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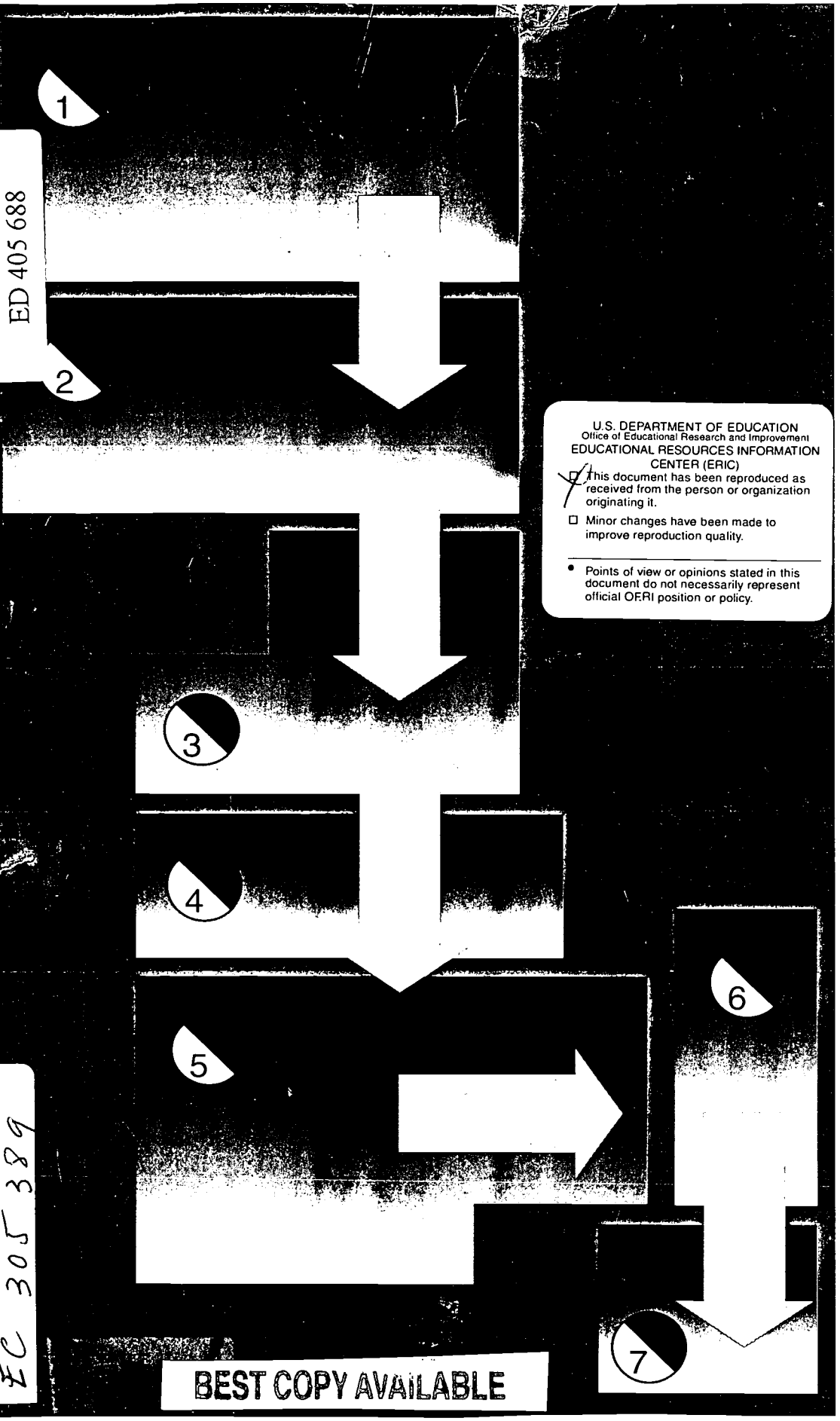
ABSTRACT

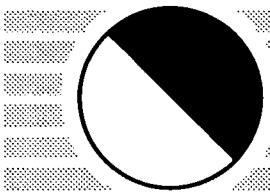
This TECH POINTS training manual and guide are intended to assist vocational rehabilitation (VR) agencies with staff training on the integration of rehabilitation technology services into the VR process. The TECH POINTS approach helps determine when and how to use rehabilitation technology with individual clients. The training manual covers: how to use the TECH POINTS approach, referral/application, extended evaluation, plan development, services, placement/follow-up, closure points, post-employment, and agency guidelines for rehabilitation technology. Sections provide a summary of main points, explanatory text, a place for notes, boxes with key points or implementation steps, and references. The TECH POINTS guide lists specific questions, considerations, and recommended actions to determine whether technology services are needed at each of the seven TECH POINTS stages from referral/application through post-employment. Other information in the guide summarizes components of rehabilitation technology; specific rehabilitation technology services, devices, and specialists; and cost considerations. There is also a list of rehabilitation technology information resources and databases, as well as space for listing local rehabilitation technology service providers and a summary of case studies of technology uses to modify the workplace in various environments. (DB)



TECH POINTS

Integrating Rehabilitation Technology into Vocational Rehabilitation Services

Center for Rehabilitation Technology Services
SC Vocational Rehabilitation Department



TECH POINTS
Integrating Rehabilitation Technology into Vocational Rehabilitation Services

Training Manual

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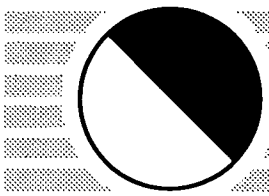

Version 1.0 (Field Test Edition)

The **TECH POINTS** Training Manual and **TECH POINTS** Guide are being field tested in selected Vocational Rehabilitation agencies beginning in Spring 1994. Field testing is being conducted as part of a NIDRR grant to determine the effectiveness of the **TECH POINTS** model as an approach to integrating the consideration of rehabilitation technology services into the vocational rehabilitation process. Findings of the research will be available in Spring 1997.

Permission to utilize the **TECH POINTS** Training Manual, **TECH POINTS** Guide or other **TECH POINTS** materials should be obtained from the Center for Rehabilitation Technology Services. Comments on these materials or other aspects of CRTS activities are welcome.

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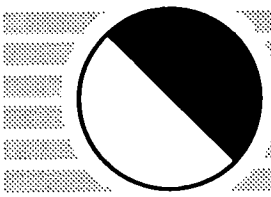

TECH POINTS
Integrating Rehabilitation Technology into Vocational Rehabilitation Services

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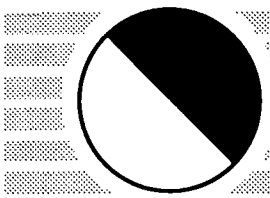

Foreword

With a little help from our friends . . .

Response to the idea of identifying "points" where reminders about rehabilitation technology services would be built into the vocational rehabilitation process has been positive. The simplicity of the **TECH POINTS** concept may be its greatest attribute. We have attempted to layout a practical way for vocational rehabilitation staff to incorporate and utilize the resources and services of rehabilitation technology. At the same time we realized that the "specialists" who actually deliver the rehabilitation technology services; the rehabilitation engineers, occupational therapists, speech pathologists and the other members of technology teams, needed to understand how the vocational rehabilitation process functions.

The development of **TECH POINTS** has followed a long, interesting road. As with most concepts, the exact origins can be traced back to many sources. The Center for Rehabilitation Technology Services is appreciative of the creative input of many people who saw the value of integrating technology into the VR process.

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At the time of publication, regulations for the 1992 Amendments to the Rehabilitation Act were just being released for public comment. New regulations could result in changes to the vocational rehabilitation process, which in turn may require modification to the **TECH POINTS** structure. The concept of utilizing key points where technology should be considered for individuals served by VR agencies should not change. If it is determined that modifications are needed to remain compatible with the new regulations, an updated version of **TECH POINTS** will be made available.

TECH POINTS is more a training strategy than a planning or monitoring tool. The way that vocational rehabilitation staff learn to think about technology resources and services will do more to integrate technology resources and services into VR services than policies and regulations. Rehabilitation technology resources and services are part of the unique capabilities which should be an integral part of vocational rehabilitation services.

It is our hope that **TECH POINTS** will prove to be a useful resource for vocational rehabilitation agencies. Findings from the field testing and feedback from others using **TECH POINTS** will likely lead to modifications and improvements in the original concept.

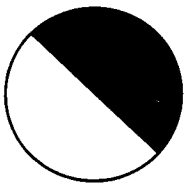
We welcome your comments and suggestions!

Tony Langton

Judy Hughes

Acknowledgements

Special appreciation goes to Cindy Flynn and Valerie Augustine for their extra efforts in helping to put the pieces and parts together!



Introduction

SECTION 1

Introduction SECTION 1

In this section

▼ The TECH POINTS Concept

TECH POINTS is a rehabilitation technology management and training strategy for vocational rehabilitation agencies. **TECH POINTS** is designed to provide rehabilitation counselors with an easy-to-follow desk reference to help determine when and how to use rehabilitation technology with individual clients.

Integrating the consideration of rehabilitation technology at key points in vocational rehabilitation and similar service areas is necessary if rehabilitation technology services are to be an effective resource (Langton, 1991). **TECH POINTS** can help a counselor consider simple, low cost rehabilitation technology interventions for those clients for whom rehabilitation technology is sometimes overlooked. It should also help VR counselors deal more effectively with persons with severe disabilities who present complex technology-related needs.

Applications of the **TECH POINTS** approach can be made in varied settings such as

- vocational rehabilitation
- education
- business/industry
- worker compensation
- health care
- independent living
- other rehabilitation services

In vocational rehabilitation agencies **TECH POINTS** addresses several basic concerns:

- Is rehabilitation technology use appropriate?
- When should it be used?
- Who should be involved?
- What outcomes should be expected?

Making appropriate decisions about rehabilitation technology applications in the rehabilitation process is difficult even for experienced counselors. As with all VR services, the use of technology has to be individually planned and matched with the needs and capabilities of the individual. This requires not only knowledge and experience but also a logical structure to follow. The concept of **TECH POINTS** identifies key places in the rehabilitation process where decisions should be made and offers suggestions and questions for the counselor and client to consider.

▼ History of Rehabilitation Technology Services in VR

The value of rehabilitation technology in enhancing the capabilities of vocational rehabilitation agencies to serve individuals with disabilities has been recognized for many years. Various types of adaptive equipment, aids and devices have been a part of rehabilitation since its inception in the 1920s. Although not identified as rehabilitation or assistive technology, these resources have been used to help with job function and independent living capability.

The process of applying technological and scientific knowledge to practical purposes highlights rehabilitation technology's purposes. In the rehabilitation setting, it is the use of devices, techniques or strategies to remove or reduce barriers to physical, behavioral, or cognitive performance (Galvin & Phillips, 1990).

The first official reference to rehabilitation technology was in the 1986 Amendments to the Rehabilitation Act when rehabilitation engineering was included in the legislation (Phillips, 1993). Inclusion of rehabilitation engineering into VR regulations, mandated agencies to provide rehabilitation engineering services, as appropriate, during the evaluation phase and in the Individualized Written Rehabilitation Program.

1986 amendments include "rehabilitation engineering" within VR regulations

One of the Institute on Rehabilitation Issues Study Groups in 1986 also focused on "Rehabilitation Technologies" and their role in the rehabilitation process (Corthell, 1986). Findings from a survey of VR agencies showed that most agencies were already very involved with technology-related services.

1990 RSA Policy directive reaffirms role of rehabilitation engineering technology

A policy directive issued by the Rehabilitation Services Administration (RSA) in November 1990 reaffirmed the important role that technology-related services should play, emphasizing the need throughout the rehabilitation process, from referral to post-employment (Carney, 1990). VR agencies were also required to include in their State Plan how they make these services available. Stressed in this directive was the importance of using rehabilitation technology resources when making determinations of eligibility.

The recent 1992 Amendments to the Rehabilitation Act further emphasizes the importance of rehabilitation technology resources and services. Significant changes have been made which include increased consumer responsiveness and accountability of VR agencies in the provision of services. Also included are new interpretations of the potential of individuals with severe disabilities to benefit in terms of employability and the need for VR agencies to collect "clear and convincing evidence" to support eligibility decisions. The entire Rehabilitation Act has been made consistent with the principles and language of the Americans with Disabilities Act (ADA) of 1990 (Galvin, 1992). This has made it important that rehabilitation counselors be familiar with essential functions, reasonable accommodations, consumer empowerment and other concepts of the ADA.

Changes regarding "rehabilitation technology" resulting from the new 1992 Amendments to the Rehabilitation Act:

- ❒ Definition of "rehabilitation technology" from the Technology-Related Assistance for Individuals with Disabilities Act of 1988 (TECH ACT) replaces definition of "rehabilitation engineering."
- ❒ New reporting requirements about the type of rehabilitation technology services provided to individuals.
- ❒ New requirement in the IWRP to include a statement of the specific rehabilitation technology services to be provided to assist in the implementation of intermediate objectives and long-term rehabilitation goals.
- ❒ Four new State Plan requirements: State agencies must describe how a broad range of rehabilitation technology services will
  - be provided for each stage of the rehabilitation process
  - be provided on a statewide basis
  - enable VR counselors, client assistance personnel and other related service personnel to train on rehabilitation technology
  - identify the manner in which devices and services will be provided or worksite assessments will be made as part of the assessment for determining eligibility and/or the service needs of the individual

(Stafford, 1993)

Despite the growing awareness of the importance of rehabilitation technology, there remains a need to ensure rehabilitation technology resources and services are used consistently throughout VR activities. Most rehabilitation counselors are uncertain how they should integrate rehabilitation technology in their day-to-day case work activities.

▼ Just Exactly What is Rehabilitation Technology?

A little background on the evolution of terminology common to the application of technology resources and services may be helpful. Early reference to the use of "technology" to assist individuals with disabilities began with work done in the orthotics/prosthetics area following World War II. This eventually helped lead to the gradual development of "rehabilitation engineering," which was recognized as a speciality of the engineering field in 1970 (McNeal, 1994). "Assistive technology" was introduced through the TECH ACT with its emphasis on assistive devices and services. "Rehabilitation technology" has been used as a general reference throughout this time span.

Rehabilitation engineering, rehabilitation technology and assistive technology represent aspects of technology service activities, and are now included together to define "rehabilitation technology." **TECH POINTS** will use these terms interchangeably in the **TECH POINTS** materials.

The 1992 amendments to the Rehabilitation Act defines rehabilitation technology as

> *"the systematic application of technologies, engineering methodologies or scientific principles to meet the needs of and address the barriers confronted by individuals with disabilities in areas which include education, rehabilitation, employment, transportation, independent living and recreation. The term includes rehabilitation engineering, assistive technology devices and assistive technology services."*

Within this broad definition, we will take a closer look at the three components of rehabilitation technology:

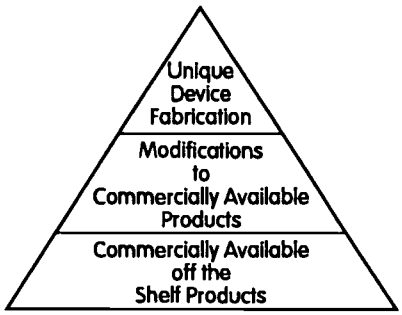
- rehabilitation engineering;
- assistive technology devices;
- assistive technology services.

Rehabilitation Engineering

Rehabilitation engineering is the branch of engineering that is concerned with the application of science and technology to improve the quality of life of the physically disabled (McNeal, 1994). This involves applications of rehabilitation technology that deal primarily with custom applications and accommodations requiring the specialized expertise of a rehabilitation engineer.

The term "rehabilitation engineering" is identified with much of the work done in introducing technology services into VR agencies. Rehabilitation engineering and rehabilitation technology are terms used in many VR agencies to describe their technology-related activities.

Assistive Technology Devices



Estimates as high as 80 percent of technology interventions utilize assistive technology devices which are commercially available with little or no need for modification

The second component of rehabilitation technology is the equipment (i.e., aids and devices) that is often used to assist individuals in performing tasks. These are referred to as assistive technology devices.

The TECH ACT (Technology-Related Assistance for Individuals with Disabilities Act of 1988) defines AT devices as "any item, piece of equipment or product system, whether acquired

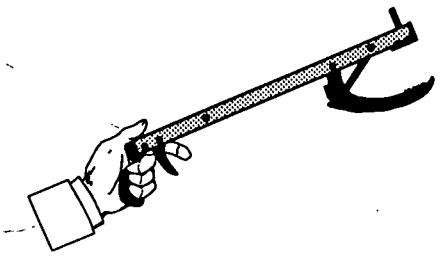
- commercially off the shelf, or
- modified or customized

that is used to increase, maintain, or improve functional capabilities of individuals with disabilities."

Assistive aids and devices such as hearing aids, eye glasses, and wheelchairs are some of the more common examples of rehabilitation technology "equipment." Since in most VR agencies technology-related devices such as cochlear implants or other devices fall into medical or surgical categories, these will not be classified as assistive technology devices. For the most part though, almost all aids or devices which "assist" an individual in performing tasks would be included.

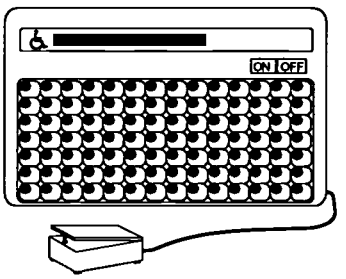
The growing collection of aids and devices range from simple low tech gadgets to high tech equipment. These devices have one general purpose in common: to "assist" in accomplishing a task or basic function.

Low tech applications refer to easy-to-implement mechanical, structural or electrical solutions to problem areas. Examples include simple daily living aids such as reachers, lever-style door hardware, custom designed hand tools, work station modifications or minor changes to improve the ability of a person with a disability to function independently.



High tech applications refer to applications of complex electrical and electronic devices. Examples include computers, augmentative communication devices and environmental control systems.

Selecting between a low or high tech solution to a problem is not always possible. There are not always "appropriate" alternatives; identifying low cost solutions is a real need. It is often possible to identify practical, low cost solutions to many problems with the assistance of rehabilitation technology specialists.



While there is no agreed-upon system of categorizing devices, the following is one attempt to cluster them into logical groupings. The advantage of developing some type of a more detailed breakdown facilitates coding and tracking of technology-related expenditures.

Assistive Technology Devices

Major Categories

- ❒ alternate formats
- ❒ aids for daily living
- ❒ architectural accommodations
- ❒ cognitive/memory aids
- ❒ communication aids
- ❒ computer access
- ❒ controls/switches
- ❒ mobility/ambulation
- ❒ orthotics/prosthetics
- ❒ recreation
- ❒ seating/positioning
- ❒ sensory aids
- ❒ therapeutic/health maintenance aids
- ❒ transportation
- ❒ vocational/training aids

AbleData currently has information on over 19,000 aids and devices that are commercially available. These range from very simple mechanical devices to complex electronic equipment

❒ Assistive Technology Services

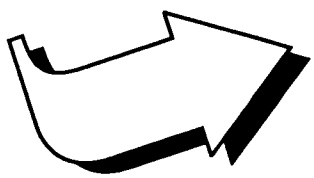
The third component of rehabilitation technology addresses technology-related services. Although discussed last, services represent the most important part of rehabilitation technology.

Technology related services present the most important part of rehabilitation technology

The TECH ACT defined assistive technology service as

> *"...any service that directly assists an individual with a disability in the selection, acquisition or use of an assistive technology device."*
>
> This includes:
>
> - evaluation of the needs of an individual, including a functional evaluation of the individual in the individual's customary environment;
> - selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing or replacing assistive technology devices;
> - coordinating and using other therapies, interventions or services with assistive technology devices;
> - training or technical assistance for individuals with disabilities;
> - training or technical assistance for persons involved in the major life functions of individuals with disabilities.

In **TECH POINTS**, assistive technology services are referred to as "Rehabilitation Technology Services." These services are listed on the following page.



TECH POINTS identifies the following rehabilitation technology services:

Rehabilitation Technology Services

- ❒ technology consultation;
- ❒ rehabilitation technology evaluation/assessment;
- ❒ assistive device recommendation/prescription;
- ❒ assistive technology equipment procurement;
- ❒ device fitting/adjustment;
- ❒ device custom design;
- ❒ device fabrication/adaptation;
- ❒ device training for consumers/caregivers;
- ❒ device maintenance/repair;
- ❒ follow-up;
- ❒ equipment loan;
- ❒ product demonstration;
- ❒ funding assistance; and
- ❒ education and training.

These services are normally provided by rehabilitation technology specialists who have specific training and expertise. Vocational rehabilitation counselors familiar with these services will be able to work more effectively with rehabilitation engineers and other rehabilitation technology specialists.

▼ Rehabilitation Technology Specialists: Now Tell Me Again Who They Are?

The previous information described the main components of rehabilitation technology: rehabilitation engineering; equipment and devices; and technology-related services.

The next obvious question is where do you find rehabilitation technology services? Vocational rehabilitation agencies differ in whether they use internal VR staff or contract with external service providers for the technology services. Whether using internal or external resources, "rehabilitation technology specialists" simply refer to

> *a person who provides rehabilitation technology services as one of their primary job responsibilities. Specialists include, but are not limited to, rehabilitation engineers, assistive technology specialists, speech pathologists, occupational therapists or physical therapists.*

For our purposes, we'll start by identifying the typical specialists a VR counselor might turn to for technology-related services. It may be necessary to use several specialists, forming a "technology team," to adequately address the needs of an individual.

Rehabilitation Technology Specialists

- ❒ rehabilitation engineer
- ❒ assistive technology specialist
- ❒ rehabilitation technologist
- ❒ fabrication technician
- ❒ occupational therapist
- ❒ physical therapist
- ❒ speech/language pathologist
- ❒ rehabilitation technology supplier/DME dealer

▼ Applications of Rehabilitation Technology

One of the easiest ways to understand rehabilitation technology is to look at actual applications of technology resources and services. Technology-related solutions to problems might deal with

- ❒ the individual's functional capabilities, personality, attitude, etc.
- ❒ the environments where the individual functions
  - home
  - community
  - vocational rehabilitation
  - school/training
  - work
- ❒ tasks or work activities that the individual needs to complete
  - essential job functions
  - other concerns, such as transportation

Rehabilitation technology can be a versatile problem-solving tool that rehabilitation counselors can utilize with many of their clients. It won't solve all problems, but it can provide options for many clients which otherwise might not be possible. Integrating the consideration of rehabilitation technology into daily case management will enhance the benefit(s) that counselors and clients will be able to realize. **TECH POINTS** can help counselors make this integration possible. Looking at actual technology applications in work, school and home, community and vocational rehabilitation environments should help counselors see the scope of what can be expected from rehabilitation technology.

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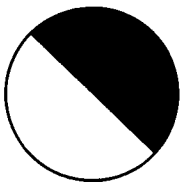
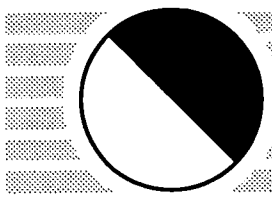


Rehabilitation Technology and the VR Process

SECTION 2



Rehabilitation Technology and the VR Process

SECTION 2

In this section

▼ Exploring Alternatives, What If . . .

The resources and services of rehabilitation technology present opportunities and alternatives for individuals with all degrees of functional limitations. Selecting vocational goals or activities of daily living options without considering rehabilitation technology could seriously limit choices. As a tool, rehabilitation technology can open up avenues and options that may at first seem unrealistic. Knowing a little about what is out there, employing some creative thinking and taking some risks are necessary prerequisites for this to be possible. Equally important is investigating new approaches and listening to consumers as they describe how they think they can best overcome their limitations.

By using rehabilitation technology resources, rehabilitation staff can help individuals explore how technology might enhance their quality of life, independence and offer job opportunities

Rehabilitation technology can be of assistance to a person with a disability only when it is applied appropriately. Most people with disabilities would prefer to use as few aids and devices as possible.

It is extremely important that the person using the technology is the lead person in deciding what and when assistive devices and modifications are needed.

Many persons with disabilities, and even some professionals, impose limitations on career options by not considering where technology could be used to "assist" with some of the essential tasks and activities of a job. Often tasks which at first seem unfeasible can be made possible by looking at things from a different perspective. Inexpensive interventions such as changing how a switch operates or using a simple over-the-counter adaptive aid can make all the difference in the world in determining vocational potential.

Let's consider the example of a college student who damaged his right hand severely in an auto accident. The injuries were so severe that he had eliminated pharmacy as a career option, basing this decision on the fact that he saw no way he could open medicine bottles. A simple jar opener placed under a counter allowed him to accomplish this task. This even included opening childproof tops!

▼ Integrating Rehabilitation Technology

Integrating the "consideration" of rehabilitation technology into day-to-day case service practice must occur if benefits are to be realized. This must first occur with the rehabilitation counselor, the key link to technology service delivery in VR agencies. Access to rehabilitation technology depends on the counselor and client recognizing that there could be potential benefit from these services.

Access to rehabilitation technology depends on the counselor and client recognizing that there could be potential benefit from these services

The importance of this initial contact and the counselor's continuing role in coordinating all rehabilitation services makes it essential that counselors have a basic awareness of rehabilitation technology and have direct access to rehabilitation technology resources and services.

One of the major challenges faced by VR agencies in offering rehabilitation technology services to clients is the inconsistency from one counselor to another. Some counselors routinely include technology considerations with most of their clients. Others rarely

consider it and almost never refer clients for rehabilitation technology services. Most counselors fall somewhere between the two extremes. Individuals applying for VR services with the same disability and almost identical functional limitations could find different opportunities to try out technology-related solutions to problems. The only difference in many cases is the counselor's awareness level and attitude toward technology resources and services.

Technology is one of those areas that can make vocational rehabilitation counselors feel that they are expected to be a "jack- of-all-trades, but a master of none"

A vocational rehabilitation counselor can be overwhelmed when it comes to discussions about technology. A major part of the problem is a need for training and increased awareness of what exists. Emphasis has been placed on integrating technology into VR services, but little information has been given to counselors to help apply this in a way that is systematic and "user friendly" to the person with a disability and to the counselor.

Many counselors are reluctant to discuss technology

- What if the applicant wants something the agency can't provide?
- What about budget constraints?
- Where do I find out about the products available?
- Who do I call for help?
- What kind of questions do I ask someone when I don't know anything about technology?

These are just a few of the things that often run through a counselor's mind when a person who might need technology applies for services.

Counselors have understandably been shy and reluctant to discuss technology with applicants, fearing that talking about a certain device would obligate the agency to provide that device. This reluctance can be overcome by:

- keeping technology concerns in the context of vocational goals;
- sharing information about rehabilitation technology needs with clients;
- emphasizing to clients that many options may need to be considered before final decisions can be made.

Technology will not always be the appropriate solution to problems. There may actually be times that technology could be useful, but it is either not necessary to achieve the vocational goal or not essential to the health or independence of the client.

. . . if technology-related options are not explored then it will never be known what might have been possible . . .

Considering possible options is very important. Vocational rehabilitation focuses on employment goals and helping individuals realize their potential. Exploring appropriate use of rehabilitation technology to create better options should be a regular part of case management practice. Early exploration of technology interventions should not be seen as a commitment to purchase specific equipment on the part of the VR agency or to require the individual to buy it on their own. VR counselors and consumers are very aware of funding as a real problem to address. There are no easy solutions to the limited dollars available. However, if technology-related options are never explored then it will never be known what might have been possible.

▼ Working With Consumers

Empowerment has become a term frequently used to describe what occurs with an individual in his or her rehabilitation program. When someone is "empowered," they are actively involved in key decisions which result in several important outcomes:

- ❒ increased client motivation;
- ❒ greater likelihood that appropriate technology options will be considered;
- ❒ reduced chances that equipment will be abandoned;
- ❒ alternative solutions can be found which otherwise might not have been considered.

The person must be willing and convinced that a device or a modification will work for them or it will not be used

Providing rehabilitation technology services or assistive devices without extensive involvement of the individual as part of a technology team makes little sense, yet it occurs. The most knowledgeable source of information about the functional limitations and problems is the individual with the disability. Well-intentioned professionals still make the mistake of assuming that they "know what's best" when it comes to the selection of assistive technology equipment. The person must be willing and convinced that a device or a modification will work for them or they are less likely to use it. Time,

equipment and money could all be wasted without the "user" being the quarterback of the team (Little, 1991).

Working together as a team will not always be easy. The VR client must learn to be responsible in making decisions regarding technology needs. It is important that the client be aware of the realities that vocational rehabilitation and other agencies have. Within their mandates, VR agencies cannot provide for all of the technology needs for an individual. Identifying rehabilitation technology options, when they are appropriate, may require the counselor and client to work together to explore various ways to obtain all the assistance which may be needed.

▼ Changing Roles and Expectations

The expectations placed on VR counselors and other rehabilitation professionals are growing. To be effective in their duties, VR counselors have to be "expert" in many areas, such as rehabilitation technology. This is difficult because most counselors have had little, if any, actual training in this area. The challenge of serving individuals with more severe disabilities falls primarily on the VR counselor.

A review of major rehabilitation legislation places emphasis on persons with severe disabilities being served by vocational rehabilitation. Both ADA and the 1992 Amendments to the Rehabilitation Act make it clear that persons with severe disabilities who want to work must be given the opportunity to do so. The Rehabilitation Amendments Title 1 – Part A Sec.100 states "...that individuals with disabilities, including those with the most severe disabilities, have demonstrated their ability to achieve gainful employment in integrated settings if appropriate services and support are provided.

Counselors and VR agencies need to be prepared to provide appropriate technology services for employment purposes

This language speaks to the intent of The Rehabilitation Act and indicates that agencies must increase their efforts to serve persons with severe disabilites. Including technology in these efforts is clearly mandated. Counselors and VR agencies need to be prepared to provide appropriate technology services for employment purposes.

The American with Disabilities Act (ADA) is also having an impact on the role of the counselor and VR agencies. Individuals with disabilities are gaining greater access to community activities, programs and employment opportunities. As with employers who are reviewing policies and procedures regarding "reasonable accommodations," rehabilitation agencies must also make sure that

access to services are being provided in a manner consistent with the ADA mandate. "Reasonable accommodations" for communication or mobility limitations, as well as cognitive impairments, are examples of what VR agencies must address at the initial referral. Rehabilitation technology should be considered at this and all stages in the rehabilitation process.

Every rehabilitation counselor does not have to become a technology specialist

What does this mean to the VR counselor?

Should every VR counselor become a specialist in rehabilitation technology? No. There are more effective strategies to consider. With **TECH POINTS**, it is not necessary for the counselor to be an expert in technology or know all the equipment, devices or accommodations that could be made. VR counselors are not prepared to be "technology specialists." The demands already placed on counselors in most settings are extensive.

Should every VR counselor have a working knowledge of rehabilitation technology resources and services? Yes. Counselors need the array of resources that technology can provide. Expectations to effectively serve individuals with severe disabilities, often with multiple functional limitations, make it essential. Rehabilitation counselors need to

- have a basic understanding of rehabilitation technology,
- know what questions to ask, and
- know who to contact to obtain the needed rehabilitation technology services.

The possibility of establishing a specialty role for rehabilitation technology is worth considering. An approach which has worked well in many settings is designating a "technology specialist" role to one of the counselors in an office. This may be an unofficial designation or one that is actually part of job expectations.

Some of the duties of a "technology specialist' counselor could include

- serving as a resource to other office staff,
- collecting and maintaining information on rehabilitation technology,
- being a liaison with rehabilitation technology service providers, and
- assisting with quality assurance and staff development training.

Some rehabilitation counselors have a natural interest in technology-related activities and would be valuable in helping other counselors. This arrangement would be most feasible for counselors with caseloads where technology services are likely to be needed. Caseloads with large numbers of individuals with more physical involvement needs would be best. Other speciality caseloads such as deaf, blind or trust fund cases would also be possibilities.

While there would be advantages to establishing a "technology specialist" role for a counselor in field offices or regions, this is not required for **TECH POINTS.**

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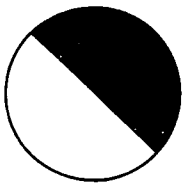
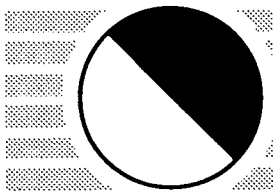


TECH POINTS

SECTION 3



SECTION 3
TECH POINTS

SECTION 3

In this section

▼ The TECH POINTS Process

TECH POINTS offers vocational rehabilitation agencies a practical, easy-to-follow guide on how to integrate rehabilitation technology into their activities. The goal was to develop a system that operates effectively within existing structures. This was made possible by overlaying the concept of **TECH POINTS** on the existing VR case management process. With the logical relationships of program elements already well laid-out, the task of identifying the important decision points and service areas was relatively easy (Langton, 1991).

TECH POINTS is based on the following premises:

- **TECH POINTS** are integral parts of the VR case service process;
- the rehabilitation counselor is the primary professional in identifying and referring clients who have technology-related needs; and
- clients are integrally involved in the identification of needs and the purchase of technology.

▼ Support and Resources Needed for TECH POINTS

Agency-wide strategic planning to address how rehabilitation technology services should be utilized is essential for **TECH POINTS** or any other approach to be effective.

In order to appropriately implement the **TECH POINTS** system, VR agencies must:

- issue policies and procedures concerning the provision and funding of technology services;
- provide staff with training in the **TECH POINTS** process; and
- provide access to technology services for clients.

▼ TECH POINTS in Vocational Rehabilitation Services

Utilizing a series of points at critical junctures in the rehabilitation process, **TECH POINTS** provides the rehabilitation counselor with a strategy to aid in determining if some type of technology should be considered. The seven "points" coincide with case service status tasks and activities that exist in some form in all agencies. The sequence of accepting referrals, conducting comprehensive assessments, developing individual plans, arranging for necessary planned services, placing clients into employment and conducting post-employment follow-up is basic to any employment-oriented rehabilitation program.

The **TECH POINTS** where consideration of rehabilitation technology should occur include:

TECH POINT 1 Referral/Application

Considers need for rehabilitation technology resources and services for all applicants. Decisions on vocational potential should include how technology resources/services could improve or enhance performance.

TECH POINT 2 Extended Evaluation

Comprehensive assessment of the client's vocational potential including consideration of technology resources/services.

