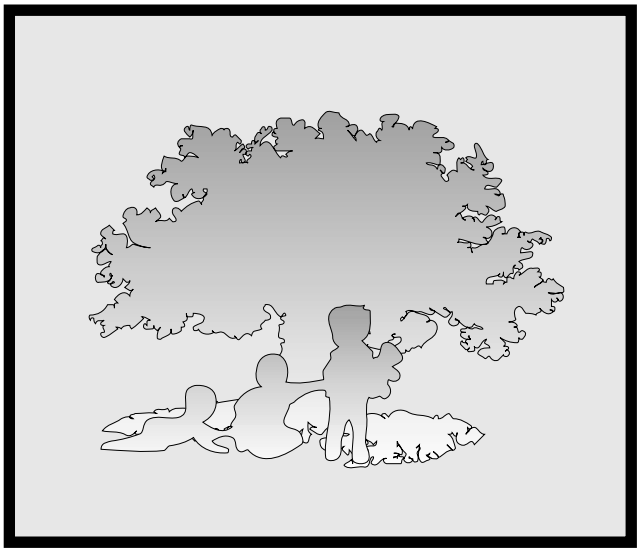
Guidelines for
Assistive Technology



Developed by the Connecticut
State Department of Education and
The Connecticut Birth to Three System

1999

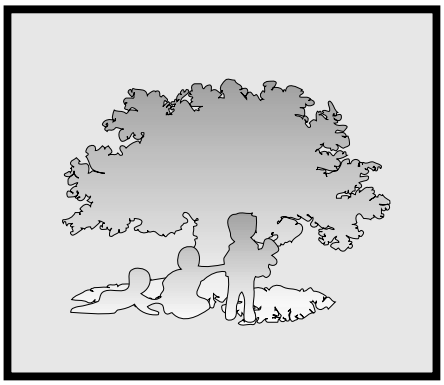
State of Connecticut

John G. Rowland, Governor

Board of Education

Guidelines for

Assistive Technology



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FOREWORD

Directly and indirectly, through the use of simple or sophisticated devices, technology is playing a continuously greater role in people's lives. It can increase our productivity and independence by facilitating the performance of routine tasks, simplifying more complex tasks, and allowing us to carry out activities with greater speed and less physical energy. It can increase our knowledge, understanding and participation by expanding our access to information, places and people. While technology, by definition, is assistive, it is especially important for individuals with disabilities because of its potential to reduce or eliminate barriers that interfere with access to equal opportunities. Technology enables and empowers these persons and their families because it holds the promise of greater participation in meaningful developmental, educational, social, recreational and vocational experiences. With the help of technology, what most of us are able to do quite naturally, and so take for granted, such as moving about, listening, speaking, reading, writing, playing, socializing and working, becomes, at last, achievable for many individuals with disabilities. Technology thus permits us to focus on abilities and possibilities instead of disabilities.

The State Department of Education's Assistive Technology Task Force and the Connecticut Birth to Three System, administered through the State Department of Mental Retardation, are pleased to offer these guidelines to help school and early intervention personnel and families to understand the nature and benefits of assistive technology and how to use current best practices to provide assistive technology to children with disabilities. Determining how technology can assist individuals with disabilities to realize their potential may seem daunting. As everyone becomes familiar with the contents of these guidelines, and as technology becomes more visible and used in a variety of activities, confidence about assistive technology will increase. It will also become more obvious that, from the perspectives of equity and cost-and time-effectiveness, administrators should integrate their assistive technology activities with other technology initiatives already underway in, or planned for, their programs.

Theodore S. Sergi, Commissioner
State Department of Education

Peter H. O'Meara, Commissioner
State Department of Mental Retardation

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ASSISTIVE TECHNOLOGY TASK FORCE CO-CHAIRS

Carolyn Isakson, Education Consultant
School Speech and Language Services
Connecticut State Department of Education

Marianne Kirner, Director
Special Education Resource Center

GUIDELINES WORK GROUP

Sandra Coelho, Technology Coordinator
East Windsor Public Schools
East Windsor, Connecticut

Cathy Daly, Consultant
State Department of Administrative Services
(Formerly: State Department of Social Services
Tech Act Project)

Cynthia Deshais, Principal
Roger Wolcott Early Childhood Center
Windsor Public Schools

Karen Franklin
Formerly: Assistive Technology Consultant
Rehabilitation Engineering Society of North America
Old Lyme, Connecticut

