DOCUMENT RESUME

ED 419 310 EC 306 393

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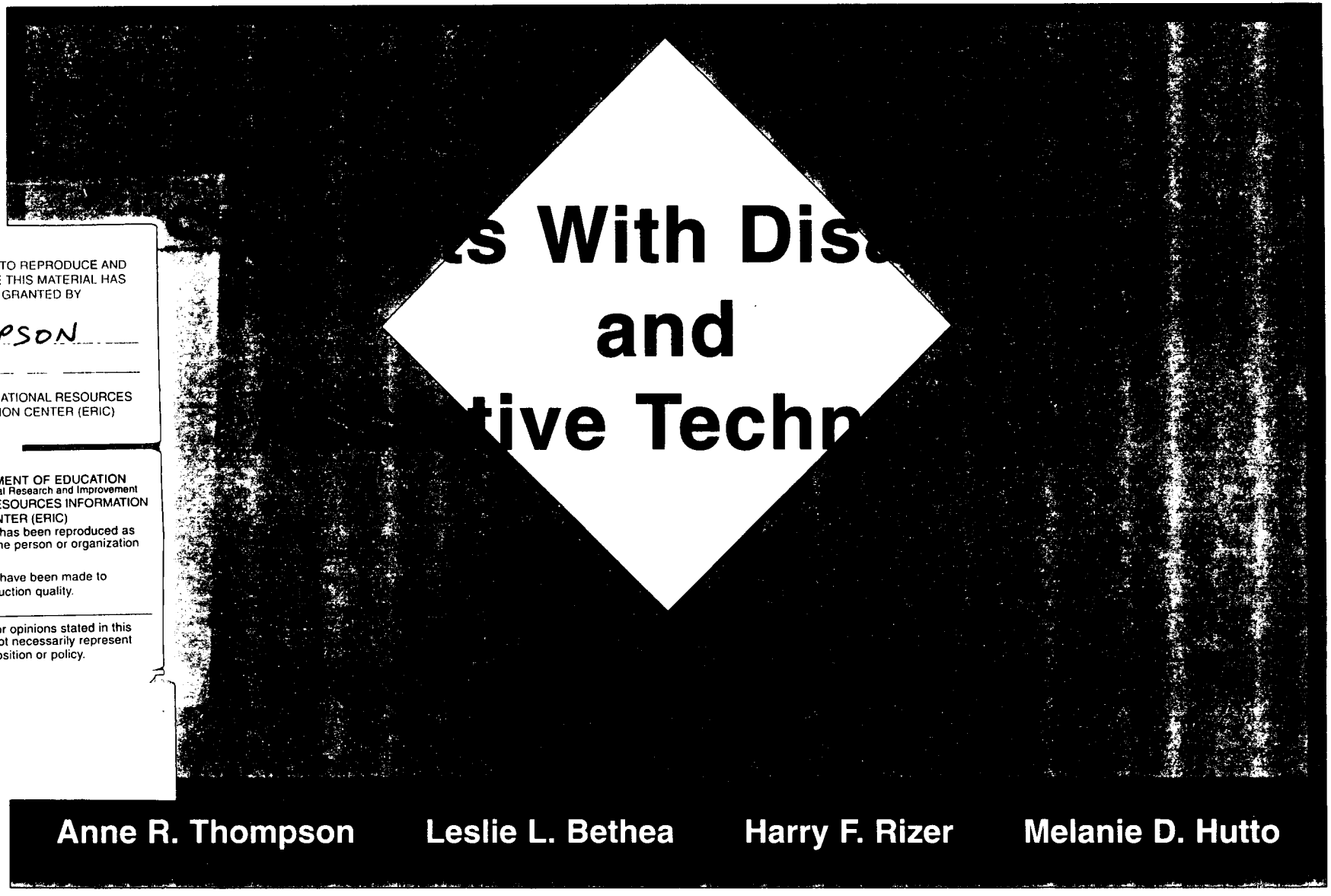
TITLE Students with Disabilities and Assistive Technology: A Desk Reference Guide.
INSTITUTION Mississippi State Univ., Mississippi State.
SPONS AGENCY Mississippi State Dept. of Rehabilitation Services, Jackson.
PUB DATE 1998-00-00
NOTE 97p.
AVAILABLE FROM Project START, P.O. Box 1698, Jackson, MS 39215; phone: 601-987-4872.
PUB TYPE Guides - Non-Classroom (055)
EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS *Appropriate Technology; *Assistive Devices (for Disabled); Attention Deficit Disorders; Check Lists; *Disabilities; *Educational Environment; Elementary Secondary Education; Epilepsy; Hearing Impairments; Language Impairments; Learning Disabilities; Physical Disabilities; Specialists; Speech Impairments; Visual Impairments; *Work Environment

ABSTRACT

This resource guide is designed to provide a quick reference for professionals in education and employment who work with students with disabilities. The guide suggests ways that assistive technology may improve and expand the academic career and employment opportunities of students with disabilities. Specific assistive technology solutions are provided for disabilities relating to blindness/visual impairments, deafness/hearing impairments, learning disabilities/attention deficit disorders, orthopedic/mobility impairments, speech and language disorders, and epilepsy. A list of different types of specialists who may provide technology-related information, referrals, and/or sources of devices and equipment is included and cross-coded for each type of disability. A resource section provides state Tech Act contacts, and a check list provides a guide for services that can be included in the development of a career portfolio. The guide ends with a glossary of relevant terms. (CR)



Students with Disabilities and Assistive Technology: A Desk Reference Guide

Spring 1998

Incorporating Assistive Technology into Planning for Education and Employment

Designed for:
Special Education/General Education Teachers
School Counselors
Vocational Rehabilitation Counselors
Students/Families

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Funding for this guide was provided by the Mississippi Department of Rehabilitation Services/Project START (Success Through Assistive Rehabilitation Technology). Opinions expressed in the guide are those of the authors and should not be construed to represent opinions or policies of the funding agencies.

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Students With Disabilities and Assistive Technology: A Desk Reference Guide

This resource guide is designed to provide a quick reference for professionals who work with students with disabilities in education and employment. The guide suggests ways that assistive technology may improve and expand the academic, career, and employment opportunities of students with disabilities.

What is assistive technology?

Assistive technology is any device or process that assists a person with a disability to do something that could otherwise be difficult or impossible to accomplish.

What is an assistive technology evaluation?

An assistive technology evaluation is the process of determining which device best matches the person's needs and preferences.

Who is this guide designed to assist?

Special Education/General Education Teachers
who plan and provide direct services.

School Counselors
who provide school counseling and planning for transition from school to work.

Vocational Rehabilitation/Transition Counselors
who plan for students' transition from school to work, further education, or job training.

Students/Families
who provide support and plan for independent living skills, home life skills, and school success.

This guide may be used as a companion guide to Family Guide to Assistive Technology that may be ordered by calling 1-800-222-7585. The guide is written and edited by Katharin A. Kelker, Roger Holt, and John Sullivan. It is published by Technical Assistance for Parent Projects (TAPP), Boston, MA and TAPP Focus Center on Assistive Technology, Billings, MT, April 1997.

How to Use This Guide: Steps To Follow When Working with a Student

Step 1: With the student, determine the abilities and functional limitations.
Example: Sue has a spinal cord injury and uses a wheelchair for mobility but she also has limited use of her fingers for fine motor skills. She is knowledgeable in basic computer word processing and can point her finger and type with one hand. Using this process, Sue finds that she fatigues easily.

Step 2: Determine what the disability prevents or impairs the student from doing that he/she would like to do.
Example: Sue types too slowly and wants to increase her speed and ability to work without fatigue. She would also like to improve her accuracy on the computer because she sometimes strikes extra keys.