TECH POINT 3 Plan Development

Technology resources and services included in determination of vocational goals and objectives and all aspects of the IWRP planning process.

TECH POINT 4 Services

Use of technology-related resources/services to enhance performance capabilities and address any accommodation needs in any planned service activities.

TECH POINT 5 Placement/Follow-up

Use of technology-related resources/services to enable a worker with a disability to perform essential job functions at their employment site or improve the ability to obtain, maintain, or advance in employment

TECH POINT 6 Closure

Prior to closing any case, documents what, if any, use was made of rehabilitation technology resources or services.

TECH POINT 7 Post-Employment

Reviews need for rehabilitation technology resources and services for clients to maintain employment, identifying those individuals who are at-risk of losing their job due to technology-related problems.

Since **TECH POINTS** is based on an existing process, it offers a system that should easily integrate technology services into regular case service activities

What is a **TECH POINT**?

A **TECH POINT** is a place in the rehabilitation process where use of technology resources or services should be considered.

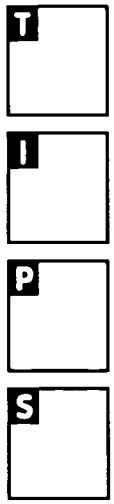
TECH POINTS are part of a continuous process which look at potential rehabilitation technology needs of an applicant and then systematically follow that individual throughout their rehabilitation process.

Some VR agencies may utilize status categories that differ from those illustrated earlier. In agencies where Order of Selection procedures are in effect, other status categories may be in use. In those situations, it may be necessary to incorporate additional categories into the most appropriate **TECH POINTS** area.

TECH POINTS can provide a structure for overall use of technology resources and services.

- Indicates primary access points where technology services should be considered
- Offers a training strategy for staff involved in technology services
- Provides, perhaps most importantly, opportunity for consumers and staff to see how the "technology" really fits into the system
- Fosters a *"what if . . ."* attitude about what people might be able to do with the help of technology

Technology Intervention Preparation Steps (TIPS)



At each **TECH POINT** questions and considerations are presented which assist the counselor in determining if technology services are actually needed. These Technology Intervention Preparation Steps, called TIPS, will help the counselor identify the challenges and concerns needed to effectively consider technology-related options.

Notes:

TECH POINTS in the Vocational Rehabilitation Process

Referral/ Applicant (1)
- general rehabilitation technology needs
- technology impact on vocational potential
- order of selection considerations
- accommodations for applications process

Extended Evaluation (2)
- accommodations for vocational evaluation process

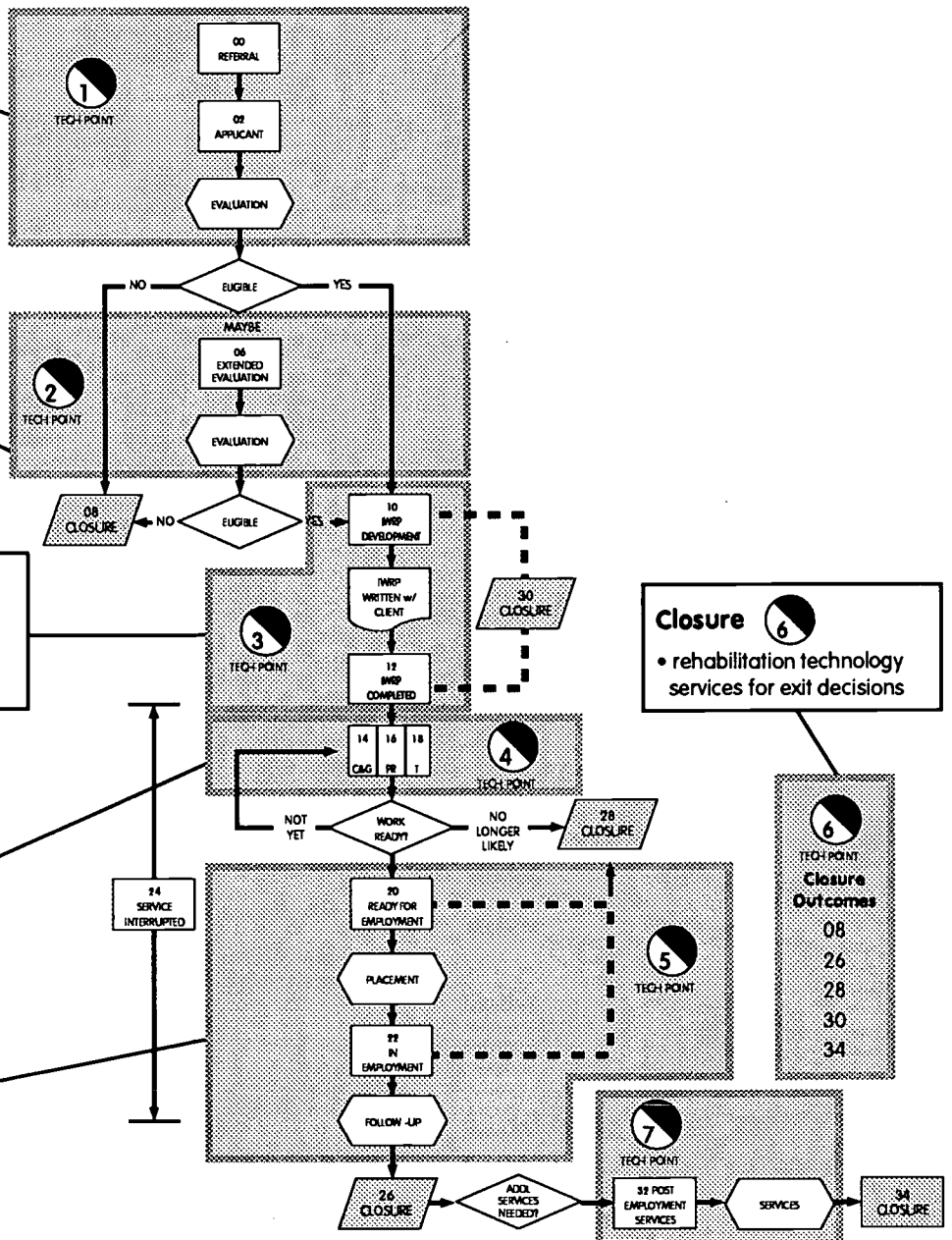
Plan Development (3)
- rehabilitation technology resources and services in the IWRP

Services (4)
- accommodations for planned services

Placement/ Follow-up (5)
- rehabilitation technology resources in job development
- accommodations at the worksite

Post-Employment (7)
- rehabilitation technology needs for maintaining employment

Closure (6)
- rehabilitation technology services for exit decisions



Flow chart taken from Rehabilitation Counseling: Basic and Beyond (1987)

▼ What Will TECH POINTS Actually Do?

TECH POINTS will help make technology resources and services a normal consideration throughout the VR process. This will offer practical benefits for. . .

- vocational rehabilitation staff
  - o rehabilitation counselors
  - o vocational evaluators
  - o others
- consumers
- vocational rehabilitation agencies
- rehabilitation technology specialists

Vocational Rehabilitation Staff

It is anticipated that utilization of **TECH POINTS** will assist rehabilitation counselors and vocational evaluators by:

- reducing the number of individuals they feel have limited vocational potential;
- expanding vocational placement and training options for clients;
- increasing possibilities for direct job placements;
- providing an easy-to-follow "tickler" management system for rehabilitation technology;
- spending available funds for rehabilitation technology appropriately;
- providing a tool for counselors to use when they feel overwhelmed in serving persons with severe disabilities; and
- enhancing job development capabilities with employers.

Consumers

Consumers will realize benefits from **TECH POINTS** through:

- increasing involvement in the vocational rehabilitation process;
- expanding understanding of technology and its impact on vocational decisions;
- increasing opportunities to obtain appropriate rehabilitation technology services;
- reducing likelihood of abandonment of aids and devices; and
- improving opportunities for successful employment.

Agency

TECH POINTS will help VR agencies by:

- providing a system to help comply with new rehabilitation technology requirements;
- improving capabilities to serve individuals with severe disabilities;
- utilizing available resources more effectively;
- establishing more consistent state-wide utilization of rehabilitation technology services;
- providing a basis on which to improve tracking and accounting for technology-related expenditures;
- offering a strategy for training field staff in how to use rehabilitation technology resources and services; and
- possibly reducing the purchase of inappropriate equipment.

Rehabilitation Technology Specialists

TECH POINTS will help rehabilitation technology specialists by:

- increasing utilization of rehabilitation technology services;
- receiving more appropriate requests for technology services;
- planning and coordinating technology service delivery activities;
- increasing understanding of the vocational rehabilitation process.

▼ Utilizing Rehabilitation Technology Services

TECH POINTS emphasizes the need for a team approach in using rehabilitation technology in vocational rehabilitation (Rice, 1990). The VR counselor is the rehabilitation professional most likely to become aware of the challenges that a client may face in seeking or maintaining employment or performing important independent living tasks. The counselor, working with the client, is also likely to recognize concerns the client has about the use of technology. It is important for the counselor and client to determine if these challenges and concerns could be addressed through use of technology resources and services.

Notes:

Rehabilitation Technology Team

A technology team approach is essential to the use of rehabilitation technology. At minimum, the technology team will consist of the counselor and client working together to consider possible rehabilitation technology alternatives. Other members of the team will vary depending on the specific problems or questions being addressed and the stage in the vocational rehabilitation process.

A team approach is essential to effective utilization of technology resources and services

The team of rehabilitation technology specialists could include:

- ❒ Rehabilitation Engineer
- ❒ Assistive Technology Specialist
- ❒ Occupational Therapist
- ❒ Physical Therapist
- ❒ Rehabilitation Technologist
- ❒ Speech Pathologist
- ❒ Rehabilitation Technology Supplier
- ❒ Fabrication Technician
- ❒ Others

TECH POINTS encourages the use of these and other rehabilitation technology specialists to address technology at appropriate points in the vocational rehabilitation process. Through the use of **TECH POINTS**, the counselor should be able to determine:

- who the technology team members should be;
- what services may be needed;
- what information is needed from the counselor and client regarding technology needs; and
- how to implement recommendations from the technology team.

Considering All Environments

Injured in an automobile accident on her way home from work, GL has a spinal cord injury at the C-5 level which resulted in quadriplegia. While still in the hospital, a physical therapist prescribed a powered wheelchair for GL. Compromises were made in the type of wheelchair purchased because of limited funding by the insurance company.

GL wanted to live independently and return to her job as an office manager so the hospital staff referred her to VR for services. Due to the type and severity of her injury, her rehabilitation counselor sought consultation for technology services.

The first objective of the rehabilitation technology team was to help her move back to her mobile home. The wheelchair caused problems in terms of entry, safety, homemaking duties and accessibility to all rooms.

Getting home and using community services was also a challenge. The team realized that she couldn't drive her vehicle using her present wheelchair. A different chair had to be purchased to achieve this goal.

To determine whether she could return to work, GL participated in vocational evaluation services at the VR agency. In order to complete the evaluations, several devices were prescribed (e.g., hand splints, etc.).

To determine whether she could return to her job, assessments were made at the work site. It was discovered that if accessories were attached to her wheelchair it would eliminate challenges at the work site. Several changes were made.

VR

As this case developed it became obvious that a team approach may have improved the application of technology for this individual. It is also clear from GL's story that every decision made regarding a person with a disability has an impact on all environments in which the person interacts. A wheelchair chosen to help with mobility can solve one challenge while creating concerns in other aspects of the client's life. If, in ordering the original wheelchair, the therapist had considered GL's **HOME**, movement in the **COMMUNITY**, services offered at **VR**, potential **SCHOOL/TRAINING** environments and **WORK**, her transition back into the world might have been a little easier.

Rehabilitation technology services available from members of the technology team could include:

Rehabilitation Technology Services

- ❒ Technology consultation
- ❒ Rehabilitation technology evaluation/assessment
- ❒ Assistive device recommendation/prescription
- ❒ Assistive technology equipment procurement
- ❒ Device fitting/adjustment
- ❒ Device custom design
- ❒ Device fabrication/adaptation
- ❒ Device training for consumers/caregivers
- ❒ Device maintenance/repair
- ❒ Follow-up
- ❒ Equipment loan
- ❒ Product demonstration
- ❒ Funding assistance
- ❒ Education and training

These rehabilitation technology services can be used to address technology needs throughout the rehabilitation process. If the rehabilitation counselor is not certain what specific technology is needed after problems or challenges are identified, they can consult with a technology specialist to determine if technology intervention would be appropriate.

Notes:

Applying Rehabilitation Technology Services

The following are examples of how technology interventions can be applied within the environments discussed. Technology interventions can be a effective problem solving tool for rehabilitation counselors.

Home

Technology can be used to address independent living accommodations involving a person's residence including:

- improving living accommodations such as design/construction of a ramp, widening of doors, etc.; and
- determining the need for assistive aids to perform activities of daily living involving food preparation, eating, hygiene, dressing, etc.

Community

Activities of daily living involving persons with disabilities and their interaction with the community are enhanced through the use of technology by:

- addressing issues such as curb cuts, ramps, public transportation, etc.; and
- assessing and accommodating individual concerns involved with errands such as shopping, laundry, automobile maintenance, etc.

Vocational Rehabilitation

The impact of technology in vocational rehabilitation facilities and activities could involve:

- technology consultation which can provide readily available information on technology options;
- rehabilitation technology assessment throughout vocational rehabilitation process as needs are identified;
- the rehabilitation technology specialist in assisting employers with determining technology needs in the work setting to enhance employment opportunities; and

Assuring equal access to services is an important consideration for VR agencies

Vocational Rehabilitation - continued

- modifications to the vocational assessment setting to broaden assessment options such as general accessibility to the assessment site, computerized tests, reading/writing aids, etc.

School/Training

Technology can enhance the compatibility of the person with a disability and their school/training site by assessing and accommodating:

- general concerns such as accessibility, alternative formats for exams/instructional materials, note taking, etc.;
- laboratory or work station modification needs; and
- the need for mobility aids, communication devices, adapted computer access, assistive listening devices, etc.

Job/Work Site

The use of technology services to enable a worker with a disability to perform essential job functions at their employment site or improve the ability to obtain, maintain, or advance in employment by:

- accessing the overall work environment;
- considering modifications, adaptations or adjustments to individual work stations such as rearrangement of production lines or modification of tools or equipment; and
- considering assistive devices which might enable the person with a disability to adequately perform job tasks.

Remembering to consider the client's activities in all environments will help address as many of the functional needs as possible.

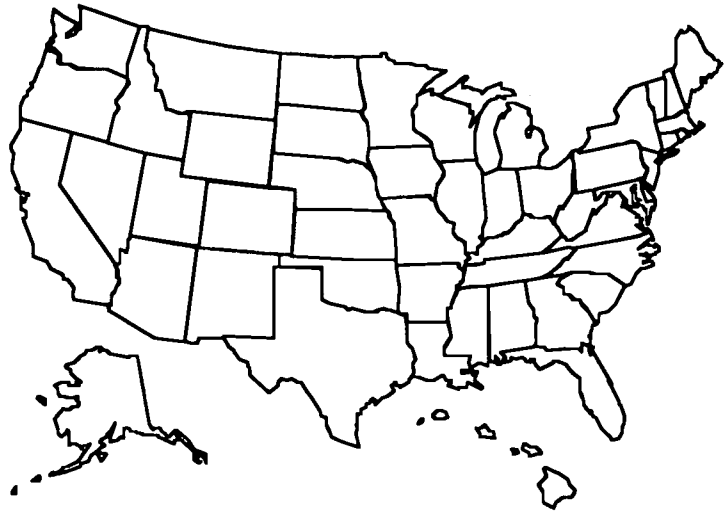
Building on experiences in using rehabilitation technology specialists will help the counselor become aware of other applications where technology use could be beneficial. At each **TECH POINT**, additional suggestions on technology service applications are provided. Recalling what proved to be effective with previous clients and discussing cases with other counselors will be helpful.

▼ What We Haven't Included

You have seen what **TECH POINTS** is, how it is designed to function, and suggestions of how it can be integrated into rehabilitation services. This presents a partial picture of what is involved with rehabilitation technology applications in VR services. We have omitted discussion on technology service delivery concerns such as:

- where technology specialists can be found; and
- exactly what technology specialists do.

This was necessary since service delivery structures differ markedly from state-to-state. There are "models" or similar approaches



used. Some are geographically determined (regional vs centralized) or setting-based (facility vs mobile). Others have rehabilitation technology specialists employed by VR and those with whom VR contracts (internal vs external). Differences frequently exist within regions of a state. Details about technology services providers, where they are located, how they are best contacted and what services they offer must be provided by the VR agency within each state.

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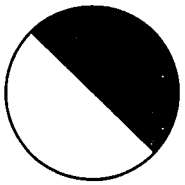
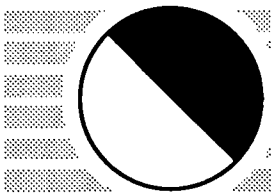


How To Use TECH POINTS

SECTION 4



HOW TO USE TECH POINTS SECTION 4

In this section

- ▼ *Getting Started*
- ▼ ***TECH POINTS*** *as a Counseling Tool*
- ▼ *TIPS for Considering Technology Interventions*
- ▼ *Using the* ***TECH POINTS*** *Guide*

▼ Getting Started

The **TECH POINTS** system has been designed to use the normal Vocational Rehabilitation (VR) case processing status system. Therefore, the times that a counselor will use **TECH POINTS** are at application, during evaluation, acceptance, writing of the IWRP, amendments, employment and closure. This systematic approach will assist in anticipating the needs of people with disabilities throughout the rehabilitation process.

Knowing how to explain the agency's policies and procedures regarding rehabilitation technology needs is important. Communication about technology concerns and challenges should begin the first day a person applies for VR services. When VR clients complain about services, it usually involves a breakdown in communication between the counselor and client. Often, delays in service can be justified. Frequent communication to keep the client involved and informed is imperative when dealing with technology issues.

Each **TECH POINTS** step will provide information to help the counselor and client make appropriate rehabilitation technology decisions. The **TECH POINTS** Guide will serve as a double-check of information needed at different points to ensure that rehabilitation technology is given adequate consideration for each client. Every effort has been made to keep the process simple and to the point.

▼ TECH POINTS as a Counseling Tool

Rehabilitation counseling is goal-directed and vocationally-oriented from the first contact with a person with a disability. The only way some persons will become qualified for employment is by using technology. Counselors who use the **TECH POINTS** process may want to share the process with the VR client. This process will help decisions made about technology be more efficient and effective.

It is important that clear guidelines for utilization of technology resources and services exist. Counselors should not be expected to set agency policies for rehabilitation technology as they explore options with clients. Establishing effective counseling relationships is challenging enough without adding the uncertainty of a counselor not knowing if technology-related equipment and services would likely be approved.

Through **TECH POINTS**, VR counselors should be able to make technology resources and services a regular consideration as they work with clients. The interactive process of discussing challenges confronting clients and exploring if technology interventions are appropriate will help enhance responsiveness to individual client needs.

▼ TIPS for Considering Technology Interventions

As mentioned in Section 3, several logical steps related to considering rehabilitation technology have been developed. These *Technology Intervention Preparation Steps* (TIPS) can be used at each **TECH POINT**. These steps will help build the counselor's confidence in serving clients who may need rehabilitation technology services. TIPS offers a practical way of thinking about the need for technology. Many counselors will find the system to be very close to the process that they have already used and found to work successfully in case development. The system is "user friendly" for counselors who are not quite sure where to start when a person needs rehabilitation

technology services. TIPS should help organize thoughts concerning technology so that getting started is easier.

Although the questions and suggestions for TIPS vary for each **TECH POINT**, they follow the same basic pattern:

First, general challenges and problems a client may face and possible technology concerns should be identified;

second, individualize the client's technology challenges and concerns;

third, if technology intervention seems appropriate, prioritize how to best proceed; and

fourth, identify specific steps and plan of action to arrange for the technology services.

The following information outlines in more detail questions that the counselor and client should discuss. With individuals who have few if any challenges about technology-related concerns, then the remaining questions may not be necessary. It is suggested however that counselors quickly review these questions to be sure that technology services are included where needed.

Consider all environments when identifying what concerns and challenges should be addressed:

- home
- community
- vocational rehabilitation
- school/training
- work

T TECHNOLOGY

(Technology Concerns Identified)

Assists in identifying the general challenges a client may face due to his/her disability and the concerns which he/she may have regarding technology.

- ❒ What challenges does the disability create in getting through activities in this status?
- ❒ Would technology potentially assist in overcoming these challenges?
- ❒ Does the applicant/client have concerns about the use or potential need for technology?

General challenges and problems are identified . . .

. . . these challenges and concerns are individualized . . .

I INTERVENTION
(Individualize Technology Concerns)

Assists in individualizing the client's challenges and concerns.

- ❒ Considering the challenges identified at this status, what impact will technology have in each environment (home; community; vocational rehabilitation; school/training; and work)?
- ❒ What other factors related to each challenge must be considered? (For example, cost *vs* effectiveness of vocational outcome, support systems needed to use the technology, etc.)
- ❒ What technology is needed to meet challenges at this status?
- ❒ What technology concerns can be identified?
- ❒ Does the technology currently used by the client meet these challenges?

. . . decides if technology intervention seems appropriate . . .

P PREPARATION
(Prioritize Technology Concerns)

Assists in prioritizing technology concerns.

- ❒ Decide the order in which the technology concerns should be addressed.
- ❒ Are there deadlines?
- ❒ Other than the person with a disability and the counselor, are others needed to help set priorities?
- ❒ What is the impact of setting these priorities in terms of people, health, money and agency guidelines?

S STEPS
(Steps for Addressing Technology Concerns)

Assists in identifying the process or steps to be taken in addressing these concerns and challenges (e.g., who, what, where, when, etc.).

- ❒ For each concern, identify the most appropriate way to seek solutions and the most effective steps if more than one process is indicated.
- ❒ Determine which technology services are to be provided and who should be involved in providing these interventions.
- ❒ What is the applicant's/client's involvement in the process?
- ❒ What is the plan for completing each step?
- ❒ What is the plan for funding the technology?

. . . specific plan of action for technology services

There is no right or wrong way to use these steps. Using the steps to consider each technology concern and keeping each environment in mind can reduce frustration. Involving a rehabilitation technology specialist at the appropriate time, should save time, and money, and improve service delivery. The TIPS process is simple and easy-to-use.

▼ Using the TECH POINTS Guide

The Guide has been created to serve as a desk reference allowing counselors to review rehabilitation-related issues at each **TECH POINT.** The Guide explains how the **TECH POINTS** process functions, lists out the TIPS questions for each of the seven **TECH POINTS,** and provides additional reference information.

Information in the Guide summarizes the most important questions and considerations from the training manual that should be addressed. The Guide is intended to be used along with the **TECH POINTS Training Manual** by counselors who have had **TECH POINTS** training.

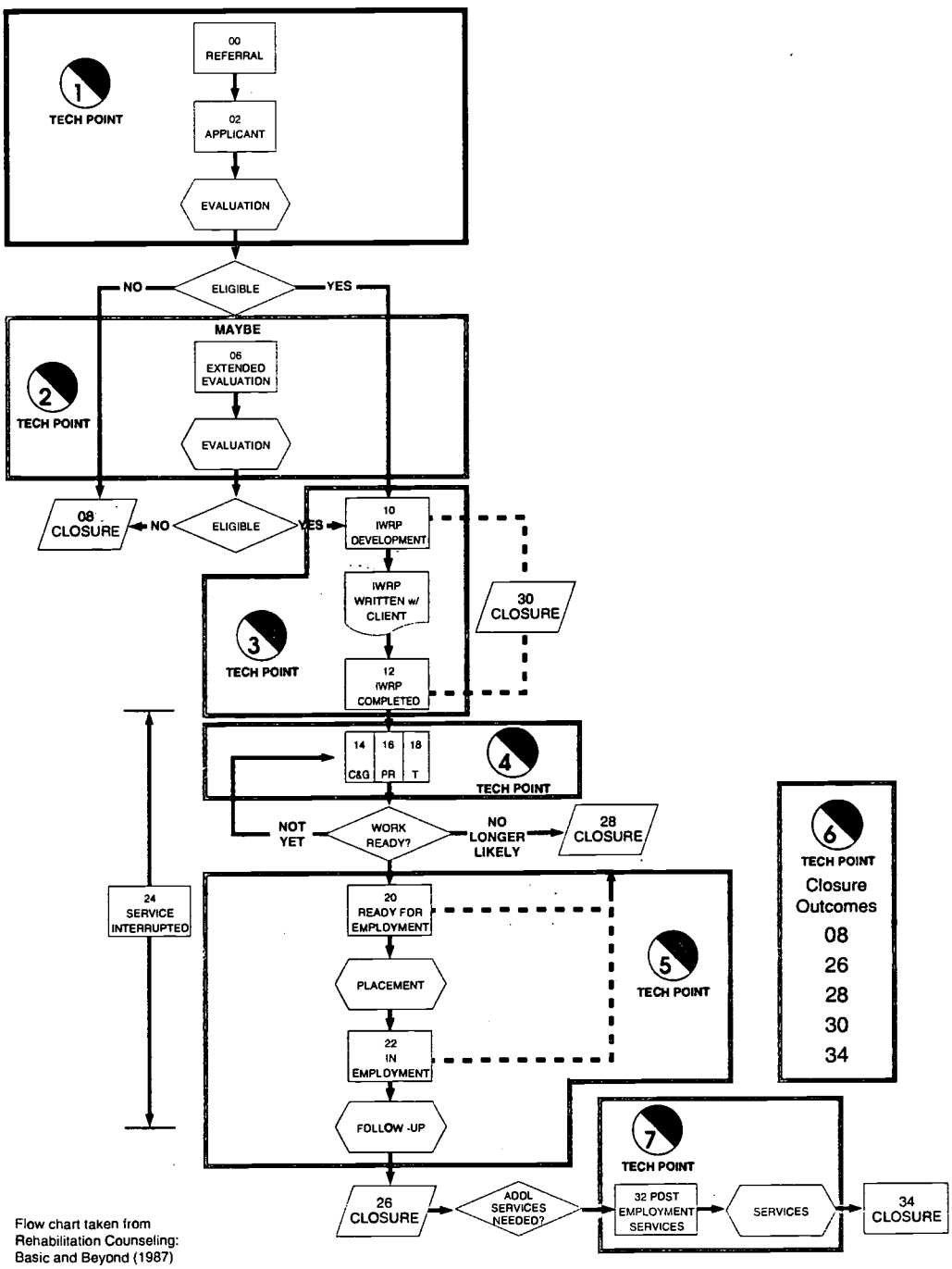
The Guide should be a convenient resource for the counselor in discussing technology needs as they relate to the VR process. As the Guide is used on a daily basis the process will become second nature, and VR clients and counselors should benefit.

If you are looking for the **TECH POINTS** Guide try Section 15.

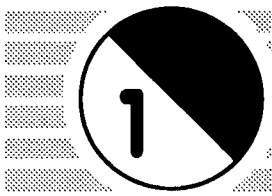
Notes:

TECH POINT 1
Referral/Application

SECTION 5



Flow chart taken from Rehabilitation Counseling: Basic and Beyond (1987)



TECH POINT 1 Referral/Application

SECTION 5

In this section

▼ Considering Rehabilitation Technology Options

Vocational Rehabilitation (VR) counselors who have experience in working with persons with severe disabilities realize the importance of the first meeting with a person. This is the time that readiness for vocational rehabilitation services is often determined. Listening to the person and deciding how the disability is dealt with on a day-to-day basis is important.

Discussing the ultimate goal of employment is tantamount to making eligibility decisions. Work must be a goal of the applicant or the mandates of the counselor and VR agency cannot be met. If the person is not interested in employment, but is someone who could benefit from technology services, then this is the time to advise the person of other resources.

Vocational Rehabilitation has been criticized by consumers who were turned down sometimes even before they had an interview. There are "horror" stories of potential applicants who were told, sometimes without even being seen, "Your disability is too severe; you don't have transportation to get to the office so you obviously can't work." The rehabilitation act amendments clearly state that persons with severe disabilities who state they want to work must be given the opportunity to achieve this goal. Even people who are not considered to have a severe disability are sometimes turned down because technology was not considered.

At this point, counselors need to ensure that rehabilitation technology considerations are included in decisions relating to the application process. This may include making sure that "reasonable accommodations" are made for the interview process. For example, accommodations might be needed where there are communication barriers such as ability to give information. Applicants who have head trauma, stroke, speech or hearing problems might fall into this category. It is probably a good idea, when an appointment is scheduled, to ask if the applicant or referral source has any accommodations that might be needed for the application process.

Rapid changes in the field of rehabilitation technology have made vocational goals possible that could not have been considered a few years ago. Changes brought about by passage of the Americans with Disabilities Act (ADA) make it important for VR agencies and counselors to create an environment where the same guidelines used by employers are used with applicants for VR services. Because VR is charged with assisting a person with a disability inobtaining em ployment, efforts must be made to ensure that the individual is given every consideration for the goal of gainful employment. ADA makes it clear that a person must be considered for a position, if otherwise qualified, "with or without a reasonable accommodation."

▼ Anticipating Accommodations for Individuals With Severe Disabilities

When an individual with a severe disability is referred to vocational rehabilitation, it is likely that some "reasonable accommodations" will be necessary to assist the person through the vocational rehabilitation system. Anticipating where accommodation needs may occur can help to avoid frustration and problems.

The application and referral process is a time when it is important for a counselor and client to think about possible rehabilitation technology concerns that will make the goal of "qualified employee" obtainable. Using **TECH POINT** 1 for consideration of technology will assist in determining if and when technology consideration is indicated. It is obvious to the counselor that many disabilities automatically require the use of technology for "major life activities." Sometimes a need for technology is not apparent at the time of application, but, as the case process begins, it becomes apparent that technology intervention is needed to help perform "essential functions" of the job.

▼ Identifying Rehabilitation Technology Needs

As rehabilitation technology needs are discussed and solutions sought, it is important to remember that the same solution and/or equipment that is used with one person will not necessarily work with another person even though the situation appears similar. Technology needs vary greatly in each situation.

More often than not, the person with the disability has ideas about what will work. It is essential to remember that the person with the disability must be considered as a major part of any technology team. If a technology specialist tries to make recommendations without the person with a disability's involvement, there will most likely be problems.

It is not unusual for a counselor or even a person with a disability to be reluctant to discuss areas where rehabilitation technology might be indicated. This is especially true in the early stages of counseling with a person.

Cost consideration is one reason that counselors may avoid discussing rehabilitation technology with an applicant or client. The reality of limited case service budgets may cause a counselor to assume that a client's technology needs will be too expensive. At **TECH POINT** 1 counselors are encouraged to explore options with an applicant without allowing budget considerations to rule out possibilities. Counselors should explain to the applicant that exploration of technology is not a commitment to purchase equipment or arrange for services.

Careful consideration of technology options is a way for the counselor to justify expenditures that are necessary for a successful vocational rehabilitation plan. This careful consideration will also help eliminate technology interventions that may not work for an individual. A rehabilitation technology specialist can be helpful in providing information to help make appropriate decisions concerning cost-benefits for a particular technology intervention. The counselor should emphasize that rehabilitation technology decisions are made on the basis of vocational needs of each client. This should involve consideration of any concerns that the individual may have about using assistive technology, including how technology aids or devices will be utilized in work or other environments.

▼ Developing a Rehabilitation Technology Needs Profile

During the first session with a client, a Rehabilitation Technology Needs Profile should be developed. This profile will be helpful throughout the case development. This will be especially true when a person is a technology user.

The profile can serve as a worksheet for the Technology Intervention Preparation Steps for **TECH POINT 1**. A suggested Rehabilitation Technology Needs Profile to use is included at the end of this section.

Interaction with the applicant is the most important task at hand. While completing the profile is important, the primary focus should be the interview, not the form. If clarification is needed for concerns on the profile, these can be addressed the next time the applicant is contacted. The profile should be completed by the end of the 60 day referral/applicant status (02). The counselor may find it helpful to consult with a technology specialist to review potential technology needs for clients.

▼ Technology Intervention Preparation Steps (TIPS)

The following questions and suggestions were developed to assist a counselor in making sure that the possible need for rehabilitation technology is discussed in the first contact and any subsequent contacts with the applicant during the sixty-day period for acceptance decisions.

TIPS For Referral/Application
Status 02

T

TECHNOLOGY
(Technology Concerns Identified)

- ❒ Are there any reasonable accommodations indicated for the VR application process?
- ❒ Does the applicant have concerns about performing any "major life activity"?
- ❒ Is the applicant presently using technology to perform "major life activities"?
- ❒ Is the main reason for VR application technology-related?
- ❒ Is the reason for VR application related to performing "essential functions" of a job?
- ❒ Would technology enhance, create or eliminate the threat of job loss or affect health for this applicant?
- ❒ Would consideration of technology create an opportunity for this applicant that would otherwise not be considered?
- ❒ Does the applicant understand the relationship between technology services and employment?
- ❒ Does the applicant have a positive and realistic outlook concerning technology?

Are there challenges or problems where technology concerns are identified?

❒ YES ❒ NO

Notes:

Is use of rehabilitation technology services appropriate?

☐ YES ☐ NO

I INTERVENTION
(Individualize Technology Concerns)

- ☐ Separate each concern the applicant has mentioned. Where and when does the concern for each task occur? At home, outside the home such as school, or work?
- ☐ Will more than one environment be affected when this concern is addressed?
- ☐ Other than assistive devices, what assistance does the applicant have in performing tasks?
- ☐ Does the applicant have or know of financial resources that can be used to address technology concerns?
- ☐ Does the applicant appear to have a workable knowledge of rehabilitation technology?
- ☐ What has the applicant tried in the past that did or did not work in attempting to solve this concern?
- ☐ Does the applicant appear comfortable with considering the use of alternate ways of accomplishing tasks?
- ☐ Are counselor concerns noted regarding the use of technology that the applicant may not see?
- ☐ Have all facts been obtained and information reviewed?

If technology intervention is needed, what is the priority?

