebClient's state or provincial licensing board to obtain the name of at least one Counselor-On-Call within the WebClient's geographical region.
   WebCounselors who have contacted an individual to determine his or her willingness to serve as a Counselor-On-Call (either in person, over the phone, or via e-mail) should also ensure that the WebClient is provided with local crisis intervention hotline numbers, 911 and similar numbers in the event that the Counselor-On-Call is unavailable.

10. Discuss with WebClients procedures for contacting the WebCounselor when he or she is off-line.
    This means explaining exactly how often e-mail messages are to be checked by the WebCounselor.

11. Mention at their Web sites those presenting problems they believe to be inappropriate for WebCounseling.
    While no conclusive research has been conducted to date, those topics might include sexual abuse as a primary issue, violent relationships, eating disorders, and psychiatric disorders that involve distortions of reality.

12. Explain to clients the possibility of technology failure.
    The WebCounselor gives instructions to WebClients about calling if problems arise, discusses the appropriateness of the client calling collect when the call might be originating from around the world, mentions differences in time zones, and talks about dealing with response delays in sending and receiving e-mail messages.

13. Explain to clients how to cope with potential misunderstandings arising from the lack of visual cues from WebCounselor or WebClient.
    For example, suggesting the other person simply say, "Because I couldn't see your face or hear your tone of voice in your e-mail message, I'm not sure how to interpret that last message."

3. Internet Addresses[4]

Meta Search Engines

Momma	http://www.momma.com	[8 search engines]
Dogpile	http://dogpile.com	[14 search engines]
Goto	http://www.goto.com	
Inference Find	http://infind.com	[6 search engines]
MetaCrawler	http://metacrawler.com	[8 search engines]

Medical Search Engines

Medline	http://www.healthgate.com/res/index.shtml
Internet Oracle	http://Internetoracle.com/medical.htm
Netmedicine	http://www.mdchoice.com
Med Site Navigator	http://www.medsitenavigator.com/
Galaxy	http://galaxy.einet.net/galaxy/Medicine.html
Gateways	http://www.Webcom.com/pgi/gateways.html
Physician's Guide to the Internet	http://www.physiciansguide.com/
The Ultimate World Wide Web Search Engine Collection	http://nightfall.simplenet.com/SearchEngine
Guides to Specialized Search Engines	http://www.searchability.com/index.htm#All
A-Z List of Specialized Search Engines	http://www.searchability.com/atoz.htm

Vocational Information/Career Development

[4] Adapted from Patterson, J. B. (2000). Using the Internet to facilitate the rehabilitation process. *Journal of Rehabilitation, 66*(1), 4-10

Occupational Outlook Handbook
http://stats.bls.gov/ocohome.htm
Common majors/ http://www.udel.edu/CSC/mrk.html
associated careers http://www.ksu.edu/acic/career/options.html
http://www.cdc.rpi.edu/student/careerlinks/toc.html
Dictionary of Occupational Titles
http://www.oalj.dol.gov/libdot.htm
O-Net http://www.doleta.gov/programs/onet
Career counseling resources
http://careerplanning.miningco.com/mbody.htm
http://content.monster.com
First job http://careerplanning.miningco.com/msub7.htm
Resume/cover letter development
http://www.explore.cornell.edu/careers/cover%20letters.htm
Critique a Resume http://www.labor.state.ny.us/html/career/dinores.htm
Resumes information http://www.liglobal.com/b_c/career/res.shtml
http://www.wm.edu/csrv/career/stualum/resmdir/contents.html
Mock job interview practice
http://content.monster.com/jobinfor/interview/virtual/
Interview network http://www.job-interview.net
Informational interviewing
http://danenet.wicip.org/jets/jet-9407-p.html
State and federal jobs http://www.statejobs.com
Career planning/self-assessments
http://www.careerplanning.about.com/careers/careerplanning/cs/selfassessment/index.htm
Career Mosaic http://www.careermosaic.com
Career planning information
http://www.careerplanning.com
Choosing a career http://safetynet.doleta.gov/choose.htm
Job readiness resources
http://www.sciences.drexel.edu/teachereducation/jobint.html
http://www.rpi.edu/dept/cdc/student/gss/careernav.html
http://www.labor.state.ny.us/html/youth/
http://www.labor.state.ny.us/html/library.htm