Step 3: In the Guide, refer the student to the relevant type of disability. Check the categories of skill deficits and the possible assistive technology solutions.
Example: Sue might look under Orthopedic/Mobility Impairments (O/MI) and investigate word prediction programs, modification of keyboard control systems, and alternate input devices. Sue can use the Definition of Terms section to learn more about words that are unfamiliar.

Step 4: Refer the student to the cross-coded specialists listed under the case study for each type of disability. Note the questions in the boxes and encourage the student to contact the specialists that are cross coded.
Example: Sue might note the codes for specialists in the case study and refer to the Specialists section. She may need to contact an assistive technology specialist (ATS) and/or an occupational therapist (OT). She may need to talk to her vocational rehabilitation (VR) or transition (VRT) counselor for more information and/or referral to the specialists.

Step 5: Provide the student with appropriate resources from the list under Resources or the state offices listed under State Tech Act .
Example: Sue might search the Resources section to contact the State Vocational Rehabilitation Office or RESNA for more information. She may want to look up the Alliance for Technology web site. Her State Tech Act Office may be able to provide assistive technology devices on loan for a trial period.

Step 6: Review the Check List for Career Planning with the student.
Example: Sue can review the Career Checklist to determine if she has completed all the steps important to successful transition to employment. From the checklist, she may find that she needs to continue her education in order to meet the requirements of her career choice.

Assistive Technology Categories

Adaptive computer applications
input and output devices (voice, braille), alternate access aids (headsticks, light pointers), large-print screens, modified or alternate keyboards, switches, special software that enable persons with physical, sensory, or cognitive disorders to use a computer

Aids for communication
hearing aids, TDDs, and augmentative and alternative communication devices that provide a means for expressive and receptive communication for persons with sensory, communication, or cognitive disorders

Aids for daily living
self-help aids for use in activities such as eating, bathing, cooking, dressing, toileting, and home maintenance for persons with physical, sensory, or cognitive disorders

Environmental control systems
primarily electronic systems that enable persons with physical or sensory disorders to control various appliances, electronic aids, and security systems in their room, home, or other surroundings

Home/work site modifications
structural adaptations or fabrications in the home, worksite, or other area (ramps, lifts, bathroom changes, visual alerting systems) that remove or reduce physical barriers for persons with physical, sensory, or cognitive disorders

Prosthetics and orthotics
replacement, substitution, or augmentation of missing or malfunctioning body parts with artificial limbs or other orthotic aids (splints, braces) for persons with physical disorders

Seating and positioning
accommodations to a wheelchair or other seating system to provide greater body stability, trunk/head support and an upright posture, and reduction of pressure on the skin surface (cushions, contour seats, lumbar) for persons with mobility impairments

Wheelchairs/mobility aids
manual and electric wheelchairs, mobile bases for custom chairs, walkers, three-wheel scooters, and other utility vehicles for increasing personal mobility

Vehicle modifications
adaptive driving aids, hand controls, wheelchair and other lifts, modified vans, or other motor vehicles used for personal transportation for persons with physical disorders

Adapted from: The Provision of Assistive Technology in Rehabilitation (p. 109) by Seventeenth Institute on Rehabilitation Issues, 1990, Fayetteville: Arkansas Research and Training Center in Vocational Rehabilitation

Assistive technology is a process as much as a product.

Individuals With Disabilities Education Act (IDEA)

The 1997 amendments state that in the development of the Individual Education Plan (IEP) the team shall "consider whether the child needs assistive technology devices and services." This federal special education law requires a number of services the school district may need to provide to ensure that assistive technology is useful in the school setting. The goal is to increase, maintain, or improve functional capabilities of a student with a disability.

If a student with a disability needs assistive technology to be able to learn, participate in school activities, and increase independence the school district will:

- evaluate the student's assistive technology needs,
- acquire the necessary technology,
- select, design, fit, customize, adapt, apply, maintain, repair, or replace devices,
- coordinate technology use with other therapies and interventions, and
- provide training for the student, the student's family, and the school staff in the effective use of technology.

Adapted from: Family Guide to Assistive Technology, (p. 8-9) Technical Assistance for Parent Projects (TAPP), Boston, MA and TAPP Focus Center on Assistive Technology, Billings, MT, April 1997.

Points for Consideration of Technology Options

Assistive technology may:

- increase student independence
- advance academic standing
- increase participation in classroom activities
- improve time-management skills
- allow equal access to the school environment
- expand choice of majors
- increase part-time job opportunities
- improve job search skills
- resolve transportation issues
- accomplish activities of daily living
- advance considerations for continued training/education
- improve job opportunities
- enable performance of essential job functions
- allow equal access to the workplace
- improve social interactions

Assistive technology considerations should center on the needs of the individual. What does the disability prevent or impair the student from doing?

Blindness/Visual Impairments

Over 4.3 million Americans have some type of visual impairment. Visual impairments include blindness and other disorders that may affect the central vision acuity, the field of vision, color perception, or binocular visual function. The American Medical Association defines legal blindness as visual acuity not exceeding 20/200 in the better eye with correction, or a limit in the field of vision that is less than a 20 degree angle (tunnel vision). Legal blindness may be caused by tumors, infections, injuries, retrolental fibroplasia, cataracts, glaucoma, diabetes, vascular impairments, or myopia. The resulting functional limitations will vary widely, as will the assistive technology and mobility aids recommended. Some students may not require special mobility assistance; some may choose a sighted guide; others may use a white cane. Still others may choose to use a dog guide, which (legally) may accompany the owner anywhere. Although assistive technology prescriptions are highly individualized for visual impairments, general solution categories are presented as a beginning discussion point.

Possible Deficits	→	Possible Technology Solution
Increased sensitivity to glare		Glare reducing screen Darkened room or work station Reversed polarity (white letters; black screen) Color transparencies
Inability to see small text and graphics		Optical aids • magnifying glasses • small hand held telescopes Screen magnification overlays Large monitor (17" or larger) Screen reading program with speech synthesizer and headphones Closed circuit television (CCTV) Large print software

Possible Deficits →	Possible Technology Solution
Blind, with no light perception	Computer with large hard drive and large capacity memory banks Books on audio tape Brailled documents/books Screen reader with speech synthesizer and headphones Scanner with optical character recognition (OCR) Refreshable braille displays Braille translating software, braille printers Braille notetakers Tape recorder with indexing capability
Mobility that ensures safe travel	Wide aisles without obstacles Long telescoping canes, laser canes Guide dogs Electronic travel aids Brailled signage Tactile building and floor markings Audible signals, tones Tactile maps Handheld telescopes
Needs of daily living	Clocks, calculators, scales, etc. with speech output Home medical aids with digitized speech output Special controls for appliances that have large print or have tactual markings Braille-embossed labels for marking colors, sizes of clothing Large print and braille telephone book and calendars Large print checks/check books Writing guides for checks, application forms, and other signature needs

Case Study of a Student With a Visual Impairment

Capitalized initials in parenthesis refer to Specialists (page 27)
who may provide technology-related information, referrals, and/or sources of devices and equipment.

Ben is entering the ninth grade and is planning a career in a science-related field. Ben is concerned that his loss in central visual acuity might limit his career choices. Until recently, Ben was able to read text with a hand-held magnifying glass and to view distant objects with a monocular telescope. A sudden decrease in vision has signalled the need for change in his accommodations. Ben understands basic computer operations and will soon buy a computer. He states that he wants to reduce his reading error rate, to increase the length of time he can read without fatigue, and to find an accommodation to replace the magnifying glass and monocular.