P PREPARATION
(Prioritize Technology Concerns)

- ☐ Is there a primary area of concern?
- ☐ If there is more than one concern, should any be addressed together? (For example, seating and positioning in a wheelchair might effect use of a computer switch; devices and equipment prescribed for mobility might affect equipment needs for adaptive driving, etc.)
- ☐ In what order should the concerns be addressed?
- ☐ Are there deadlines that must be considered in addressing concerns?
- ☐ What agency guidelines must be addressed in considering this/these concern(s)? Has applicant been advised of these guidelines?
- ☐ Who is needed in addition to the counselor and the applicant to help solve this/these concern(s)?
- ☐ What additional information might be indicated before addressing this/these concern(s)?

S

STEPS

(Steps for Addressing Technology Concerns)

- ❒ What immediate technology concerns will be addressed now?
- ❒ What technology specialist(s) is/are needed to assist in assessment of technology concern(s)?
- ❒ Who is responsible for contacting the specialist(s)?
- ❒ Are time frames set to follow-up on steps that are indicated?
- ❒ Has the applicant been advised of a time to check on progress toward a solution?
- ❒ Has the applicant been involved to the fullest extent possible?
- ❒ Have alternatives been considered?
- ❒ Is financial assistance needed to address any technology concerns?

Notes:

Reminder at TECH POINT 1 (02)

Are technology services needed?

Document on:

- **Application**
- **Rehabilitation Technology Services Profile**
- **Case Notes**

Rehabilitation Technology Needs Profile

Name _____ Case # _____

Disability (primary) _____ Code _____

(secondary) _____

VR Counselor _____

Review "major life activities" for which the applicant expresses/demonstrates concerns. Estimate level of independence for activities where concerns are indicated.

			Estimate Degree of Independance			
Major Life Activities	**Area of Concern**	**Employment Concern Related**	**Independent w/Assistive Devices**	**Requires Assistance and Devices**	**Uses Assistance Only**	**Rehab Technology Assessment Indicated**
Self Care						
Performing Manual Tasks						
Walking						
Seeing						
Hearing						
Speaking						
Learning						
Breathing						
Working						
Transportation						
Lifting/Pulling/Pushing						
Memory						

Are reasonable accommodations likely to be needed for the applicant to function effectively in any of the following environments?


❒ YES ❒ NO ❒ Possibly


❒ YES ❒ NO ❒ Possibly

VR ❒ YES ❒ NO ❒ Possibly


❒ YES ❒ NO ❒ Possibly


❒ YES ❒ NO ❒ Possibly

Accommodations/Strategies to Consider:

_____

_____

_____

_____

_____

_____

_____

For the areas where problems or restrictions are encountered, does the individual utilize any type of technology aids or devices? ❑ YES ❑ NO

Check [✓] what assistive technology aids/devices that the applicant uses or has used.

Aids for Daily Living

- ❑ personal care
- ❑ eating/drinking/cooking
- ❑ hygiene/toileting
- ❑ other _____

Architectural Accommodations

- ❑ barrier free environment
- ❑ lifts
- ❑ other _____

Cognitive Aids

- ❑ memory aids
- ❑ other _____

Communication Aids

- ❑ manual boards/aids
- ❑ electronic devices
- ❑ writing aids
- ❑ signal/alarm systems
- ❑ other _____

Computer

- ❑ adapted computer hardware
- ❑ specialized software

Controls

- ❑ environmental controls
- ❑ switches/controls

Mobility aids

- ❑ wheeled mobility
  - ❑ manual
  - ❑ powered
  - ❑ other _____
- ❑ ambulatory aids
  - ❑ crutches/braces
  - ❑ walkers
  - ❑ standing aids
  - ❑ other _____

Orthotics/Prosthetics

- ❑ upper extremity
- ❑ lower extremity
- ❑ other _____

Recreation

- ❑ adaptive sports
- ❑ other _____

Seating

- ❑ seating systems
- ❑ cushions
- ❑ other _____

Sensory aids

- ❑ hearing aids/devices
- ❑ visual aids/devices
- ❑ other _____

Therapeutic aids

- ❑ exercise equipment
- ❑ respiratory aids
- ❑ strength/endurance aids
- ❑ other _____

Transportation

- ❑ adaptive driving equipment
- ❑ specialized vehicles

Vocational

- ❑ accessible work station
- ❑ adaptive tools/equipment
- ❑ other _____

What is the applicant's attitude toward assistive aids/devices?

_____

_____

Are rehabilitation technology services needed? ❑ YES ❑ NO If yes, specify:

Rehabilitation Technology Services

- ❑ technology consultation;
- ❑ rehabilitation technology evaluation/assessment;
- ❑ assistive device recommendation/prescription;
- ❑ assistive technology equipment procurement;
- ❑ device fitting/adjustment;
- ❑ device custom design;
- ❑ device fabrication/adaptation;
- ❑ device training for consumers/caregivers;
- ❑ device maintenance/repair;
- ❑ follow-up;
- ❑ equipment loan;
- ❑ product demonstration;
- ❑ funding assistance; and
- ❑ education and training.

Rehabilitation Technology Specialists

- ❑ rehabilitation engineer
- ❑ assistive technology specialist
- ❑ rehabilitation technologist
- ❑ fabrication technician
- ❑ occupational therapist
- ❑ physical therapist
- ❑ speech/language pathologist
- ❑ rehabilitation technology supplier/DME dealer

Will vocational evaluation services be utilized?

❑ YES ❑ NO

Are accommodations indicated? ❑ YES ❑ NO

Next step:

- ❑ **TECH POINT** 2 (Extended Evaluation)
- ❑ **TECH POINT** 3 (Plan Development)
- ❑ **TECH POINT** 6 (Closure - 08)

Comments:

_____

_____

_____

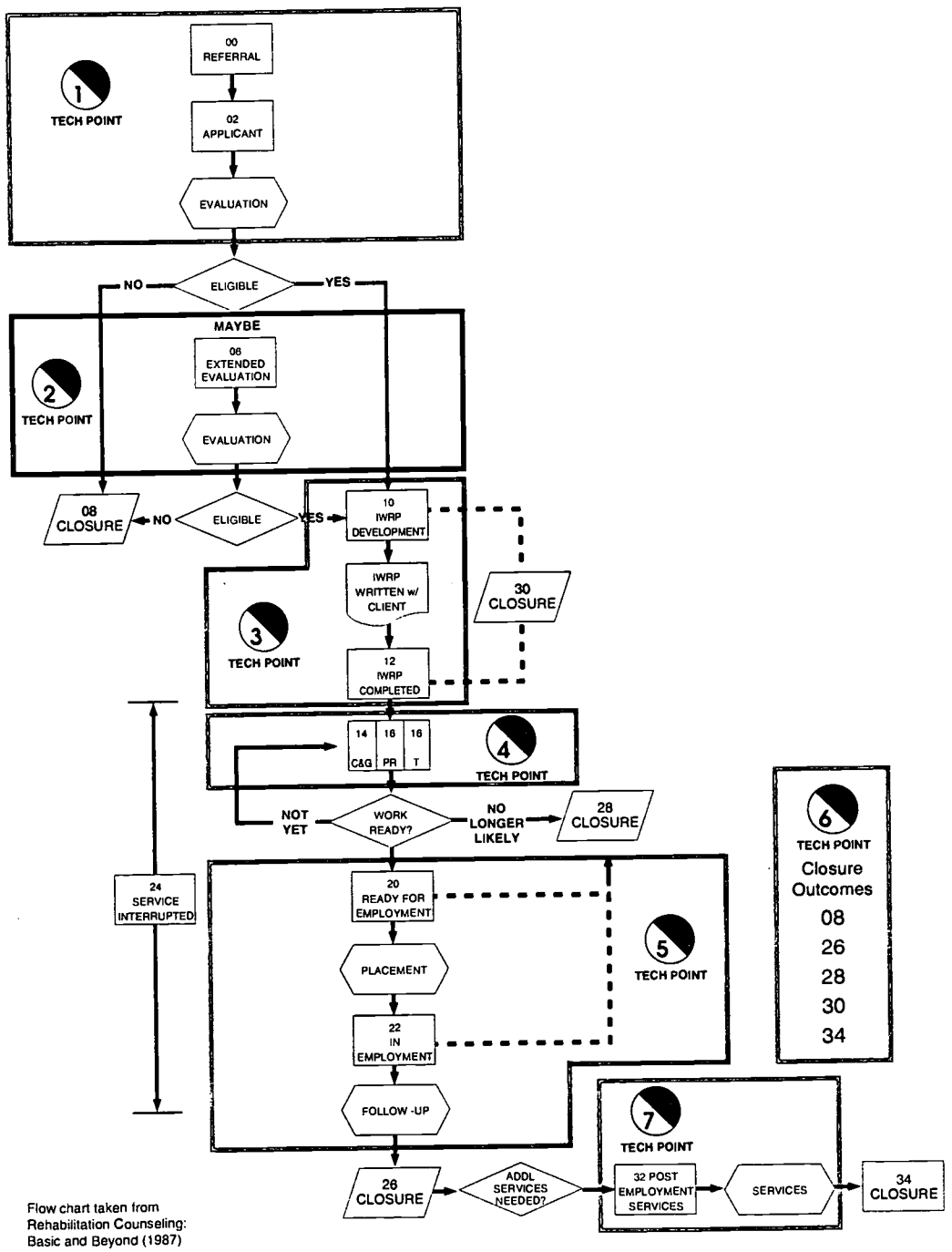
_____

_____

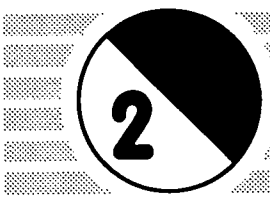
_____

TECH POINT 2
Extended Evaluation

SECTION 6



Flow chart taken from Rehabilitation Counseling: Basic and Beyond (1987)



TECH POINT 2
Extended Evaluation

In this section

▼ A Closer Look at Rehabilitation Technology Needs

TECH POINT 2 is important for the counselor and the client. All or most preliminary evaluations have been arranged and are complete so that acceptability for VR services (status 06) is possible. It is important that the client understand the time frames for extended evaluation. A decision regarding eligibility must be reached within 18 months.

Some points to remember in **TECH POINT 2**:

- For clients with severe disabilities, it is likely that the entire 18 months for extended evaluation will be needed to adequately address needs.
- A team approach is important in considering accommodations or other rehabilitation technology.
- Keeping the client informed and involved is critical to the process if the outcome is to be successful.

TECH POINT 2 is a documentation point as goals for the Extended Evaluation Plan will be written with and signed by the client. The client and counselor have together recognized possible concerns and needs for technology in the rehabilitation process. This is an important time to use the resources available so that correct decisions are made. Many questions can and will arise.

In using the Technology Intervention Preparation Steps (TIPS) for vocational evaluation, the need for a pre-evaluation staffing to address technology issues may be identified. TIPS can help the counselor decide if the technology concerns should be addressed prior to vocational evaluation, during or if it can wait until the evaluation is completed. This process will help the counselor and the client deal with technology concerns in a systematic way, increase efficiency, and reduce frustrations that often occur.

Sharing technology use and concerns with everyone associated with the technology and evaluation team is important. This will help improve the quality of the evaluation and reduce the time needed to reach vocational objectives.

Incorporating **TECH POINTS** into the extended evaluation process can provide the counselor and the client with time to make rational decisions based on facts. It will help avoid making poor technology decisions such as "if the solution worked with one person, it will work for another with the same disability." It will also help in dealing with clients with new disabilities who have read or heard about devices that "sound good," but in practical use have no merit, or devices that will allow him/her to do a task then "recover." For example, a client may believe that a wheelchair that allows him/her to stand will help him/her to eventually stand on his/her own. **TECH POINTS** allows a counselor to discuss assistive technology with a client in a reassuring way. Often a counselor will discover unresolved conflicts suggesting the need for additional counseling and guidance.

▼ Incorporating Rehabilitation Technology in Vocational Evaluation Services

If **TECH POINT 1** identified challenges in performing "major life activities," then it is likely that some type of accommodation will be needed in the vocational evaluation process. Inclusion of technology resources will enable vocational evaluators and counselors better prepare the client to perform at their fullest potential and explore areas and career options through consideration of technology resources.

Using assistive technology aids and devices for vocational evaluation will assist the vocational evaluator in accurately determining:

- Client's strengths;
- Extent of limitations;
- Physical and mental capabilities; and
- Learning and skill acquisition potential.

The same process employers use to accommodate workers with disabilities should be applied to vocational evaluation activities. Employers are expected to consider a worker "with or without reasonable accommodations," when making a decision about his/her ability to perform the "essential functions" of the job. This same test should apply to the vocational evaluation setting.

Possible reasonable accommodations to discuss with the vocational evaluator include:

- Lengthening or modifing the testing schedule;
- Selecting alternative assessment instruments;
- Deleting inappropriate tests or work samples;
- Modifying administration procedures when necessary;
- Having adaptive equipment available for try-out and loan;
- Providing additional lighting;
- Rearranging the assessment environment to provide a quiet, isolated work area; and
- Utilizing an aide for one-on-one assistance.

All assessments, including vocational evaluations, must consider

- individual's ability to perform essential functions of a job with or without reasonable accommodations
- difference between essential functions and physical demands of a job

The Job Placement - ADA Connection, (1993)

Identifying a vocational objective that falls within the client's vocational goals and expectations is one of the most important tasks that the vocational evaluator and counselor share. Technology resources and services can allow this to happen more effectively for many persons with disabilities.

Technology Intervention Preparation Steps

The following questions and considerations will help determine if specific rehabilitation technology services are needed.

Tips for Extended Evaluation

Status 06

VR

T TECHNOLOGY
(Technology Concerns Identified)

- ❒ Does a person with this type of disability generally need accommodations to complete a vocational evaluation?
- ❒ Is transportation a barrier? If so, is there a temporary solution to allow completion of vocational evaluation?
- ❒ Would providing technology offer the opportunity to explore vocational goals that would not be considered otherwise?

I INTERVENTION
(Individualize Technology Concerns)

- ❒ What technology concerns, if any, need to be discussed with the vocational evaluator? Do these concerns need to be discussed prior to evaluation?
- ❒ Is equipment presently being used by the client adequate to complete vocational evaluation?
- ❒ Is a technology assessment needed to help determine equipment needs and modifications prior to vocational evaluation (e.g., keyboard access, communication devices, seating issues, etc.)?
- ❒ Can equipment be borrowed or rented before a purchase is made?
- ❒ If any technology is recommended, what impact will it have on the home, community, training or work environments?

P PREPARATION
(Prioritize Technology Concerns)

- ❒ Would delaying a technology intervention cause inadequate evaluation or a threat to health of this client?
- ❒ Is there an order for addressing the technology concerns identified in this status?
- ❒ Are there deadlines that need to be met?
- ❒ Who else needs to be involved in setting these priorities?
- ❒ What is the impact of these priorities in terms of people, health, money and agency guidelines?
- ❒ Are VR services dependent on this need being met and is this concern essential for employability?

S STEPS
(Steps for Addressing Technology Concerns)

- ❒ Who will fund the technology?
- ❒ Who will do what in addressing concern(s)?
- ❒ What is the time frame for addressing concern(s)?
- ❒ Has the client been involved? Does he/she understand his/her responsibilities?

Notes:

Reminder at TECH POINT 2 (06)

Are technology services needed?

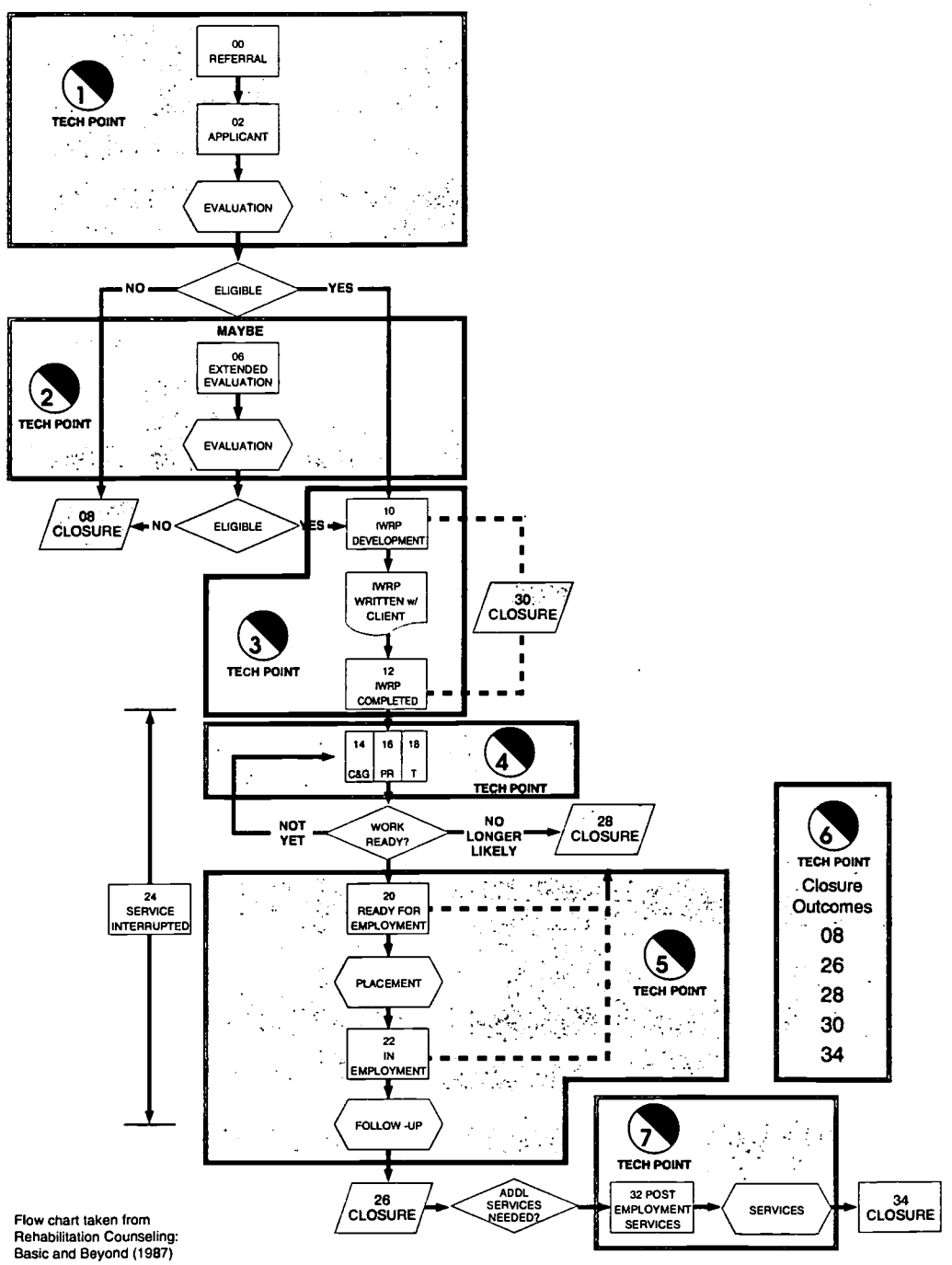
Document on:
Extended Evaluation Plan
Review at 90 Day Intervals

References

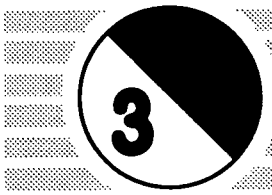
Pimentel, R.K., Bell C.G., & Lotito, M.J. (1993) *The job placement-ADA connection.* Chatsworth, CA: Milt Wright & Assoc.

TECH POINT 3
Plan Development

SECTION 7



Flow chart taken from Rehabilitation Counseling: Basic and Beyond (1987)



TECH POINT 3 Plan Development

SECTION 7

In this section

▼ Rehabilitation Technology in the Individualized Planning Process

TECH POINT 3 implies that the client has been determined eligible for services. At this point, goals of the Individualized Written Rehabilitation Plan (IWRP) will be written with the client. Counselors who use the **TECH POINTS** process write, with their client, an individualized plan, in the strictest sense of the term. When writing plans for people with severe disabilities, it is often necessary to include one or more reasonable accommodations in order to be employed and maintain independence. Accommodations will vary with the person and the task(s) the person will be completing.

By the time **TECH POINT 3** is reached, many goals involving assistive technology services will have been defined. **TECH POINT 3** is a good time to use the services of a technology specialist to make sure the needs of the client have been addressed appropriately. Client involvement should once again be emphasized. The client

should be gaining knowledge of technology services and realizing how technology services can be beneficial to achieving their vocational goal.

▼ Developing Vocational Goals Utilizing Rehabilitation Technology

TECH POINTS is a tool for counseling. Using **TECH POINTS** can enhance writing the rehabilitation plan by making sure consideration is given to writing goals that include:

- Counseling the client on practicing and developing problem-solving skills when technology assistance is needed;
- The client's responsibility in their placement goal;
- Increasing client's ability to discuss "reasonable accommodations" and "essential functions" in an interview, training or employment setting;
- Counseling to assist the client's understanding of the cost and care of equipment; and
- Counseling to enhance client's self-esteem and confidence in using appropriate technology.

Before concluding the IWRP, a careful review of each goal by the counselor and client will help ensure that all environments have been considered.

▼ Anticipating "Reasonable Accommodation" Needs in Planned Services

VR counselors learn quickly that no matter how much planning is done, people and events are always changing. However, by using the **TECH POINTS** system to serve as a review in preparing an individual's plan, problems can be anticipated.

It is important to discuss "reasonable accommodations" with all clients. People with many types of disabilities can benefit from rehabilitation technology use. By discussing how "major life activities" affect employment, many concerns can be eliminated as barriers.

Technology Intervention Preparation Steps

The following questions and suggestions will help to anticipate need for technology in planned services:

Plan Development

Status (10) (12)

T TECHNOLOGY
(Technology Concerns Identified)

- ❒ What challenges does the disability create in working toward the vocational objective?
- ❒ Review technology which the client currently uses to determine if it can be used in achieving the vocational goal.
- ❒ Would technology potentially assist the client in overcoming these challenges?
- ❒ Does the client have any concerns about the use of technology in working toward the vocational goal?

I INTERVENTION
(Individualize Technology Concerns)

- ❒ Have needs changed in transportation, housing, equipment, or communication? If so, have new technology needs been created in home, community, vocational rehabilitation, school/training, or work environments?
- ❒ Is rehabilitation technology necessary for the achievement of the vocational objective?
- ❒ Have technology needs been appropriately documented to justify written goals on the IWRP?
- ❒ Does the client understand how the technology goals relate to the vocational goal?

P PREPARATION
(Prioritize Technology Concerns)

- ❒ In what order will technology concerns identified in this status be addressed?
- ❒ Other than the client and the counselor, who else should be involved in setting priorities?
- ❒ How much time will be needed to carry out each technology goal?
- ❒ Will the goal of employment be delayed if technology concerns are addressed later in the process?
- ❒ How will the time needed to achieve technology goals affect the implementation of services (including accommodation for job applications and interviews) or achievement of the vocational goal?
- ❒ Does client need time to adjust to the technology or accommodation?

Reminder at TECH POINT 3 (10) (12)

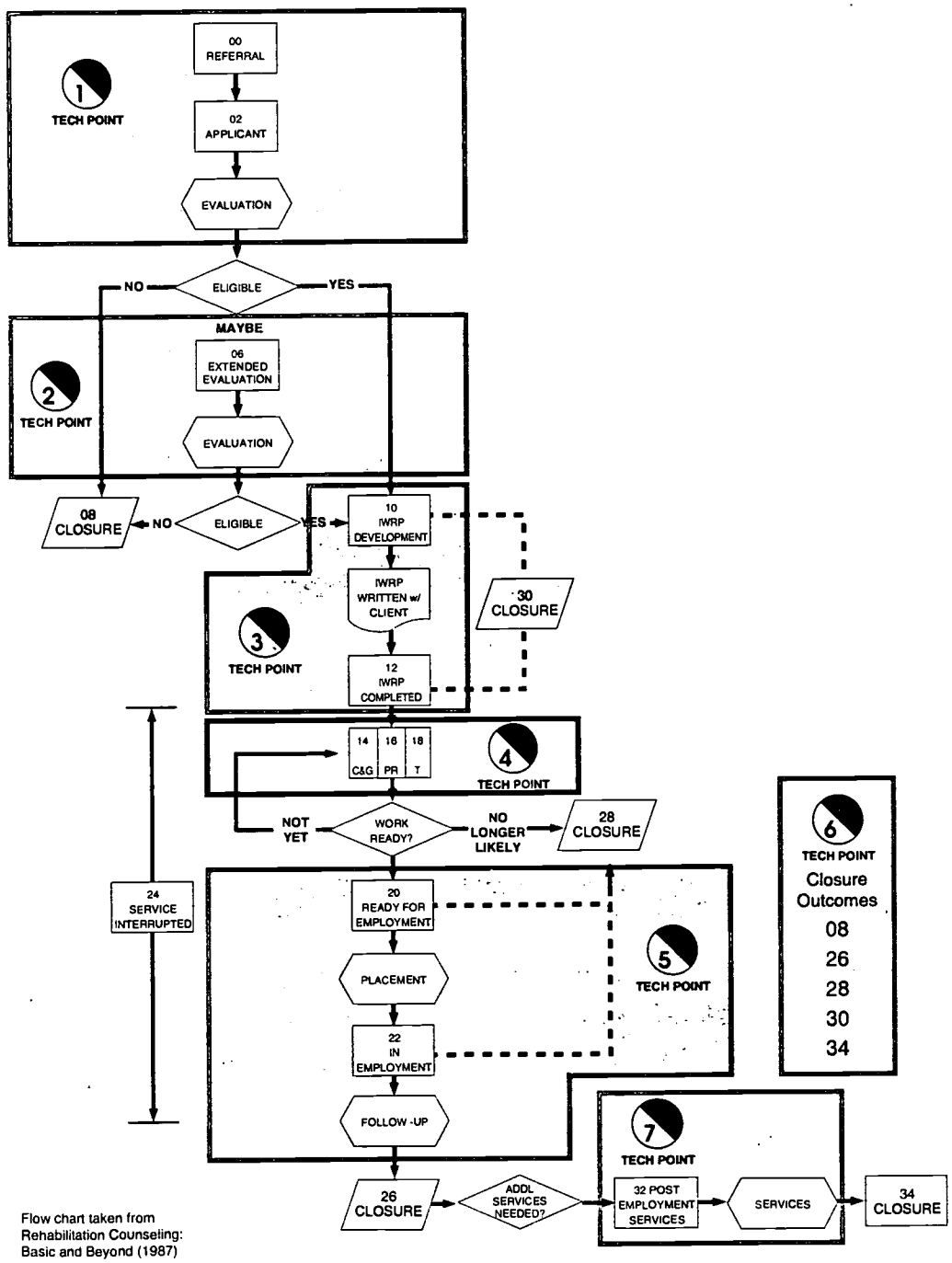
Are technology services needed? Document on: The IWRP

S STEPS
(Steps for Addressing Technology Concerns)

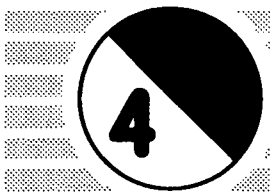
- ❒ What steps are needed to achieve the technology goals?
- ❒ Who should be involved in providing the technology services and what form should their involvement take?
- ❒ Is there a plan for completing each step?
- ❒ Who will fund the purchase of the technology?
- ❒ Has the client been involved? Does he/she understand his/her responsibilities?

TECH POINT 4
Services

SECTION 8



Flow chart taken from Rehabilitation Counseling: Basic and Beyond (1987)



TECH POINT 4 Services

SECTION 8

In this section

▼ Providing Services: Using Rehabilitation Technology Support

Following procedures that were established for **TECH POINT 3**, areas where a technology specialist is needed should have been identified in the IWRP. However, there will be times when technology assistance was not anticipated on the IWRP.

Identification of possible problem areas during the process should cut down on the number of "emergency" needs. Without planning, people who rely on assistive technology will run into problems. Planned VR service is an excellent time for the counselor to teach the client how to think through situations and learn to avoid problems. This may, at times, involve consulting with or using a technology specialist to explain options with a client. The client should learn the importance of maintaining equipment so that problems can be prevented.

The counseling goal of being able to discuss "reasonable accommodations" and "essential functions" on the job should continue to be reinforced. A client can begin practicing this in the training

period. It is important that the client assume as much responsibility as he/she can.

It is essential to provide counseling and guidance services about rehabilitation technology to clients with severe disabilities. By receiving this service, clients tend to be more involved, more satisfied with services and more likely to use their technology.

"While it may, in fact, be tempting to rely on more technological solutions to rehabilitation, rehabilitation counselors have so much more to offer individuals with disabilities. It seems that the participants in the research were saying, above all else, that they needed, and would have benefitted tremendously from very early, individualized rehabilitation counseling."

(Scherer, 1990)

Clients receiving physical restoration services often have an obvious need for technology assistance. Purchases such as wheelchairs, prosthetic devices and hearing aids would automatically suggest using assistive technology and a technology specialist. Less obvious areas that would suggest consideration of technology assistance may be VR services for persons with heart problems, diabetes, brain trauma and back problems. **TECH POINTS** should keep the counselor and the client from overlooking areas where technology could improve the outcome. For people who have diabetes, devices such as glucometers can make a tremendous difference in the control of diabetes. Lifting devices and/or carts may be considerations for people with lifting, pulling, and pushing limitations.

While technology is typically considered and provided for clients with severe disabilities receiving post-secondary training, personal, social and work adjustment is an area of training where technology consultation and use may be overlooked. Obviously, limitations have been identified to determine a need for this service. People with cognitive problems resulting from head trauma or stroke, persons who are mentally retarded, or persons with learning disabilities can benefit from simple technology aids such as a spelling helper, calculator, counter or even a watch with an alarm to remind them to stay on task, look at a schedule or go to the next task.

▼ Changing Technology Needs: Making Amendments to the Plan

As a person becomes more independent and active, equipment and assistive technology that was appropriate during earlier VR stages may no longer be adequate. A client may even find the need for less technology assistance because of improved strength and endurance or actual improvement in their physical condition. Conversely, the client may find that by using assistive technology they are more productive and competitive. A counselor should help a client learn to monitor changing needs and to be ready to consult with a technology specialist when indicated.

An excellent time to discuss with the client the importance of long-range planning for anticipated technology needs is when a plan is amended for technology services, equipment repairs or changing technology needs. This is also a good time to restate the agency's policy regarding purchasing and maintaining equipment after a case is closed. For technology users, it is imperative to have contingency plans for emergencies. This is a must if employment is to be obtained and maintained.

The environments remain important. A client's living arrangement may change several times during training and each situation may present a different problem. Training sites may have needs that are constantly shifting because of the nature of the training.

▼ Technology Intervention Preparation Steps (TIPS)

The Technology Interventions Preparation Steps (TIPS) continues to be a good method for solving technology problems as they arise. This method again keeps steps logical and timely so that needs can be met and the plan not interrupted. Rehabilitation technology concerns should be reviewed when periodic reviews and amendments are completed. This gives the client and the counselor the chance to control events as much as possible.

TIPS for Planned Services

Status (14)–Counseling and Guidence
Status (16)–Physical Restoration
Status (18)–Training

T

TECHNOLOGY
(Technology Concerns Identified)

- ❒ What previously unidentified challenges to receiving services does the disability potentially create?
- ❒ What technology could potentially assist in meeting these challenges?
- ❒ What is the client's comfort level with technology?

VR

I INTERVENTION
(Individualize Technology Concerns)

- ❒ Does the client have any new concerns regarding equipment, modifications, etc., since the last review?
- ❒ Have there been changes in any environment (e.g., home, community, school/training or, work environments)?
- ❒ Does the technology being used have any unanticipated negative impacts in these environments?
- ❒ Do others involved with the client have any concerns about technology the client is using (e.g., instructors, family, attendants, etc.).
- ❒ Are assistive technology devices being maintained on a regular basis?

P PREPARATION
(Prioritize Technology Concerns)

- ❒ In what order should technology concerns be addressed?
- ❒ If a new technology concern is not met or technology currently being used is not updated, will this cause a threat to the health of the client or the achievement of the vocational plan? If so, is immediate intervention needed?

Notes:

S

STEPS
(Steps for Addressing Technology Concerns)

- ❒ For each concern identified, what technology specialists must become involved and what form must this involvement take?
- ❒ What responsibility does the client have in addressing concerns? Does he/she understand his/her responsibilities?
- ❒ What is the time frame for addressing concern(s)?
- ❒ Who will fund the technology?

Notes:

Reminder at TECH POINT 4
(14) (16) (18)

Are technology services needed?