Placement Resources

President's Committee on Employment of People With Disabilities
http://www50.pcepd.gov/pcepd
Job Web http://www.jobWeb.org/catapult/catapult.htm
Virtual job fair http://www.career.com
http://www.careercity.com
http://jobs.com
Most popular job sites http://www.100hot.com/directory/business/jobs.html
Free job matching for marketing and technology professions
http://www.careercentral.com/career/index.asp
America's Job Bank http://www.ajb.dni.us/seeker
Monster search jobs http://jobsearch.monster.com
Identifying employment opportunities on the Internet
http://olmis.emp.state.or.us/research/trends/feb97/jobnet.htm
Technology jobs http://www.nerdworld.com/employment.html
Searchable databases
http://dir.lycos.com/Reference/Searchable_Databases/Jobs/
http://www.careermosaic.com

Medical Information

Medical information Addictions
http://www.well.com/user/woa
Anatomy lessons http://www.innerbody.com/indexbody.html
Behavioral/medical http://www.the-center.org/behav.html
WebDoctor http://www.gretmar.com/Webdoctor/disease.html
Diagnostic procedures http://medicinenet.com
Drug references http://www.mayohealth.org/usp/di/uspA-AM.htm
http://www.rxlist.com
http://pharminfo.com/drg_mnu.html

Assessment Resources

The Career Key http://www.ncsu.edu/careerkey
Career Interests Game http://Web.missouri.edu/~cppcwww/holland.shtml
Birkman Method Career Style Summary
http://www.review.com/Birkman

Keirsey Temperament Sorter II

	http://www.advisorteam.com/user/kts.asp
Career Influences Survey	http://www.topjobs.co.uk
Career Net	http://www.careernet.org/careers/index.html
Self-directed search	http://self-directed-search.com/taketest.html

Consumer Organizations

American Foundation for the Blind	
	http://www.afb.org
National Multiple Sclerosis Society	
	http://www.nmss.org
National Alliance for the Mentally Ill	
	http://www.nami.org
Disability-specific organizations	
	http://www.eskimo.com/~jlubin/disabled/org.htm

General Disability Resources for Professionals and Consumers

Visual Impairment Guide	http://www.viguide.com/orgs.htm
Disability/Medical Resource Mall	
	http://wwwtest.medmarket.com/disability.cfm
rehabNET	http://www.rehabnet.com/index.html
Disability information	http://vaview.vavu.vt.edu/disresources.shtml
Cornucopia of disability information	
	http://codi.buffalo.edu
disAbility Resources	http://www.eskimo.com/~jlubin/disabled.htm
Meningitis Foundation of America	
	http://www.musa.org

Continuing Education and Professional Resources

World lectures	http://www.utexas.edu/world/lecture
LearnWell On-line	http://www.learnwell.org
Healthtalk	http://www.healthtalk.com
National Clearinghouse on Rehabilitation Training Materials	
	http://www.nchrtm.okstate.edu
ABLEDATA	http://www.abledata.com
DRM Guide disability resources	

http://www.geocities.com/CapitolHill/1703/index.html

Job Accommodation Network http://janWeb.icdi.wvu.edu (e-mail: jan@jan.icdi.wvu.edu)

APSE bulletin board http://www.apse.org/bb.html

General Resources

Salary surveys to maps http://www.ioicc.state.il.us/CareerLinks/Resources.htm

Covers almost every topic http://home.about.com/business/index.htm

NOTE: When sites are updated, addresses may be changed. If difficulties in accessing some sites are encountered, use the address preceding the first slash mark and then click on links from the home page.

4. Resources

Tutorials and Information on the Internet and Related Subjects

1. CrissCross Technologies' full-length tutorials:
   - Speaking of the Internet, $75.00 (with Eudora or Outlook Express)
   - Speaking of Windows, 2nd ed., $60.00
   - Speaking of Corel WordPerfect, $75.00
   - Speaking of Microsoft Word, $75.00
   - Speaking of Microsoft Excel, $75.00

   Contact CrissCross Technologies, 110-64 Queens Blvd., #406, Forest Hills, NY 11375; (718) 268-6988; e-mail, info@crisscrosstech.com; Internet, http://www.crisscrosstech.com.

2. Resources from Top Dot Enterprises:
   - An audio computer magazine, *Sound Computing*
   - Cassette courses on many computer applications, including Internet Explorer 5.0, Microsoft Word, Windows 95 and 98, and Eudora
   - A course on how to search the Internet
   - Training in person and by phone
   - Sales of adaptive software and hardware

   Contact Top Dot Enterprises, 8930 11th Pl., SE, Everett, WA 98205; (425) 335-4894;
   e-mail, deamar@eskimo.com.