Special Education/General Education Teacher Objective: To assist the student to improve his academic standing and completion of school requirements for graduation. • Would assistive technology provide him access to printed materials that would increase reading time and accuracy? (ATS), (CP), (RE)	**School Counselor** Objective: To provide career counseling based on the student's interests and abilities. • Would assistive technology expand his career options by increasing his job-related skills and preparation? (T), (OT), (O/MS)

Vocational Rehabilitation/Transition Counselor	Student/Family
Objective: To promote transition from school to work. • Would assistive technology increase his postsecondary education options and career choices after graduation? (ATS), (OT), (RE), (T)	Objective: To support and plan for independent living skills and school success. • Would assistive technology increase his abilities to live independently, attend the college of his choice with success, and increase his self-confidence? (ATS), (CP), (ES), (VR), (T)

Assistive Technology Solution

Ben was referred to a vocational rehabilitation counselor, who provided a referral to an assistive technology specialist. Because Ben was knowledgeable about computers and planned to purchase one, the ATS recommended the purchase of a speech synthesizer, screen reading software, scanner, and headphones to access printed materials; training sessions were also purchased. When his eyes were not fatigued, Ben could use his remaining vision and the factory-provided large print option on his new computer. However, most frequently he used the voice output system because it increased both the duration and accuracy of his reading and helped him practice key employment skills.

Deafness/Hearing Impairments

Over 20 million Americans have a hearing impairment of some type. A hearing impairment is any type or degree of auditory impairment while deafness is an inability to use hearing as a means of communication. Hearing loss may be sensorineural, which means one has difficulty in interpreting sounds; conductive, which means one has difficulty in hearing sounds; or a mixed impairment, involving both sensorineural and conductive. Hearing loss is measured in decibels and may be mild, moderate, or profound. A person who is born with a hearing loss may have language deficiencies and exhibit poor vocabulary and syntax. Many students with hearing loss may use hearing aids and rely on lip reading. Others may require an interpreter.

Possible Deficits	→	**Possible Technology Solutions**
Inability to receive any information in auditory form		Text telephone Relay services for placing calls Computer-assisted access to text telephone Telephone answering machine with text telephone FAX communication Electronic mail Visual cues for auditory prompts Computer-aided transcription Signaling system Captioning systems Sign language training

Possible Deficits	→	Possible Technology Solutions
Inability to hear auditory information with background noise Inability to discriminate sounds of consonants in auditory information		FAX communication Electronic mail Headphones with jack Telephone amplifier Hearing aids Electronic amplification systems Assistive listening devices (ALD) Captioning systems Visual cues for auditory prompts Appropriate light for lip reading
Limited or poor speech		Grammar check software Spell check Word prediction programs Speech output voice box
Needs of daily living		Signaling systems convert sound to visible, tactile, or vibrating signals for: • doorbells • telephones • alarm clocks • baby signaler • smoke alarm Clip-on rear view driving mirror to increase peripheral viewing area
Inability to tolerate noise		Room acoustics that absorb sound Ear protection

Case Study of a Student With a Hearing Impairment

Capitalized initials in parenthesis refer to Specialists (page 27)
who may provide technology-related information, referrals, and/or sources of devices and equipment.

Jennifer is a senior in high school who has a hearing impairment and wears hearing aids. She finds it difficult to communicate on the telephone, hear what others are saying over background noise, or discriminate sounds of consonants in conversation. She is having trouble following class discussions, hearing the auditory prompts on her computer, and expanding her limited social interaction with her friends. Jennifer worked on designing the high school's web page and is interested in studying art with perhaps an emphasis in computer graphics.

Special Education/General Education Teacher Objective: To assist the student to improve her academic standing and completion of school requirements for graduation. • Would assistive technology facilitate her class participation, computer abilities, and communication difficulties? (ATS), (Au), (CP)	**School Counselor** Objective: To provide career counseling based on the student's interests and abilities. • Would assistive technology expand her career options by increasing her job-related skills and preparation? (T), (Au), (VR), (VRT), (ATS)

Vocational Rehabilitation/Transition Counselor Objective: To plan for transition from school to work. • Would assistive technology increase her postsecondary education options and career choices after graduation? (Au), (ATS), (CP), (T)	**Student/Family** Objective: To provide support and plan for independent living skills and school success. • Would assistive technology improve her social interaction with friends and communication with teachers, and increase her abilities to attend the college of her choice with success? (ATS), (Au), (T), (VR), (VRT)

Assistive Technology Solution

Jennifer received a new evaluation by an audiologist and was fitted with new hearing aids that were more specifically designed to accommodate her loss. She was referred to an assistive technology specialist who recommended visual cues for auditory prompts on her computer. She also purchased a telephone amplifier with variable volume control. In her classes she is using assistive listening devices to aid in discussions and lectures. With these aids Jennifer is able to communicate better in class and with friends in social settings.

Learning Disabilities (LD)

It is estimated that between 15-20 percent of Americans have some type of learning disability. A learning disability is a permanent neurological disorder that affects the manner in which information is received, organized, remembered, and then retrieved or expressed. Students with learning disabilities possess average to above average intelligence. The disability is demonstrated by a significant discrepancy between expected and actual performance in one or more of the basic functions: memory, oral expression, listening comprehension, written expression, basic reading skills, reading comprehension, mathematical calculation, or mathematical reasoning.

Attention-Deficit Disorder (ADD)
Attention-Deficit Hyperactive Disorder (ADHD)

ADD and ADHD are neurologically-based medical problems characterized by inattention, impulsivity, and sometimes hyperactivity. The results can lead to lifelong problems.

Learning disabilities, ADD, and ADHD vary from one person to another and are often inconsistent within an individual. Students may demonstrate one or more problem characteristics and the form may be mild, moderate, or severe.

Possible Deficits	→	Possible Technology Solutions
Difficulty completing tasks on time		Computer software programs that promote organization of work: • color monitor/ability to change background and foreground colors • outline with shapes and colors • color printer

Possible Deficits	→	Possible Technology Solutions
Read at lower than potential level: • slow reading rate • inaccurate comprehension • poor retention • incomplete mastery of phonics		Computer software programs that promote reading abilities: • talking and large print word processors • scanner with optical character recognition (OCR) system • speech synthesizers • screen enlargement • multisensory reading program with customized text size, background and foreground colors, and voice characteristics Talking dictionary to define and pronounce unfamiliar words Four-track tape recorder
Poor tracking skills (skip words, lose place, miss lines)		Color monitor/change foreground and background color
Write at lower than potential level: • problems with organization, development of ideas and transition words • difficulty communicating meaning • poor sentence structure		Computer software programs that promote writing abilities: • color monitor/ability to change background and foreground colors • talking and large print word processors • outline with shapes and colors • graphics in place of words
Frequent spelling errors		Spell check Word prediction programs
Incorrect grammar		Grammar check software

Possible Deficits	→	Possible Technology Solutions
Problems with concentration		Distraction reducing measures: • noise blocking headset • table top dividers
Difficulty following directions		Provide written or printed directions
Poor ability to speak with fluency and/or sometimes to understand others • difficulty understanding oral language • poor vocabulary and word recall • difficulty with pronouncing multisyllabic words		Computer software programs that promote verbal communication: • scanner with optical character recognition (OCR) system • speech synthesizers • talking and large print word processors Talking dictionary to define and pronounce unfamiliar words

Case Study of a Student With a Learning Disability and Attention-Deficit Disorder

Capitalized initials in parenthesis refer to Specialist (page 27)
who may provide technology-related information, referrals, and/or sources of devices and equipment.

Ray is an eleventh grader with dyslexia and attention deficit disorder. He can only read for short periods of time and has poor comprehension and retention of the material. He depends on human readers and tapes for reading assignments. He has problems with spelling and grammar in his class assignments. Ray has participated in sports in high school and would like to explore careers in coaching and fitness management.