Laura Giovanetti, Assistive Technology Coordinator
Cooperative Educational Services
Trumbull, Connecticut

Laura Glomb, Parent
Ellington, Connecticut

Kim Hartmann, OTR
Director, Occupational Therapy Program
Quinnipiac College
Hamden, Connecticut

Karen Palma-Halliday, Consultant, Transition Services
Connecticut State Department of Education
Middletown, Connecticut

Gretchen Knauff, Assistive Technology Coordinator
Office of Protection and Advocacy for
Persons with Disabilities
Hartford, Connecticut

Carol Magliocco, P.T.
University Affiliated Programs
A.J. Papanikou Center
University of Connecticut
Storrs, Connecticut

Pat Piateck, Nurse Consultant
EASTCONN
Columbia, Connecticut

Deborah Richards, Manager
North Central Region
Connecticut Birth to Three System
Farmington, Connecticut

Judy Sweeney, Assistive Technology Consultant
Onion Mountain Technology, Inc.
Canton, Connecticut

Pat Tyler, Parent
Bolton, Connecticut

Wynn Schultz-Krohn, OTR.
Formerly: Director, Physical Therapy Program
University of Hartford
West Hartford, Connecticut

Betsy Warner
Formerly: Education Consultant
Special Education Resource Center (SERC)
Middletown, Connecticut

Susan Werboff, Director
Client Assistance Program
Office of Protection and Advocacy for
Persons with Disabilities
Hartford, Connecticut

Special thanks are offered to the following people for their input and support:

ASSISTIVE TECHNOLOGY TASK FORCE: ACCESS SYSTEM WORK GROUP

Anthony Maida, Chair
Special Education Director
Cooperative Educational Services
Trumbull, Connecticut

Vicki Espeland
Special Education Teacher
Regional School District #15
Middlebury/Southbury, Connecticut

John Ficarro, Coordinator
Tech Act Project
Bureau of Rehabilitation Services
State Department of Social Services
Hartford, Connecticut

Kim Hartmann, OTR
Director, Occupational Therapy Program
Quinnipiac College
Hamden, Connecticut

Barbara Heinisch, Director
Adaptive Technology Lab
Southern Connecticut State University
New Haven, Connecticut

Chauncey Rucker
Professor (retired)
Special Education Department
University of Connecticut
Storrs, Connecticut

Maria Synodi, Consultant
Early Childhood Special Education
Connecticut State Department of Education
Middletown, Connecticut

Betsy Warner
Formerly, Education Consultant
Special Education Resource Center
Middletown, Connecticut

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INTRODUCTION

Virtually everyone has benefited in some way from the development of both simple and very complex and sophisticated technology. A great many people have found their lives made easier through the use of technology. Others have found that they could accomplish much more because of technology.

Assistive technology (AT) is a broad and inclusive term that covers everything from computers to wheelchairs, from hand splints to access ramps. The federal definition of assistive technology includes any device that helps a person with a disability function in a given environment, but does not limit the device to expensive or "high-tech" options. Assistive technology can also include simple devices, such as laminated pictures for communication, specialized drinking cups, removable highlighter tapes, and velcro.

Over the last two and a half decades, there has been increasing federal and state legislative support for states, agencies and public schools to provide all children with disabilities, regardless of the severity of their disability, a free appropriate public education in the least restrictive setting, with opportunities to be educated with their non-disabled peers, to the maximum extent appropriate. As various laws have been reauthorized or amended, assistive technology has played a more prominent role in the developmental and educational plans for these children.

Federal support for special education dates back to 1975. In that year, Congress passed Public Law 94-142, The Education for All Handicapped Children Act (EHA), to ensure equal access by children with disabilities, ages five through twenty-one, to publicly funded educational opportunities and programs from which many of them had, until then, been excluded.

In 1986, Public Law 99-457 reauthorized the EHA, changing its name to the Individuals with Disabilities Education Act (IDEA). This statute required states to begin planning to serve children, ages three to five, who require special education by 1991. It also established the Infants and Toddlers with Disabilities Program by offering states financial assistance to begin planning to serve children from birth to age three with disabilities.

Although Connecticut required the provision of special education to children ages three to five with disabilities long before, the 1991 amendments to IDEA included a federal mandate for such services. It is in these 1991 amendments that the definitions of the terms "assistive technology device" and "assistive technology services" appear for the first time in education law. The accompanying changes in federal regulations that were adopted in 1992 included provisions that assistive technology devices and services be made available to children with disabilities if needed

as part of special education, related services, or supplementary aids and services designed to address their unique needs. For infants and toddlers with disabilities who would be served under the Birth to Three System when it was initiated, Part H of the IDEA also required the provision of assistive technology if deemed an appropriate part of their early intervention program in natural settings. Connecticut formally established its Birth to Three System with the passage of Public Act 93-383 in 1993.