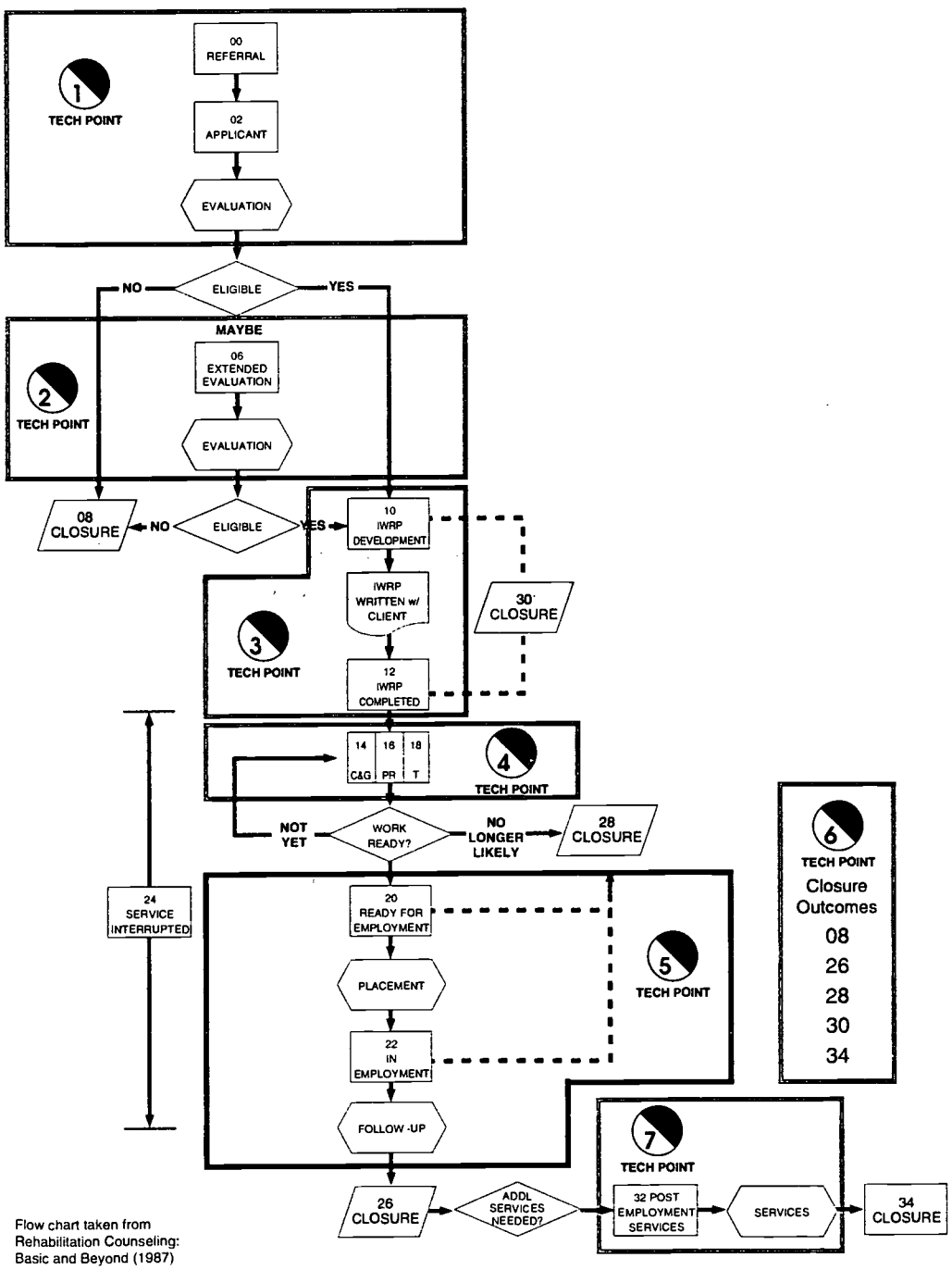
Document:
IWRP Amendments Periodic Reviews

References

Scherer, M.J. (1990) Assistive device utilization and quality of life in adults with spinal cord injuries and cerebral palsy two years later. *Journal of Applied Rehabilitation Counseling,* 21(4), 36-44.)

TECH POINT 5
Placement/Follow-Up

SECTION 9



Flow chart taken from Rehabilitation Counseling: Basic and Beyond (1987)

5 TECH POINT 5 Placement/Follow-up

SECTION 9

In this section

▼ Using the Rehabilitation Technology Specialist in Job Development

Placement, **TECH POINT 5**, is often the time when a counselor or client will recognize a need for technology services. Job analysis is an area that is often overlooked where a technology specialist can be helpful.

Counselors who work primarily with people who have severe physical disabilities realize the importance of staying alert about future job placements. Early exploration while a client is still in training or receiving other services is important. A rehabilitation engineer or other rehabilitation technology specialist can be most helpful in deciding how "essential functions" on a job site can be accommodated.

The ADA will become an excellent tool to gain acceptance at job sites that were previously closed to many clients. While exploring potential job sites, the employer's application and referral process

must be analyzed. A technology consultation may be needed regarding modifications or accommodations for the application process. Knowing these things ahead of time will help the client maintain confidence and self-esteem. By preparing for the interview, the client can concentrate on the actual interview and not worry about accommodations that should have been made.

Vocational rehabilitation is unique in that it can offer employers access to rehabilitation technology resources and services. Using a technology specialist to "consult" with employers can help with immediate placement needs while also accomplishing job development for future placements. Utilizing technology consultation services to determine the feasibility of work site modifications or estimate costs can be a practical benefit to offer employers.

The concept of a "universal workplace . . . an environment incorporating features useful to workers with and without disabilities" offers options for employers that can have other benefits (Mueller, 1989). Applying principles of ergonomic design can help reduce the need for accommodations and lessen the risk of work-related injuries such as repetitive motion and lifting injuries. Using a rehabilitation technology specialist familiar with work site accommodations and industrial engineering principles can be a good resource for a counselor in approaching an employer who is reluctant to consider accommodations.

▼ Placement Strategies Using Rehabilitation Technology Resources

VR data suggest many clients receive training but fail to obtain employment. This may occur because the client and/or counselor become discouraged trying to address so many obstacles and barriers in seeking employment. If the first few attempts at trying to resolve employment problems fail, it is hard to keep trying. Often these failures can be attributed to minor problems which could have been resolved with a technological intervention.

Using **TECH POINTS** during the VR process will better prepare both client and counselor for job placement activities. The Technology Intervention Preparation Steps (TIPS) approach that worked in applying for and using VR services will work in an employment setting. Advanced preparation and anticipation of concerns will pay off!

Each job placement is unique and **TECH POINTS** will assist in identifying how to approach job site modification and accommodations. Unique problems such as transportation issues that were resolved for training may need different considerations for job placement. Reviewing adaptive equipment needs will ensure that equipment continues to work for a client at home and at work.

Placement may involve relocation for a client and this could change his/her ability to perform other "major life activities." Appropriate VR services should include helping the client review present needs and again anticipate changing needs.

Sometimes consideration of a custom made piece of equipment is necessary, but most often there are commercially available aids and devices which will work.

▼ "Essential Functions" of the Job: Determining What's Important

In job placement, it is important to identify the "essential functions" of the job. Too often, persons with disabilities have been eliminated from applying for a job because of the method by which a task is typically performed, not the accomplishment of the task (e.g., typing with fingers as opposed to typing by voice input). ADA makes the VR counselor's ethical role such that if a client is qualified for a job "with or without reasonable accommodations," then a referral should be made. The decision then rests on the employer and the client to determine his/her ability to perform "essential functions" of the job.

To help determine if a job function is "essential" for a person with a disability:

Consider:

- Whether employees in the position actually are required to perform the function
- Whether removing that function would fundamentally change the job

▼ Reasonable Accommodations: Increasing Placement Success with Rehabilitation Technology

Reasonable accommodations should be an interactive process involving client, counselor, employer and, when needed, the technology specialist, working together as a team. Each member of the team has a special role based on their expertise and interest.

- The **client** is the most knowledgeable about the limitations of their disability and the concerns and expectations they feel toward the use of technology resources. They are the most important member of the team since they will be the one using the aid or device on a regular basis.
- The **counselor** is able to help all the team members focus on the common objective of successful employment. Another responsibility of the counselor is assisting the client and employer in understanding obligations and responsibilities concerning technology.
- The **employer** understands the essential functions of the job and needs within the overall work environment. Under ADA, most employers should be aware of their responsibility to make reasonable accommodations for workers with disabilities. Including the employer on the technology team can result in new ideas and may create options otherwise not considered.
- The **technology specialist** can help in identifying reasonable accommodations that the client and employer may not have considered. A rehabilitation engineer will often look at a situation from a different perspective, suggesting how a modified hand tool or a re-arranged workstation could solve a problem.

Sometimes roles shift based on the skills and expertise of one of the team members. Often the "reasonable accommodations" can be proposed by the client without extensive involvement from the employer. For example, if the client is particularly skilled in making accommodations for their limitations, they may be able to suggest how things can best be accomplished. When this occurs, the counselor should assume a supportive role permitting the client more flexibility and freedom in making decisions about his/her employment.

Reasonable Accommodations

"any change in the work environment, or the way things are customarily done, which allow an individual with a disability equal employment opportunity"

The Job Placement - ADA Connection (1992)

If accommodations are found to be necessary, the involvement of the technology specialist to help problem-solve and suggest alternatives is usually beneficial. A look at how this accommodation process usually occurs illustrates the perspective of most technology specialists.

The accommodation process that a technology specialist will generally follow:

- ☐ Identification of the capabilities and limitations of the individual and the specific demands of the job.
- ☐ Determination of and which aspects of the job are problems barriers for the individual in terms of:
  - specific tasks,
  - the work environment.
- ☐ Determination of possible solutions to overcome the barriers:
  - changing the job,
  - changing the equipment,
  - changing the capabilities of the individual.
- ☐ Initiation of the change and evaluation.

(Designing Jobs for Handicapped Workers, 1985)

This process illustrates how technology specialists approach the identification of what the actual barriers are and then look at possible solutions.

▼ Follow-up for Rehabilitation Technology Interventions

Active follow-up by the VR counselor can make a difference for the client and the employer. Offering technology consultation services is sometimes the very thing that can keep a client and employer working together to solve a problem. Often small tasks seem insurmountable. A job site visit or job analysis from a technology specialist can often suggest simple solutions to problems.

In conducting follow-up, the counselor should ensure that any workstation modifications or assistive technology equipment is functioning effectively. Follow-up on technology interventions can

be important since clients sometimes stop using assistive technology without informing the counselor or employer. The reasons for abandonment vary; improvement in client functioning, changes in job tasks, inappropriate equipment, etc. It is important for the counselor to determine the reason and make changes if necessary. This will also help to increase the counselor's knowledge of how technology resources and services can be used most effectively.

VR

▼ Technology Interventions Preparation Steps

Technology Intervention Preparation Steps (TIPS) can serve as a quick check to see if technology concerns are being met during placement.

(TIPS) For Placement and Follow-up

(20) (22)

T

TECHNOLOGY

(Technology Concerns Identified)

- ❒ What challenges to searching for and obtaining work does the disability create for this client?
- ❒ Would technology potentially assist this client in overcoming these challenges?
- ❒ Does the client have concerns about the use or potential need for technology in finding or maintaining a job?

Notes:

I INTERVENTION
(Individualize Technology Concerns)

- ❒ Is the technology currently used by this client adequate to meet application, job placement and job maintenance needs?
- ❒ Will any reasonable accommodation be needed for the application process (e.g., interpreter accessibility, writing aids, transportation, etc.)?
- ❒ With the present vocational objective, what needs can be predicted to perform the "essential functions" of the job?
- ❒ Will the present living arrangements change when placement is achieved? How? Will this create new technology needs?
- ❒ What is unique about this placement (e.g., restrooms, workstation and equipment needs)? Does this work situation create any new technology or accommodation needs?
- ❒ If the technology need is not met, will this delay the placement of this client in employment?

P PREPARATION
(Prioritize Technology Concerns)

- ❒ In what order should the technology needs identified for this status be addressed?
- ❒ Are there any deadlines?
- ❒ Other than the client and the counselor, who else should be involved in setting priorities?
- ❒ What is the impact of these priorities on job application, job placement or job maintenance?

*Reminder at **TECH POINT 5** (20) (22)

Are technology services needed?

Document on: IWRP Amendments Annual Periodic

S STEPS
(Steps for Addressing Technology Concerns)

- ❒ What technology specialists should be involved and what form should this involvement take?
- ❒ Can potential employer and/or client solve the technology concern?
- ❒ What steps are needed to address the technology concerns?
- ❒ Is there a plan for completing each step?
- ❒ Who will fund the technology?
- ❒ Has the client been involved? Does he/she understand his/her responsibilities?
- ❒ Has the employer been involved? Does he/she understand his/her responsibilities?

Notes:

References

Pimentel, R.K., Bell, C.G., & Lotito, M.J. (1993). The job-placement - ADA connection. Northridge, CA: Milt Wright & Associates.

Mueller, J. (1989). Toward universal design. Proceedings of the 12th Annual RESNA Conference. pp. 198-199. Washington, DC: RESNA Press.

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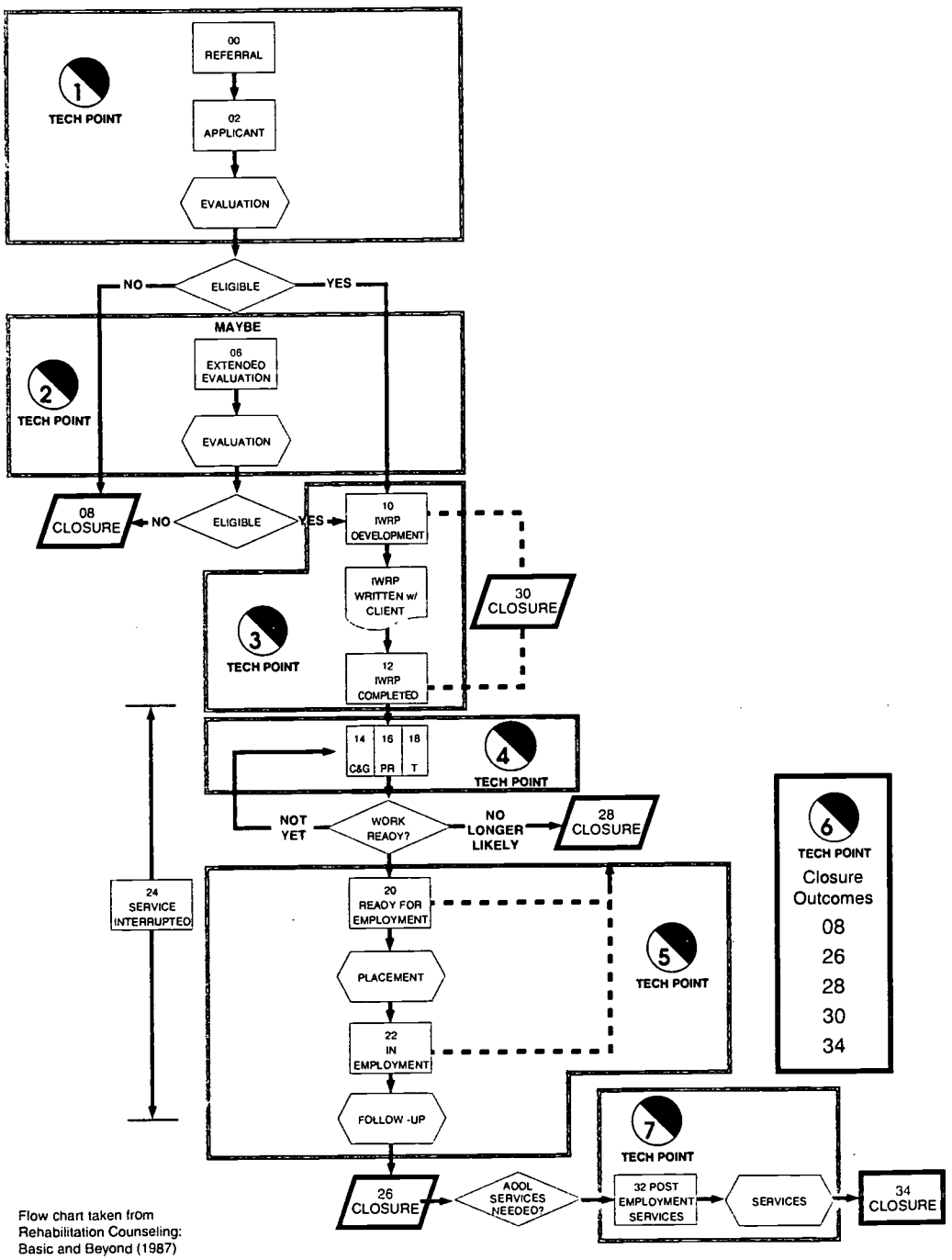
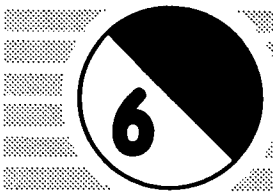
TECH POINT 6
Closure

SECTION 10



Flow chart taken from Rehabilitation Counseling: Basic and Beyond (1987)



TECH POINT 6
Closure Points

In this section

▼ Improving Successful Closures Through Use of Rehabilitation Technology

Successful employment is VR's goal for each person applying for services. Successful closure is a time to celebrate the hours of hard work that have taken place. **TECH POINT 6** is an important time to review what impact technology services had on the successful outcome. Even if the outcome was unsuccessful, it is important to see if technology intervention at a different point would have made a difference.

TECH POINT 6 is a time to review with the client problem-solving skills to enable him/her to resolve future technology needs. It is certain that an assistive technology user will need intervention in the future. This is going to happen because of the changes in today's job market, transportation, adaptive equipment and possibly the client's disability. Just the fact that the client will age often changes the need for assistive technology.

A review of technology needs with the employer may also be indicated. The counselor or client may want to share the **Technology Intervention Preparation Steps** process with the employer. This process could enhance the communication between the client and employer concerning "reasonable accommodations." It also enforces a principle of ADA: First consult the person with a disability when there is a problem concerning his/her ability to perform a task.

It is important to document

- ❒ rehabilitation technology services provided
- ❒ assistive technology equipment or devices purchased
- ❒ other technology related services

▼ Documenting Considerations and/or Use of Rehabilitation Technology

Closure of a VR case requires documentation of the services and assistance provided to each client. For successful closures, it is important to record those technology interventions that had an impact on successful employment. Careful review of technology intervention at closure can help a counselor learn what works best in dealing with technology issues.

Unfortunately, there are times when well-intended use of rehabilitation technology will not work for a particular problem or need. There are other situations when rehabilitation technology will improve functional capabilities, but still not result in employment. It is important to document all technology interventions for unsuccessful closures. Documentation helps collect information which can be used to determine if technology use had any impact on outcomes. This should help improve the counselor's judgement about when and where to use technology services.

Certain types of unsuccessful closures are scheduled for "ineligibility reviews" within a year after closure. Sometimes it is determined that cases can be reopened and that the technology interventions previously used did make a difference. It is equally important to investigate changes in the client's disability to warrant reconsidering rehabilitation technology.

▼ Technology Intervention Preparation Steps (TIPS)

Technology Intervention Preparation Steps (TIPS) at closure serve as a quick check to see if technology concerns were appropriately considered throughout the VR process. This should be completed for both successful and unsuccessful cases.

Technology Intervention Preparation Steps (TIPS) for Successful Closures

(26) and (34)

For clients who are successfully employed, counselors should use the following questions and considerations to quickly review the case to ensure that the closure is appropriate and that any technology-related considerations needed to maintain employment are addressed.

T

TECHNOLOGY

(Technology Concerns Identified)

- ❒ Review possible challenges which this disability may create in maintaining successful employment.
- ❒ Would technology potentially assist the client in overcoming these challenges?
- ❒ Does the applicant have concerns about using technology in any environment?
- ❒ Does the employer have concerns about the client using technology on the job?

I INTERVENTION
(Individualize Technology Concerns)

- ❒ Is the client meeting job expectations and performing the "essential functions" of the job? If not, why not (e.g., speed, lack of skills, inability to use equipment, etc.)? Would technology or accommodations help the client meet performance requirements?
- ❒ Can the employer and client pinpoint the task which is creating the problem? What solutions have been tried or considered? Would technology or accommodations help the client overcome the problem?
- ❒ Does the company have other employees who may be able to make the accommodation (e.g., a technical person on staff, in-house maintenance, etc.)?
- ❒ Are there any anticipated post-employment needs that may involve technology?

P PREPARATION
(Prioritize Technology Concerns)

- ❒ In what order should the technology needs identified for this status be addressed?
- ❒ Are there any deadlines?
- ❒ Can the concerns be resolved in a reasonable time frame?
- ❒ Is employment in jeopardy if not solved immediately?
- ❒ Is there a temporary solution that will work until a more permanent solution is found?
- ❒ Other than the employer, the client and the counselor, who else should be involved in setting priorities?
- ❒ What is the impact of setting these priorities in terms of people, health, money, agency guidelines or employment?

S STEPS
(Steps for Addressing Technology Concerns)

- ❒ What technology specialists should be involved and what form should this involvement take?
- ❒ Can the employer and/or client solve the technology concerns?
- ❒ What steps are needed to address the technology concerns?
- ❒ Is there a plan for completing each step?
- ❒ Has the client been involved? Does he/she understand his/her responsibilities?
- ❒ Has the employer been involved? Does he/she understand his/her responsibilities?

*Reminder at **TECH POINT 6** for successful closures (26) (34)

Were technology services considered and/or provided during the case services process?

Document on: Appropriate Agency Forms

Technology Intervention Preparation Steps (TIPS) for Unsuccessful Closures (08) (28) (30)

For clients who have not been successful in obtaining or maintaining employment, counselors should carefully review the case to determine if appropriate consideration was given to technology resources and services.

T TECHNOLOGY
(Technology Concerns Identified)

- ❒ Review challenges which this disability created in considering vocational rehabilitation potential.
- ❒ Would technology potentially assist the client in overcoming these challenges?
- ❒ Does the applicant have concerns about using technology?

Under the mandate of the Rehabilitation Act VR agencies are expected to monitor how they are using technology resources and services.

*Reminder at **TECH POINT 6** for unsuccessful closures (08)(28)(30)

Were technology services considered prior to closure?

Document on: Appropriate Agency Forms

I INTERVENTION
(Individualize Technology Concerns)

- ❒ Were possible impacts of technology on home, community, school/training and work environments considered?
- ❒ Has the use of technology benefitted the client?
- ❒ Were all funding options considered?
- ❒ Did the client or counselor's attitude toward technology affect the outcome for this client? Have all alternatives been considered?

P PREPARATION
(Prioritize Technology Concerns)

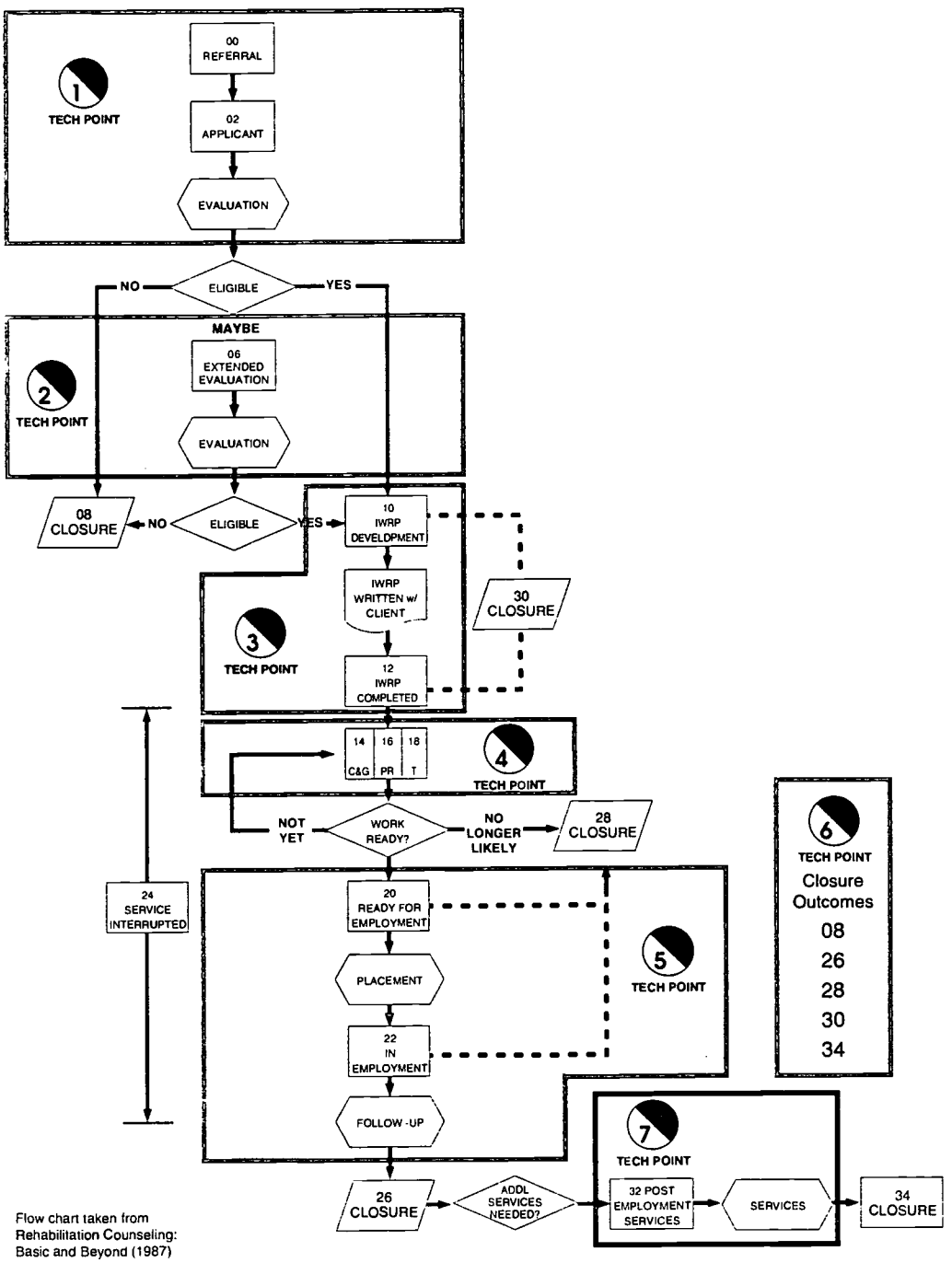
- ❒ Were all people who needed to be involved, adequately involved in a timely and appropriate fashion? If not, involve the appropriate people prior to closure.
- ❒ Was the technology specialist consulted in an appropriate and timely fashion? If not, consider this consultation prior to closure.

S STEPS
(Steps for Addressing Technology Concerns)

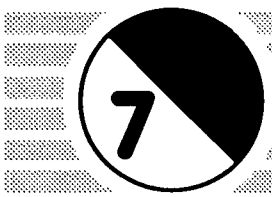
- ❒ What steps can be taken at this point to prevent unsuccessful closure?
- ❒ Has the applicant/client been involved? Does he/she understand the reason for closure?

TECH POINT 7
Post-Employment

SECTION 11



Flow chart taken from
Rehabilitation Counseling:
Basic and Beyond (1987)



TECH POINT 7 Post Employment

SECTION 11

In this section

▼ Maintaining Employment Using Rehabilitation Technology

Post-employment needs can sometimes be anticipated at the time of closure. It is possible that a person's job site or the nature of the job is scheduled to change after several months on the job. It is reassuring for the client and the employer to know that assistive technology services are available should they be needed. This can be an excellent tool for enhancing job placement.

If a client needs post-employment services, the **Technology Intervention Preparation Steps (TIPS)** should be applied to determine if there is an immediate threat to employment or if the intervention will enhance opportunity. The **TECH POINTS** process will help determine if post-employment services are indicated and/or if a new case should be opened. Rehabilitation technology services are one of the major reasons that post-employment services might be indicated.

Change is unavoidable. Lay-offs, promotions or any other factors that affect jobs can create major problems for persons with disabilities who rely on technology services and devices in the employment setting. Post-employment services are often needed to help analyze changes and determine needs.

▼ Anticipating Maintenance and Replacement Needs for Assistive Technology Devices

Persons who rely on technology know that their equipment will need maintenance and repair. This is true of any technology, not just that used for rehabilitation purposes. The person with a disability needs to know where and how equipment can be repaired and maintained quickly and efficiently so that employment is not interrupted. It is imperative that the person with a disability learn his/her responsibility for doing this on a periodic basis.

If a person uses specialized equipment, a list of distributors, vendors and technology specialist should be kept updated. He/she should know the name of the equipment and all information pertaining to repair or replacement.

It is important to discuss the "lifespan" and cost of assistive technology. Manual wheelchairs, for example, are expected to last five to seven years; other items such as crutches and walkers may need replacement every two to three years. Van modifications can cost $30,000 or more. Counselors should ensure that the client is educated about employer benefits, savings, low interest loans and other options that may be available in the community. If a client receives Social Security or SSI, discussing Work Related Expenses and Work Incentive Plans is necessary. Many clients do not take advantage of these benefits that have been written into law. Individual tax deductions and small business tax credits and deductions are available and might be considered by the person with a disability or his/her employer. Responsibility for upkeep and maintenance should not come as a surprise to the client after the case is closed. A newly equipped van, a new power chair, etc., are large expenses and VR cannot be expected to always be responsible.

▼ Technology Intervention Preparation Steps (TIPS)

Technology Intervention Preparation Steps (TIPS) in post-employment will serve as a quick check to see if technology needs will be an ongoing concern and if post-employment services are indicated.

Post-Employment
(34)

T

TECHNOLOGY
(Technology Concerns Identified)

- ❒ Have any "major life activities" or "essential functions" of the job changed? If so, did this result in a need for change in technology?
- ❒ Would technology potentially assist in overcoming these challenges?
- ❒ Does the client have concerns about the use of technology?
- ❒ Does the employer have concerns about the use of technology on the job?

I

INTERVENTION
(Individualize Technology Concerns)

- ❒ What are the client's technology concerns? Do they differ from the employer's concern? What caused this concern to be an issue for employment?
- ❒ Are any of the technology concerns a direct threat to employment?
- ❒ If the health of the client is a concern, would technology intervention be appropriate/useful?

P PREPARATION
(Prioritize Technology Concerns)

- ❒ In what order should the technology needs identified for this status be addressed?
- ❒ Are there any deadlines?
- ❒ Can the concerns be resolved in a reasonable time frame?
- ❒ Is employment in jeopardy if not solved immediately?
- ❒ Is there a temporary solution that will work until a more permanent solution is found?
- ❒ Other than the employer, the client and the counselor, who else should be involved in setting priorities?

S STEPS
(Steps for Addressing Technology Concerns)

- ❒ Can the employer and/or client solve the technology concern?
- ❒ Can employer and client solve the technology concerns with referral to other resources?
- ❒ What technology specialists should be involved and what form should this involvement take?
- ❒ What steps are needed to address the technology concerns?
- ❒ Is there a plan for completing each step?
- ❒ Has the client been involved? Does he/she understand his/her responsibilities?
- ❒ Has the employer been involved? Does he/she need to be involved?
- ❒ Who will fund the technology?
- ❒ Will post-employment services be needed or will a new VR case be opened?

*Reminder at **TECH POINT 7 (32)**

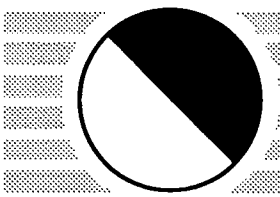
Are technology services needed?

Document:

- **Post employment follow-up forms**
- **Consider need to open as a new case**

Agency Guidelines for Rehabilitation Technology

SECTION 12



Rehabilitation Technology Agency Guidelines

SECTION 12

In this section

▼ Agency Guidelines

In order for **TECH POINTS** to be effective, counselors should be kept informed of their agency's guidelines and policies for use of rehabilitation technology. It is suggested that policies and procedures for referral to technology services, selection of technology service providers, funding considerations and other technology-related information be included in this section for easy reference.

▼ Case Service Policies for Rehabilitation Technology Services

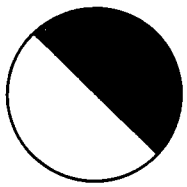
- ❒ _____
- ❒ _____
- ❒ _____
- ❒ _____

▼ Funding Resources

- ❒ _____
- ❒ _____
- ❒ _____
- ❒ _____

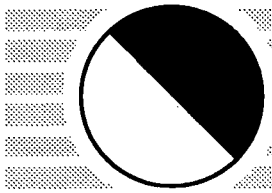
▼ Forms for Technology Service Activities

- ❒ _____
- ❒ _____
- ❒ _____
- ❒ _____



Rehabilitation Technology Resources and Training

SECTION 13



Rehabilitation Technology Resources and Training

SECTION 13

In this section

Rehabilitation Technology Information Resources and Databases

The following is a partial resource list for centers, national organizations, and information networks related to applications of rehabilitation technology. Information on products, publications, and technology related issues is made available through these centers.

Abledata Product Information Database
MACRO Systems, Inc.
8455 Colesville Road
Silver Spring, MD 20910-3319
301-588-9284
800-346-2742

Extensive collection of over 17,000 commercially available assistive technology aids and devices.

Accent on Information
P.O. Box 700
Bloomington, IL, 61702
309-378-2961

Information on consumer products and applications of technology from the consumer's perspective.

Apple Office of Special Education Programs
Apple Computer
20525 Mariana Avenue, MS23D
Cupertino, CA 95014
(408) 974-7910

This office is responsible for Apple computer technologies appropriate to meet the Special Education and Rehabiltation needs of people with a wide range of disabilities.

Clearinghouse On Computer Accommodation (COCA)
GSA Central Office
18th and F Street, NW
Room 1213
Washington, DC 20405

A demonstration and technical resource center providing information on frequently used hardware/software and workstation furnishings to accommodate individuals with disabilities. Provides ongoing consultation and/or technical assistance.

Cooperative Database Distribution Network for Assistive Technology (CO-NET)
Trace R&D Center on Computer Access
Communications, and control
S-151 Waisman Center
1500 Highland Avenue
Madison, WI 53705
608-262-6966 (voice)
608-263-5408 (TTY)

Job Accommodation Network (JAN)
809 Allen Hall
West Virginia University
Morgantown, WV 26506
800-526-7234

Employment and placement resource supported by the President's Committee on Employment of Persons with Disabilities.

National Information Center on Deafness
Gallaudet University
800 Florida Avenue, NE
Washington, DC 20002
202-651-5052 (TTY)
202-651-5000 (voice)

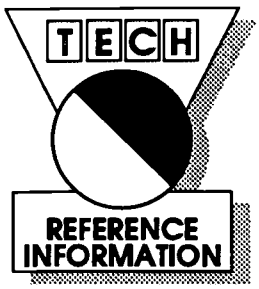
National Information System Center for Developmental Disabilities
Benson Building, First Floor
University of South Carolina
Columbia, SC 29208
803-777-4435
800-922-9234 ext.301

National Rehabilitation Information Center (NARIC)
8455 Colesville Road
Suite 935
Silver Spring, MD 20910-3319
301-588-9284
800-346-2742

National Technical Information Service
U.S. Dept. of Commerce
5285 Port Royal Road
Springfield, VA 22161
703-487-4600
(general information)
703-487-4650 (documents)
703-487-4642 (searches)

RESNA
1700 N. Moore Street
Suite 1540
Arlington, VA 22209-1903
703-524-6686
703-524-6630 (fax)

RESNA is an interdisciplinary association for the advancement of rehabilitation and assistive technology. Provides information, technical assistance, RESNA Press publications, and resources.



Technology Resource Catalogs

The following list represents a sample of the catalogs available on products for persons with disabilities. Most of these are available at no cost and offer "800" number telephone access. Establishing a collection of catalogs is an excellent way to obtain information on assistive technology products and equipment.