3. Tutorials that can be downloaded and read using a screen reader, Braille device, or magnifier:
   - Tutorial on using the Netscape 4.0 Web browser with the Slimware Window Bridge 2.5 screen reader
   - First Train for the Internet—extensive tutorial designed to help Internet novices get up and running with recommended graphical applications

- Microsoft tutorial on using Windows 95 with Window-Eyes; includes helpful tips for operation with other screen readers as well
- Tutorial on using Windows 95 with JAWS for Windows; includes helpful tips for operation with other screen readers

Available from http://www.empowermentzone.com.

4. Tutorials on the use of the Internet on cassette
   Contact Henter-Joyce, Inc., 2100 62nd Ave., N., St. Petersburg, FL 33702; (800) 336-5658 or (813) 528-8900; fax, (813) 528-8901; e-mail, info@hj.com; Internet, http://www.hj.com.

5. *Bitstream Cassette* magazine, which covers topics of interest to individuals who are blind and visually impaired
   Contact Shrink Wrap Computer Products, 11706 Saddle Crescent Circle, Oakton, VA 22124; (703) 620-4642; e-mail, shrink@erols.com; Internet, http://users.erols.com/shrink

6. Resources from Trace R & D Center:
   - Information and CD-ROM databases on services and assistive technologies
   - Information on computer adaptations for people with disabilities; includes extensive information on the Internet and people with disabilities

   Contact Trace R & D Center, S-151 Waisman Center, 1500 Highland Ave., Madison, WI 53705; (608) 262-6966; fax, (608) 262-8848; e-mail, info@trace.wisc.edu; Internet, http://trace.wisc.edu.

7. Computer magazines in Braille and cassettes for loan or purchase
   Contact Associated Services for the Blind, 919 Walnut St., Philadelphia, PA 19107; (215) 627-0600.

8. A wide variety of Braille computer manuals
   Contact Braille Institute of America, 741 N. Vermont Ave., Los Angeles, CA 90029; (213) 663-1111; fax, (213) 663-0867.

9. Books on the use of computers and the Internet and a circular entitled "Assistive Technology: A Selective Bibliography" (1992)
   Contact Library of Congress/National Library Service for the Blind and Physically Handicapped, 1291 Taylor St., NW, Washington, DC 20004; (800) 424-8567 or (202) 707-5100.

10. Internet-related books on audio cassette
    Contact Recording for the Blind and Dyslexic, 20 Roszel Rd., Princeton, NJ 08540; (800) 221-4792 or (609) 452-0606; fax, (609) 987-8116.

11. Books from the National Braille Press:
    - *Captured by the Net*, $19.99, available in Braille (3 volumes), cassette, PortaBook™ (grade 2 files on disk), ASCII disk, print. Introduces e-mail and the World Wide Web; discusses how to choose an Internet service provider; reviews the differences between Internet access under DOS and Windows; and provides a wealth of useful Web addresses.
    - *Shop Online the Lazy Way*, $13.95, available in Braille (4 volumes), PortaBook. Teaches the basics of on-line shopping and reviews shopping for particular kinds of products, such as books, computers, or plane tickets.
    - *Musings of an Addicted Internet Shopper*, $10.00, available in Braille (1 volume). A companion to *Shop Online the Lazy Way*.

    Contact National Braille Press, 88 St. Stephen St., Boston, MA 02115; (800) 548-7323, ext. 20; fax, (617) 437-0456; e-mail: orders@nbp.org; Internet, http://www.braille.com.

12. Audiovisual reader tutorial on CD-ROM for the ZoomText Xtra Screen Magnifier (free)
    Contact Ai Squared, PO Box 669, Manchester Center, VT 05255-0669; (802) 362-3612
    (9 a.m. to 5 p.m.); fax, (802) 362-1670; e-mail, support@aisquared.com; Internet, http://www.aisquared.com/.

Computer Training Facilities/Learning Opportunities

In addition to the training available through many state VR services and independent VR organizations, the following training options are available.

1. Computer training for blind and visually impaired persons
   Contact Baruch College, Computer Center for the Visually Impaired, Box 515, 17 Lexington Ave., New York, NY 10010; (212) 802-2140 or (212) 447-3000; fax, (212) 802-2103;
   e-mail, spkbb@cunyvm.cuny.edu; Internet, http://www.baruch.cuny.edu/ccvip.