With the most recent reauthorization of IDEA by Congress in June 1997, and the release of new regulations in March of 1999, school districts are required to do more than just ensure the availability of needed assistive technology. Now the Planning and Placement Team (PPT) that meets to develop, review and revise a child's Individualized Education Program (IEP) must consider whether a child requires assistive technology devices and services.[1] While not requiring that every child receiving special education services receive assistive technology devices and services, these statutes do require that the need for assistive technology be considered whenever an IEP is developed. Part C of IDEA '97 (formerly Part H) maintains the 1991 language about assistive technology for infants and toddlers.

Preschool and school aged children with disabilities are also afforded the right to assistive technology under other laws that govern school systems. Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, both civil rights laws, require assistive technology to be made available as an accommodation to students with disabilities who may not be eligible for special education.

Effective implementation of assistive technology requires more than knowledge of legal requirements. The purpose of these guidelines is to assist families, Birth to Three programs and schools with the integration of assistive technology into the natural settings of children from birth to age three and into the least restrictive educational programs of students with disabilities. The guidelines also focus on ways to assist teachers, early intervention providers, and others with the incorporation of assistive technology into the home or childcare environment for infants and toddlers, and the classroom curriculum and other activities for children who are 3-21 years of age. These guidelines represent the first guideline document in Connecticut to include information for children aged 3-21 years as well as children served in the Birth to Three System. They highlight applicable law and policy and provide school districts, Birth to Three programs and other service providers with a framework of best practices for addressing the implementation of assistive technology services and to provide for seamless acquisition, implementation, use and transfer of technologies from birth to age 21.

[1] 20 U.S.C. §(d)(3)(B)(v)

THE LAW

How is assistive technology defined in the law?

The definition of assistive technology includes both ***assistive technology devices*** and ***assistive technology services.***

> An ***assistive technology device*** is any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of children with disabilities.[2]

Assistive technology devices range from simple (low technology) through mid technology tools like tape recorders, calculators and switch operated toys to the most sophisticated and cutting edge tools (high technology) which are purchased and/or customized. Examples of low tech devices include straws or velcro; high tech devices include computers or motorized wheelchairs.

> An ***assistive technology service*** means any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device. The term includes:
>
> a. the evaluation of the needs of a child with a disability, including a functional evaluation of the child in the child's customary environment;
> b. purchasing, leasing or otherwise providing for the acquisition of assistive technology devices by children with disabilities;
> c. selecting, designing, fitting, customizing, adapting, applying, retaining, repairing, or replacing assistive technology devices;
> d. coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs;
> e. training or technical assistance for a child with a disability or, if appropriate, that child's family; and
> f. training or technical assistance for professionals (including individuals providing education or rehabilitation services), employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of children with disabilities.[3]

[2] 20 U.S.C. § 1402(1)
[3] 20 U.S.C. § 1402(2)

It is important to recognize the equal importance that the law places on provisions for assistive technology services and to the actual devices the student or young child needs. Ensuring that a child accesses and benefits from needed equipment requires the provision of a number of services which are discussed in later sections of these guidelines.

Which children are eligible to receive assistive technology devices and services?

All children with disabilities, from birth through 21 years, who are eligible to receive special education or early intervention services must be provided with assistive technology, if appropriate, as part of their Individualized Family Services Plan (IFSP) or Individualized Education Program (IEP). As part of the recent IDEA Amendments, assistive technology needs to be considered during the development or revision of a student's IEP.[4] The provision of assistive technology for children from birth to three is required, when appropriate, as one of 17 different services required under part C of the IDEA.

Students who do not qualify for special education under IDEA but are determined handicapped under Section 504 of the Rehabilitation Act of 1973 are eligible for accommodations that may include assistive technology devices and/or services.(Section 504 uses the term "handicapped" while IDEA uses the term "disability.")

A student or young child with a disability may also be entitled to assistive technology as a reasonable accommodation to his or her disability under the Americans with Disabilities Act.

How does Part B of the IDEA relate to the use of assistive technology?