AIDS FOR DAILY LIVING

Abbey Foster
4295 International Blvd., #D
Norcross, GA 30093
404-564-2224

Adaptability
P.O. Box 515
Colchester, CT 06415-0515
800-243-9232
203-537-3451

Fred Sammons, Inc.
P.O. Box 386 Western Springs IL
60558-0386
800-547-4333
708-325-1700

Maddak/Ableware
6 Industrial Ave.
Pequannock, NJ 07440-1993
800-443-4926
201-305-0841

Maxi Aids, Inc
P.O. Box # 3209
Farmingdale, NY 11735
800-522-6294
516-752-0521

North Coast Medical, Inc.
187 Stauffer Boulevard
San Jose, CA 95125
800-821-9319
408-283-1900

COMMUNICATION AIDS

ACS Technologies, Inc.
1400 Lee Drive
Coraopolis, PA 15108
800-227-2922
412-264-2288

Innocomp
26210 Emery Road
Suite 302
Warrensville Hts OH 44128
216-464-3636

Prentke Romich Co.
1022 Heyl Road
Wooster OH 44691
800-262-1984
216-262-1984

Words+, Inc.
40015 Sierra Highway
Building B-145
Palmdale, CA 93550
800-869-8521
805-266-8500

COMPUTER ACCESS (Hardware/Software)

Don Johnston Development Equipment, Inc.
P.O. Box 639
1000 N. Rand, Bldg. 115
Wauconda, IL 60084
800-999-4660
708-526-2682

Global Computer Supply
1050 Northbrook Pkwy; Dept.21
Suwanee, GA 30174
800-845-6225

Inmac
Inmac Order Center
2300 Valley View Lane, Suite 200
Irving, TX 75062-5058
800-547-5444

International Business Machines Corporation
Special Needs Systems
P.O. Box 1328
Boca Raton, FL 33429-1328
800-426-4832

ENVIRONMENTAL CONTROLS/SWITCHES

Ablenet
Access Ability, Inc.
1081 10th Avenue, SE
Minneapolis, MN 55414
800-322-0956
612-379-0956

Adaptive Switch Laboratories
P.O. Box 218445
Houston, TX 77218
800 626-8698
713-827-7766

Key Technologies
P.O. Box 1997
Morganton, NC 28680-1997
704-433-5302

Tash, Inc.
Unit 1, 91 Station Street
Ajax, Ontario
Canada LIS3H2
416-686-4129

X-10 Inc.
91 Ruckman Road
Closter, NJ 07624
201-784-9700

ERGONOMICS

AbleOffice
Center for Rehabilitation
Technology, Inc.
Georgia Institute for Technology
Atlanta, GA 30332-0156
404-876-8570

Back Designs
1045 Ashby Avenue
Berkeley, CA 94710-2807
800-466-1341
510-849-1923

Ergodyne
1410 Energy Park Drive, Suite 1
St. Paul, MN 55108
800-225-8238
612-642-9889

Ergosource, Inc
4250 Norex Drive
Chaska, MN 55318
800-969-4374
612-368-9214

MOBILITY

Everest and Jennings
1100 Corporate Square Drive
St.Luis, MS 63132
800-235-4661

Invacare
899 Cleveland Street
Elyria, OH 44035
800-828-6282
216-329-6456

Quickie Designs Inc.
2842 Business Park Ave.
Fresno, CA 93727-1328
800-456-8168
209-292-2171

The Med Group
3223 South Loop 289
Suite 600
Lubbock, TX 79423
800-825-5633
806-793-8421

SEATING AND POSITIONING

Freedom Designs, Inc.
2241 Madera Road
Simi Valley, CA 93065
800-331-8551

Jay Medical, Ltd
4745 Walnut Street
Boulder, CO 80301
800-648-8282
303-442-5529

Pin Dot Products
6001 Gross Point Road
Niles, IL 60648-4027
800-451-3553

Whitmyer Biomechanix, Inc.
848 Blountstown Hwy. Suite F1
Tallahassee, Florida 32304
904-575-5510

VISION AND HEARING AIDS

American Foundation for the Blind
15 West 16th Street
New York, NY 10011
800-829-0500
212-620-2000

Hear you are, Inc.
4 Musconetcong Ave.
Stanhope, N.J. 07874
800-278-3277
201-347-7662

Massachusetts Association for the Blind
200 Ivy Street
Brookline, MA 02146
617-738-5110

Phonic Ear Inc.
3880 Cypress Drive
Petaluma, CA 94954-7600
707-769-1110

AT&T Source Book
15 West 6th Street
3rd Floor
Cincinnati OH 45202
800-451-2100

LaBac Systems
8955 S. Ridgeline Blvd
Highlands Ranch
Colorado 80126
303-791-6000

McDowell-Craig
13146 Firestone Blvd
Norwalk, CA 90450
213-773-3451

Thomas Register
510 Penn Plaza
New York, NY 10001
212-290-7262
212-290-7373 Fax

The Center for Rehabilitation Technology Services (CRTS) is part of the South Carolina Vocational Rehabilitation Department. Support for this work has been provided through the National Institute on Disability and Rehabilitation Research (NIDRR), U.S. Department of Education, Washington D.C. as part of the rehabilitation engineering research center grant #H133E20002-93. Opinions expressed in this paper are those of the writers and should not be construed to represent opinions or policies of NIDRR.

Periodicals on Rehabilitation Technology Resources and Services

This Tech Reference Guide highlights current information on assistive technology that can be found in professional journals, magazines and newsletters. An excellent source of current information on assistive technology can be found in the numerous professional journals, magazines and newsletters which are available. Many of these focus primarily on applications of rehabilitation technology. The following listing describes many of these periodicals, including several from the perspective of specific disability groups. Ordering information including cost and a short description is provided for each.

AADC News
American Association of Disability Communicators
Sponsored by the National Easter Seal Society
Communications Department
70 E. Lake Street
Chicago, IL 60601
(312) 726-6200

Published quarterly. Cost: $25.00 with individual membership per year. News items for persons interested in assistive devices for persons with disabilities.

Accent on Living
Cheever Publishing, Inc.
Gillum Road and High Drive
PO Box 700
Bloomington, IL 61702
(309) 378-2961

Published quarterly. Cost: $8.00 per year. Articles, pictures and product advertisements of interest to persons with disabilities.

ACS Update
Adaptive Communication Systems, Inc.
354 Hookstown Grade Road
Clinton, PA 15026
(412) 264-2288

Published quarterly. Cost: free. Conference announcements and articles pertaining to technical aids and devices used by non-speaking individuals. Also articles of interest to vendors and speech/language pathologists.

AFB News
American Foundation for the Blind
15 West 16th Street
New York, NY 10011
(212) 620-2029

Published quarterly. Cost: free. News and articles about blindness and low vision.

AOPA Almanac
American Orthotic and Prosthetic Association
1650 King Street
Alexandria, VA 22314
(703) 836-7116

Published monthly. Cost: $24.00 per year. News and articles of interest to orthotic and prosthetic practitioners.

ARC.
Association for Retarded Citizens
P. O. Box 1047
Arlington, TX 76004
(817) 261-6003

Published 6 times a year. Cost: $15.00 per year. General news articles, announcements, and legislative updates relevant to the field of mental retardation.

Abilities
Canada's Lifestyle Magazine for People with Disabilities
Canadian Abilities Foundation
Box 527, Station P
Toronto, Ontario, Canada M5S 2T1
(416) 588-8431

Published quarterly. Cost: $12.00 per year. News and articles of interest for persons with disabilities.

American Journal of Occupational Therapy
The American Occupational Therapy Association, Inc.
1383 Piccard Drive
P. O. Box 1725
Rockville, MD 20849-1725
(301) 948-9626

Published monthly. Cost: $25.00 per year. The official publication of the American Occupational Therapy Association. Articles pertain to occupational therapy, new programs and techniques of practice. Reports on research and educational activities and professional trends.

American Rehabilitation
Rehabilitation Services Administration
330 C Street, SW, Room 3414
Washington, DC 20202-2531

The official publication of the Rehabilitation Services Administration. Published quarterly. Cost: $5.00 per year. Articles of general interest to individuals employed in the rehabilitation field.

Assistive Device News
Pennsylvania Assistive Device Center
150 South Progress Avenue
Harrisburg, PA 17109
(717) 657-5840

Published quarterly. Cost: free. Articles and announcements of general interest to education professionals, consumers, families and others interested in the applications of assistive technology to aid persons with disabilities. Focuses on augmentative communication and computer applications.

Assistive Technology
Demos Publications, Inc.
156 Fifth Avenue, Suite 1018
New York, NY 10010
(212) 255-8768

Published quarterly. Cost: $37.50 per year. The official journal of RESNA. Research articles targeted for individuals working or interested in the field of rehabilitation engineering.

A.T. Quarterly
RESNA Technical Assistance Project
1101 Connecticut Ave.
NW, Suite 700
Washington, D.C. 20036

Published quarterly. Cost: Free. This newsletter was developed under a contract with the National Institute on Disability and Rehabilitation Research (NIDRR) and contains articles about assistive technology projects around the country.

Augmentative and Alternative Communication
Decker Periodicals, Inc.
One James Street South
P. O. Box 620, L.C.D.I.
Hamilton, Ontario, Canada L8N 3K7
(416) 522-7017

Published quarterly. Cost: $95.00 per year. Research findings and articles in the field of augmentative and alternative communication.

Augmentative Communication News
Sunset Enterprises
One Surf Way, Suite 215
Monterey, CA 93940
(408) 649-3050

Published quarterly. Cost: $37.00 per year. Articles and news for consumers and clinicians dealing with augmentative devices.

Breaking New Ground
Department of Agricultural Engineering
Purdue University
West Lafayette, IN 47907-1146
(317) 494-5988

Published quarterly. Cost: free. Articles, reports, and photographs of interest to farmers with disabilities.

Bulletin
National Clearinghouse on Technology and Aging
University Center on Aging
University of Massachusetts Medical Center, 55 Lake Avenue North, Worcester, MA 01655
(508) 856-3662

Published twice a year. Cost: $5.00 per year. Articles and general information on gerontology.

CRT News Update
Center for Rehabilitation Technology
Georgia Institute for Technology
490 10th Street, NW
Atlanta, GA 30332-0156
(404) 876-8580

Published approximately six times per year. Cost: free. News dealing with rehabilitation technology information in Georgia.

Careers and the Disabled
Equal Opportunity Publications, Inc.
44 Broadway
Greenlawn, NY 11740
(516) 261-8899

Published three times a year. Cost: $10.00 per year. Articles of interest to rehabilitation counselors, individuals with disabilities and corporate personnel recruiters.

Closing the Gap
Closing the Gap, Inc.
P. O. Box 68
Henderson, MN 56044
(612) 248-3294

Published six times a year. Cost: $26.00 per year. A newsletter for individuals interested in applying computer technology to meet the needs of persons with disabilities.

Co-Net News
Newsletter of the Cooperative Database Dissemination Network for Assistive Technology
Trace R&D Center
S-151 Waisman Center
University of Wisconsin-Madison
1500 Highland Avenue
Madison, WI 53705
(608) 262-6966

Published quarterly. Cost: free. A newsletter for people interested in assistive technology and individuals with disabilities.

Communicating Together
Sharing to Learn
P. O. Box 986
Thornhill, Ontario, Canada L3T 4A5
(416) 771-1491

Published quarterly. Cost: $19.00 per year. A focal point for sharing the experiences and communication systems of non-speaking people, their families and the professionals who work with them.

Communication Outlook
Artificial Language Laboratory
Michigan State University
405 Computer Center
East Lansing, MI 48824-1042
(517) 353-0870

Published quarterly. Cost: $18.00 per year. An international periodical for individuals interested in applying technology to the communication needs of persons with severe disabilities.

Computer Disability News
The National Easter Seal Society
70 East Lake Street
Chicago, IL 60601
(312) 667-7400

Published quarterly. Cost: $15.00 per year. Focuses on computer products and services; includes interviews and new equipment information.

Computer Use in Social Services Network
University of Texas at Arlington
CUSSN Network Coordinator
Box 19129
Graduate School of Social Work
Arlington, TX 76019-0129
(817) 640-7880

Published 4 times a year. Cost: $15.00 per year. A network for professionals interested in exchanging information and experiences on using computers in the human services field.

Current Expressions
Prentke Romich Company
1022 Heyl Road
Wooster, OH 44691
(212) 262-1984

Newsletter. Published quarterly. Cost: free. Articles and stories pertaining to the field of environmental controls, augmentative communication equipment, public and private programs to aid those with severe communication limitations.

Direct Link
Center for Computer Assistance to the Disabled
617 Seventh Avenue
Fort Worth, TX 76104
(817) 870-9082

Published quarterly. Cost: free. Newsletter. Provides updated information for persons with disabilities who have an interest in computers.

Electronic House
Electronic House, Inc.
56790 Magnetic Drive
Mishawaka, IN 46545
(219) 256-2060

Published bi-monthly. Cost: $89.70 per year. The journal of home automation; articles and advertisements related to remote control and home computerization.

Exceptional Children
Council for Exceptional Children
1920 Association Drive
Reston, VA 22091-1589
(703) 264-9454

Published 6 times per year. Cost: $35.00 per year. Articles focus on professional issues of concern to special educators and on the education and development of exceptional students.

GA-SK Newsletter
Telecommunications for the Deaf, Inc.
814 Thayer Avenue
Silver Spring, MD 20910
(301) 589-3006

Published quarterly. Cost: free. Features news, articles and advertisements of interest to persons with hearing impairments and professionals.

Gerontology
The American Occupational Therapy Association, Inc.
1383 Piccard Drive, P. O. Box 1725
Rockville, MD 20849-1725
(301) 948-9626

Published quarterly. Cost: $15.00 per year. A newsletter for professionals working in the allied health occupations field.

HPV News
International Human Powered Vehicle Association, Inc.
P. O. Box 51255
Indianapolis, IN 46251
(317) 876-9478

Published 6 times a year. Cost: $20.00 per year. Articles of news and interest to individuals interested in the creativity, design, and development of human powered vehicles.

Home Health Care Dealer
The Journal of HME Retailing
Allied Health Care Publications
1849 Sawtelle Blvd., Suite 770
Los Angeles, CA 90025
(213) 479-1769

Published bi-monthly. Cost: free. Articles and advertisements of interest to health care distributors and users of their products.

ISTE
International Society for Technology in Education
1787 Agate Street
Eugene, OR 97403-1923
(503) 346-4414

Published 8 times a year. Cost: $46 a year. News updates about education and technology.

inCider
Incider Subscription Services
P. O. Box 58618
Boulder, CO 80322-8618
(800) 289-0619

Published monthly. Cost: $27.97 per year. Features news stories, advertisements and other special interest articles for individuals using or interested in using Apple II computers.

Independent Living
Equal Opportunity Publications, Inc.
44 Broadway
Greenlawn, NY 11740
(516) 261-9086

Published quarterly. Cost: $15.00 per year. News and articles related to physical disability. Advertisements are focused on adaptive equipment for the physically challenged.

In The Mainstream
Mainstream, Inc.
3 Bethesda Metro Center, Suite 830
Bethesda, MD 20814
(301) 654-2400

Published every two months. Cost: $60.00 per year. News updates, analysis and reports of legislation pertaining to the disabled.

International Journal of Technology and Aging
Human Sciences Press, Inc.
233 Spring Street
New York, NY 10013-1578
(212) 807-1047

Published bi-annually. Cost: $29.00 per year. Articles for researchers, academicians and health care professionals dealing with technology and the aging community.

Issues In Science And Technology
National Academy of Sciences
2101 Constitution Avenue
Washington, DC 20418
(202) 334-3305

Published quarterly. Cost: $36.00 per year. Research articles by noted scholars in a variety of technology areas.

Journal of Prosthetics and Orthotics
American Orthotic and Prosthetic Association, and the Academy of Orthotists and Prosthetists
717 Pendleton Street
Alexandria, VA 22314
(703) 836-7116/8

Published quarterly. Cost: $50.00. Articles are of special interest to practicing prosthetists and orthotists.

Journal of Rehabilitation Research and Development
Office of Technology Transfer
Rehabilitation Research and Development Service
Veteran's Administration
Prosthetics R&D Center
103 South Gay Street
Baltimore, MD 21202-4051
(410) 962-1800

Published quarterly. Cost: free. In addition to information related to rehabilitation and assistive technology research and development, this journal abstracts relevant technology information from other journals.

Journal of Special Education Technology
Peabody College
Box 328
Vanderbilt University
Nashville, TN 37203
(615) 322-8150

Published quarterly. Cost: $17.00 per year. Information, research, and reports of innovative practices regarding the application of educational technology toward the development and education of exceptional children.

Long Cane News
American Foundation for the Blind
15 W. 16th Street
New York, NY 10011
(212) 620-2000

Published twice a year. Cost: $8.00 per year. A newsletter for professionals working with individuals with visual impairments in the area orientation and mobility training.

Macintosh Lab Monitor (The)
Richard Wanderman
P. O. Box 1386
Litchfield, CT 06759
(203) 567-4307

Published quarterly. Cost: free. A publication of interest to individuals using a Macintosh computer in special education applications.

Mainstream
Exploding Myths, Inc.
2973 Beech Street
San Diego, CA 92102
(619) 234-3138

Published monthly, except January and June. Cost: $20.00 per year. Advertisements, articles, and stories of interest to persons with physical disabilities and rehabilitation personnel.

NARIC Quarterly
Macro Systems, Inc.
8455 Colesville Road Suite 935
Silver Spring, MD 20910-3319
(800) 346-2742

Published quarterly. Cost: free. This is a newsletter for those involved with issues in rehabilitation and disability.

NASA Tech Briefs
Associated Business Publications Co., Ltd.
41 E. 42nd Street
New York, NY 10017-5391
(212) 490-3999

Published monthly except July/August and November/December. Cost: $75.00 per year. A magazine dedicated toward transferring NASA technology to American industry and government.

National Rehabilitation Newsletter
National Rehabilitation Association
633 South Washington Street
Alexandria, VA 22314-4193
(703) 836-0850

Published 8 times a year. Cost: $10.00 per year. News of general interest to all rehabilitation professionals.

News
National Library for the Blind and Physically Handicapped Library of Congress
Washington, DC 20542
(800) 424-9100

Published quarterly. Cost: free. News and articles of interest to persons with visual impairments.

O & P Almanac
Orthotics & Prosthetics National Office
1650 King St., Suite 500
Alexandria, VA 22314
(703) 836-7114

Published monthly. Cost: $35.00 per year. This magazine for the Orthotics & Prosthetics professional contains articles on the latest developments in products and services in the industry.

OSERS News in Print
Office of Special Education and Rehabilitative Services
U. S. Department of Education
Washington, DC 20202-2524
(202) 732-1723

Published quarterly. Cost: free. Articles on rehabilitation programs supported by the Department of Education.

Occupational Therapy News
The American Occupational Therapy Association, Inc.
1383 Piccard Drive
P. O. Box 1725
Rockville, MD 20849-1725
(301) 948-9626

Published monthly. Cost: $15.00 per year. News and articles of interest to occupational therapists and related personnel.

OnLine
West Virginia Research & Training Center
One Dunbar Plaza, Suite E
Dunbar, WV 25064
(304) 766-7138

Published quarterly. Cost: free. Articles and news updates for rehabilitation professionals who use technology in their jobs.

Orthotics and Prosthetics
American Orthotic and Prosthetic Association
717 Pendleton Street
Alexandria, VA 22314
(703) 846-7116

Reports of research, techniques in the field, advertisements and conference announcements.

PAM Repeater
PAM Assistance Center
601 W. Maple Street
Lansing, MI 48906
(517) 371-5897

Published approximately nine times a year. Cost: $10.00 membership fee for subscription. Articles of interest to persons with disabilities.

Palaestra
The Forum of Sport, Physical Education, and Recreation for the Disabled
Challenge Publications Ltd., 549 Meadow Drive
P. O. Box 508
Macomb, IL 61455
(309) 833-1902

Published quarterly. Cost: $18.00 per year. A magazine of general interest to individuals with disabilities interested in sports, recreation, and leisure activities.

Paraplegia News
Paralyzed Veterans of America
5201 North 19th Avenue
Suite 111
Phoenix, AZ 85015-2994
(602) 246-9426

Published monthly. Cost: $12.00 per year. News, legislative updates and product advertisements of interest to individuals with disabilities.

Pin Dot News
Pin Dot Products
3001 Gross Point Road
Niles, IL 60648-4027
(800) 451-3553

Published twice a month. Cost: free. A news publication for people interested in seating and positioning of people with disabilities.

Positively Speaking
PRAB Command, Inc.
5140 Sprinkle Road
Kalamazoo, MI 49002
(616) 383-4400

News and information on enhancing productivity through technology.

Rehab USA
National Rehabilitation Association
633 South Washington Street
Alexandria, VA 22314-4193

Published Quarterly. Cost: Free to members. This magazine was created to facilitate the relationship between science and people, and to magnify the role of people in the rehabilitation process.

RESNA NEWS
RESNA Association for the Advancement of Rehabilitation Technology
Suite 1540
Arlington, VA 22209-1903
(703) 524-6686

Published quarterly. Cost: $25.00 per year. News and special articles of interest to individuals working in the field of assistive technology.

Rehabilitation Digest
Canadian Rehabilitation Council for the Disabled
45 Sheppard Avenue
Suite 801
Toronto, Ontario, Canada M2N 5W9
(416) 250-7490

Published quarterly. Cost: $16.00 per year. News related to government programs, medical research and other resources for persons with disabilities.

Spinal Cord Injury Life
National Spinal Cord Injury Association
600 West Cummings Park
Suite 2000, Woburn, MA 01801
(617) 935-2722

Published quarterly. Cost: call for information. News of concern to persons with spinal cord injuries caused by trauma or disease.

Spinal Cord Society Newsletter
Spinal Cord Society
Wendell Road
Fergus Falls, MN 56537
(218) 739-5252

Published monthly. Cost: $30.00 per year. Articles and medical research updates of interest to individuals with spinal cord injuries, their families and medical researchers working in the area of spinal cord regeneration.

Sport and Spokes
Paralyzed Veterans of America
5201 North 19th Avenue
Suite 111
Phoenix, AZ 85015-2994
(602) 246-9426

Published bi-monthly. Cost: $9.00 per year. News, product advertisements, announcements and articles of interest to individuals with disabilities interested in wheelchair sports and adaptive recreation.

Teaching Exceptional Children
Council for Exceptional Children
1920 Association Drive
Reston, VA 22091-1589
(703) 620-3660

Published four times a year. Cost: $25.00. A magazine for parents and teachers of children with developmental disabilities.

Team Rehab Report
Miramor Publishing Company
6133 Bristol Parkway
Culver City, CA 90230
(213) 337-9717

Published bi-monthly. Cost: $24.00 per year. Articles and news items on assistive technology.

TechniCable
NC Assistive Technology Project
1110 Navaho Drive
Suite 101
Raleigh, NC 27609
(919) 850-2787

Published quarterly. Cost: free. Information for persons interested in assistive technology.

Technology Update
Sensory Aids Foundation
399 Sherman Avenue
Suite 12
Palo Alto, CA 94306
(415) 329-0430

Published bi-monthly in print, large print and audio cassette. Cost: $47.00 per year. News of technology devices to aid persons with visual and hearing impairments.

USSAAC Newsletter (The)
United States Society for
Augmentative and Alternative
Communication
Medical School Wing E
CB# 7120
UNC-Chapel Hill, Chapel Hill, NC
27599-7120
(919) 966-2343

Published quarterly. Cost: free. Addresses the communication needs of people who do not speak.

Update
National Library Service for the Blind
and Physically Handicapped
Library of Congress
Washington, DC 20542
(800) 424-8567

Published quarterly. Cost: free. News and articles of interest to persons with visual impairments.

Window on Technology
Ministry of Community and Social
Services
12th Floor
5140 Yonge Street North York
Ontario, Canada M2N 6L7
(416) 730-6470

Published 6 times per year. Cost: free. A newsletter on assistive technology for people working in human service programs.

Word from Washington
United Cerebral Palsy Association
1522 K St. NW
Suite 1112
Washington, DC 20005
(202) 842-1266

Published monthly. Cost: $25.00 per year. Short news articles reporting on the legislative activity in Congress with regard to disabilities.

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Organizations and Associations

This Tech Reference Guide provides information on national organizations and associations with an interest in rehabilitation technology and individuals with disabilities. Utilization of technology resources and services has been recognized by many organizations and associations as an excellent resource. The following is a representative listing of some of the national organizations and associations that have developed specialized expertise in the application of technology to assist persons with disabilities.

AMERICAN FOUNDATION FOR THE BLIND (AFB)
National Technology Center
15 West 16th Street
New York, NY 10011
212-620-2080

AMERICAN OCCUPATIONAL THERAPY ASSOCIATION (AOTA)
Box 1725
1383 Piccard Drive
Rockville, MD 20850
301-948-9626

AMERICAN PHYSICAL THERAPY ASSOCIATION
1111 North Fairfax Street
Alexandria, VA 22314
703-684-2782

AMERICAN SPEECH AND HEARING ASSOCIATION (ASHA)
10801 Rockville Pike
Rockville, MD 20855
301-897-5700

COUNCIL OF EXCEPTIONAL CHILDREN (CEC)
Technology and Media Division (TAM)
Center for Technology in Human Disabilities
2301 Argonne Drive
Baltimore, MD 21218
301-554-3046

INTERNATIONAL SOCIETY FOR AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (ISACC)
c/o Barry Romich
1022 High Road
Wooster, OH 44691
216-262-1984

NATIONAL ASSOCIATION OF MEDICAL EQUIPMENT SUPPLIERS (NAMES)
625 Slaters Lane, Suite 200
Alexandria, VA 22314
703-836-6263

NATIONAL EASTER SEAL SOCIETY
70 East Lake Street
Chicago, IL 60601
312-726-6200
312-243-8888, TDD

NATIONAL REHABILITATION ASSOCIATION (NRA)
633 South Washington Street
Alexandria, VA 22314
703-836-0850

PARALYZED VETERANS OF AMERICA
801 18th Street, NW
Washington, DC 20006
202-872-1300

PRESIDENT'S COMMITTEE ON EMPLOYMENT OF PEOPLE WITH DISABILITIES
1111 20th Street, NW, Room 600
Washington, DC 20036
202-653-2088

RESNA, an Association for the Advancement of Rehabilitation and Assistive Technology
1700 N. Moore Street, Suite 1540
Arlington, VA 22209-1903
703-524-6686
703-524-6630 (fax)

UNITED CEREBRAL PALSY
66 East 34th Street
New York, NY 10016
212-481-6300
800-872-1827

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Employment and Independent Living Resources

The following organizations represent some of the available resources which may be able to assist with rehabilitation technology-related concerns with employment and independent living activities.

American Foundation for the Blind
15 West 16th Street
New York, NY 10011
(212) 620-2000
(212) 727-7418 (fax)

An information and referral service for programs and information on blindness.

American with Disabilities Act Technical Assistance Manual, (Title 1)
Superintendent of Documents
P. O. Box 371954
Pittsburgh, PA 15250-7954
Order processing code 6196

American with Disabilities Act Handbook
Equal Employment Opportunity Commission and the U.S. Department of Justice
U.S. Government Printing Office
Superintendent of Documents
Mail Stop: SSOP
Washington, DC 20402-9328

American Institute of Architects (AIA)
c/o Information Center
1735 New York Avenue, NW
Washington, DC 20006
(202) 626-7493

Bibliographies of material on barrier-free design.

Architectural and Transportation Barriers - Compliance Board
1111 18th Street, NW
Suite 501
Washington, DC 20036-3894
(800) 872-2253 (Voice/TDD)
(202) 653-7848 (Voice/TDD)
(Technical Services)

Association of Persons in Supported Employment (APSE)
50001 West Broad Street
Suite 34
Richmond, VA 23230
(804) 282-3655

Provides support and information to job coaches, enclave and mobile crew supervisors, small business entrepreneurs, and program managers.

Innovations in Rural Independent Living
Research and Training Center on Independent Living
Institute for Life Span Studies
4089 Dole Human Development Center
University of Kansas
Lawrence, KS 66049
913-864-4095

Job Accommodation Network (JAN)
West Virginia University
809 Allen Hall
P. O. Box 6123
Morgantown, WV 26506
(800) 526-7234
(304) 293-7186
(800) ADA-WORK
(304) 293-5407 (fax)

JAN is an international information network and consulting resource which provides information about employment issues to employers, rehabilitation professionals, and persons with disabilities. Sponsored by the President's Committee on Employment of People with Disabilities, the Network is operated by West Virginia University Rehabilitation Research and Training Center. Printed materials are available free of charge.

Job Opportunities for the Blind
National Federation of the Blind
1800 Johnson Street
Baltimore, Maryland 21230
(301, 659-9314
(800) 638-7518

JOB is a nationwide job listing and job referral system of the NFB, a service available without charge. Among JOB's 40+ free publications are: Blind People at Work, and Technical Assistance Guide for Employers. The Recorded Bulletin is sent to registered applicants and includes articles about careers and employment, as well as job listing.

National Center on Employment of the Deaf (NCED)
National Technical Institute for the Deaf
Rochester Institute of Technology (RIT)
One Lomb Memorial Drive
Rochester, NY 14623
(716) 475-6834
(716) 475-6205 (TDD)

NCED is designed to promote successful employment of RIT's deaf graduates and other qualified deaf people nationwide. The Center offers a range of services to employers, professionals serving deaf persons, and qualified deaf persons. Staff members meet with employers on compus and on site to assist in recruiting, hiring, accommodating and promoting qualified deaf people. In-depth employer training programs are also offered.

National Council on Independent Living (NCIL)
310 South Peoria Street
Suite 201
Chicago, IL 60607

Non-profit organizations designed to help disabled persons live as indendently as possible.

National Organization on Disability (NOD)
910 16th NW
Suite 600
Washington, DC 20006
(202) 293-5960 (Voice)
(202) 293-5968 (TDD)

The National Organization on Disability operates an information clearinghouse, directing people to resources that can answer their specific questions.

President's Committee on Employment of People with Disabilities
1331 F Street, NW
Suite 300
Washington, DC 20004-1107
(202) 376-6200 (Voice)
(202) 376-6205 (TDD)
(202) 376-6219 (fax)

Provides information, referral, and technical assistance to employers as well as employees with disabilities and other interested int he employment of persons with disabilities, including information on tax incentives for business, and rights and responsibilities of employers and employees.

U.S. Department of Justice Civil Rights Division
Coordination & Review Section
P. O. Box 66118
Washington, DC 20035-6118
(202) 514-0301

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Rehabilitation Technology Services Providers

Name	Address	Phone/Fax	Rehabilitation Technology Services

Technology-Related Assistance Projects

This Tech Reference Guide provides information on Technology Related Assistance projects, hereafter referred to as Tech Act Projects. The following states have been awarded Technology Related Assistance grants. Funded by the National Institute on Disability and Rehabilitation Research (NIDRR) through P. L. 100-407, Title I, the purpose of the projects is to develop and implement a consumer-responsive, comprehensive statewide program of technology-related assistance for individuals with disabilities.