Special Education/General Education Teacher Objective: To assist the student to improve his academic standing and completion of school requirements for graduation. • Would assistive technology increase his independence from human readers and promote his academic success? (ATS), (ES), (LD), (NP), (Psy)	**School Counselor** Objective: To provide career counseling based on the student's interests and abilities. • Would assistive technology expand his career options by increasing his job-related skills and preparation? (T), (ATS), (LD)
Vocational Rehabilitation/Transition Counselor Objective: To plan for transition from school to work. • Would assistive technology increase his postsecondary education options and career choices after graduation? (ATS), (LD), (ES), (T), (NP), (Psy)	**Student/Family** Objective: To provide support and planning for school success. • Would assistive technology increase his self-confidence, improve his grade average, and increase his abilities to attend the college of his choice with success? (ATS), (VR), (T)

Assistive Technology Solution

Ray was referred to an assistive technology specialist who recommended a multisensory reading program. Ray learned how to scan his reading material into a computer equipped with a voice synthesizer. He used an optical character recognition program to convert the printed page to computer text. A text reader permitted him to listen to written material, customize the text size, background and foreground color, and the voice characteristics. Using this technology, Ray has greatly increased his reading time and improved his comprehension. Ray installed grammar check software and a word prediction program on his computer to assist with grammar and spelling errors. Training sessions were purchased.

Orthopedic/Mobility Impairments

A variety of orthopedic/mobility-related disabilities result from birth such as cerebral palsy, accidents such as spinal cord injury, or progressive neuromuscular diseases such as multiple sclerosis. These disabilities include conditions such as spina bifida, amputation, muscular dystrophy, cardiac conditions, cystic fibrosis, paralysis, polio/post polio, and stroke. Functional limitations and abilities vary widely even within one group of disabilities.

The environment of the college campus and many employment settings present a greater challenge for individuals with mobility impairments. More travel is necessary and longer periods of sitting are required. The revolution in wheelchair design in the past 10 years can provide proper seating, stability and ease of mobility that can avoid many problems common to wheelchair users.

Possible Deficits	→	Possible Technology Solutions
Fatigue, limited physical exertion		Correct keyboard positioning, flexible equipment in positioning of monitors, keyboards, table tops
Slow typing speed		Word completion or word prediction programs Abbreviation expansion programs
Inability to use multiple keystroke commands Strike keys by mistake due to tremors Better gross motor than fine motor dexterity		Modification of keyboard control systems Keyguard for computer, calculator

Possible Deficits	Possible Technology Solutions
Inability to use hands for input	Computer with large hard drive and large capacity memory banks Alternate input devices such as voice recognition program, scanner, headpointer, mouth-operated joystick Page turning device
Limited hand use for input Inability to use the mouse	Alternate input devices such as minikeyboard, track pad, touch window, split keyboard, Morse code input, track ball
Fine motor control but limited gross movement	Arm, wrist supports; keyguards; minikeyboard
Limited muscle strength, coordination, range of motion, stability	Arm, wrist supports Keyguards
Poor posture and body alignment	Customized seating and positioning
Nonambulatory	Wheeled mobility
Limited mobility	Canes, crutches, walkers
Inability to access transportation	Adaptive devices such as hand controls, steering devices

Case Study of a
Student With an Orthopedic/Mobility Impairment

Capitalized initials in parenthesis refer to Specialists (page 27)
who may provide technology-related information, referrals, and/or sources of devices and equipment.

Judy is a 16 year old with a spinal cord injury who uses a power wheelchair for mobility. She has trouble completing her written assignments because of limited strength. She has difficulty pressing multiple keys at the same time and operating input devices that require fine motor control. She would like to be more independent and wishes she could learn to drive and get her license like most of her friends. She is interested in a career in teaching but is not sure if she will be able to meet the requirements.

Special Education/General Education Teacher Objective: To assist the student to improve her academic standing and completion of school work. • Would assistive technology facilitate her keyboard skills? (OT), (ATS), (VR), (VRT), (RE), (SM)	**School Counselor** Objective: To provide career counseling based on the student's interests and abilities. • Would assistive technology expand her career options by increasing her job-related skills and preparation? (T), (OT), (ATS), (RE), (SM)

Vocational Rehabilitation/Transition Counselor Objective: To plan for transition from school to work. • Would assistive technology increase her postsecondary education options and career choices after graduation? (OT), (ATS), (RE), (SM), (T)	**Student/Family** Objective: To provide support and planning for independent living skills. • Would assistive technology increase her abilities to live independently and attend the college of her choice with success? (T), (VR), (VRT), (OT), (RE), (SM), (DE)

Assistive Technology Solution

Judy contacted an occupational therapist and received an evaluation and training on a software program that modifies the standard keyboard to eliminate the need to press more than one key at a time. The program she is using also limits her entering unwanted keys and has increased her speed and accuracy on the computer. With these programs she feels more independent and does not always need a human writing assistant. Judy also contacted a driving evaluator who recommended adapted devices for her vehicle and provided training in driving.

Speech and Language Disorders

Approximately 14 million persons in America have a speech, voice, or language disorder. Speech and language disorders may result from hearing loss, birth-related condition, learning disability, or physical conditions. The disorder may result in stuttering, problems with articulation, voice disorders, or aphasia. Individuals with severe speech and language disorders may be nonspeaking.

Augmentative and Alternative Communication (AAC) refers to aids, strategies and techniques designed to enhance a person's existing communication skills. These AAC systems may be simple displays (pictures or words printed on cardboard displays), electronic devices (voice output devices with synthesized or digitized speech) or computer based systems (voice output in addition to traditional computer functions). AAC systems can be adapted to provide for the special needs of the individual.

Possible Deficits →	**Possible Technology Solutions**
Limited speaking ability	Augmentative devices such as: • picture communication displays • computer with synthesized or digitized speech • electronic communication aids: - alternative input methods; switch scanning, alternate keyboards, mouse, joystick, touch screen and/or headpointer - encoding methods; pictures, abbreviation expansion, and/or word prediction - output methods; print, synthesized and/or digitized speech
Limited motor skills to operate computer with standard keyboard	Communication device used to operate computer

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Possible Deficits	→	Possible Technology Solutions
Limited muscle control of fine motor skills		Alternative input methods such as switch with scanning, alternate keyboards, joystick, touch screen, and/or headpointer
Limited muscle strength, coordination, range of motion, stability		Arm, wrist supports Keyguards
Limited use of hands to operate computer		Switches and switch software
Limited gross motor skills but use of fine motor skills to operate computer		Trackball tools to enter data or perform mouse functions
Slow speed in keystrokes		Word prediction programs
Limited loudness level		Voice amplification device
Hearing loss		Telecommunications Device for the Deaf (TDD) Relay services for placing calls
Inability to use telephone		Telecommunications Device for the Deaf (TDD) Relay services for placing calls

Case Study of a
Student with a Speech and Language Disorder

Capitalized initials in parenthesis refer to Specialists (page 27)
who may provide technology-related information, referrals, and/or sources of devices and equipment.

Patricia is an eighth grader who has cerebral palsy and is unable to communicate orally in conversation. She has limited muscle control of her hands but can use one finger to input on a computer keyboard. Her communication needs have changed rapidly since she is increasingly mainstreamed in her school. Although Patricia understands clearly what others are saying, she is unable to express her thoughts adequately. She needs to be able to communicate her wants and needs, interact with classmates, and be understood by her teachers. She is uncertain about careers that will be open for her after she graduates from high school.

Special Education/General Education Teacher
Objective:
To assist the student to improve her academic standing and completion of school work.