Part B of the IDEA requires school systems to educate children with disabilities from ages 3 through 21 years. It mandates that each eligible child be provided with a free appropriate public education (FAPE) and that every child be educated in the least restrictive environment (LRE) to the maximum extent appropriate for the child. Parents have the right to be involved in all decisions relating to their child's identification, evaluation, and placement. Part B also assures that children with disabilities and their parents or guardians are protected by due process in decision making about the child's special education and related services.

When an IEP team is considering the use of assistive technology devices or services, decisions must be made with due consideration of FAPE, LRE, parental involvement, and parents' due process rights.

[4] 20 U.S.C. § 1414(d)(3)(B)(v)

What is FAPE and how does it relate to the use of assistive technology?

Each school system is responsible for providing a ***free appropriate public education (FAPE)*** for children with disabilities between the ages of 3 and 21 years.[5]

"Free appropriate public education" means special education and related services that:

a. are provided at public expense, under public supervision and direction and without charge;
b. meet the standards of the State Education Agency (SEA);
c. include preschool, elementary school, or secondary school education; and
d. are provided in conformity with an IEP that meets the legal requirements. [6]

FAPE consists of special education, related services, and supplementary aids and services. The term "special education" means specially designed instruction, at no cost to parents or guardians, to meet the unique needs of a child with a disability, including:

a. instruction conducted in the classroom, in the home, in hospitals and institutions, and in other settings; and
b. instruction in physical education. [7]

The term "related services" means:

> Transportation, and such developmental, corrective, and other supportive services as are required to assist a child with a disability to benefit from special education, and includes speech-language pathology and audiology services, psychological services, physical and occupational therapy, recreation, including therapeutic recreation, early identification and assessment of disabilities in children, counseling services, including rehabilitation counseling, orientation and mobility services, and medical services for diagnostic or evaluation purposes. The term also includes school health services, social work services in schools, and parent counseling and training.[8]

The above listing is not meant to be an exclusive listing of all possible related services; and therefore, assistive technology can be, and is included as one of the related services covered under the definitions of FAPE, as stated in a policy letter from the U.S. Department of Education's Office of Special Education Programs (OSEP).[9]

In terms of FAPE, the provision of appropriate assistive technology devices and services must be made at no cost to the student and his or her parents. It must be part of a special program designed

[5] 20 U.S.C. 1412 (a)(1)(A) and § 1413 (a)(1)
[6] 20 U.S.C. § 1402(8)
[7] 20 U.S.C. § 1402(25)
[8] 20 U.S.C. § 1402(22)
[9] 16 EHLR 1317 (1990)

to meet the individual needs of the student and may be provided as part of special education, related services, or supplementary aides and services. FAPE is not required under Part C for children from birth to three, so assistive technology is required for these youngsters only as one of many early intervention services to meet a child's developmental needs.

What does the "free" in FAPE mean and how does this relate to assistive technology?

The "free" in Free Appropriate Public Education means that all aspects of the special education and related services provided to a child with disabilities between the ages of 3 and 21 must be at "no cost to the parents." This rule prohibits schools from refusing to include equipment or services in an IEP because of expense. For example, a school system cannot deny access to a needed device only because of its cost. The only time "cost" can be a consideration is when two *equal* alternatives exist that would each enable the child to receive an appropriate education. In this case, the school may choose the less expensive option.

In addition, schools may not force parents to pay for devices and services that appear as part of their child's IEP. Parents cannot be required to use private insurance to pay for devices and services, especially if they would suffer a financial loss as a result. Loss has been defined to include a decrease in coverage, depletion of a lifetime cap, raised premiums, and/or discontinuation of a policy to pre-existing condition exclusions. If a family agrees to allow the school access to their private insurance, this decision must be *strictly voluntary*.[10]

Does the term "appropriate" in FAPE mean the "best" and how does this apply to assistive technology devices and services?

The term "appropriate" in FAPE does not mean "best." School systems are required to provide a student with a disability with an "appropriate" education. IDEA does not define the term "appropriate." However, the United States Supreme Court looked at the issue of "appropriate" vs. "best" in the Board of Education of the Hendrick Central School District v. Rowley (1982).[11] The court ruled that the special education and related services offered a child with disabilities must meet two criteria in order to be "appropriate" for the purposes of the IDEA:

1. The IEP must be developed in accordance with the procedures set forth in IDEA, including those governing resolution of disputes between parents and school systems.
2. The IEP must be "reasonably calculated to enable the child to receive educational benefits".[12]

The 'Rowley decision', as the ruling has come to be known, established a "basic floor" for special education quality by holding that the IDEA does not require the school to provide an educational