2. Computer training, including a review of aids and appliances
   Contact Carroll Center for the Blind, 770 Centre St., Newton, MA 02158; (617) 969-6200.

3. Training, orientation, and rehabilitation utilizing electronic resources and training on adapted computers
   Contact Cleveland Society for the Blind, Storer Center, 1909 E. 101st St., Cleveland, OH 44106; (216) 791-8118.

4. An Internet training workshop developed by the University of Alabama—commonly known as the "Road Map to the Internet"—with 30 lessons available on computer disk
   Contact American Council of the Blind, 1155 15th St., NW, Suite 1004, Washington, DC 20005; (202) 467-5081; fax, (202) 467-5085; Internet, http://www.acb.org.

Browsers

1. BrookesTalk Talking Browser (research project)
   Contact Oxford Brookes University, http://www.brookes.ac.uk/schools/cms/research/ speech/btalk.htm.

2. IBM Home Page Reader, a spoken Internet/Web access for blind and visually impaired users; Netscape plug-in does not work with Java Script.
   Contact IBM Corporation, Special Needs Systems, 11400 Burnet Rd., Internal Zip 9448, Austin, TX 78758; (800) 426-4832; fax, (512) 838 9367; e-mail, snsinfo@austin.ibm.com; Internet, http://www-3.ibm.com/able/hpr.html

3. pwWebSpeak, an auditory Web browser and e-mail system (does not work with Java Script)
   Contact Productivity Works, http://www.prodworks.com/pwWebspeak.htm.

4. VIP Browser, a talking Web browser with magnification for people with low vision or total vision loss
   Contact JBliss Imaging Systems, http://www.jbliss.com/SW_Products.html#V.

5. Opera Software, shareware browser with extensive magnification and full keystroke commands, but no speech

Contact Opera, http://www.opera.com/download.html.

5. Computer Literacy Self Survey

Mouse Skills

_____I can move the arrow to a specific location with ease.
_____I can keep the mouse steady when clicking the mouse button.
_____I know when to use a single click and when to use a double click.
_____I can easily drag the pointer to select or drag an object.
_____I know how to change the speed and sensitivity of the mouse.

Windows

_____I am familiar with the concept of "Windows."
_____I know and can explain the standard structure of a "Window."
_____I know and can explain the concept of "maximize" and "minimize."
_____I can execute maximize and minimize using the mouse.
_____I can execute maximize and minimize using the keyboard.
_____I know the function of scroll bars.
_____I can easily scroll with the mouse.
_____I know how to move one page/record forward and back or move to the first page/record using the mouse.

Dialogue Boxes

_____I am familiar with the variety of dialogue boxes in Windows.
_____I know how to enter and edit text in a text box.
_____I recognize the drop down list symbol.
_____I am familiar with the concept and function of a check box.
_____I know how to fill in or remove a check from a check box.
_____I am familiar with the concept and function of a radio button.
_____I know how to change a radio button choice.
_____I am familiar with the function of command buttons.

_____I know the effect of clicking on the OK and Cancel button.

Selecting

_____I am familiar with the concept and purpose of "selecting" in a Windows program.
_____I can easily select a character, word, sentence, paragraph, or all text with a mouse and/or keyboard.
_____I can select an item from a drop-down list.

Menu

_____I am familiar with the concept of "Menu" in Windows.
_____I can select a menu with a mouse.
_____I can select a menu from a keyboard.
_____I know how to select a command from a menu.
_____I know the difference of function between a command with an ellipsis and one without.
_____I know how to accomplish the steps necessary to execute a command on a "Selection" in a document.
_____I know why some menu commands are "grayed out" at times.

Help Menu

_____I am familiar with the Help Menus and utilize them to solve problems.
_____I know how to look up specific items from the Help Index.
_____I am familiar with the concept of "context-sensitive help" and how to access it.

Printing

_____I know how to print a document.
_____I know how to preview a document for printing.
_____I know how to change margins on a document for printing.
_____I know how to print envelopes.
_____I know how to change to a particular cassette on the printer (e.g., letterhead).
_____I know how to tell whether or not a document has successfully been printed or not while at my work station.
_____I am familiar with the concept of print queue.