- Would assistive technology provide her with a functional communication system that will allow her to increase her participation in the classroom environment? (S/LP), (ATS), (VR), (VRT)

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School Counselor
Objective:
To provide career counseling based on the student's interests and abilities.

- Would assistive technology expand her career options by increasing her job-related skills and preparation? (S/LP), (VR), (VRT), (T)

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Vocational Rehabilitation/Transition Counselor Objective: To plan for transition from school to work. • Would assistive technology increase her postsecondary training options and career choices after graduation? (S/LP), (ATS)	**Student/Family** Objective: To provide support and plan for independent living skills and school success. • Would assistive technology increase her ability to live independently and improve her communication with friends; family, and teachers? (S/LP), (ATS), (VR), (VRT), (T)

Assistive Technology Solution

Patricia was referred for an evaluation to a speech and language pathologist with special training in augmentative and alternative communication (AAC). It was determined that she needed a communication system with voice output and a system that would be portable to take to classes and to use in social settings. This device required hardware that allowed her to print out at school or at home. Training sessions were purchased. She is now comfortable communicating with others and feels that she has greatly increased her self-confidence in interacting with others.

Other Disabilities

Many students have disabilities that do not necessarily fall into the major categories already discussed in this guide. The degree to which these disabilities affect individuals in the academic or employment setting vary widely. At times it is not the condition itself but the medication that is required to control symptoms that impairs academic or work performance. Common side effects of medications include fatigue, memory loss, shortened attention span, loss of concentration, and drowsiness. In some cases the degree of impairment may vary from time to time because of the nature of the disability or the medication. Some conditions are progressive; others may be stable. Many are invisible. A partial list of other disabilities includes: AIDS, arthritis, asthma, burns, cancer, cardiovascular disorders, diabetes mellitus, epilepsy, psychological disorders, and chronic pain.

Possible Deficits	→	Possible Technology Solutions
Limitations in other disabilities vary widely and may depend on whether the disability is temporary, progressive, or stabilized. Some limitations may be the result of medication necessary to control symptoms. Many functional losses may be similar to those listed elsewhere in this guide and may include: limitations in strength, standing, walking, tolerance to temperature change or extremes in temperature.		Assistive technology solutions may be the same as those listed elsewhere in this guide. Solutions would need to be disability specific based on the individual's abilities and needs. Solutions for problems related to side effects of medication may be found under some of the technology solutions for persons with learning disabilities. Solutions for limitations of strength and movement may be found under technology solutions for persons with mobility/orthopedic impairments.

Case Study of a Student With Epilepsy

Capitalized initials in parenthesis refer to Specialist (page 27)
who may provide technology-related information, referrals, and/or sources of devices and equipment.

Vic is a student in the seventh grade who has problems concentrating in school work, paying attention in class, and completing assignments on time. Vic needs to increase his ability to pay attention to class lectures and activities. He wants to find a way to organize his work so that he can complete his assignments on time. He has been successful in selling magazine subscriptions and thinks he would be successful in a sales career.

Special Education/General Education Teacher Objective: To assist the student to improve his academic standing. • Would assistive technology improve his ability to attend to class lectures and complete assignments on time? (ATS), (Psy), (ES), (NP)	**School Counselor** Objective: To provide career counseling based on the student's interests and abilities. • Would assistive technology expand his career options by increasing his job-related skills and preparation? (T), (VR), (ATS)
Vocational Rehabilitation/Transition Counselor Objective: To plan for transition from school to work. • Would assistive technology increase his postsecondary education options and career choices after graduation? (ATS), (NP), (Psy), (T)	**Student/Family** Objective: To provide support and planning for school success. • Would assistive technology improve his grade average, increase his self-confidence, and increase his abilities to succeed in postsecondary education? (Phy), (ATS), (T), (NP), (ES), (Psy), (VR), (VRT)

Assistive Technology Solution

Vic received an assistive technology evaluation and was trained to use a computer software program that assisted him to organize his work. With this program, he created outlines of his materials using colors and shapes to increase interest and concentration, as well as to improve organization and produce his work on schedule.

Specialists

ATS Assistive Technology Specialists
Provide assistive technology evaluation and training

Au Audiologist
Evaluates and prescribes devices for hearing loss

CP Computer Programmer
Modifies existing programs, develops new programs, determines usefulness of programs

DE Driving Evaluator
Evaluates persons with physical disabilities who need adaptations to be able to drive

ES Educational Specialists
Assess specific educational functional levels and learning preferences

LD Learning Disabilities Specialist
Assesses specific learning deficits and recommends accommodations

NP Neuro-psychologist
Assesses specific neurological issues that may impede learning or other cognitive functions

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O/MS Orientation and Mobility Specialists
Assess the ability of an individual to benefit from such techniques as navigation canes and companion animals for people who are blind

Or Orthotist
Fits devices that compensate for physical limitations of the spine and limbs

OT Occupational Therapist
Evaluates muscle control, assesses visual acuity, scanning perception, and fields; assesses seating

Phs Physiatrist
Specializes in physical and rehabilitative medicine

Phy Physician
Determines general health and prognosis

Pro Prosthetist
Fits devices that replace missing limbs or limb segments

Psy Psychologist
Evaluates learning potential and counseling needs

PT Physical Therapist
Evaluates physical strength and functioning

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RE Rehabilitation Engineer
Evaluates, modifies, designs and fabricates customized devices

RT Recreational Therapist
Promotes recreational and leisure activities

S/LP Speech/Language Pathologist
Assesses communication abilities and recommends specialized aids

SM Seating and Mobility Specialist
Evaluates, modifies, designs and fabricates seating and mobility needs to improve function and lessen or prevent problems

SW Social Worker
Determines need for community resources

T Teacher: Special education, general education
Provides direct services and planning for workforce education

VE Vocational Evaluator
Assesses potential for employment

VM Vehicle Modifier
Provides vehicle modifications and assesses person's abilities to drive

VR Vocational Rehabilitation Counselor
Assesses employment potential and identification of career goals

VRT Vocational Rehabilitation Transition Counselor
Provides vocational evaluation, work experience, work adjustment and assistive technology needs.

Resources

Funding Agencies
This list represents a few agencies and programs that may assist with information or funding for assistive technology.

Medicaid
Federally sponsored state implemented medical insurance program for SSI or welfare recipients.

Medicare
Federal medical insurance program administered by Social Security.

Private Insurance
Determinations based on need, diagnosis, prognosis, and type of equipment.

CHAMPUS
Federal insurance program for military personnel families.

State Vocational Rehabilitation Services
Adaptive devices to enhance and promote employment.

State Education Services
Children ages 3-21 served by local school district.

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Electronic Communication
This following is a list-serv for assistive technology.

EASI: Equal Access to Software and Information
Provides information about developments and advancements within the adaptive computer technology field.

To subscribe send an e-mail letter to
<EASI@SJUVM.STJOHNS.EDU>
with the command
SUB EASI and your name

Database

ABLEDATA
National database of assistive technology information on over 19,000 rehabilitation products available on disc or CD-ROM.

For more information, look up:
http://www.abledata.com or call (800) 227-0216.

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Organizations
This list represents only a few of the many organizations that have an interest in technology and may provide information, referrals or services.