[10] Wolfenden, p. 10.
[11] Board of Education of the Hendrick Central School District v. Rowley, 458 U.S. 176 (1982)
[12] Boundy and Ordover, p. 12

program that is designed to maximize a student's potential. The educational program must, however, "confer a benefit to the student that is more than trivial." The IEP must be one "under which educational progress is likely."[13]

In terms of assistive technology this has immediate impact. "Appropriate" in terms of assistive technology means the use of any device or service that a child needs in order to benefit from his or her education program. It also means proper assessment from knowledgeable professionals with parental input and training of all of the individuals involved in the student's program.[14]

What is LRE and how does it relate to the use of assistive technology?

> *"Advances in the development and use of assistive technology [AT] have provided new opportunities for children with disabilities to participate in educational programs. For many students with disabilities, the provision of assistive technology devices and services will redefine an appropriate placement in a least restrictive environment and allow greater independence and productivity."*[15]

The Least Restrictive Environment (LRE) requirement in IDEA states that:

> To the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled; and, special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability of a child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.[16]

Supplementary aids and services include devices and services such as curriculum modification, support staff, computers and other assistive technology devices, peer support, speech, occupational, and physical therapies.

The use of assistive technology devices may facilitate the student's achievement in the least restrictive environment. By providing tools that help a student function either more independently and/or more successfully in the regular classroom, assistive technology can impact both curriculum and staff supports that a student requires. For example, certain computer technologies provide ways in which students can be less dependent on staff supports for reading and writing tasks, thereby providing these students with the least restrictive environment for completing these tasks.[17]

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[13] Boundy, p. 12
[14] Goodman, p. 1
[15] Report of the Harris Commission on Education and Labor, in regard to P. L. 101-476.
[16] 20 U.S.C. § 1412(a)(5)(A)
[17] Sweeney and Rucker.

What is Part C of the IDEA and how does it relate to the use of assistive technology?

Part C of the IDEA (formerly Part H) concerns infants and toddlers with disabilities. Children with disabilities from birth to age three who are experiencing developmental delays in cognitive, physical, communication, social/emotional development, or in self-help skills or who have a diagnosed physical or mental condition which has a high probability of resulting in developmental delay are eligible under this program to receive early intervention services.[18] The program also allows the family of the child to receive clinical and support services as the child develops.[19] Each child referred to the Birth to Three System in Connecticut for services under Part C must receive a comprehensive, multidisciplinary evaluation of his or her unique strengths and needs, and assistive technology (both devices and services) is one of the seventeen different services required under part C for evaluation. Evaluations must identify resources appropriate to meet the needs of the child, including the need for assistive technology.

Assessment of need and provision of services (including assistive technology) through early intervention programs is always family centered. An assessment of the "family resources, priorities and concerns", including the "identification of supports and services necessary to enhance the family's capacity to meet the developmental needs of their infant or toddler",[20] must be conducted. A written document called an Individual Family Service Plan (IFSP)[21] is formulated to address the developmental delays of the child, as well as the resources and needs of the family. Statements about early intervention services, including assistive technology devices and assistive technology services[22] and how they will be delivered are also required.

Unlike Part B of the IDEA, Part C does not require a FAPE be provided to each eligible child. Instead, assistive technology and other services are required as one of many early intervention services that must be provided to meet the developmental needs of the child.

As in Part B, parents must be an integral part of the process of determining the needs of the child. Parents must give consent to evaluations and placements of their child and must be included as part of the team formulating the IFSP. Parents may also appeal decisions of the team through due process procedures. This parental input is vital in the selection and implementation of assistive technology.

When a student transitions from Part C into school, assistive technology equipment used by that student may transition with him or her under current Connecticut Birth to Three policy so that the child can continue to use the device(s) at home and in school. When the child no longer has use for the equipment, the device reverts back to the child's former Birth to Three program.[23]

[18] 20 U.S.C. § 1432(5)
[19] RESNA, (April 1992)
[20] 20 U.S.C. § 1436(a)(2)
[21] 20 U.S.C. § 1436(d)
[22] 20 U.S.C. § 1432(4)(E)(xiii)
[23] CT Birth to Three System Procedures Manual: Assistive Technology revised 8/27/97

What is Section 504 of the Rehabilitation Act of 1973 and how does it relate to the use of assistive technology?