Assistive Technologies of Alaska
Division of Vocational Rehabilitation
400 D Street, Suite 230
Anchorage, AK 99501
800-770-0138
907-274-0138, voice
907-274-0517, TDD
907-274-0516, FAX

Arkansas Increasing Capabilities Access Network (ICAN)
Department of Human Services
2201 Brookwood, Suite 117
Little Rock, AR 72202
800-828-2799 (AR)
501-666-8868, voice/TDD
501-666-5319, FAX

Colorado Assistive Technology Project
Rocky Mountain Resource & Training Institute
6355 Ward Road, Suite 310
Arvada, CO 80004
800-444-5669
303-420-2942
303-420-8675, FAX

Connecticut Bureau of Rehabilitation Services
10 Griffin Road North
Windsor, CT 06095
203-298-2014

Delaware Assistive Technology Initiative
Applied Science and Engineering Laboratories
University of Delaware/A. I. DuPont Institute
1600 Rockland Road
Wilmington, DE 19899
302-651-6834, voice/TDD
302-651-6895, FAX

Florida Department of Labor & Employment
Division of Vocational Rehabilitation
Bureau of Client Services
Rehabilitation Engineering Technology
1709-A Mahan Drive
Tallahassee, FL 32399-0696
904-488-6210

Georgia Assistive Technology Program
Department of Human Resources
Division of Rehabilitation Services
878 Peachtree Street, NE, Room 702
Atlanta, GA 30309
404-894-7593
404-853-9059, FAX

Hawaii Assistive Technology System (HATS)
Department of Human Services
677 Ala Moana Blvd., Suite 403
Honolulu, HI 96813
808-532-7110
808-599-5443, FAX

Idaho Assistive Technology Project University of Idaho
Idaho Center on Developmental Disabilities
Prof. Building, 129 W. Third Street
Moscow Latah, ID 83843
208-885-6849

Illinois Technology-Related Assistance Project
411 E. Adams Street
Springfield, IL 62701
800-852-5110 (IL)
217-522-7985, voice/TDD
217-522-8067, FAX

Indiana ATTAIN Project (Accessing Technology Through Awareness in Indiana)
Department of Human Services
Technology Assistance Unit
P. O. Box 7083
Indianapolis, IN 46207-7083
800-545-7763
317-233-3394
317-232-1240, FAX

Iowa Program for Assistive Technology (IPAT)
IA University Affiliated Program
University Hospital School
Iowa City, IA 52242
800-348-7193 (IA)
319-353-6386, voice/TDD
319-356-8284, FAX

Kentucky Assistive Technology Service (KATS) Network
Coordinating Center
427 Versailles Road
Frankfort, KY 40601
800-327-KATS (KY)
502-564-4665
502-564-3976, FAX

Louisiana Assistive Technology Project
State Planning Council on Developmental Disabilities
Department of Health & Hospitals
P. O. Box 3455 - BIN 14
Baton Rouge, LA 70821-3455
504-342-6804
504-342-4419, FAX

Maine Consumer Information and Technology Training Exchange (CITE)
Assistive Technology Coordinating Center
University of Maine at Augusta
University Heights
Augusta, ME 04330
207-621-3195, voice/TDD
207-621-3193, FAX

Maryland Technology Assistance Program (TAP)
Governor's Office for Handicapped Individuals
300 W. Lexington Street
1 Market Center, Box 10
Baltimore, MD 21201
410-333-4975
410-333-6674, FAX

Massachusetts Assistive Technology Partnership (MATP) Center
Children's Hospital, Gardner 529
300 Longwood Avenue
Boston, MA 02115
617-735-7820, voice
617-735-7301, TDD
617-735-6345, FAX

Michigan Department of Education Rehabilitation Services
P. O. Box 30010
Lansing, MI 48909
517-373-4058
517-373-0565, FAX

Minnesota STAR Program
Governor's Advisory Council on Technology for People with Disabilities
300 Centennial Building
685 Cedar Street
St. Paul, MN 55155
612-297-1554
612-297-3698, FAX

Mississippi Project START
Division of Rehabilitation Services
P. O. Box 1698
Jackson, MS 39215
601-354-6891
601-354-6678, FAX

Missouri Assistive Technology Project
UMKC, School of Education
5100 Rockhill Road
Kansas City, MO 64110
816-235-5337
816-235-5270, FAX

MonTech
Rural Institute on Disabilities
The University of Montana
52 Corbin Hall
Missoula, MT 59812
800-732-0323
406-243-4597, voice/TDD
406-243-2349, FAX

Nebraska Assistive Technology Project
Department of Education
301 Centennial South
P. O. Box 94987
Lincoln, NE 68509-4987
402-471-0735, voice/TDD
402-471-2701, FAX

Nevada Assistive Technology Project
Rehabilitation Division, PRPD
505 East King Street, Room 501
Carson City, NV 89710
702-687-4452, voice/TDD
702-687-5980, FAX

New Hampshire Technology Partnership Project
Institute on Disability
#14, Ten Ferry Street
The Concord Center
Concord, NH 03301
603-224-0630
603-228-3270, FAX

New Jersey Department of Labor Office of the Commissioner
Raymond L. Bramucci, Commissioner
Labor Building, CN 110
Trenton, NJ 08625
609-292-3604

New Mexico Technology-Related Assistance Program (MMTAP)
Department of Education
435 St. Michael Drive, Bldg. D
Santa Fe, NM 87503
800-866-ABLE (national voice/TDD)
505-827-3533, voice/TDD
505-827-3746, FAX

New York State TRAID Project
Office of Advocate for the Disabled
One Empire State Plaza, 10th Floor
Albany, NY 12223-0001
800-522-4369 (NYS)
518-474-2825, voice/TDD
518-473-6005, FAX

North Carolina Assistive Technology Project
Department of Human Resources
Division of Vocational Rehabilitation
1110 Navaho Drive, Suite 101
Raleigh, NC 27609
919-850-2787, voice/TDD
919-850-2792, FAX

Ohio Rehab Services Commission
Division of Public Affairs
400 E. Campus View Boulevard
Columbus, OH 43235-4604
614-438-1474

Oklahoma Department of Human Services
Rehabilitation Services Division
DJS. RS # 24
P. O. Box 25352
Oklahoma City, OK 73125
405-424-4311

Oregon Technology Access Through Life Needs (TALN) Project
Department of Human Resources
Vocational Rehabilitation Division
2045 Silverton Road, NE
Salem, OR 97310
503-378-3830, Ext. 386
503-378-2756, FAX

Pennsylvania's Initiative on Assistive Technology (PIAT)
Institute on Disabilities/UAP
Temple University
13th Street & Cecil B. Moore Avenue
Ritter Hall Annex 433
Philadelphia, PA 19122
215-787-3861

South Carolina Assistive Technology Program
Vocational Rehabilitation Department
P. O. Box 15
1410-C Boston Avenue
West Columbia, SC 29171-0015
803-822-5404, voice/TDD
803-822-4301, FAX

DakotaLink
South Dakota Department of Human Services
Division of Rehabilitation Services
Kneip Building, 700 Governors Drive
Pierre, SD 57501
605-773-3195

Tennessee Technology Access Project (TTAP)
Department of Mental Health & Mental Retardation
Doctor's Building, Suite 300
706 Church Street
Nashville, TN 37243-0675
615-741-7441
615-741-0770, FAX

Texas Assistive Technology Partnership Project
The University of Texas at Austin
UAP of Texas, Department of Special Education
EDB 306
Austin, TX 78712
512-471-7621

Utah Assistive Technology Program
Utah State University
Developmental Center for Handicapped Persons
UMC 6855
Logan, UT 84322-6800
801-750-1982
801-750-2044

Vermont Assistive Technology Project
Department of Aging and Disabilities
Agency of Human Services
103 South Main Street, Weeks Building, First Floor
Waterbury, VT 05671-2350
802-241-2620, voice/TDD
802-241-3052, FAX

Virginia Assistive Technology System (VATS)
Department of Rehabilitative Services
Office of Planning
4901 Fitzhugh Avenue
P. O. Box 11045
Richmond, VA 23230
800-552-5019
804-367-2445/voice
804-367-2445/TDD
804-367-2440, FAX

West Virginia Assistive Technology System
Division of Rehabilitation Services
Capital Complex
Charleston, WV 25305-0890
304-766-4698

Wisconsin Assistive Technology Program (WisTech)
Division of Vocational Rehabilitation
P. O. Box 7852
1 W. Wilson Street, Room 950
Madison, WI 53707
608-267-6720, voice
608-267-9599, TDD
608-267-3657, FAX

Public Law 100-407, Title II, includes a contract with RESNA, an interdisciplinary association for the advancement of rehabilitation and assistive technologies, to provide technical assistance to granted states of Public Law 100-407, Title I as described above. The technical assistance provided includes aiding granted states and others in reaching a better understanding of consumer responsiveness, systems change and funding for assistive technology. In order to obtain these goals, the RESNA Technical Assistance Project holds training sessions, produces information products, publishes newsletter articles and holds teleconference sessions. The RESNA TA Project can be contacted at the address below.

RESNA TA Project
1700 N. Moore Street, Suite 1540
Arlington, VA 22209-1903
703-524-6686
703-524-6630 (FAX)

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Rehabilitation Engineering Research Centers

This Tech Reference Information Guide highlights selected resources related to Rehabilitation Engineering Research Centers. The National Institute on Disability and Rehabilitation Research (NIDRR) supports approximately 15 rehabilitation engineering research centers covering a wide spectrum of technology applications for persons with disabilities. These centers are excellent resources for current information on research and development in rehabilitation engineering and the entire field of assistive technology. (The centers, formerly known as RECs, are now called RERCs in accordance with the Rehabilitation Act of 1973, as amended in 1992.)

Adaptive Computers and Information Systems

Gregg Vanderheiden, Ph.D.
The University of Wisconsin
750 University Ave.
Madison, WI 53706
(608) 262-6966
(608) 262-8848 (fax)

Focus: Research will focus on assisting people with disabilities in activities of daily living; enhancing capacities for production and access to information to help the disabled perform competitive work in the high-technology future; and increasing the availability of affordable adaptations to commercial electronic information services.

Assistive Technology and Environmental Intervention for Older Persons with Disabilities

William Mann, Ph.D.
State University of New York
at Buffalo
515 Kimball Tower
Buffalo, NY 14214
(716) 829-3141
(716) 829-3217 (fax)

Focus: Current research projects involve: assessing the abilities and needs of older people with disabilities and their caregivers; environmental design; and developing and evaluating assistive technology devices for retaining or regaining functions. The center also has three dissemination and utilization projects: assistive device training for older people and their caregivers; professional education for physicians, nurses, therapists, counselors, product developers and researchers; and reporting and technical assistance for consumers, service providers and researchers in the field.

Augmentative and Alternative Communication Devices

Richard Foulds, Ph.D.,
Patrick Demasco, M.S.
The University of Delaware/
A.I. duPont Institute
P.O. Box 269
Wilmington, DE 19899
(302) 651-6830
(302) 651-6895 (fax)

Focus: This center will develop communication technology and facilitate the transfer of these devices into commercial production. Projects include: language facilitation through graphics and graphical animation; the application of natural language processing to AAC; a prototype speech prosthesis for filtering dysarthric speech; automatic diphone extraction for individualized synthetic voices; and AAC systems based on personal computers.

Employability for Persons with Low Back Pain

Malcolm Pope, Dr. Med. Sc., Ph.D.
The University of Vermont
One S. Prospect St.
Burlington, VT 05401
(802) 656-4582
(802) 660-9243 (fax)

Focus: Among the center's intended outcomes are to: develop and test assistive devices that will help people with low back pain remain on the job, create occupation-specific adaptations to allow people to return to their old jobs, and establish occupation-specific preventive measures to avoid low back pain. The center will also test the effectiveness of rehab engineering intervention for early return to work by employees with back injuries.

Hearing Enhancement and Assistive Devices

Harry Levitt, Ph.D.
The Lexington Center Inc.
30th Ave. and 75th St.
Jackson Heights, NY 11370
(718) 899-8800
(718) 899-9846 (fax)

Focus: Research projects include development of: a prototype device for early detection of hearing loss in infants; cost-effective, improved hearing aids and fitting systems; new types of hearing aids for people with severe to profound hearing loss; job-site modifications for employees with hearing

loss; improved hearing aid devices and prescriptive systems for older adults with hearing loss; devices to assist employers in meeting ADA requirements; and technological innovations for people with both hearing loss and visual impairments.

Personal Licensed Transportation for Disabled Persons

John Thacker, Ph.D.
The University of Virginia
P.O. Box 1885
University Station
Charlottesville, VA 22903
(804) 924-6294
(804) 982-2037 (fax)

Focus: Ongoing projects include: establishing a lending library to identify and catalog vehicle safety, access and exit systems; assessing deficiencies in assistive technology for personal transportation; developing a methodology for checking device compliance with existing federal and state standards; and creating a methodology for evaluating equipment to be used when assessing individual needs for vehicle modification and adaptive equipment. The center is also devising methods to: evaluate vehicle access and exit systems for safety and effectiveness; assess wheelchair tie-downs and occupant restraint systems; and estimate the structural integrity of modified vans.

Prosthetics and Orthotics

Dudley Childress, Ph.D.
Northwestern University
345 E. Superior St.
Room 1441
Chicago, IL 60611
(312) 908-6502
(312) 908-6526 (fax)

Focus: Ten projects are planned in three areas: ambulation, mobility and measurement; interface mechanics (tissue stresses) during walking, CAD/CAM assistance with upper-limb prosthesis design and socket materials for upper limb amputees; and manipulation, design and fabrication of a high-level amputee upper-limb prosthesis.

Quantification of Physical Performance

Sheldon Simon, M.D.
The Ohio State University
N389 Doan Hall
410 W. 10th St.
Columbus, OH 43210
(614) 293-8710
(614) 293-3596 (fax)

Focus: Projects include: assessing ambulation motion parameters for evaluation and clinical decision-making; developing a new technique for foot pressure measurement and assessing risk of foot ulceration; establishing new diagnostic techniques for motion disorders; and developing and disseminating a system for cerebral palsy gait analysis for diagnosis and treatment. The center will also use virtual simulation to determine environmental accessibility and wheelchair user proficiency, create a more sensitive test for low back pain, and develop protocols for ergonometric evaluation of industrial jobs to comply with the Americans with Disabilities Act (ADA).

Rehabilitation Technology Services in Vocational Rehabilitation

Anthony Langton, M.S.
Center for Rehabilitation
Technology Services
South Carolina Vocational
Rehabilitation Department
1410-C Boston Ave.
West Columbia, SC 29170
(803) 822-5362
(803) 822-4301 (fax)

Focus: Studies are focusing on: a general profile of rehab technology services; client assessment and evaluation practices; job responsibilities of rehab engineers; links between VR and other agencies in providing technology services; job success and tenure for employees using assistive technology aids and devices in the workplace; the efficacy of current approaches to the delivery of rehab technology services: a model "Tech Points" strategy to integrate technology in the rehab process; and the consumer's role in the delivery of rehab technology services in the VR process.

Robotics to Enhance the Functioning of Individuals with Disabilities

Richard Foulds, Ph.D.,
William Harwin, Ph.D.
The University of Delaware/
A.I. duPont Institute
P.O. Box 269
Wilmington, DE 19899
(302) 651-6830
(302) 651-6895 (fax)

Focus: Among the center's plans are increasing knowledge of the efficacy of rehabilitation robots, develop innovative solutions to improve manipulation and mobility, and establish criteria for the interface and control of a powered upper extremity orthosis. The center will also focus on assistive robotics in a vocational setting; develop and market of robot-aided science education environment for students with severe disabilities; investigate the use of a mobile robot in independent living; and adapt a wheelchair-mounted robot to a general environment.

Technological Aids for Blindness and Low Vision

Arthur Jampolsky, M.D.,
John Brabyn, Ph.D.
Smith-Kettlewell Eye Research
Institute
2232 Webster St.
San Francisco, CA 94155
(415) 561-1619
(415) 561-1610 (fax)

Focus: Projects include: clinical field trial of a photo refractive vision screener for early detection of visual impairment in infants; design of a low-cost, ten-message voice recorder for non-vocal people; a new nystagmus tester for early detection of disrupted binocular vision; a study on alternate occlusion as an early rehabilitative technique; the study of a reader for the universal product code; a design to improve computer graphics and braille text access; and improvements to consumer products for universal design.

Technology Evaluation and Transfer

Joseph Lane, M.B.P.A.,
William Mann, Ph.D.
State University of New York
at Buffalo
515 Kimball Tower
Buffalo, NY 14214
(716) 829-3141
(716) 829-3217 (fax)

Focus: Focus is on direct technology evaluation and transfer of new devices, with 5-10 devices expected to be commercialized each year. The overall plan stresses development of an ongoing business primarily operated by disabled consumers. Proposed activities include a multiphased evaluation, need survey and market research. Interdisciplinary team research is planned involving university engineering with technology application trials by participating consumer groups, including a research and development group.

Technology for Children with Orthopedic Disabilities

Mark Hoffer, M.D.,
Donald McNeal, Ph.D.
Ranchos Los Amigos Medical
Center
12841 Dahlia St., Building 306
Los Amigos Station
P.O. Box 3500
Downey, CA 90242
(310) 940-7994
(310) 803-6117 (fax)

Focus: Projects include a biomechanical study to improve grip in children's terminal devices; a lightweight, cosmetic, articulating ankle-foot orthosis; orthotic management of congenitally dislocated hips; advance contracture reduction orthosis; assistive technology usage outcome; and cognitive predictors of successful powered wheelchair control with the very young child. The center is also involved in determining the appropriateness of integrated control of assistive devices; mainstreaming children with assistive technology into general education; developing a consumer's guide to funding assistive technology; and creating resource materials for assistive technology laboratories.

Technology to Improve Wheelchair Mobility

Douglas Hobson, Ph.D.,
Clifford Brubaker, Ph.D.
The University of Pittsburgh
107 Pennsylvania Hall
Pittsburgh, PA 15261
(412) 826-3138
(412) 826-3143 (fax)

Focus: Seventeen projects are proposed in wheeled mobility, seating and transportation. These include: developing more appropriate prescription practices; evaluating cushion technologies; examining the systematic measurement of changes in spinal deformity; focusing on the development of securement and transport of wheelchairs; and gathering information to develop standards.

Worksite Modifications and Accommodations

John Leslie, Jr., Ph.D.
Cerebral Palsy Research
Foundation of Kansas
2021 N. Old Manor
Box 8217-0217
Wichita, KS 67208
(316) 688-1888
(316) 688-5687 (fax)

Focus: The center will create a user-friendly PC computer system to guide full use of rehabilitation technology, and develop a participatory worksite accommodation process through assessment, design and evaluation that could provide a standard for undue hardship determination. Also planned is a multimedia workstation design for inspection and control tasks.

For further information, contact the resources listed, or the Center for Rehabilitation Technology Services. Information for this resource guide was taken from "The Next Wave of Rehab Technology", Guy Hammer, BSEE, Team Rehabilitation Report, September 1993.

The Center for Rehabilitation Technology Services (CRTS) is part of the South Carolina Vocational Rehabilitation Department. Support for this work has been provided through the National Institute on Disability and Rehabilitation Research (NIDRR), U.S. Department of Education, Washington D.C. as part of the rehabilitation engineering research center grant #H133E20002-93. Opinions expressed in this paper are those of the writers and should not be construed to represent opinions or policies of NIDRR.

▼ Training Information

Need for training

Do I Need Training? You bet! **TECH POINTS** is primarily a training strategy for vocational rehabilitation staff on effective ways to integrate technology. Effective use of rehabilitation technology resources and services require an agency-wide training initiative. Training is critical because most VR staff have had little or no real exposure to rehabilitation technology in their pre-service training. **TECH POINTS** is only one aspect of what is needed.

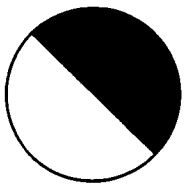
Agencies will need to implement training for all staff involved with rehabilitation technology. This would include rehabilitation counselors, vocational evaluators, supervisory and management personnel, quality assurance staff, rehabilitation technology specialists and others. Field staff should receive training on various applications of rehabilitation technology on a planned, ongoing basis.

The **TECH POINTS** Training Manual and **TECH POINTS** Guide are designed to be implemented with a minimum of one day of training. Although the manual is a self-study training resource, participation in the initial training is essential.

Some considerations for staff development and training should include

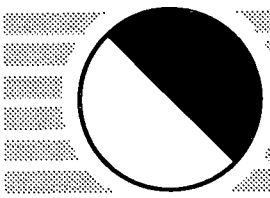
- closely linking any technology-related case service expectations with training activities,
- offering regional and statewide training on technology-related topics,
- incorporating technology training as a regular part of all new employee orientation,
- encouraging periodic in-service training sessions on technology concerns at the office level,
- and offering more in depth training for any counselors who are designated as "technology specialists".

Rehabilitation technology specialists in the VR agency or those under contract to provide technology services should be included in the training activities whenever possible.



Case Studies

SECTION 14



Case Studies SECTION 14

In this section

▼ Case Study of the TECH POINTS Process

Injured in an automobile accident in 1986 on her way home from work, GL was soon confronted with questions she had never considered and a confusing array of decisions and options. Facing this challenge was made easier thanks in part to intervention from her counselor with the VR Department and the availability of technology resources and services. As with most people who suddenly find themselves disabled, GL knew little about quadriplegia and even less about what we now refer to as assistive technology.

In many ways GL's situation is typical of people served by vocational rehabilitation agencies. Could she return to her previous job as an office manager? Could she live independently? These were questions without easy answers. When she was referred to VR less than three months following her accident, GL admittedly was fearful of assistive technology and uncertain about what she could do.

In her case, access to technology resources and services helped pave the way to retraining and a successful return to work.

Throughout her rehabilitation process, assistive technology was used as an important "tool" in regaining functional capacity, exploring new options and achieving independence. Decisions on what technology to consider were made jointly by GL and her vocational rehabilitation counselor. This use of technology occurred at most of the **TECH POINTS** that have been identified in the **TECH POINTS** model and illustrates the importance of utilizing technology throughout the rehabilitation process.

Referral/Applicant (1)

- identifies rehabilitation technology needs
- assists in accurately estimating vocational potential

Referral (TECH POINT 1)

Since GL had been involved with therapists at her rehabilitation hospital, prescriptions for wheelchairs (power and manual) were already in process at the time of referral. The private insurance company had agreed to limited funding on a power chair, and, unfortunately, a compromise had been made because of funding. This would later result in compatibility problems with positioning and tie-downs for vehicle adaptations.

When additional factors such as transportation were considered, the power chair purchased by the insurance company did not meet GL's needs. To a VR counselor working within budget constraints, a "technology team" approach could save additional expenditures.

Although GL had lived independently prior to the accident, the need for attendant care and accessibility issues dictated that she return to live with her family. It became immediately apparent that their mobile home would need adaptations.

Evaluation/Assessment (2)

- identifies reasonable accommodations which could be needed in vocational evaluation
- describes what rehabilitation technology assessments could provide

Extended Evaluation (TECH POINT 2)

The plan for extended evaluation was written to assist with home modifications. A visit was made to her living site by the VR counselor and an occupational therapist from the hospital to determine needed home accommodations. Changes necessary included ramping, providing access to the bedroom and bathroom, bathroom equipment, grooming aids and adaptive devices for use in the kitchen. Further equipment needs for increasing her independence were identified that included both "low tech and high tech" solutions. An electric hospital bed with adapted switch controls and a number of ADL items such as button hooks, reachers, dressing aids and other items were identified.

Her family was very resourceful in making most of the "low tech" modifications such as controls for the stove. Funding was coordinated from several sources including insurance, VR, family and friends.

Evaluation for driving and identification of vehicle adaptations necessary were also completed at this stage. Vehicle considerations were provided through a VR specialist in van conversion. It was found that the power wheelchair that had been purchased by her insurance company presented problems when adaptive controls for the van was being considered. At this point GL stated, "I was not ready to deal with adaptive driving," and, therefore, elected to have only a wheelchair lift installed.

Eventually GL adapted her van for driving and obtained her license, but not until after she became employed. VR assisted her in adaptive driving equipment so she could use her van independently.

Plan Development/IWRP - (TECH POINT 3)

Planning (3)

- shows how to include technology resources and services into IWRPs

After modification to GL's van and home, GL was ready to enter the plan development phase. GL decided to return to her previous employer to help determine her ability to work and if she could tolerate a full day. Her employer was more than willing to accommodate. GL, therefore, worked briefly in telemarketing. Counseling, guidance and other goals were identified to assist GL. A head-set was the only job modification needed for the telemarketing position. GL and her VR counselor discussed that this work experience would help her identify if additional training would be needed to help her reach vocational independence.

Counseling Guidance - Training/Physical Restoration Services (TECH POINT 4)

Services (4)

- explores need for rehabilitaiton technology support for planned services such as physical restoration and training

GL briefly worked in the telemarketing position. She needed to determine how difficult work would be from a powered chair. She also realized that additional training would be needed to upgrade employment if she was to become self-supporting. It was after this brief experience that GL felt she was ready for additional vocational evaluation. This evaluation included the rehabilitation engineer with the VR department.

A decision to enter a computer training program was made. For this she moved into the training center's dormitory in August 1987. Assistance with hand splints from an occupational therapist and

minor keyboard modifications from the rehabilitation engineer took care of immediate technology needs.

Follow-up during training indicated a need for a seating consultation from the rehabilitation engineer. Adaptations for independent living activities in her dormitory were addressed. GL also was interested in adaptive clothing, and was provided information and contacts on who could answer these important questions.

Placement (4)

- addresses work site accommodation needs
- includes rehabilitation technology resources in job-development

Placement (TECH POINT 5)

A position was identified with a community bank as a computer programmer. GL applied for and obtained the job in July 1989. GL consulted with her VR counselor and the rehabilitation engineer as soon as an offer of employment was extended. A survey was completed of her working environment and the issues of access for entering a secure work area, workstation accommodation and bathroom modification were addressed. With consultation and recommendations from the VR counselor and rehabilitation engineer, the bank was willing to make the needed recommendations.

In July 1990, GL had her van modified. She was now able to drive independently.

Closure Outcomes (6)

- monitors any exit point from VR services
- documents consideration and use of rehabilitation technology
- could be used to monitor Order of Selection decisions

Closure (TECH POINT 6)

Close follow-up to ensure GL was meeting job expectations and "essential functions" of the job was provided by her VR counselor. At the time of closure GL and her employer were extremely satisfied with her performance.

Post-Employment (7)

- reviews need for rehabilitation technology to maintain employment

Post Employment (TECH POINT 7)

After working for about eight months, GL began asking questions about apartment adaptations. She mainly wanted to be sure that in looking for independent living she was asking the right questions.

She also asked about the appropriateness of her present typing splints as they had broken. The rehabilitation engineer was consulted, and it was decided that GL have extra splints made by an occupational therapist. These would serve as back-up should a splint break. The VR counselor and GL did not feel post-employment services were needed for this purpose.

GL's case history is typical of VR procedures for people who need assistive technology. GL stated that "a person with a disability is dependent on their counselor for information on what technology could do to help with independence and being able to go back to work." She added that without her counselor knowing technology resources, she might not have been able to have it all work out as well.

▼ Examples of Simple Accommodations

The following accommodations are extracted from "The Americans with Disabilities Act: Making The ADA Work for You" – Milt Wright & Associates, Inc. and Jackson, Lewis, Schnitzler & Krupman – Copyright 1990. As they are reviewed, it should be noted that they were actual job accommodations; however, they are accommodations which could be considered for any **TECH POINT**.

A plant worker who was hearing impaired was able to use a telephone amplifier designed to work in conjunction with hearing aids, allowing him to retain his job and not be transferred to a lower-paying job within the company. *Cost: $85*

A clerk with limited use of her hands was provided with a "Lazy Susan" file folder for her desk. This prevented her from having to reach across her desk and allowed her to remain in her job as before. *Cost: $85*

An individual with the use of only one hand needed to be able to use a camera as part of his job. A tripod had proven to be too cumbersome. By providing a waist pod (such as is used in carrying flags), he was able to manipulate the camera and keep his job. *Cost: $50*

A seamstress diagnosed as having carpal tunnel syndrome due to repetitive wrist motion purchased a pair of spring-loaded, ergonomically designed scissors. *Cost: $19.95*

A desk layout was changed from the right to the left side for a visually impaired data entry operator. *Cost: $0*

An individual with an eye disorder where glare on the computer screen caused increased fatigue was accommodated by the purchase of an anti-glare screen to minimize the glare. *Cost: $39*

A receptionist who was blind was provided a light-probe which allowed her to determine which lines on the telephone were ringing, on hold, or in use. *Cost: $45*

A light was installed at the door of a company to alert the security guard of an approaching employee who used a wheelchair and needed assistance with the high-security door. *Cost: $0*

A headset for a phone was rented that allowed an insurance salesperson with cerebral palsy to write while talking. *Cost $49.95*

A one-handed individual working in a food service position was able to perform all of the tasks in her position except opening cans. A one-handed can opener enabled her to perform that one remaining task. *Cost: $35*

A groundskeeper who had recovered from a stroke had limited use of one arm and needed to be able to rake grass to maintain his position. The use of a detachable extension arm on the rake allowed him to grasp the handle on the extension with the affected hand and control the rake with his functional arm. *Cost: $19.80*

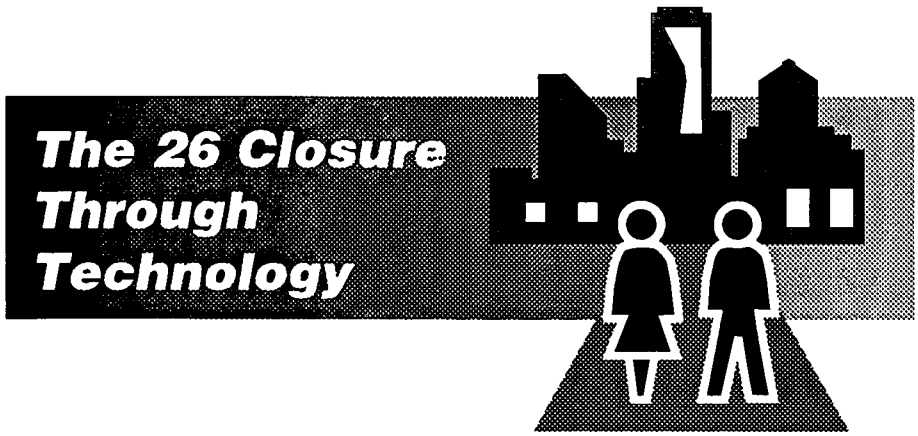
A timer with an indicator light allowed a medical technician who was deaf the capability of performing the laboratory tests required of her. *Cost: $26.95*

A person who used a wheelchair could not use the furniture in the office provided for her because the desk height was too low for the wheelchair to fit into it. Raising the desk with wood blocks allowed the proper amount of space for the wheelchair to fit in, thus saving the expense of purchasing a special desk. *Cost: $0*

An individual with dyslexia working as a police officer had trouble filling out forms at the end of the day. Providing him with a tape recorder and allowing a secretary to type out his reports allowed him to continue his job. *Cost: $30 - $69*

▼ Series of Successful Closures Through Use of Technology

The following case study examples of technology interventions and their role in successfully placing individuals on jobs were taken from the VoRTECHS newsletter. VoRTECHS is published quarterly by the Center for Rehabilitation Technology Services.



Modifications for Working in the Library

Greg McGrew, Rehabilitation Engineer, SC Vocational Rehabilitation Department

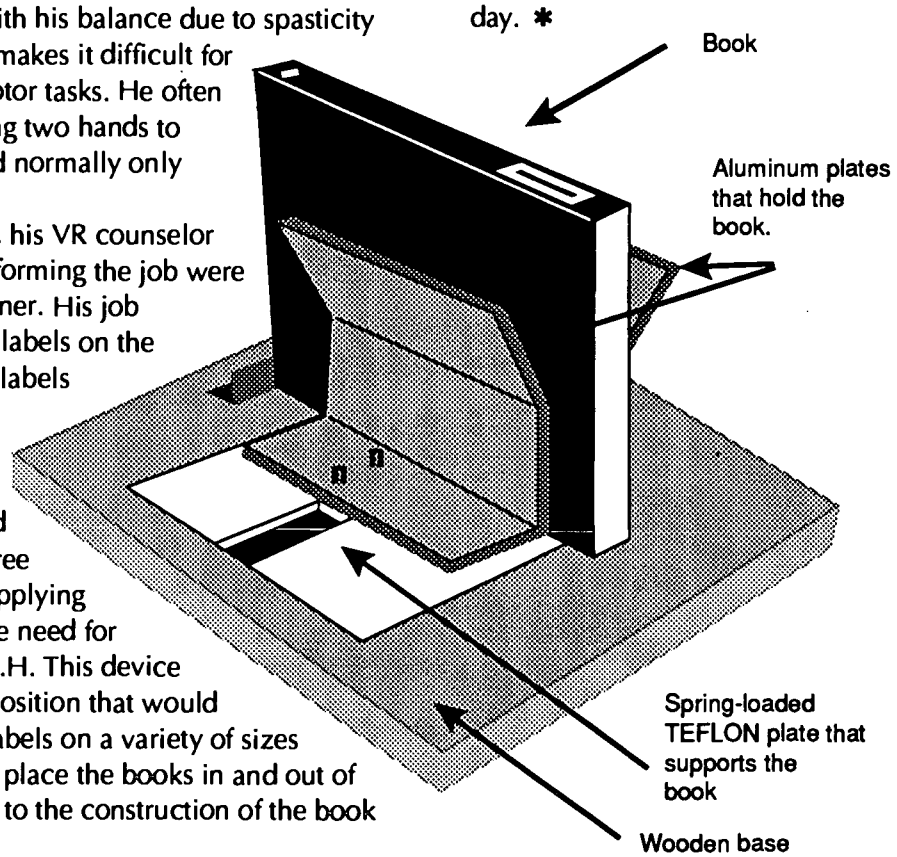
J.H. is a 36 year old who has moderate-to-severe cerebral palsy. He currently works as a librarian assistant at a small college thanks to the help of a custom assistive device. This device allows him to perform his work in an accurate and proficient manner.

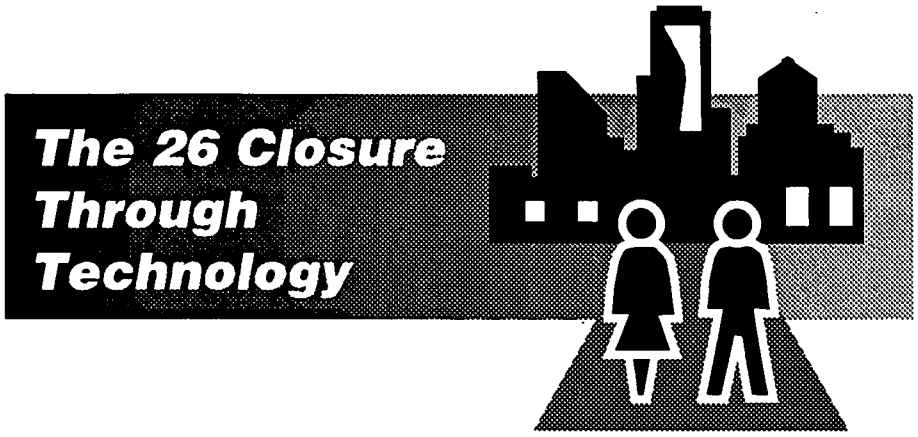
J.H. is able to walk but has difficulty with his balance due to spasticity and spinal curvature. Reflex activity also makes it difficult for him to use his hands and arms for fine motor tasks. He often must compensate for this problem by using two hands to stabilize tools and work pieces that would normally only require one hand to use.

When J.H. started his job in the library, his VR counselor found that the set of tasks involved in performing the job were too difficult for him to do in a timely manner. His job included taking new books and installing labels on the spines. It was very difficult for J.H. to get labels on straight without wrinkles and bubbles under the tape. An evaluation by the rehabilitation engineer revealed that the demands of this task meant that J.H. could perform the job only if both hands were free to manipulate the tape and labels when applying them to the book spine. This suggested the need for some simple device to hold the book for J.H. This device would have to hold the book in a stable position that would allow him to accurately install the book labels on a variety of sizes of books. It would also have to be easy to place the books in and out of the book holder. These design criteria led to the construction of the book holder shown in the picture.

This device uses a spring-loaded plate to support the book in a stable, spine-up position. This device allows J.H. to use both hands when applying labels. The book holder is made of aluminum plates which "sandwich" pieces of TEFLON, allowing them to slide freely. This, in conjunction with the angled design of the holding plates, allows J.H. to easily slide in books of a wide variety of thicknesses, using one hand. J.H. was also supplied with a Dycem-coated work surface which helped keep work items from sliding when laid flat.

J.H. has worked with the library for over a year now. He continues to use the custom designed book holder to perform his job every day. *





The Counselor and Client: Achieving Together

Lillian Ackley and Robert Kennedy
Pennsylvania Blindness and Visual Services

After retiring from a 24-year career as an executive secretary at a local medical center, Lillian Ackley was enjoying life very much. She worked two part-time jobs which she loved, one as a feature writer for the county's largest daily newspaper, and the other as an employee of an economic development agency. All of that changed when she lost her vision during treatment for a pituitary tumor. The following is Lillian's account of her journey back into the world of work.