Alliance for Technology Access
2175 East Francisco Boulevard, Suite L
San Rafael, CA 94901
www.ataccess.org

Apple Computer's Worldwide Disability Solutions Group
1 Infinite Loop, MS 38-DS
Cupertino, CA 95014
Phone: (800) 600-7808
TT: (800) 755-0601
www.apple.com/disability/message.html

Closing the Gap
P. O. Box 68
Henderson, MN 56044
Phone: (507) 248-3294
www.closingthegap.com

IBM Special Needs Systems
1000 NW 51st Street
Boca Raton, FL 33432
Phone: (800) 426-4832
TT: (800) 426-4833
www.austin.ibm.com/sns/index.html

Job Accommodation Network (JAN)
WVU P. O. Box 6080
Morgantown, WV 26506
Phone: (304) 293-7186 or (800) 526-7234
http://janweb.icdi.wvu.edu

National Center to Improve Practice in Special Education
55 Chapel Street
Newton, MA 02158-1060
Phone: (617) 969-7100 x 2387
TTY: (617) 969-4529
www.edc.org/FSC/NCIP

Rehabilitation Engineering and Assistive Technology
Society of North America (RESNA)
1700 N. Moore Street, Suite 1540
Arlington, VA 22209-1903
Phone: (703) 524-6686
TTY: (703) 524-6639
www.resna.org

Trace Research and Development Center
Waisman Center
1500 Highland Avenue
Madison, WI 53705-2208
Phone: (608) 262-6966
TT: (608) 263-5408
www.trace.wisc.edu

State Tech Act Contacts

Grantees may change. If address is incorrect for the state, consult RESNA under Resources (page 30).

1. **Alabama** Statewide Technology Access and Response (Star) System for Alabamians with Disabilities
   P.O. Box 20752
   Montgomery, AL 36120-0752
   Phone: (334) 613-3480 TTY: (334) 613-2519
   www.mindspring.com/~alstar/

2. Asssistive Technologies of **Alaska**
   1016 West 6th Suite 105
   Anchorage, AK 99501
   Phone: (907) 563-0138
   www.corecom.net/ATA

3. **American Samoa** Assistive Technology Project
   Division of Vocational Rehabilitation
   Department of Human Resources
   Pago Pago, American Samoa 96799
   Phone: 0 11(684) 699-1529
   TDD: 0 11 (684) 233-7874

4. **Arizona** Technology Access Program (AzTAP)
   Square and Compass Building
   2600 North Wyatt Drive
   Tucson, AZ 85712
   Instate only: (800) 477-9921
   Phone: (520) 324-3170 TTY: (520) 324-3177
   www.nau.edu/~ihd/aztap.html

5. **Arkansas** ICAN (Increasing Capabilities Access Network)
   Department of Education
   Vocational and Technical Education Division
   Arkansas Rehabilitation Services
   2201 Brookwood Drive, Suite 117
   Little Rock, AR 72202
   Phone/TDD: (501) 666-8868
   www.arkansas-ican.org

6. **Cailfornia** Assistive Technology Systems (CATS)
   Cailfornia Department of Rehabilitation (Lead Agency)
   P. O. Box 944222
   Sacramento, CA 94244-2220
   Instate only Voice/TDD: (800) 390-2699
   Phone/TDD: (916) 324-3062
   www.catsca.com

7. **Colorado** Assistive Technology Project
   Rocky Mountain Resource and Training Institute
   1391 N. Speer Boulevard, Suite 350
   Denver, CO 80204
   In state only (800) 255-3477 Phone: (303) 534-1027
   TDD: (303) 534-1063
   Internet: cathy.bodine@uchsc.edu

8. **Connecticut** Assistive Technology Project
   Bureau of Rehabilitation Services
   10 Griffin Road North
   Windsor, CT 06095
   Phone: (860) 298-2014 TDD: (860) 298-2018
   www.ucc.uconn.edu/~techact/

9. **Delaware** Assistive Technology Initiative (DATI)
   Applied Science and Engineering Laboratories
   University of Delaware/A. I. duPont Hospital for Children
   P.O. Box 269
   Wilmington, DE 19899-0269
   Instate only: (800) 870-3284
   Phone: (302) 651-6790 TDD: (302) 651-6794
   www.asel.udel.edu/dati/

10. **District of Columbia** Partnership for Assistive Technology (DCPAT)
    801 Pennsylvania Avenue, S.E., Suite 300
    Washington, D.C. 20003
    Phone: (202) 546-9163 TDD: (202) 546-9168
    Internet: tonifis@dcpat.org

11. **Florida** Alliance for Assistive Services and Technology (FAAST)
    1020 E. Lafayette Street, Suite 110
    Tallahassee, FL 32301-4546
    Phone/TDD: (904) 487-3278
    http://pegasus.cc.ucf.edu/faast/home.html

12. **Georgia** Tools for Life
    Division of Rehabilitation Services
    2 Peachtree Street, NW Suite 35-413
    Atlanta, GA 30303-3166
    Phone: (404) 657-3084 TDD: (404) 657-3085
    www.gatfl.org/

13. **Guam** System for Assistive Technology
    University Affiliated Program-Developmental Disabilities
    House #12 Dean's Circle
    University of Guam
    UOG Station
    Mangilao, Gaum 96923
    Phone: (671) 735-2493
    TDD: (671) 734-8378
    http://uog2.uog.edu/uap/gsat.html

14. **Hawaii** Assistive Technology Training and Service (HATTS) Project
    414 Kuwili Street, Suite 104
    Honolulu, HI 96817
    Phone/TDD: (808) 532-7110
    Internet: bfl@pixi.com

15. **Idaho** Assistive Technology Project
    129 West Third Street
    Moscow, ID 83843
    Phone/TDD: (208) 885-3559
    Internet: seile861@uidaho.edu

16. **Illinois** Assistive Technology Project
528 South 5th Street
Suite 100
Springfield, IL 62701
Phone: (217) 522-7985 TDD: (217) 522-9966
Internet: gunther@midwest.net

17. **Indiana** A.T.T.A.I.N. Project
(Accessing Technology Through Awareness in Indiana)
1815 North Meridian, Suite 200
Indianapolis, IN 46202
Phone: (317)921-8766 TDD: (800) 743-3333
Internet: cfulford@vunet.vinu.edu

18. **Iowa** Program for Assistive Technology (IPAT)
Iowa Universtiy Affiliated Program
University Hospital School
100 Hawkins Drive, Room 5378
Iowa City, IA 52242-1011
Instate only Voice/TTY: (800) 348-7193
Phone/Voice/TDD: (800) 331-3027
www.uiowa.edu/infotech

19. Assistive Technology for **Kansans** Project
2601 Gabriel
P.O. Box 738
Parsons, KS 67357
Phone: (800) 526-3648
Internet: ssack@parsons.isi.ukans.edu

20. **Kentucky** Assistive Technology Service (KATS) Network
Charles McDowell Rehabilitation Center
8412 Wesport Road
Louisville, KY 40242
Instate only Voice/TDD: (800) 327-5287
Phone: (502) 327-0022 TDD: (502) 327-9855
www.katsnet.org

21. **Louisana** Assistive Technology Access Network (LATAN)
P.O. Box 14115
Baton Rouge, LA 70898-4115
Instate only Voice/TDD: (800) 270-6185
Phone/TTY: (504) 925-9500
Internet: latanstate@aol.com

22. **Maine** Consumer Information and Technology Training Exchange (Maine CITE)
Maine CITE Coordinating Center
Education Network of Maine
46 University Drive
Augusta, ME 04330
Phone/TDD: (207) 621-3195
Internet: kpowers@maine.caps.maine.edu

23. **Maryland** Technology Assistance Program (TAP)
Governor's Office for Individuals with Disabilities
300 W. Lexington Street, Box 10
Baltimore, MD 21201
Phone/TDD: (410) 333-4975
www.mdtap.org

24. **Massachusetts** Assistive Technology Partnership
MATP Center
Children's Hospital
1295 Boylston Street
Suite 310
Boston, MA 02115
Instate only Voice/TDD: (800) 848-8867
Phone: (617) 355-7153 TDD: (617) 355-7301
Internet: brewer_ju@a1.tch.harvard.edu