Section 504 of the Rehabilitation Act of 1973 is a civil rights statute that prohibits agencies and programs which receive federal funds from discrimination against individuals with disabilities. Public schools receive federal funds, and therefore, are subject to the provisions of Section 504. The law states:

> "No otherwise qualified individual with handicaps in the United States...shall, solely by reason of his handicap, be excluded from participation in, be denied the benefit of, or be subject to discrimination under any program or activity receiving federal financial assistance..." [24]

The definition of disability under Section 504 is different from the definition of disability under IDEA. Under Section 504 an "individual with handicaps" is defined as a person who:

> "(i) has a physical or mental impairment which substantially limits one or more major life activities, (ii) has a record of such an impairment, or (iii) is regarded as having such an impairment."[25]

Major life activities include activities such as walking, sleeping, seeing, hearing, learning, caring for one's self, performing manual tasks, speaking, breathing and working. The definition of individuals with handicaps under Section 504 is broader than the definition of children with disabilities under the IDEA. Some children who are not eligible for special education services may be able to receive services under the protections of Section 504.

Section 504 applies to preschool, elementary and secondary schools that receive or benefit from federal financial assistance. These programs are required to provide students with disabilities a free appropriate public education.[26] Section 504 defines appropriate as the provision of regular or special education and related aids and services that are designed to meet the individual educational needs of handicapped persons as adequately as the needs of non-handicapped persons. Programs subject to Section 504 must ensure that students with disabilities are afforded an equal opportunity to participate in all academic and extracurricular school programs. Benefits and services provided to students with disabilities must be equal to, and as effective as, the benefits and services afforded to other students.[27]

Schools may have to make special accommodations, including the provision of assistive technology devices and/or services, to allow students with disabilities to have access to the full range of programs and activities. The key here is the equal opportunity to participate required under Section 504.

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[24] 29 U.S.C. § 794
[25] 29 U.S.C. §706(8)(B)
[26] 34 CFR §104.33
[27] 34 CFR §104.4(b)(ii-iii)

How does the Americans with Disabilities Act help a student or young child who requires assistive technology?

The Americans with Disabilities Act (also known as ADA) is a civil rights statute passed in 1990 to protect the rights of persons with disabilities in almost every facet of their lives, including school, work and recreation. Students and young children (0–21) with disabilities who are not eligible for special education under the IDEA may have a right to assistive technology under either Title II or Title III of the ADA.

Title II of the ADA, which reinforces many of the requirements of Section 504, covers state and local government services. It prohibits discrimination against qualified individuals in the services, programs or activities of the public entity. Public entities include school systems and publicly operated preschool programs and other instrumentalities of state and local governments.[28] Title II extends the protections found under Section 504 to all programs, services and activities of state and local governments, including those that do not receive federal financial assistance. (Local governments operate schools.)

The regulations of Title II of the ADA state that:

> "No qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of a public entity, or be subjected to discrimination by the public entity."[29]

Aids, benefits and services provided to children with disabilities must be equal to those afforded to others and must be as effective in affording equal opportunity to obtain the same result, to gain the same benefit, or to reach the same level of achievement.

In order to comply with the Title II discrimination prohibitions, school systems may be required to make reasonable modifications in policies, practices and procedures or to provide "auxiliary aids and services" to the student with a disability.[30] "Auxiliary aids and services" include assistive technology devices such as tape recorders, computers, and listening devices. In addition, the terminology includes assistive technology services, such as the acquisition or modification of equipment.[31]

Title III of the ADA prohibits places of public accommodation from discriminating against persons with disabilities. Places of public accommodation are privately owned entities such as a nursery school, or elementary and secondary private schools.[32] The general prohibition of discrimination under Title III states that "no individual shall be discriminated against on the basis of disability in the full and equal enjoyment of the goods, services, facilities, privileges,

[28] Ordover.
[29] 28 CFR §35.130(a)
[30] 28 CFR §35.130(b)(7)
[31] 28 CFR §35.104
[32] 42 U.S.C. §12181(7)(J)

advantages, or accommodations of any place of public accommodation..." [33] Individuals with disabilities may not be denied these goods and services because of disability. They may not be required to accept goods and services that are unequal or separate from those provided to non-disabled individuals.

In terms of assistive technology devices and services specifically, Title III requires public accommodations to make reasonable modifications in policies, practices and procedures that would afford individuals with disabilities an opportunity to participate in and benefit from the goods and services of the public accommodation. As in Title II, "auxiliary aids and services" may be required if appropriate. Additionally, Title III entities must eliminate architectural barriers that are readily achievable to remove.[34]

What is the difference between medically necessary and educationally necessary assistive technology?