_____I know how to look at the print queue order in the Print Manager on the Print Server.
_____I can recognize when there is an error on the printer.
_____I know who to contact to resolve printer errors and problems on the printer server.

Miscellaneous

_____I can type effectively.
_____I am familiar with the concept of function keys on the keyboard.
_____I know the purpose of “Any” key.
_____I know how to do basic editing of a word-processing document.
_____I can execute cut and paste and copy and paste commands in Windows both with menu commands and keyboard shortcuts.
_____I am familiar with the concept of mail merge and can perform such a merge.
_____I am familiar with the concept of multi-tasking in Windows and know how to switch from one task to another using a keyboard shortcut.
_____I know how to format a diskette.
_____I know how to set or reset the time and date in Windows.
_____I know the proper procedure to exit Windows before shutting off the computer.
_____I know how to scan the hard drive and any diskettes for a virus.

6. Web Site URLs

Regional Rehabilitation Continuing Education Programs (RRCEP),
Regional Rehabilitation Continuing Education Programs-Community Rehabilitation Programs (RRCEP-CRP)
and
Regional Disability and Business Technical Assistance Centers (DBTAC)

The **Regional Rehabilitation Continuing Education Programs (RRCEP)** are funded by grants from the **Rehabilitation Services Administration (RSA)** http://www.ed.gov/offices/OSERS/RSA/rsa.html within the U.S. Department of Education and serve persons with disabilities. The RRCEPs provide performance-based continuing education services to rehabilitation organizations and personnel in the state Vocational Rehabilitation agencies. The RRCEPs provide programs designed to improve the job skills, provide new knowledge, and update the training of rehabilitation professionals through an integrated series of educational services that emphasize the skills necessary to a worker's effective performance. The RRCEPs conduct continuing education workshops, seminars, conferences, and training sessions; collect and disseminate up-to-date information and provide technical assistance and consultation to state VR agencies.

The **Regional Rehabilitation Continuing Education Programs-Community Rehabilitation Programs (RRCEP-CRP)** are funded by grants from the Rehabilitation Services Administration (RSA) within the U.S. Department of Education and serve persons with disabilities. The RRCEP-CRP programs provide integrated sequences of training which focus on the needs of community rehabilitation program direct service staff, administrators and managers. The RRCEP-CRPs provide training that will result in improved services and increased employment opportunities for people with disabilities. Community based

rehabilitation programs (CRPs) usually have a service agreement with one or more of the state vocational rehabilitation programs.

Region 1

Region 1 RCEP- Assumption College Institute for Social and Rehabilitation Services (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont). http://www.assumption.edu/dept/SocRehab/rcepframe.html

Region 1 CRP - RCEP - New England RCEP/CRP at the University of Hartford, West Hartford, CT (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont). http://www.hartford.edu/rcep/main.html

Region 2

Region 2 RCEP - State University of New York at Buffalo (New Jersey, New York, Puerto Rico, and Virgin Islands). http://www.gse.buffalo.edu/org/rrcep

Region 2 CRP-RCEP - State University of New York at Buffalo (New Jersey, New York, Puerto Rico, and Virgin Islands). http://
http://www.gse.buffalo.edu/org/rrcep

Region 3

Region 3 RCEP - George Washington University (Pennsylvania, Delaware, West Virginia, Maryland, Virginia, and District of Columbia). http://www.gwu/~rrcep

Region 3 CRP-RCEP - University of Maryland (Pennsylvania, Delaware, West Virginia, Maryland, Virginia, and District of Columbia).
http://www.education.umd.edu/RRCEP

Region 4 ***(Region 4 has two RRCEPs)***

Region 4 RCEP - University of Tennessee/Knoxville Rehabilitation Continuing Education Program/College of Education (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee).
http://www.coe.utk.edu/phonedirectory/groupings.htm#rrcep

Region 4 RCEP - Georgia State University/School of Policy Studies/Public Administration and Urban Studies (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee). http://www.gsu.edu/~wwwsps/prl/rrcep.htm

Region 4 CRP-RCEP - Georgia State University/School of Policy Studies/Public Administration and Urban Studies (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee). http://ceon-ut-tie.he.utk.edu

Region 5

Region 5 RCEP - Southern Illinois University at Carbondale - College of Education (Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin). http://www.rcepv.siu.edu/~rcep

Region 5 CRP-RCEP - University of Wisconsin - Stout (Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin). http://www.cec.uwstout.edu