25. **Michigan** TECH 2000
Michigan's Assistive Technology Project
3815 West St. Joseph Hwy.
Lansing, MI 48917-3623
Phone: (517) 334-6502 TDD: (517) 334-6499
Internet: twist@mrs.mjc.state.mi.us

26. **Minnesota** STAR Program
300 Centennial Building
658 Cedar Street
St. Paul, MN 55155
Instate only Voice/TDD: (800) 657-3862
Phone: (612) 296-2771 TDD: (612) 296-9478
www.state.mn.us/ebranch/admin/assistivetechnology.html

27. **Mississippi** Project START
(Success Through Assistive/Rehabilitative Technology)
P.O. Box 1698
Jackson, MS 39215-1000
Phone/TDD: (601) 987-4872
Instate only Voice/TDD: (800) 852-8328
Internet: spower@netdoor.com

28. **Missouri** Assistive Technology Project
4731 South Cochise, Suite 114
Independence, MO 64055-6975
Instate only: (800) 647-8557
Phone : (816) 373-5193 TDD: (816) 373-9315
Internet: matpmo@qni.com

29. MonTECH Program
MUARID, The University of **Montana**
634 Eddy Avenue
Missoula, MT 59812
Phone: (406) 243-5676 TDD: (800) 732-0323
Internet: leech@selway.umt.edu

30. **Nebraska** Assistive Technology Project
301 Centennial Mall South
P.O. Box 94987
Lincoln, NE 68509-4987
Instate only: (800) 742-7594
Phone/TDD: (402) 471-2447
www.nde.state.ns.us/ATP/TECHome.html

31. **Nevada** Assistive Technology Collaborative
Rehabilitation Division
Community Based Services
711 South Stewart Street
Carson City, NV 89710
Phone: (702) 687-4452 TDD: (702) 687-3388
www.state.nv.us:80/

32. **New Hampshire** Technology Partnership Project
Institute on Disability/UAP
#14, Ten Ferry Street
The Concord Center
Concord, NH 03301
Phone/TDD: (603) 224-0630
Internet: mjpawlek@christa.unh.edu

33. **New Jersey** Technology Assistive Resource Program (TARP)
135 East State Street CN 938
Trenton, NJ 08625
Instate only: (800) 342-5832
Phone: (609) 292-7498 TDD: (800) 382-7765
www.mathenynj.com/tarp/tarp.htm

34. **New Mexico** Technology Assistance Program
435 St. Michael's Drive, Building D
Santa Fe, NM 87503
Phone/TDD: (505) 827-3532
Internet: nmdvrtap@aol.com

35. **New York** State TRAID Project
NYS Office of Advocate for Persons with Disabilities
One Empire State Plaza, Suite 1001
Albany, New York 12223-1150
Instate only Voice/TDD: (800) 522-4369
Phone: (518) 474-2825 TDD: (518) 473-6005
Internet: leffingw@emi.com

36. **North Carolina** Assistive Technology Project
Department of Human Services
Division of Vocational Rehabilitation Services
1110 Navaho Drive, Suite 101
Raleigh, NC 27609-7322
Phone/TDD: (919) 850-2787
www.mindspring.com/~ncatp

37. **North Dakota** Interagency Program For Assistive Technology (IPAT)
P.O. Box 743
Cavalier, ND 58220
Phone/TDD: (701) 265-4807
www.ndipat.org

38. Commonwealth of the **Northern Mariana Islands**
Assistive Technology Project
Developmental Disabilities Planning Office
Office of the Governor Building 1312
P.O. Box 2565
Saipan, MP 96950
Phone/TDD: (670) 322-3014
Internet: dd.council@saipan.com

39. **Ohio** T.R.A.I.N.
Ohio Super Computer Center
1224 Kinnear Road
Columbus, OH 43212
Instate only Voice/TDD: (800) 784-3425
Phone/TDD: (614) 292-3162
http://train.ovl.osc.edu

40. **Oklahoma** ABLE Tech
Oklahoma State University Wellness Center
1514 W. Hall of Fame Road
Stillwater, OK 74078-2026
Phone: (405) 744-9478 Voice/TDD: (800) 257-1705
www.okstate.edu/wellness/at-home.htm

41. **Oregon** Technology Access Through Life Needs (TALN) Project
1257 Ferry Street, S.E.
Salem, OR 97310
Phone/TDD: (503) 361-1201
Internet: ati@orednet.org

42. **Pennsylvania**'s Initiative on Assistive Technology (PIAT)
Institute on Disabilitites/UAP
Ritter Annex 433
Philadelphia, PA 19122
Phone/TDD: (215) 204-5968
Internet: piat@astro.ocis.temple.edu

43. **Puerto Rico** Assistive Technology Project
University of Puerto Rico, Medical Sciences Campus
College of Related Health Professions
Office of Project Investigation and Development
Box 365067
San Juan, PR 00936-5067
Phone in Puerto Rico: (800) 981-6033
Phone from U.S.: (800) 496-6035
TDD: (809) 754-8034
Internet: pratp@rcmad.upr.clu.edu

44. **Rhode Island** Assistive Technolgy Access Project (ATAP)
Office of Rehabilitation Services
40 Fountain Street
Providence, RI 02903-1898
Instate only: (800) 752-8008 ext. 2608
Phone: (401) 421-7005
TDD: (401) 421-7016
www.ors.state.ri.us

45. **South Carolina** Assistive Technology Program
USC School of Medicine
Center for Developmental Disabiliites
Columbia, SC 29208
Phone/TDD: (803) 935-5263
www.scsn.net/users/scatp/

46. **South Dakota** Assistive Technology Project (DakotaLink)
1925 Plaza Boulevard
Rapid City, SD 57702
Instate only Voice/TDD: (800) 645-0673
Phone/TDD: (605) 394-1876
www.tie.net/dakotalink

47. **Tennessee** Technology Access Project
710 James Robertson Parkway
Andrew Johnson Tower, 10th Floor
Nashville, TN 37243-0675
Instate only: (800) 732-5059
Phone: (615) 532-6558
TDD: (615) 741-4566
www.state.tn.us/mental/ttap.html

48. **Texas** Assistive Technology Partnership
The University of Texas at Austin
College of Education
SZ8252-D5100
Austin, TX 78712-1290
Phone: (800) 828-7839 TDD: (512) 471-1844
www.edb.utexas.edu/coe/depts/sped/tatp/tatp.html

49. U.S. **Virgin Island** Technology-Related Assistance for Individuals with Disabilities (TRAID)
University of the Virgin Islands/UAP
#2 John Brewers Bay
St. Thomas, U.S. VI 00801-0990
Phone: (809) 693-1323
Internet: yhabtey@gecko.uvi.edu

50. **Utah** Assistive Technology Program
Center for Persons with Disabilities
UMC 6855
Logan, UT 84322-6855
Phone: (801) 797-3824 TDD: (801)797-2096
Internet: sharon@cpo2.usu.edu

51. **Vermont** Assistive Technology Project
103 South Main Street
Weeks Building, First Floor
Waterbury, VT 05671-2305
Phone/TDD: (802) 241-2620
www.state.vt.us/dad/atp/cats.htm

52. **Virginia** Assistive Technology System (VATS)
8004 Franklin Farms Drive
P.O. Box K-300
Richmond, VA 23288-0300
Phone/TDD: (757) 662-9990
Internet: vatskhk@aol.com

53. **Washington** Assistive Technology Alliance
DSHS/DVR
P.O. Box 45340
Olympia, WA 98504-5340
Phone: (360) 438-8000 TDD: (360) 438-8644
http://wata.org