The recent Supreme Court decision in *Cedar Rapids Community School District v. Garret F*. [25 IDELR 439] provides a clear test for purposes of determining whether or not a school district is responsible for providing a device or service which may be considered medical and therefore an excluded service. The Supreme Court ruled that a "bright line" distinction exists between those devices/services which can be excluded from school responsibility as a medical treatment or service and those which cannot and therefore must be provided as a related service under the IDEA. Under the bright line test, the inquiry focuses on who must deliver the device or service, not on the nature of the service to be provided. If a physician must deliver the device or service, it is not a related service, and may be excluded as a medical service or treatment. The school is not responsible for providing the device or service. If individuals other than a physician can provide or deliver the device or service, including but not limited to nurses, physical therapists, occupational therapists, speech/language pathologists, audiologists, trained teachers or other trained school staff, it cannot be excluded as a medical service or treatment. The school will need to provide the device or service if the planning and placement team determines that the child needs the service or device as a related service in order for the child to benefit from the educational program.

What does the law say about devices that are used exclusively for the "personal use" of school-aged children?

IDEA and Section 504 do not provide for exemption of responsibility for "personal use" assistive technology devices. Examples of personal use devices include items such as customized wheelchairs, augmentative communication devices used exclusively by and programmed for an individual student, text readers for personal use or study, or services of a personal nature including assistance in eating, toileting or dressing. In cases such as these, if the device is part of the IEP or

[33] 27 CFR §§86.201(a)
[34] 28 CFR §36.304

meets the requirements set forth under Section 504, the school is responsible for providing the device.[35]

On a very limited basis, and under unique circumstances based on the individual needs of a student with disabilities, personal use devices such as hearing aids and eye glasses may also be considered assistive technology. An OSEP policy letter answering this specific issue stated that "the relationship that must be present is between the educational needs of the child and the assistive technology device and/or service."[36] The only exception to this is when the devices are determined to be "medical" and not "educational," as described in the previous section.

Individuals who qualify for assistive technology under the American with Disabilities Act (ADA) are subject to exclusion for personal devices. ADA regulations primarily address those technologies which ensure public access and accommodation.

What law protects consumers of assistive technology?

In June of 1997, Connecticut enacted the Assistive Technology Lemon Law (Public Act 97-100) to provide consumers with respect to "nonconforming assistive technology devices purchased or leased on or after January 1, 1998."[37] Nonconforming devices are defined as anything that "substantially impairs the use of the device" repaired or in some cases replaced or refunded. The law also helps device owners enforce either the warranty or lease guarantees associated with a device. Manufacturers or authorized repair dealers have ten (10) business days to complete the repair. If repair takes more than ten days or if the nonconformity has occurred on at least two previous occasions, the manufacturer must reimburse the consumer a reasonable per day cost for using an alternative device. The law also spells out specific consequences for devices that have been out of service for over thirty days or that have had to be brought in for repair three times within the warranty period or two years (whichever is longer). In those cases, replacement or refund is required.[38] This law does not apply to hearing aids.

[35] 10 IDELR 1216 SEILER (1993)
[36] 22 IDELR 629 BACHUS (1995)
[37] CPA §97-100
[38] *The Connecticut Tech Act Project.* http://www.ucc.uconn.edu/~techact/lemon2.html

RELATED TERMINOLOGY

Are there different types of assistive technology devices?

As the term assistive technology covers so many different types of devices, it is often useful to divide the devices into functional categories, as follows:

- ***cognitive or educational devices,*** such as switch operated toys and computer hardware and software;
- ***mobility devices,*** such as wheelchairs, scooters, strollers, walkers, or any devices or modifications that help a student or young child move through and interact with the environment;
- ***alternative augmentative communication devices,*** such as communication boards and dedicated communication devices and assistive listening devices; and
- ***environmental control devices,*** such as daily living aids, vocational aids, architectural modifications, and recreational technologies.[39]

These four different categories may share common devices, but typically each category serves different functions and needs of the student or child. Sometimes, devices in different categories are implemented and overseen by different kinds of professionals. For instance, a special educator or early intervention provider often evaluates and works with switch operated toys and cognitive or educational devices; a speech and language pathologist works with augmentative communication devices; occupational and physical therapists and nurses work with mobility and positioning devices and daily living aids; and occupational therapists and rehabilitation engineers work with environmental control devices. In other instances, professionals collaborate across disciplines regarding assistive technology devices, for example in a program of integrated services.