Region 6

Region 6 - RCEC - University of Arkansas - College of Education and Health Professions - Department of Rehabilitation Education and Research (Arkansas, Louisiana, Oklahoma, New Mexico, and Texas). http://www.cei.net/~regionvi

Region 6 CRP-RCEP - University of North Texas - School of Community Service - Department of Social Work, Rehabilitation and Addictions (Arkansas, Louisiana, Oklahoma, New Mexico, and Texas). http://www.cei.net/~regionvi

Region 7

Region 7 RCEP - University of Missouri - Columbia (Iowa, Kansas, Missouri and Nebraska). http://www.rcep7.org

Region 7 CRP-RCEP - University of Missouri - Columbia (Iowa, Kansas, Missouri and Nebraska). http://www.crprcep7.org

Region 8

Region 8 RCEP - University of Northern Colorado-Department of Human Services
(Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming).
http://www.unco.edu/rrcep/index.html

Region 8 CRP-RCEP - Denver Options, Inc. - Center for Technical Assistance and Training (Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming). http://www.denveroptions.org/ctat.htm

Region 9

Region 9 RCEP - San Diego State University - Interwork Institute (Arizona, California, Hawaii, Nevada, Guam, The Commonwealth of Northern Mariana Islands, Republic of Palau and American Samoa).
http://www.interwork.sdsu.edu/projects/rcep

Region 9 CRP/RCEP - San Diego State University - Interwork Institute (Arizona, California, Hawaii, Nevada, Guam, The Commonwealth of Northern Mariana Islands, Republic of Palau and American Samoa).
http://www.interwork.sdsu.edu/projects/rcep_crp

Region 10

Region 10 RCEP - Western Washington University - Center for Continuing Education in Rehabilitation (Alaska, Idaho, Oregon and Washington).
http://www.ccer.org

Region 10 RCEP-CRP - Western Washington University - Center for Continuing Education in Rehabilitation (Alaska, Idaho, Oregon and Washington).
http://www.ccer.org

Regional Disability and Technical Assistance Centers (DBTACs)

The National Institute on Disability and Rehabilitation Research (NIDRR) (**http://www.edu.gov/offices/OSERS/NIDRR**) has established ten regional

centers to provide information, training, and technical assistance to employers, people with disabilities, and other
entities with responsibilities under the ADA. The centers act as a "one-stop" central, comprehensive resource on ADA issues in employment, public services, public accommodations, and communications. Each center works closely with local business, disability, governmental, rehabilitation, and other professional networks to provide ADA information and assistance, placing special emphasis on meeting the needs of small businesses. Programs vary in each region, but all centers provide technical assistance, education and training, materials dissemination, information and referral, public awareness, and local capacity building. (**CESSI, 2000. Online**: http://www.adata.org

Region 1 - New England ADA Technical Assistance Center (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont).
http://www.adaptenv.org/neada/default.asp

Region 2 - Northeast Disability and Technical Assistance Center (New Jersey, New York, Puerto Rico, Virgin Islands). http://www.disabilityact.com

Region 3 - ADA Information Center for the Mid-Atlantic Region (Delaware, Washington, DC, Maryland, Pennsylvania, Virginia, West Virginia).
http://www.adainfo.org

Region 4 - Southeast Disability and Business Technical Assistance Center (Alabama, Florida, Georgia, Kentucky, North Carolina, South Carolina, Mississippi, Tennessee). http://www.sedbtac.org

Region 5 - Great Lakes ADA Center (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin). http://www.gldbtac.org

Region 6 - Southwest Disability and Business Technical Assistance Center (Arkansas, Louisiana, New Mexico, Oklahoma, Texas).
http://www.ilru.org/dbtac/index.html
(Region 6 RCEP and CRP-RCEP Home Page URL as of February 2001 **http://www.rcep6.org**)

Region 7 - Great Plains Disability and Technical Assistance Center (Iowa, Kansas, Missouri, Nebraska. http://www.adaproject.org

Region 8 - Rocky Mountain ADA Technical Assistance Center (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming. http://www.ada-infonet.org

Region 9 - Pacific Disability and Business Technical Assistance Center (Arizona, California, Hawaii, Nevada, Pacific Basin. http://www.pacdbtac.org

Region 10 - Northwest Disability and Business Technical Assistance Center (Alaska, Idaho, Oregon, Washington. http://www.wata.org/NWD