Two years ago I was plunged into the world of the blind during two operations to remove a pituitary tumor. The social worker at the medical center referred me to Pennsylvania Blindness and Visual Services (BVS). My counselor, Robert Kennedy, explored my thoughts about my future. Since I was 65 years old, it would seem that retirement would be a satisfactory plan. However, I was not ready for that, so Mr. Kennedy worked out a plan more to my liking. BVS sent me to the Greater Pittsburgh Guild for the Blind. There I was enrolled in the Personal Adjustment program which included training in touch-typing and computer skills using adaptive equipment.

Upon completion of the basic Guild program, I was accepted for their Access Technology Center which provided intensive, more advanced training in computer use. It was recommended that I have an IBM-compatible computer with a modem and telecommunication system, Vert Plus speech software with a DECtalk synthesizer, and a closed circuit television for minimal reading and bookkeeping tasks. All items of equipment recommended for me by the Guild were provided by BVS, through contributions from local and regional Lions Clubs.

I was offered a position as administrative assistant with the Rural Development Administration (RDA). The equipment provided by BVS was adequate to meet the needs of the new position. However, there were some problems with the speech software. BVS arranged for Brenda Loughrey, my instructor at the Access Technology Center, to come in for a worksite assessment. She installed a new speech system furnished by the original supplier and she provided additional training for my new position.

Since beginning my job we have found a need for a scanner (optical character reader) which was provided by the Federal Government, a recording device to work with the government's digital telephone system, and a two channel headset.

The use of technology in helping the disabled to a level playing field in the real world of employment

must be a continuing process. Mr. Kennedy has worked with the RDA Information Resource Manager and the engineers to provide additional support.

The Counselor's Comments

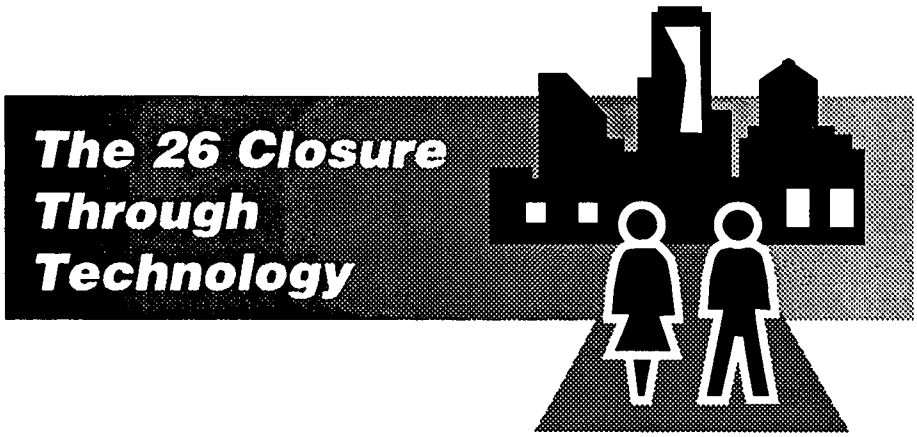
The case of Lillian Ackley demonstrated persistence in pursuit of a vocational goal and in resolving the inevitable frustrations that occur in finding the right mix of technology and technique to achieve practical results.

This unconventional lady brought to the process a valuable network of contacts, a strong work history and ethic, computer experience before losing her sight, and extraordinary motivation to return to work at her age. This counselor's role was often that of "getting out of her way."

Options and alternatives available through the Vocational Rehabilitation process were discussed, and she readily chose those services needed to meet her goals. She had the advantage of hands-on demonstration of various types of equipment and training at a residential center. Local service clubs contributed financially in the form of "comparable benefits" for adaptive equipment. She also had the good fortune of a supportive, understanding employer who appreciated the skills and expertise she brought to the organization. Simply put, she is able to help meet the employer's needs.

For this counselor, Lillian's case reinforced the need for ongoing problem-solving when working with technology. Also important is defining the problem objectively, preferably in writing, so that all parties can reach a consensus on what needs to be done–where we want to go. This makes "how" we go about it more focused. In this case, a combination of high technology and low technology solutions seems to have worked.

Her achievements are an inspiration — the human spirit dealing with loss/adversity. ✱



Adapted Cooking Utensils in a Resturant Setting

Glenn Hedman, Rehabilitation Engineer, University of Illinois at Chicago.

Keith is an individual who is mentally retarded and works at a community agency in a workshop setting. In an effort to transition Keith to competitive employment, his vocational evaluator placed him in a local fast food restaurant. Initially his duties included clean-up of the storage area. Later they were increased to assist in cooking hamburgers at the grill and relish station. The owner agreed to a trial period at the grill but was reluctant as Keith had shown some anxiety regarding the heat generated by the grill.

The vocational evaluator requested a worksite modification evaluation from the Assistive Technology Unit at the University of Illinois at Chicago's UAP. The evaluation resulted in identifying three problems: the position of the client's hand relative to the hot grill surface during the cooking of burgers and bacon, the amount of seasoning applied to burgers while cooking and the stability of the client's hand while scraping the grill surface after each batch of burgers and bacon had been cooked.

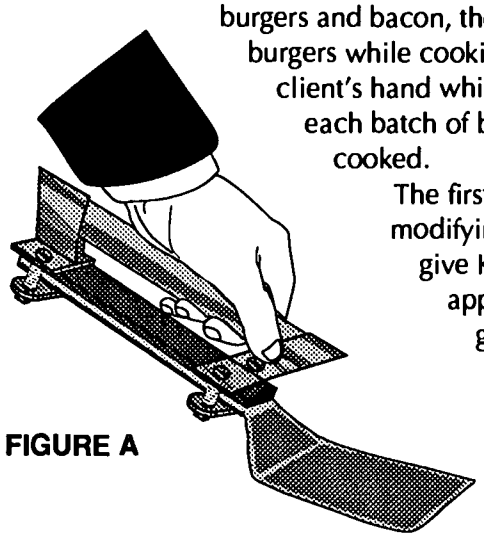


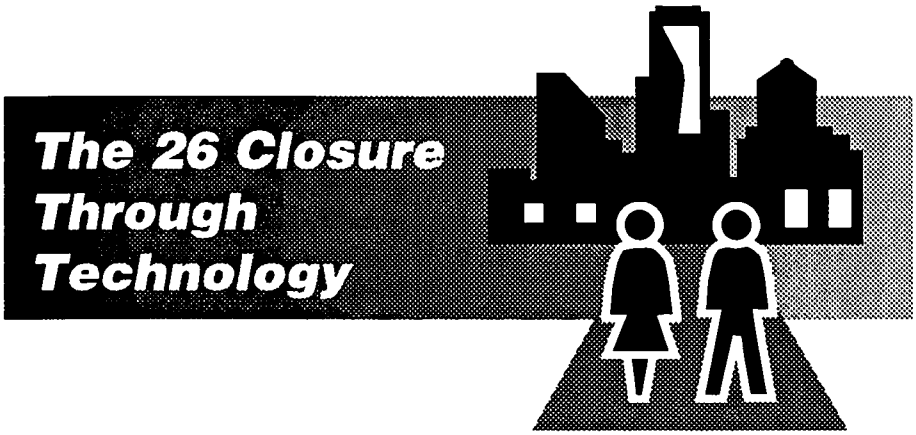
FIGURE A

The first problem was solved by modifying a stainless steel spatula to give Keith a surface to hold approximately 2" farther from the grill. Stainless steel tubing and end fittings usually used for handrail applications were used to modify the spatula. This adaptive handle was clamped to the spatula's wooden handle with stainless steel screws, nuts and washers, as shown in Figure A.

To regulate the amount of seasoning applied to the burgers, a seasoning shaker was adapted. A one-inch diameter disk was installed on the perforated cover of the shaker to block some of the holes and reduce the amount of seasoning coming out during each shake.

The single blade of the scraper did not provide much stability and an additional point of support for the utensil was needed. The only surface that would not damage the grill surface was that of another scraper blade. The handle of another scraper was shortened and was bolted underneath the original scraper. The scrapers were separated enough to provide proper angling of the blade with respect to the grill surface, thereby making it a more stable utensil for Keith to use.

With the owner confident of Keith's cooking abilities during his afternoon shift, he plans to increase his work hours to include a few evening shifts each week. ✱



Help Me Find A Way!

By Judith Hughes, CRC
South Carolina Vocational Rehabilitation Department

"Please help me, I want to style hair. I'm willing to stand on my head if that's the only way to do it!"

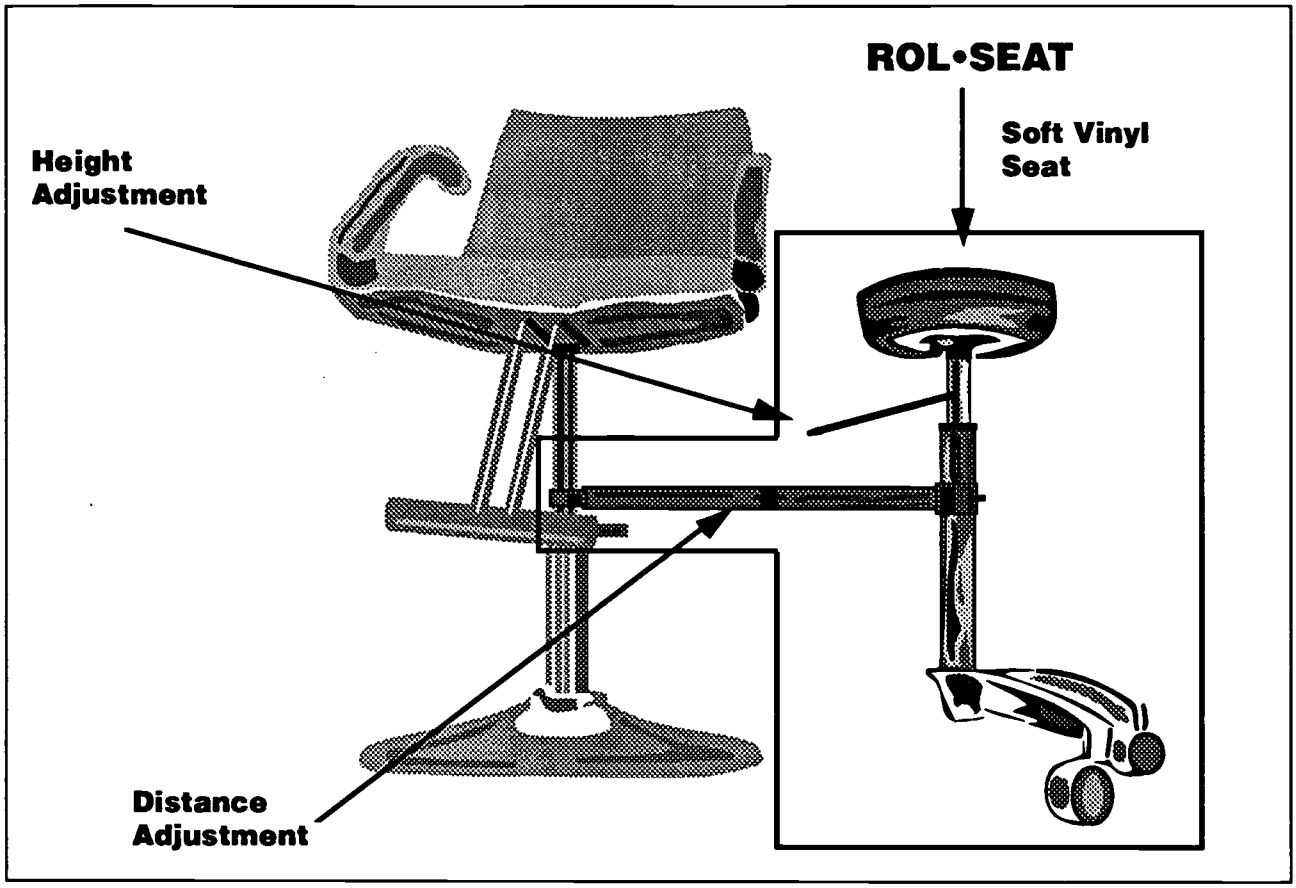
When a VR counselor hears a client make a statement this emphatic, even in a joking manner, you have to believe that this individual is serious about not considering other vocational choices. But what does a counselor do when the client's disability involves severe injuries to the feet and ankles caused by a fall?

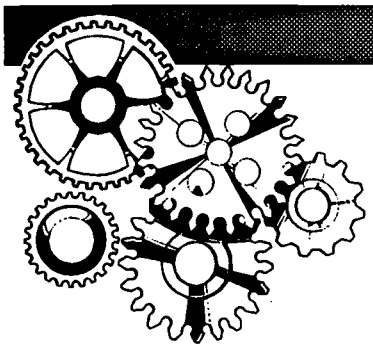
This client had received a vocational evaluation. Listed among her functional limitations was the inability to stand or walk for long periods of time. Her only work history involved working as a successful hair stylist. The vocational options considered were sales of cosmetic and beauty supplies, instructor in a beauty school, manicurist, etc. However, this individual needed at least a GED to consider many of these options. She tried for a short period to make efforts toward these goals but found her interest and concentration hard to channel.

This client was concerned about long term goals as she was a single parent of two small children. She had therapy and several surgical procedures during the first year after her injury and had become overwhelmed with the idea of these long term goals.

Without promises that her goal of returning to hair styling would work, the client and counselor decided to discuss her dilemma with the rehabilitation engineer to see if there might be a way that a hair stylist could sit and still reach her customer. Research into various beauty supply products resulted in finding "a new, unique product designed to extend your career!" This product was called a ROL•SEAT. The stool-type seat on rollers allows the user to move easily and freely around the customer while resting on the stool. The ROL•SEAT attaches to the shaft of the salon chair so that the hair stylist is close to the customer while moving around to all sides. A perfect solution for this client!

Other modifications were made for this individual as it was necessary to try to minimize any strain on her ankles. For instance, a power hydraulic base was purchased for her salon chair to eliminate the pumping action she had to do with her ankles. Other minor modifications included a rubber mat to decrease the impact of standing and walking on a concrete floor and a cart with wheels to keep her supplies close to her. This client still must pace herself in the work setting, but she is doing exactly what she wanted to do. In the future she plans to complete her GED and to pursue other vocational options. *


ROL•SEAT
Soft Vinyl Seat
Height Adjustment
Distance Adjustment



TECHNICALLY SPEAKING

Gerald Weisman, M.S.
Vermont Rehabilitation Engineering Center

Manual Material Handling: Accommodating Workers for Pushing Tasks

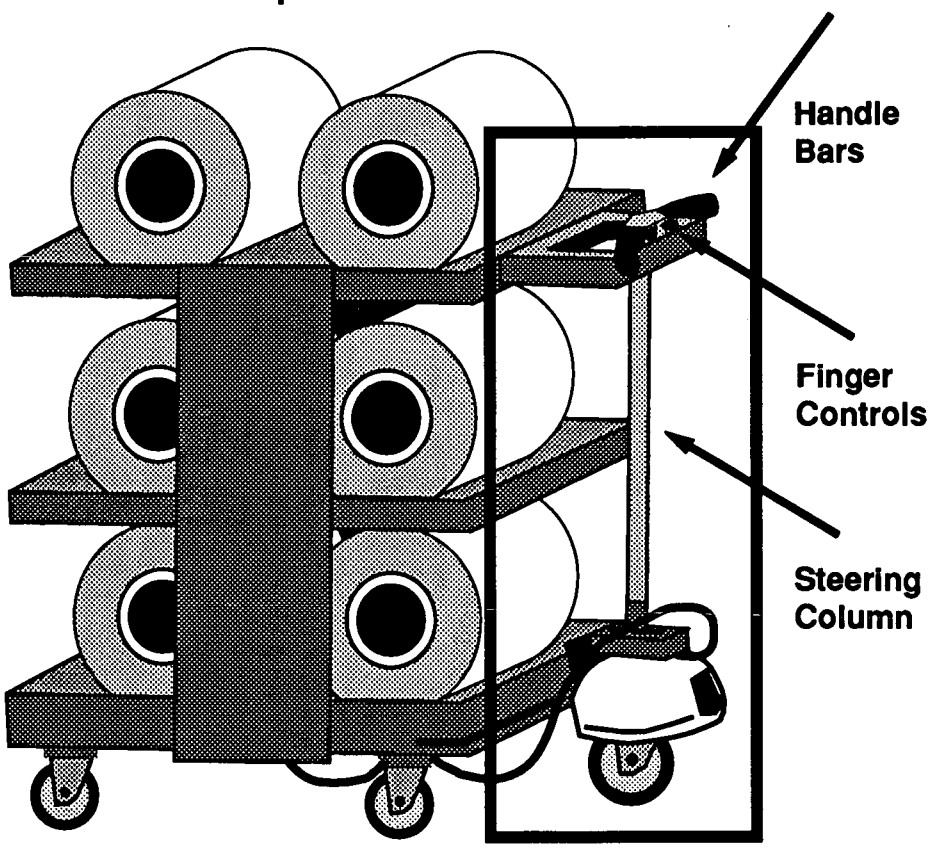
People with back pain often require workplace accommodations for performing material handling tasks. Material handling may include lifting, carrying, pulling and pushing. Appropriate accommodations can often help prevent back injuries on the job.

Adding a powered unit to a manually-operated cart can greatly reduce or eliminate the amount of pushing force required. People with functional limitations that prevent them from applying sufficient pushing force can then perform many material-handling tasks. This kind of modification can also help minimize risk of back injury among other workers.

A tape reel cart was modified with a simple power unit consisting of the front wheel drive and steering column from an Amigo wheelchair. Two bushings were fabricated and mounted to the back of the cart with welded angle iron brackets. The steering column was supported and free to rotate in the bushings as shown in the figure below. A battery, mounted to the lowest shelf of the cart, supplies power; finger controls mounted on the handlebars control the motor, and the handlebars are used for steering.

These modified carts are extremely useful when powered carts are unavailable or inappropriate and when material up to 500 pounds has to be moved on level surfaces or on ramps for long distances. *

Modified Tape Reel Cart



▼ Other Case Study Information

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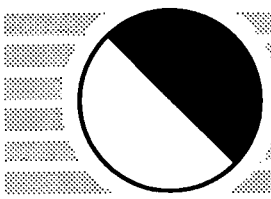

TECH POINT Reference Guide

SECTION 15

TECH POINTS GUIDE

Center for Rehabilitation Technology Services

SC Vocational Rehabilitation Department

Desk Reference Manual for

TECH POINTS

Integrating Rehabilitation Technology into Vocational Rehabilitation Services

TECH POINTS GUIDE

Desk Reference Manual for Integrating Rehabilitation Technology into Vocational Rehabilitation Services

Developed by the

Center for Rehabilitation Technology Services

South Carolina Vocational Rehabilitation Department

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Design and Graphics

Version 1.1

(Field Test Edition)

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The **TECH POINTS Guide** and the **TECH POINTS Training Manual** are being field tested in selected VR agencies since Spring 1994. Field testing is being conducted as part of a NIDRR grant to determine the effectiveness of the **TECH POINTS** model as an approach to integrating the consideration of rehabilitation technology services into the vocational rehabilitation process. Findings of the research will be available in Spring 1997.

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Permission to utilize the **TECH POINTS Guide** or other **TECH POINTS** materials should be obtained from the Center for Rehabilitation Technology Services.

Funding for this project has been provided by the National Institute on Disability and Rehabilitation Research (NIDRR), U.S. Dept of Education Grant # H 133E20002-94. Opinions expressed in the **TECH POINTS** Guide and **TECH POINTS** Training Manual are those of the authors and should not be construed to represent opinions or policies of NIDRR or the South Carolina Vocational Rehabilitation Department. 9/95

Introduction

TECH POINTS is a rehabilitation technology management and training strategy developed for vocational rehabilitation (VR) agencies. **TECH POINTS** provides vocational rehabilitation counselors and other staff with an easy to follow reference to help determine when and how to use rehabilitation technology with individual clients.

Integrating the consideration of rehabilitation technology throughout the vocational rehabilitation process is necessary in working with individuals with severe disabilities who have complex technology-related needs. **TECH POINTS** also enables counselors and other rehabilitation staff to effectively review possible technology needs for anyone, including those who may not be obvious candidates for assistive technology.

The ***TECH POINTS*** *approach will:*

- help you get started
- give ideas on how to regularly consider technology options
- suggest questions to ask
- organize how to approach technology use for VR clients
- help in determining when technology services may be needed
- help to ensure that expenditures for technology related devices are appropriate

As with all vocational rehabilitation services, the use of technology should be individually planned and matched with the needs and capabilities of the person. This requires a basic knowledge of rehabilitation technology resources and services, and a logical strategy to follow to make technology consideration an integral part of vocational rehabilitation services.

TECH POINTS

Utilizing a series of points at critical junctures in the rehabilitation process, **TECH POINTS** provides the rehabilitation counselor with a strategy to aid in determining if some type of technology should be considered. The seven **TECH POINTS** are part of a continuous process which looks at potential rehabilitation technology needs a prospective individual might have and then systematically follows that individual throughout their rehabilitation process. These *"points"* coincide with case service status tasks and activities that exist in some form in all VR agencies *(See page 2 for an illustration of where TECH POINTS are located in the VR process).*

TECH POINTS will help counselors to decide if technology-related solutions to challenges and problems would be appropriate. Technology interventions can be helpful in solving some of the problems and concerns which many individuals face. Rehabilitation technology, however, is only one tool or resource that a counselor may need to utilize. There are no easy solutions to many of the issues that individuals face in seeking meaningful employment opportunities. **TECH POINTS** will help by systematically considering the need for technology-related services by first looking at the individual, environments where the individual is likely to function, and then specific tasks and activities that would be required.

CH POINTS is designed to work with existing forms and case management procedures. This allows **TECH POINTS** to be incorporated into the regular case management process with minimal need for new forms or changes in procedures. The important concern is that technology-related resources and services be considered at each of the seven **TECH POINTS**. Agencies are encouraged to take the questions and checklists in **TECH POINTS** and add these directly onto existing forms and tracking procedures whenever possible. This will help ensure that there is adequate documentation of the consideration and utilization of technology resources and services.

The TECH POINTS where consideration of rehabilitation technology should occur include:

TECH POINT 1 **Referral/Application** (Status 02)

TECH POINT 2 **Extended Evaluation** (Status 06)

TECH POINT 3 **Plan Development** (Status 10, 12)

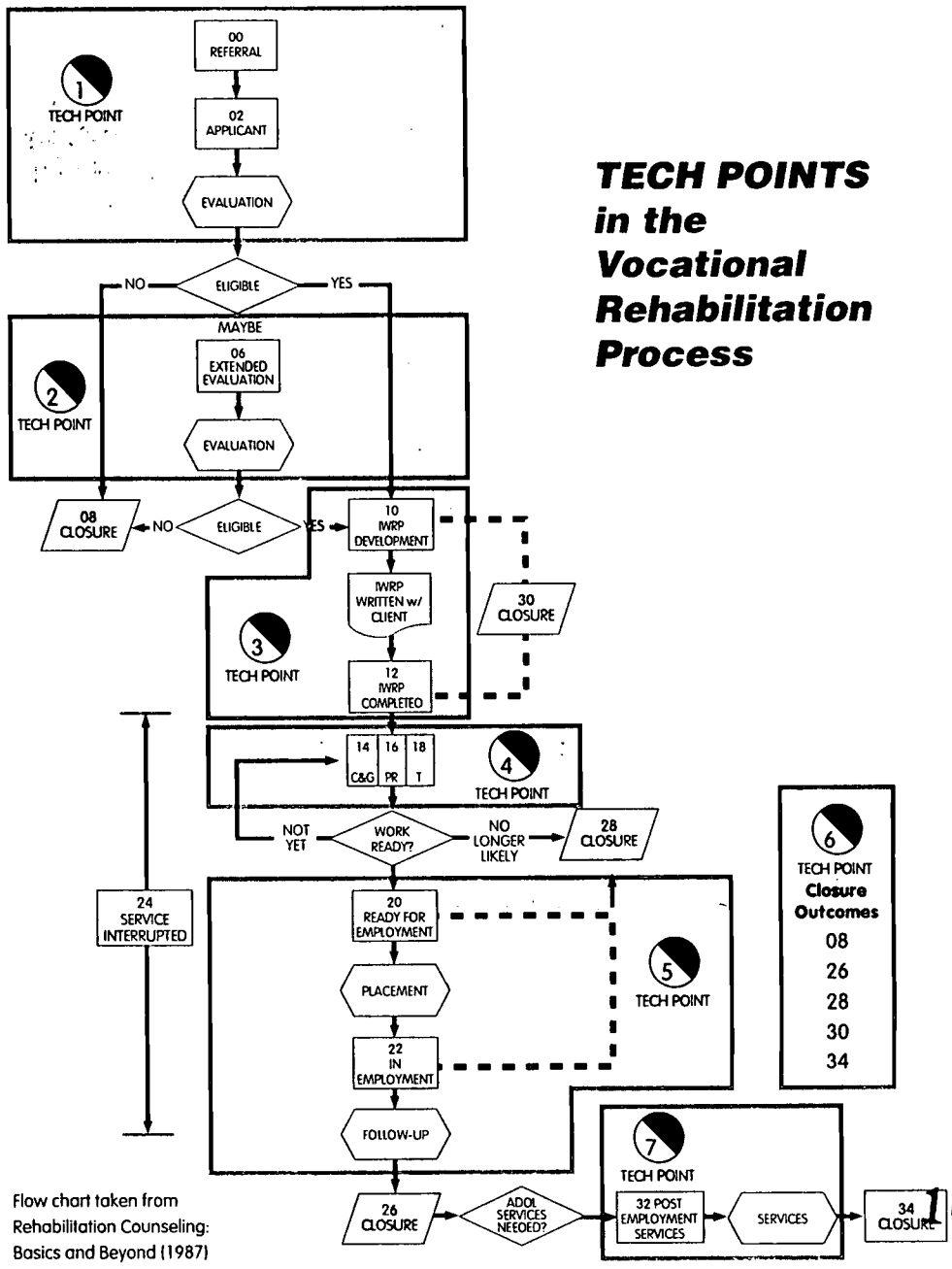
TECH POINT 4 **Services** (Status 14, 16, 18)

TECH POINT 5 **Placement/Follow-Up** (Status 20, 22)

TECH POINT 6 **Closure Points** (Status 08, 26, 28, 30, 34)

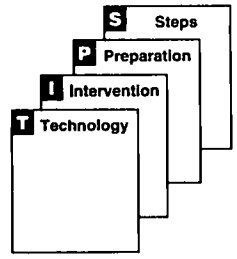
TECH POINT 7 **Post-Employment** (Status 32)

TECH POINTS in the Vocational Rehabilitation Process



Flow chart taken from Rehabilitation Counseling: Basics and Beyond (1987)

Technology Intervention Preparation Steps (TIPS)



At each **TECH POINT** questions and considerations are presented which assist the counselor in determining if technology services are actually needed. These *Technology Intervention Preparation Steps,* called **TIPS**, help to identify the challenges and concerns involved to effectively consider technology-related options.

The questions and suggestions for **TIPS** vary for each **TECH POINT,** but follow the same pattern. There is no right or wrong way to use **TIPS**. Consideration is given to all environments in which an individual would need to function *(see inside back cover for more information on the environments).*

These environments include:


Home


Community

Vocational Rehabilitation


School/ Training


Work

See page 20 for more information on TIPS and using rehabilitation technology as a counseling tool.

Considering Rehabilitation Technology

The vocational rehabilitation counselor is the key staff person to determine if rehabilitation technology services could be appropriate for an individual who is receiving VR services. The counselor is most likely to become aware of the challenges that a client may face in seeking or maintaining employment or performing important independent living tasks. Through the use of **TECH POINTS**, the counselor can be more confident that appropriate decisions are made regarding use of technology services or purchase of technology-related equipment.

Rehabilitation technology consists of these main components:

- Rehabilitation technology services,
- Assistive technology aids and devices, and
- Rehabilitation Engineering.

Rehabilitation Technology Services

When rehabilitation technology services seem appropriate, the counselor's responsibility is to involve the appropriate rehabilitation technology specialist(s). Coordination and active involvement with technology issues are key roles for the counselor in effectively using technology resources and services.

REHABILITATION TECHNOLOGY SERVICES

- ❑ technology consultation
- ❑ rehabilitation technology evaluation/assessment
- ❑ assistive device recommendation/prescription
- ❑ assistive technology equipment procurement
- ❑ device fitting/adjustment
- ❑ device custom design
- ❑ device fabrication/adaptation
- ❑ device training for consumers caregivers
- ❑ device maintenance/repair
- ❑ follow-up
- ❑ equipment loan
- ❑ product demonstration
- ❑ funding assistance
- ❑ education and training

At each **TECH POINT**, suggestions on using these services for *"technology interventions"* are provided. Recalling what proved to be effective with previous clients and discussing cases with other counselors will be helpful. If it is not certain what specific technology services are needed, a technology consultation is recommended. **Note:** The term *"assistive technology services"* is also commonly used in reference to rehabilitation technology services.

Assistive Technology Aids and Devices

A major component of rehabilitation technology is the equipment **- aids and devices-** that is often used to assist individuals in performing tasks.

These could include:

- commercially available products that can be used off-the-shelf, or
- devices which need to be modified or customized to meet the individual client's unique needs.

The scope of aids and devices available is extensive. Knowing a little about what is available should provide VR field staff with the awareness level needed to explore options and consider appropriate alternatives.

CATEGORIES OF ASSISTIVE TECHNOLOGY DEVICES

- ❑ aids for daily living
- ❑ architectural accommodations
- ❑ cognitive/memory aids
- ❑ communication aids
- ❑ computer access
- ❑ controls/switches
- ❑ mobility/ambulation
- ❑ orthotics/prosthetics
- ❑ recreation
- ❑ seating/positioning
- ❑ sensory aids
- ❑ therapeutic/health maintenance aids
- ❑ vocational/training aids

Rehabilitation Engineering

In certain situations it may be necessary to custom design a piece of equipment or make modifications to the environment or worksite where the services of a rehabilitation engineer will be required. The counselor will frequently work closely with the engineer in determining the scope and nature of the accommodation.

Working With Rehabilitation Technology Specialists

Rehabilitation technology services are usually provided by rehabilitation technology specialists who have specific training and expertise. An important function of the VR counselor is knowing when it is appropriate to arrange for a rehabilitation technology specialist to assist on a case. Involving a technology specialist at the appropriate time should save time, money, and improve service delivery.

The following are some of the specialists that may be needed to complete various types of technology interventions. Often it will be necessary to use several specialists, forming a *"technology team"*, to adequately address the needs of an individual.

- rehabilitation engineer
- assistive technology specialist
- rehabilitation technologist
- occupational therapist
- physical therapist
- speech/language pathologist
- fabrication technician
- rehabilitation technology supplier/DME

The rehabilitation counselor will often be expected to select the appropriate technology specialist to meet specific client needs.

Cost Considerations

Who is going to pay for assistive technology equipment or modifications is an important concern for counselors. The anticipated cost of rehabilitation technology resources or services should not be the first consideration when looking at the possibility of a technology intervention. Before deciding that something is too expensive or not within agency guidelines consultation with a technology specialist may be needed. Technology decisions should be determined on a case-by-case basis.

Some funding options to consider:

- Is it appropriate for VR to purchase?
- Would the client consider purchasing?
- Are there supplemental funds available?
- Other funding options?
- Will the employer cover expenses for the equipment or modification?

How to Use the TECH POINTS Guide

The *TECH POINTS Guide* provides a quick reference for rehabilitation counselors to help integrate rehabilitation technology use into the VR process. The *Guide* summarizes some of the information which is covered in the more comprehensive *TECH POINTS Training Manual.* Counselors and other staff who use **TECH POINTS** should refer to the *TECH POINTS Training Manual* for additional information.

TECH POINTS suggests ways that a counselor could explore technology-related needs with individual clients. The major purpose of **TECH POINTS** is to help make technology considerations a regular part of what any counselor would look at as they work with individuals. Just as there are different counseling strategies and approaches which effectively work with some individuals, **TECH POINTS** is a structure that can be adapted.

Information is provided suggesting what counselors should consider at each **TECH POINT**.

This includes:

What to Accomplish

Suggests the primary purpose or objectives to complete at each **TECH POINT**

TECHNOLOGY INTERVENTION PREPARATION STEPS

Show a series of questions which relate to technology considerations for each **TECH POINT.** These offer a starting point to look at technology needs and then offer further suggestions of key concerns and questions to review with individuals to develop a plan for technology-related needs.

☑ *Action needed:*	☑ *Action recommended:*

Summarizes specific action that should be completed for any individual and then suggests additional technology-related activities for those persons with more extensive technology needs

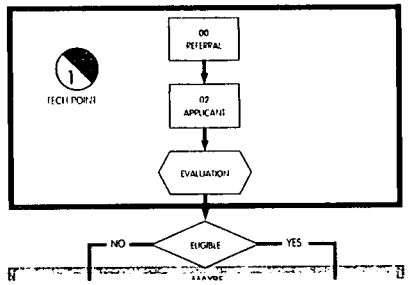
The *TECH POINTS Guide* and the *TECH POINTS Training Manual* are designed to be part of an ongoing training program for VR staff on ways to integrate the use of rehabilitation technology into the VR process. Training in the use of **TECH POINTS** was not designed to go into very much detail with any specific type or area of technology use. Additional training will be needed to exposure VR counselors and other staff to more information so they can make informed choices on how to best use technology resources with their clients.

TECH POINT 1 — Referral/Application

What to accomplish:

Consider need for rehabilitation technology resources and services for all applicants. Decisions on vocational potential should include how technology resources/services could improve or enhance performance.