54. **West Virginia** Assistive Technology System (WVATS)
University Affiliated Center for Developmental Disabilities
Research and Office Park
955 Hartman Run Road
Morgantown, WV 26505
Instate only: (800) 841-8436
Phone/TDD: (304) 293-4692
www.wvu.edu/~uacdd/wvat.htm

55. **Wisconsin** Assistive Technology Program (WisTech)
Division of Supportive Living
2917 International Lane, 3rd Floor
Madison, WI 53704
Phone/TDD: (608) 243-5674
Internet: kiddlesb@mail.state.wi.us

56. **Wyoming**'s New Options in Technology (WYNOT)
P. O. Box 4298
Laramie, WY 82701-4298
Phone/TDD: (307) 777-7450 or (307) 777-4386
www.uwyo.edu/hs/wind/wynot/wynot.htm

Supported Employment means:

"1. competitive work in an integrated setting with ongoing support for individuals with severe disabilities for whom competitive employment:

   a. has not traditionally occurred, or

   b. has been traditionally interrupted or intermittent as a result of severe disability

OR

2. transitional employment for individuals with chronic mental illness."

Federal Register. (1987, August 14). Rehabilitation Act Amendments of 1986: The State Supported Employment Services Program; Final Regulations (34 CFR Part 363) 53(92), 30546-30552.

Check List for Comprehensive Career Planning

Assistive Technology is a component in the comprehensive career planning process for students with disabilities. The following checklist provides a guide for services that can be included in the development of a career portfolio.

Does the student have adequate career decision making skills?

- Has the student researched possible career pathways by:
  - joining school/community organization? ☐
  - conducting informational interview with a professional in the field of interest? ☐
  - reviewing career exploration books such as the DOT, OOH, GOE? ☐
  - exploring further education or training opportunities? ☐
- Has the student completed career exploration inventories including:
  - interest? ☐
  - personality? ☐
  - work values? ☐

Does the student have the skills and abilities necessary to qualify for the job?

- Does the student know the essential job functions in the chosen job preference? ☐
- Can the student perform the entry level requirements? ☐
- Does the student need an evaluation for supported employment? (See page 38.) ☐
- Does the student require a job coach? ☐
- Does the student have computer skills? ☐
- Has the student had an assistive technology evaluation? ☐

Does the student need job accommodations to perform the essential functions?

- Has the student had access to necessary assistive technology? ☐
- Is the student aware of options for purchasing technology such as:
  - personal resources? ☐
  - Vocational Rehabilitation? ☐
  - service agencies? ☐
  - employer? ☐
  - other (insurance companies, Veteran's Administration)? ☐
- Does the student know how to ask for job accommodations? ☐

Does the student have adequate job search skills?

- Does the student have a current resume? ☐
- Does the student know how to write a cover letter that introduces his/her skills? ☐
- Does the student have disability disclosure skills? ☐
- Does the student have interview skills? ☐
- Is the student aware of the importance of personal appearance? ☐
- Does the student know where to find job leads? ☐
- Is the student familiar with legislative acts designed to provide an equal employment opportunity? ☐

Definition of Terms

Abbreviation expansion program - a series of letters, words, or sentences are assigned to one or more keystrokes

Alternate keyboards - provide a variety of ways to input information into a computer

Assistive listening devices (ALD) - amplification systems that consist of two separate units: a microphone-transmitter and a speaker-receiver

Audio signals, tones - transmit a signal that can be heard to direct the path of traveler (usually in public places like train stations)

Augmentative and Alternative Communication (AAC) - aids, strategies, and techniques designed to enhance a person's existing communication skills

Braille - a system developed by Louis Braille using tactile, raised dots as symbols for printed material

Braille notetaker - small battery operated device with a braille keyboard to enter information

Braille printer - specialized printer for printing out documents in braille

Brailled signage - room, floor, or building namesigns embossed with braille letters as directional cues for people who are blind

Calculator (talking) - device that speaks numbers as they are entered and speaks the mathematical answer

Captioning systems - provide text messages of dialogue on video screen

Closed circuit television (CCTV) - scans the printed page with a special television camera and transfers the enlarged image to a computer monitor

Computer aided transcription - utilizes a personal computer, large display monitor and word-processing software to increase accessibility to public meetings

Computer-assisted access to text telephone - personal computer adapted to talk with a text telephone

Digitized speech - digitally recorded human speech for auditory output

Electronic amplification systems - contain a microphone, amplifier, and speaker used to increase access to communication

Electronic travel aids - transmit a signal that is bounced back from objects in the path of the traveler or may be a wide angle, high intensity light beam

Enlarged text - hardware or software that provides magnification of characters on the computer screen or in printed output

Four-track tape recorder - allows the user to adjust the speed

Grammar and spell checkers - show grammatical or spelling errors and offer suggestions to correct

Headpointer - headset and assistive software that replaces the keyboard and mouse to allow a person to control the computer by pointing at a scanning keyboard

Keyguard - a hard plastic cover with holes for each key designed to prevent the user from striking the wrong key

Large print software - specialized computer software that captures text entered on keyboard and increase the letter size on the screen

Minikeyboard - small keyboard that allows a person with limited range of motion in hands and arms to control the mouse and type on a computer

Modification of keyboard control system - software programs that modify the standard keyboard to simplify operation of the keyboard or replace the mouse

Morse code input - uses a switch to connect to an adapter that translates dots and dashes into standard keyboard signals

Mouth operated joystick - allows a person to enter data or text using an on-screen keyboard

Multisensory reading program - allows the user to customize the text size, background and foreground colors on the monitor and the voice characteristics

Optical character recognition (OCR) - software works with a scanner to convert printed material into a standard computer file

Reading comprehension programs - assist the user to improve reading skills

Refreshable braille displays - an external device that allows information on computer screen to be displayed in braille and to change as the user moves the cursor or display window around the screen

Relay services - relay bureaus place calls to persons who do not have a text telephone

Scanner - converts text from an image from a printed page to a computer file

Screen enlargement - focuses on a portion of the screen and enlarges it

Screen reader - software/hardware applications that convert computer generated text to artificial speech which is spoken through speech synthesizers

Signaling systems - transform one type of signal to another to allow persons to live more independently

Speech output voice box - portable touch activated speech output communication aid

Speech synthesizer - receives information going to the screen (letters, words, numbers) and speaks them outloud

Split keyboard - an adjustable configuration of the keyboard

Switches and switch software - a variety of options to input data into a computer

Synthesized speech - speech captured by the speech synthesizer and spoken outloud

Tactile building, floor marking and maps - brightly colored or raised markings on surfaces to increase awareness of potential hazards for people who use long canes

Tape recorder with indexing capability - recorder which has special capability for making important text on an audio tape

Telecommunication Device for the Deaf (TDD) - a device that allows a person to transmit typed in messages by telephone

Telephone amplification systems - amplified telephone handsets attach to the phone

Text telephone - phone modem linked with a teletypewriter allows users to type conversations

Touch pad - a touch-sensitive device that allows computer input without the use of a keyboard

Touch window - a device placed on the computer window that allows the computer to respond to touch

Trackball - a moveable ball that replaces the mouse and allows easier cursor control

Voice recognition program - the voice of the user inputs data and controls the computer functions

Word prediction programs - permit the user to select a word from an on-screen list generated by the computer and based on the first 2 letters typed by the user

Writing guide - resembles a stencil cut out

Much of the assistive technology listed here refers to computer technology because computer skills are essential in school, postsecondary training, and many employment settings.

The information contained in this guide was based on research conducted at Mississippi State University.

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Date: Spring 1998

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