Phase in the Rehabilitation Process



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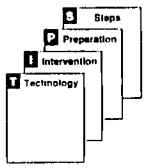


Environments

VR

T TECHNOLOGY

(Technology Concerns Identified)

- ❒ Are there any reasonable accommodations indicated for the VR application process?
- ❒ Does the applicant have concerns about performing any "major life activity"?
- ❒ Is the applicant presently using technology to perform "major life activities"?
- ❒ Is the main reason for VR application technology-related?
- ❒ Is the reason for VR application related to performing "essential functions" of a job?
- ❒ Would technology enhance, create or eliminate the threat of job loss or affect health for this applicant?
- ❒ Would consideration of technology create an opportunity for this applicant that would otherwise not be considered?
- ❒ Does the applicant understand the relationship between technology services and employment?
- ❒ Does the applicant have a positive and realistic outlook concerning technology?

I INTERVENTION

(Individualize Technology Concerns)

- ❒ Separate each concern the applicant has mentioned. Where and when does the concern for each task occur? At home, outside the home such as school or work?
- ❒ Will more than one environment be affected when this concern is addressed?
- ❒ Other than assistive devices, what assistance does the applicant have in performing tasks?
- ❒ Does the applicant have or know of financial resources that can be used to address technology concerns?
- ❒ Does the applicant appear to have a workable knowledge of rehabilitation technology?
- ❒ What has the applicant tried in the past that did or did not work in attempting to solve this concern?
- ❒ Does the applicant appear comfortable with considering the use of alternate ways of accomplishing tasks?
- ❒ Are counselor concerns noted regarding the use of technology that the applicant may not see?
- ❒ Have all facts been obtained and information reviewed?

P PREPARATION

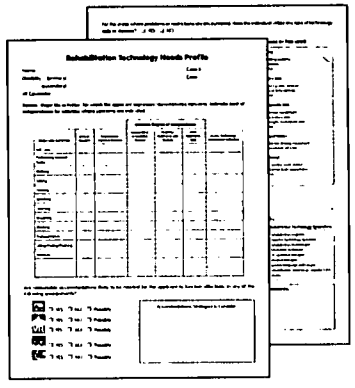
(Prioritize Technology Concerns)

- ❒ Is there a primary area of concern?
- ❒ If there is more than one concern, should any be addressed together? (For example, seating and positioning in a wheelchair might effect use of a computer switch; devices and equipment prescribed for mobility might affect equipment needs for adaptive driving, etc.)
- ❒ In what order should the concerns be addressed?
- ❒ Are there deadlines that must be considered in addressing concerns?
- ❒ What agency guidelines must be addressed in considering this/these concern(s)? Has applicant been advised of these guidelines?
- ❒ Who is needed in addition to the counselor and the applicant to help solve this/these concern(s)?
- ❒ What additional information might be indicated before addressing this/these concern(s)?

S STEPS

(Steps for Addressing Technology Concerns)

- ❒ What immediate technology concerns will be addressed now?
- ❒ What technology specialist(s) is/are needed to assist in assessment of technology concern(s)?
- ❒ Who is responsible for contacting the specialist(s)?
- ❒ Are time frames set to follow-up on steps that are indicated?
- ❒ Has the applicant been advised of a time to check on progress toward a solution?
- ❒ Has the applicant been involved to the fullest extent possible?
- ❒ Have alternatives been considered?
- ❒ Is financial assistance needed to address any technology concerns?



Reasons to develop a rehabilitation technology needs profile

- starting point to consider technology options
- gathers information needed for eligibility decisions
- helps ensure that appropriate resources are considered
- functional part of case management
- quickly reviews technology needs

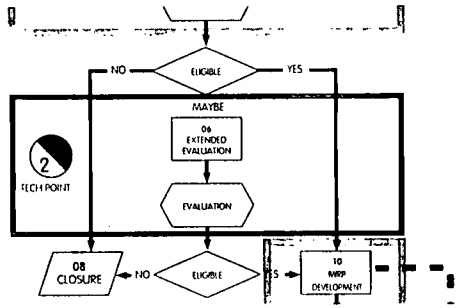
☑ *Action needed:*	☑ *Action recommended:*
❑ Complete Rehabilitation Technology Needs Profile	❑ If technology use is likely, discuss case with the appropriate rehabilitation technology specialist
❑ Provide necessary accommodations for applicant to enter VR system	❑ If vocational evaluation services are scheduled, request that the evaluator use technology resources as specified

TECH POINT 2 Extended Evaluation

What to accomplish:

A comprehensive assessment of the client's vocational potential should include consideration of technology resources/services. If need for rehabilitation technology services was identified at TECH POINT 1, entry into Extended Evaluation may be necessary.

Phase in the Rehabilitation Process



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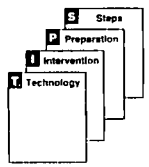


Environments

VR

T TECHNOLOGY

(Technology Concerns Identified)

- ❒ Does a person with this type of disability generally need accommodations to complete a vocational evaluation?
- ❒ Is transportation a barrier? If so, is there a temporary solution to allow completion of vocational evaluation?
- ❒ Would providing technology offer the opportunity to explore vocational goals that would not be considered otherwise?

I INTERVENTION

(Individualize Technology Concerns)

- ❒ What technology concerns, if any, need to be discussed with the vocational evaluator? Do these concerns need to be discussed prior to evaluation?
- ❒ Is equipment presently being used by the client adequate to complete vocational evaluation?
- ❒ Is a technology assessment needed to help determine equipment needs and modifications prior to vocational evaluation (e.g., keyboard access, communication devices, seating issues, etc.)?
- ❒ Can equipment be borrowed or rented before a purchase is made?
- ❒ If any technology is recommended, what impact will it have on the home, community, training or work environments?

P PREPARATION

(Prioritize Technology Concerns)

- ❒ Is there a primary area of concern?
- ❒ If there is more than one concern, should any be addressed together? (For example, seating and positioning in a wheelchair might effect use of a computer switch; devices and equipment prescribed for mobility might affect equipment needs for adaptive driving, etc.)
- ❒ In what order should the concerns be addressed?
- ❒ Are there deadlines that must be considered in addressing concerns?
- ❒ What is the impact of these priorities in terms of people, health, money and agency guidelines?
- ❒ Are VR services dependent on this need being met and is this concern essential for employability?

S STEPS

(Steps for Addressing Technology Concerns)

- ❒ Who will fund the technology?
- ❒ Who will do what in addressing concern(s)?
- ❒ What is the time frame for addressing concern(s)?
- ❒ Has the client been involved? Does he/she understand his/her responsibilities?

When preparing a referral for comprehensive assessment services, such as vocational evaluations, determine if . . .

- this individual can be evaluated with standard assessment procedures
- alternate formats or other accommodations are needed
- the vocational evaluation program has assistive aids and devices available for clients to try

If the assessment does not seem capable of providing appropriate technology-related support, then consideration of other options may be necessary.

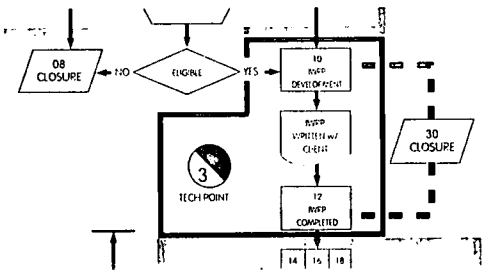
☑ *Action needed:*	☑ *Action recommended:*
❑ If vocational evaluation is utilized, inform vocational evaluation staff of any anticipated accommodations or technology-related needs	❑ Schedule pre-evaluation staffing with vocational evaluator to discuss technology-related needs
❑ When completing periodic reviews, check with client regarding status of technology needs	❑ If technology needs are identified, arrange for a rehabilitation technology specialist to be involved in evaluation

3 TECH POINT 3 Plan Development

What to accomplish:

Technology resources and services should be included in determination of vocational goals and objectives and all aspects of the IWRP planning process. If comprehensive assessment is included within Plan Development (Status 10), consideration of rehabilitation technology should be included.

Phase in the Rehabilitation Process



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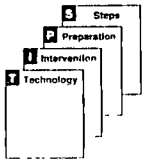

Environments

VR

TECHNOLOGY

(Technology Concerns Identified)

- ❒ What challenges does the disability create in working toward the vocational objective?
- ❒ Review technology which the client currently uses to determine if it can be used in achieving the vocational goal.
- ❒ Would technology potentially assist the client in overcoming these challenges?
- ❒ Does the client have any concerns about the use of technology in working toward the vocational goal?

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INTERVENTION

(Individualize Technology Concerns)

- ❒ Have needs changed in transportation, housing, equipment, or communication? If so, have new technology needs been created in home, community, vocational rehabilitation, school/training, or work environments?
- ❒ Is rehabilitation technology necessary for the achievement of the vocational objective?
- ❒ Have technology needs been appropriately documented to justify written goals on the IWRP?
- ❒ Does the client understand how the technology goals relate to the vocational goal?

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P PREPARATION

(Prioritize Technology Concerns)

- ❒ In what order will technology concerns identified in this status be addressed?
- ❒ Other than the client and the counselor, who else should be involved in setting priorities?
- ❒ How much time will be needed to carry out each technology goal?
- ❒ Will the goal of employment be delayed if technology concerns are addressed later in the process?
- ❒ How will the time needed to achieve technology goals affect the implementation of services (including accommodation for job applications and interviews) or achievement of the vocationol goal?
- ❒ Does client need time to adjust to the technology or accommodation?

S STEPS

(Steps for Addressing Technology Concerns)

- ❒ What steps are needed to achieve the technology goals?
- ❒ Who should be involved in providing the technology services and what form should their involvement take?
- ❒ Is there a plan for completing each step?
- ❒ Who will fund the purchase of the technology?
- ❒ Has the client been involved? Does he/she understand his/her responsibilities?

Before determining vocational goals and objectives remember to consider possible impact of rehabilitation technology. If rehabilitation technology is being considered . . .

- how involved has the client been in the selection of aids or devices?
- does the client demonstrate any functional limitations which would be reduced or eliminated through use of assistive aids/devices?
- would the use of rehabilitation technology services or assistive technology services improve/expand vocational goals?
- will the client be able to make smooth transition into planned services?

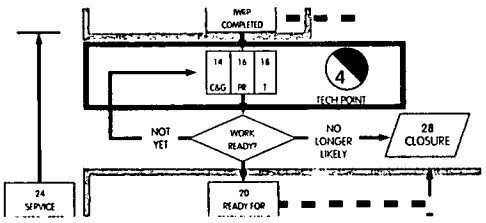
☑ *Action needed:*	☑ *Action recommended:*
❑ Write technology-related needs into the Plan ❑ When completing the IWRP with client, discuss any anticipated rehabilitation technology needs	❑ Consult with a technology specialist before finalized Plan to review technology-related recommendations ❑ If possible, refer client to other sources for technology-related needs that VR is unable to meet

TECH POINT 4 Services

What to accomplish:

Use technology-related resources/services to enhance performance capabilities and address any accommodation needs in any planned service activities.

Phase in the Rehabilitation Process



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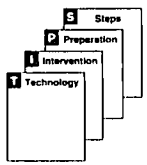

Environments

VR

T TECHNOLOGY

(Technology Concerns Identified)

- ❒ What previously unidentified challenges to receiving services does the disability potentially create?
- ❒ What technology could potentially assist in meeting these challenges?
- ❒ What is the client's comfort level with technology?

I INTERVENTION

(Individualize Technology Concerns)

- ❒ Does the client have any new concerns regarding equipment, modifications, etc., since the last review?
- ❒ Have there been changes in any environment (e.g., home, community, school/training or, work environments)?
- ❒ Does the technology being used have any unanticipated negative impacts in these environments?
- ❒ Do others involved with the client have any concerns about technology the client is using (e.g., instructors, family, attendants, etc.).
- ❒ Are assistive technology devices being maintained on a regular basis?

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P PREPARATION

(Prioritize Technology Concerns)

- ❒ In what order should technology concerns be addressed?
- ❒ If a new technology concern is not met or technology currently being used is not updated, will this cause a threat to the health of the client or the achievement of the vocational plan? If so, is immediate intervention needed?

S STEPS

(Steps for Addressing Technology Concerns)

- ❒ For each concern identified, what technology specialists must become involved and what form must this involvement take?
- ❒ What responsibility does the client have in addressing concerns? Does he/she understand his/her responsibilities?
- ❒ What is the time frame for addressing concern(s)?
- ❒ Who will fund the technology?

Remember that technology needs may change . . .

- As a person becomes more independent and active, equipment and assistive technology that was appropriate during earlier VR stages may no longer be adequate.
- A counselor should help a client learn to monitor changing needs and to be ready to consult with a technology specialist when indicated.
- The environments remain important. A client's living arrangement may change several times during training and each situation may present a different problem. Training sites may have needs that are constantly shifting because of the nature of the training.

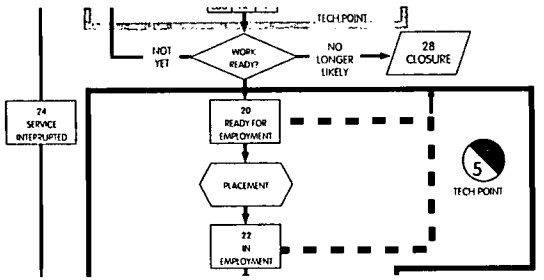
☑ *Action needed:*	☑ *Action recommended:*
❑ Implement technology-related services (if any) identified in IWRP	❑ For clients in training programs, contact instructors to discuss technology-related needs for training
❑ Gather information from various service providers (ie., therapist, instructors, etc.) regarding technology-related needs	❑ If necessary, arrange for a rehabilitation technology specialist to be available to offer technology-related assistance to school/training site
❑ Periodically check on performance to identify possible technology need changes	

TECH POINT 5 Placement/Follow-up

What to accomplish:

Use technology-related resources/services to enable a worker with a disability to perform essential job functions at their employment site or improve the ability to obtain, maintain, or advance in employment

Phase in the Rehabilitation Process



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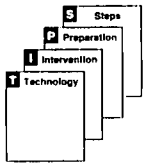

Environments

VR

T TECHNOLOGY

(Technology Concerns Identified)

- ❒ What challenges to searching for and obtaining work does the disability create for this client?
- ❒ Would technology potentially assist this client in overcoming these challenges?
- ❒ Does the client have concerns about the use or potential need for technology in finding or maintaining a job?

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I INTERVENTION

(Individualize Technology Concerns)

- ❒ Is the technology currently used by this client adequate to meet application, job placement and job maintenance needs?
- ❒ Will any reasonable accommodation be needed for the application process (e.g., interpreter accessibility, writing aids, transportation, etc.)?
- ❒ With the present vocational objective, what needs can be predicted to perform the "essential functions" of the job?
- ❒ Will the present living arrangements change when placement is achieved? How? Will this create new technology needs?
- ❒ What is unique about this placement (e.g., restrooms, workstation and equipment needs)? Does this work situation create any new technology or accommodation needs?
- ❒ If the technology need is not met, will this delay the placement of this client in employment?

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P PREPARATION

(Prioritize Technology Concerns)

- ❒ In what order should the technology needs identified for this status be addressed?
- ❒ Are there any deadlines?
- ❒ Other than the client and the counselor, who else should be involved in setting priorities?
- ❒ What is the impact of these priorities on job application, job placement or job maintenance?

S STEPS

(Steps for Addressing Technology Concerns)

- ❒ What technology specialists should be involved and what form should this involvement take?
- ❒ Can potential employer and/or client solve the technology concern?
- ❒ What steps are needed to address the technology concerns?
- ❒ Is there a plan for completing each step?
- ❒ Who will fund the technology?
- ❒ Has the client been involved? Does he/she understand his/her responsibilities?
- ❒ Has the employer been involved? Does he/she understand his/her responsibilities?

Have you considered . . .

- Next time you schedule an appointment with an employer to identify potential jobs, to bring a rehabilitation technology specialist along to offer suggestions on possible accommodations?
- Doing a video tape job analysis and then sending that to a rehabilitation technology-specialist to estimate how a job or task could be accommodated?
- Asking a rehabilitation technology specialist to review essential job functions?

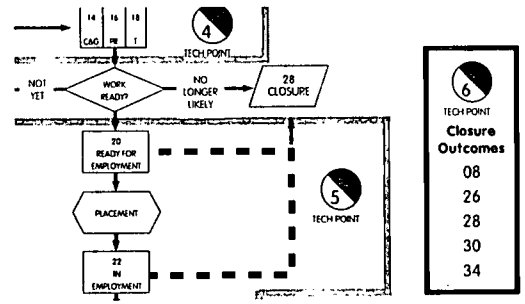
☑ *Action needed:*	☑ *Action recommended:*
❑ If necessary, arrange for technology-related services to provide reasonable accommodations needed for clients to perform essential job functions	❑ Conduct a job analysis with rehabilitation technology specialist if work site modifications are likely ❑ Use rehabilitation technology specialist in job development contacts with employers ❑ Offer technology-related technical assistance to employers on accessible work stations, universal design considerations, etc.

TECH POINT 6 Closure

What to accomplish:

Prior to closing any case, document what, if any, use was made of rehabilitation technology resources or services.

Phase in the Rehabilitation Process



(Status 08, 26, 28, 30, 34)

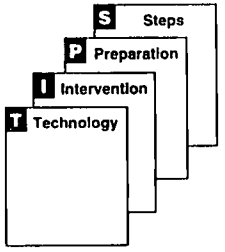
It is important that individuals who receive vocational rehabilitation services be given every opportunity possible to succeed. Rehabilitation technology services can be a key factor for many individuals. **TECH POINT 6** is an important time to review what impact technology services had on outcomes. Even if the outcome was unsuccessful, it is important to see if technology intervention at a different point would have made a difference.

Documenting Considerations and/or Use of Rehabilitation Technology

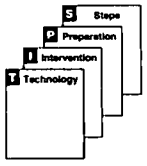
Closure of a VR case requires documentation of the services and assistance provided to each client. For successful closures, it is important to record those technology interventions that had an impact on successful employment. Careful review of technology intervention at closure can help a counselor learn what works best in dealing with technology issues.

It is important to also review all technology interventions for unsuccessful closures as well. Documentation helps collect information which can be used to determine if technology use had any impact on outcomes.

The following two sets of *Technology Intervention Preparation Steps* review what is needed to ensure that appropriate use was made of rehabilitation technology for both unsuccessful as well as successful closures. It is possible that specific status code numbers will vary in some VR programs. The important concern is that anytime someone exits VR services that a quick review be made to verify what role rehabilitation technology played.



For Successful Closures (26, 34)



Environments

T TECHNOLOGY
(Technology Concerns Identified)

- ❒ Review possible challenges this disability may create in maintaining successful employment.
- ❒ Would technology potentially assist the client in overcoming these challenges?
- ❒ Does the applicant have concerns about using technology in any environment?
- ❒ Does the employer have concerns about the client using technology on the job?

P PREPARATION
(Prioritize Technology Concerns)

- ❒ In what order should the technology needs identified for this status be addressed?
- ❒ Are there any deadlines?
- ❒ Can the concerns be resolved in a reasonable time frame?
- ❒ Is employment in jeopardy if not solved immediately?
- ❒ Is there a temporary solution that will work until a more permanent solution is found?
- ❒ Other than the employer, the client and the counselor, who else should be involved in setting priorities?
- ❒ What is the impact of setting these priorities in terms of people, health, money, agency guidelines or employment?

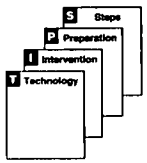
I INTERVENTION
(Individualize Technology Concerns)

- ❒ Is the client meeting job expectations and performing the "essential functions" of the job? If not, why not (e.g., speed, lack of skills, inability to use equipment, etc.)? Would technology or accommodations help the client meet performance requirements?
- ❒ Can the employer and client pinpoint the task which is creating the problem? What solutions have been tried or considered? Would technology or accommodations help the client overcome the problem?
- ❒ Does the company have other employees who may be able to make the accommodation (e.g., a technical person on staff, in-house maintenance, etc.)?
- ❒ Are there any anticipated post-employment needs that may involve technology?

S STEPS
(Steps for Addressing Technology Concerns)

- ❒ What technology specialists should be involved and what form should this involvement take?
- ❒ Can the employer and/or client solve the technology concerns?
- ❒ What steps are needed to address the technology concerns?
- ❒ Is there a plan for completing each step?
- ❒ Has the client been involved? Does he/she understand his/her responsibilities?
- ❒ Has the employer been involved? Does he/she understand his/her responsibilities?

For Unsuccessful Closures (08, 28, 30)



Environments

VR

T TECHNOLOGY
(Technology Concerns Identified)

- ❒ Review challenges which this disability created in considering vocational rehabilitation potential.
- ❒ Would technology potentially assist the client in overcoming these challenges?
- ❒ Does the applicant have concerns about using technology?

I INTERVENTION
(Individualize Technology Concerns)

- ❒ Were possible impacts of technology on home, community, school/training and work environments considered?
- ❒ Has the use of technology benefitted the client?
- ❒ Were all funding options considered?
- ❒ Did the client or counselor's attitude toward technology affect the outcome for this client? Have all alternatives been considered?

P PREPARATION
(Prioritize Technology Concerns)

- ❒ Were all people who needed to be involved, adequately involved in a timely and appropriate fashion? If not, involve the appropriate people prior to closure.
- ❒ Was the technology specialist consulted in an appropriate and timely fashion? If not, consider this consultation prior to closure.

S STEPS
(Steps for Addressing Technology Concerns)

- ❒ What steps can be taken at this point to prevent unsuccessful closure?
- ❒ Has the applicant/client been involved? Does he/she understand the reason for closure?

☑ Action needed:	☑ Action recommended:
❒ Document consideration and use of technology resources and services on appropriate closure forms	❒ For clients with extensive technology-related needs, consider post-employment services for follow-up beyond the 60 day period. ❒ For successful closures, refer client to other sources for technology needs that VR is unable to provide ❒ For unsuccessful closures with unmet technology needs, refer client to other technology-related programs that may be able to provide assistance

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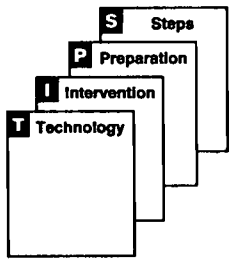
TECH POINTS as a Counseling Tool

Through use of **TECH POINTS**, VR counselors should be able to make technology resources and services a regular consideration as they work with clients. The interactive process of discussing challenges confronting clients and exploring if technology interventions are appropriate will help enhance responsiveness to individual client needs.

TIPS for Considering Technology Interventions

Several logical steps related to considering rehabilitation technology have been developed. These *Technology Intervention Preparation Steps* (TIPS) can be used at each **TECH POINT**. These steps will help build the counselor's confidence in serving clients who may need rehabilitation technology services. TIPS offers a practical way of thinking about the need for technology. Many counselors will find the system to be very close to the process that they have already used and found to work successfully in case development. The system is "user friendly" for counselors who are not quite sure where to start when a person needs rehabilitation technology services. TIPS should help organize thoughts concerning technology so that getting started is easier.

Although the questions and suggestions for TIPS vary for each **TECH POINT**, they follow the same basic pattern:



First, general challenges and problems a client may face and possible technology concerns should be identified;

Second, individualize the client's technology challenges and concerns;

Third, if technology intervention seems appropriate, prioritize how to best proceed; and

Fourth, identify specific steps and plan of action to arrange for the technology services.

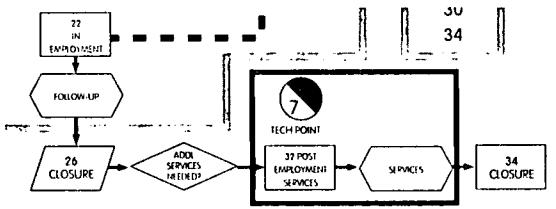
There is no right or wrong way to use these steps. Using the steps to consider each technology concern and keeping each environment in mind can reduce frustration. Involving a rehabilitation technology specialist at the appropriate time, should save time, and money, and improve service delivery.

TECH POINT 7 Post-Employment

What to accomplish:

Review need for rehabilitation technology resources and services for clients to maintain employment, identifying those individuals who are at risk of losing their job due to technology-related problems.

Phase in the Rehabilitation Process



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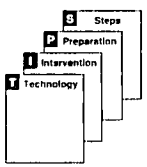

Environments

TECHNOLOGY

(Technology Concerns Identified)

- ❒ Have any "major life activities" or "essential functions" of the job changed? If so, did this result in a need for change in technology?
- ❒ Would technology potentially assist in overcoming these challenges?
- ❒ Does the client have concerns about the use of technology?
- ❒ Does the employer have concerns about the use of technology on the job?

INTERVENTION

(Individualize Technology Concerns)

- ❒ What are the client's technology concerns? Do they differ from the employer's concern? What caused this concern to be an issue for employment?
- ❒ Are any of the technology concerns a direct threat to employment?
- ❒ If the health of the client is a concern, would technology intervention be appropriate/ useful?

P PREPARATION

(Prioritize Technology Concerns)

- ❒ In what order should the technology needs identified for this status be addressed?
- ❒ Are there any deadlines?
- ❒ Can the concerns be resolved in a reasonable time frame?
- ❒ Is employment in jeopardy if not solved immediately?
- ❒ Is there a temporary solution that will work until a more permanent solution is found?
- ❒ Other than the employer, the client and the counselor, who else should be involved in setting priorities?

S STEPS

(Steps for Addressing Technology Concerns)

- ❒ Can the employer and/or client solve the technology concern?
- ❒ Can employer and client solve the technology concerns with referral to other resources?
- ❒ What technology specialists should be involved and what form should this involvement take?
- ❒ What steps are needed to address the technology concerns?
- ❒ Is there a plan for completing each step?
- ❒ Has the client been involved? Does he/she understand his/her responsibilities?
- ❒ Has the employer been involved? Does he/she need to be involved?
- ❒ Who will fund the technology?
- ❒ Will post-employment services be needed or will a new VR case be opened?

Remember that post-employment assistance can be essential for many technology users

Post-employment needs can sometime be anticipated at the time of closure. It is reassuring for the client and the employer that rehabilitation technology services are available should they be needed. This can be an excellent tool for enhancing job placement. It should be determined however if this is within the responsibility of what the VR agency can be expected to provide. In many situations this will be the responsibility of the individual or possibly their employer under reasonable accommodations as part of the Americans with Disabilities Act.

☑ *Action needed:*	☑ *Action recommended:*
❒ If technology-related problems are identified, arrange for services using post-employment or open a new case	❒ Arrange for technology consultation services for employers who are willing to make additional accommodations ❒ Recommend other options to clients for technology-related needs which VR is unable to assist

Rehabilitation Technology Service Providers

Identification of qualified service providers is essential for any rehabilitation technology service activity. Technology specialists are often employed directly by many VR agencies. However even in VR agencies with well developed service delivery programs, there usually are specialized services that are not provided by VR staff. Vehicle modification, augmentative communication aids and fabrication of equipment are common examples. There often are consultants or other specialists available who offer these services on a statewide basis. Rehabilitation technology suppliers, also known as the DME dealers, are another a key part of the service delivery structure.

Names and information of state and local contacts:

Finding reliable rehabilitation technology providers who offer the needed range of products and support services is a very important part of the counselors role in coordinating rehabilitation technology service activities.

Name	Address	Phone	Fax	Rehabilitation Technology Service

In approaching employers where job accommodations are needed:

- ❑ What will the employer do for accommodations?
- ❑ Are there requests for accommodations that the employer is unwilling to provide?
- ❑ If there are job match problems, are the problems with
  - the individual
  - physical environment
  - essential job tasks
  - work station
  - other
- ❑ Would the use of technology resources or services solve the problem?
- ❑ Are there essential functions of job that the client cannot perform?
- ❑ Has a job analysis been completed?
- ❑ Should a rehabilitation technology specialist be called in?

Several resources which could be useful in exploring job accommodation options include:

The Workplace Workbook
Mueller, J. (1990)
An Illustrated Guide to Job Accommodation
and Assistive Technology,
Dole Foundation:
Washington DC

The Job Placement-ADA Connection
Pimentel, R. (1993)
Milt Wright & Assoc.

Americans with Disabilities Act Handbook
Equal Employment Opportunity
Commission and the U.S.
Department of Justice
U.S. Government Printing Office
Superintendent of Documents
Mail Stop: SSOP
Washington, DC 20402-9328

For more information on job accommodations and other rehabilitation technology related resources, see Section 13 Rehabilitation Technology Resources and Training, in the TECH POINTS Training Manual.

Rehabilitation Technology Information Resources and Databases

The following is a partial resource list for centers, national organizations, and information networks related to applications of rehabilitation technology. Information on services, products, publications, and technology related issues is made available through these centers.

Abledata Product Information Database
MACRO Systems, Inc.
8455 Colesville Road
Silver Spring, MD 20910-3319
(301)-588-9284
(800)-346-2742

Extensive collection of over 20,000 commercially available assistive technology aids and devices.

Accent on Information
P.O. Box 700
Bloomington, IL. 61702
(309)-378-2961

Information on consumer products and applications of technology from the consumer's perspective.

Architectural and Transportation Barriers - Compliance Board
1111 18th Street, NW
Suite 501
Washington, DC 20036-3894
(800) 872-2253 (Voice/TDD)
(202) 653-7848 (Voice/TDD)
(Technical Services)

Association of Persons in Supported Employment (APSE)
50001 West Broad Street
Suite 34
Richmond, VA 23230
(804) 282-3655

Provides support and information to job coaches, enclave and mobile crew supervisors, small business entrepreneurs, and program managers.

Cooperative Database Distribution Network for Assistive Technology (C0-NET)
Trace R&D Center on Computer Access Communications, and control
S-151 Waisman Center
1500 Highland Avenue
Madison, WI 53705
(608)-262-6966 (voice)
(608)-263-5408 (TDD)

Job Accommodation Network (JAN)
809 Allen Hall
West Virginia University
Morgantown, WV 26506
(800)-526-7234

Employment and placement resource supported by the President's Committee on Employment of Persons with Disabilities.

President's Committee on Employment of People with Disabilities
1331 F Street, NW
Suite 300
Washington, DC 20004-1107
(202) 376-6200 (Voice)
(202) 376-6205 (TDD)
(202) 376-6219 (fax)

Provides information, referral, and technical assistance to employers as well as employees with disabilities and others interested in the employment of persons with disabilities, including information on tax incentives for business, and rights and responsibilities of employers and employees.

RESNA
1700 N. Moore Street
Suite 1540
Arlington, VA 22209-1903
(703)-524-6686
(703)-524-6630 (fax)

RESNA is an interdisciplinary association for the advancement of rehabilitation and assistive technology. Provides information, technical assistance, RESNA Press publications, and resources.

Rehabilitation Engineering Research Centers (RERC) and Technology-Related Assistance Projects (Tech Act)

The National Institute on Disability and Rehabilitation Research (NIDRR) supports approximately 15 rehabilitation engineering research centers covering a wide spectrum of technology applications for persons with disabilities. NIDRR also oversees the operation of Tech Act projects which now exist in all states. These centers and projects are excellent resources for current information on the entire field of rehabilitation and assistive technology.

For more information contact:

National Institute on Disability and Rehabilitation Research
Office of Special Education and Rehabilitation Services
U.S. Department of Education
400 Maryland Ave SW
Washington, DC 20202-2572
(202) 205-5666 (voice)
(202) 205-5479 (TDD)

Some applications of technology services to consider using:

There are many ways that a VR counselor might use the services of a rehabilitation technology specialist to provide a technology intervention to help address problems or concerns that an individual with a disability might encounter. A technology intervention is simply using rehabilitation technology resources or services as a problem-solving tool to help find ways to overcome functional limitations. These could include:

- Technology Consultation
- Accommodations in the evaluation/assessment process
- Rehabilitation Technology Assessment
- Home/Independent Living Accommodations
- School/Training Accommodations
- Job/work Site Accommodations
- Job Development/Feasibility Studies
- Repair/Maintenance Services

Here is a little more information on some of the ways that a technology specialist might be used:

Technology Consultation

Informal discussion with a rehabilitation technology specialist to explore possible use of rehabilitation technology services

- typically a telephone call or a brief meeting
- provides quick information on rehabilitation technology options
- very helpful in making effective technology-related decisions

Rehabilitation Technology Assessment

A rehabilitation technology specialist or team of specialists can be used to assess the functional capabilities necessary to perform specific tasks or activities, identify problems or limitations, and recommend appropriate rehabilitation technology services when needed

- looks at overall functioning in environments (home, work, etc)
- specific needs such as communication, seating/positioning, computer access, etc.
- assessment may be needed several times in the rehabilitation process

Job Development Activities

The rehabilitation technology specialist could be used to work with employers to analyze work settings to identify possible use of rehabilitation technology services or resources to enhance opportunities for employing persons with disabilities.

- feasibility studies to estimate the cost/benefit of rehabilitation technology
- address problems of repetitive motion, lifting injuries, etc.
- explore universal design considerations to accommodate all workers

ENVIRONMENTS

The need for technology interventions should be considered for all environments that individuals may function in. Environments that are referred to in **TECH POINTS** include:

HOME

Technology can be used to address independent living accommodations involving a person's residence such as:

- design/construction of a ramp,
- widening of doors, or
- assistive aids to perform activities such as food preparation, eating, or dressing.

COMMUNITY

Activities involving persons with disabilities and their interaction with the community could be enhanced through the use of technology such as:

- curb cuts, ramps,
- public transportation, etc.
- access to public buildings

VOCATIONAL REHABILITATION

The impact of technology for individuals as they take part in vocational rehabilitation services could involve:

- general accessibility,
- work station,
- accommodations,
- alternate formats for testing and evaluation task, or
- reading/writing aids.

SCHOOL/TRAINING

Technology can enhance the compatibility of the person with a disability and their school/training site by accommodations such as:

- building and campus accessibility,
- laboratory or work station modification needs; or
- the need for mobility aids, or communication devices

JOB/WORK SITE

The use of technology services to enable a worker with a disability to perform essential job functions at their employment site or improve the ability to obtain, maintain, or advance in employment by:

- considering modifications, adaptations or adjustments to individual work stations such as rearrangement of production lines or modification of tools or equipment, or
- considering assistive devices which might enable the person better perform essential job tasks.

Center for Rehabilitation Technology Services

South Carolina
Vocational Rehabilitation Department

P. Charles LaRosa Jr.
Commissioner

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E-mail rerc-vr@scsn.net

As required by Proviso 129.55, the Center for Rehabilitation Technology Services reports that it printed 1,500 copies of this reference manual for a cost of $3,162.00 at a cost of $2.10 per copy.