It is important to realize that within each of these categories, there is a continuum of device choices from simple to complex that should be considered when trying to find the assistive technology to use with a particular student or child for different tasks and in different settings.

What does a "continuum of devices" mean?

When an individual student's needs are being assessed for the possible use of assistive technology, there are usually a number of options that can and should be explored. For example, there are a number of assistive technology devices if a student has poor or very slow handwriting. Ideal trials

[39] Sweeney and Rucker, p. 7-12

should consider the impact of no technology, and then move through a continuum of devices from low and mid tech to high tech. The child may first try using a pen or pencil with special grips, then raised line paper, and finally may have some of his or her answers tape recorded. Eventually, if these lower tech adaptations do not provide the student with independence and success, the team should experiment with a mid or high tech device like a portable word processor or a computer with specialized software. However, if a low-tech device meets the child's particular needs, then the school is not obligated to purchase the high-tech device which might also solve the same problem.[40]

The continuum of devices should also be examined for infants and toddlers who require assistive technology. As with the selection of appropriate technologies to meet the needs of children 3–21 years of age, the selection of devices for younger children should always start with simpler, low or mid tech tools to meet the child's needs. If a low-tech device, such as a laminated picture for making a choice, meets the child's need, then that should be the device provided. If not, then higher tech options should be explored. In the case of very young children for whom natural settings are especially important, the different devices from across the continuum should also be carefully matched to the different environments in which the devices will be used. For example, while a low-tech device like a walker might be the best choice in the home environment, the child might be better served by a wheelchair in a school, day care or community setting.

Relying on a continuum of possible options and trying a variety of solutions with the student allows for the best fit between the student's or child's needs and features of the device. When choosing devices for infants and toddlers, it is also important to note that trials with a variety of different devices can actually help determine the child's needs, preferences, and learning styles. [41] When selecting devices for children 3–21 years of age, the school team should explore all possible solutions beginning at the low end of the continuum and remembering that as one moves toward the high end, there is an increasing requirement for training, maintenance, and repair.

Are there other ways to categorize assistive technologies, especially as they relate to specific functional or disability needs?

The Rehabilitation Engineering Society of North America (RESNA) and other national and state-wide agencies often use the following listing of assistive technology categories and examples to help people understand the broad scope and potential of devices and services. The IEP or IFSP team determines whether these devices meet a student's/child's educational or developmental needs:

Aids for Daily Living

Self-help aids are designed for use in activities such as dressing, personal hygiene, bathing, home maintenance, eating, and cooking.

[40] Keenan, p. 33.
[41] Armstrong and Jones, p. 31-32

Assistive Listening

Assistive listening devices to help with auditory processing may include hearing aids, personal FM units, sound field FM systems, text telephones, and closed caption TV.

Augmentative Communication

Augmentative Communication systems may include symbol systems, non-electric alphabet boards, picture or object communications boards and wallets, electronic communication devices, speech synthesizers, and communication enhancement software.

Computer Access

There are a wide variety of computer access technologies. Eye blinks, hand movements, mouth movements, or head or neck movements are some of the methods that may be used to operate devices which provide access to the computer. Once an anatomical site has been determined, then decisions can be made about input devices, selection techniques (direct, scanning), and acceleration strategies (abbreviation expansion, prediction). Input devices include switches, expanded keyboards, mouse, trackball, touch window, speech recognition, head pointers, keyboard emulators, and electronic communication devices. Output devices include any adaptation that may be needed to access the screen display such as tactile (braille), text enlargement, or synthesized speech. In some instances, access to keyboards can be improved by simple modifications such as slant boards, wrist rests, keyguards, keyboard masks or a shoe box to define mouse movement.

Environmental Control

Independent use of equipment in the classroom can be achieved for students with physical disabilities through various types of environmental controls, including remote control switches and special adaptations of on/off switches to make them accessible (e.g., Velcro attachments, pointer sticks).

Mobility

Mobility devices include braces, self-propelled walkers and manual or powered wheelchairs. Mobility also refers to specialized training and aids for individuals with low vision, blindness or dual sensory impairments and may include long white canes, electronic image sensors which provide information through vibration, and telescopic aids for reading signs or spotting other landmarks.

Visual Aids

General methods for assisting with vision needs include increasing contrast, enlarging images, and making use of tactile and auditory materials. Devices that assist with vision may include optical or electronic magnifying devices, low vision aids such as hand-held or spectacle-mounted magnifiers or telescopes, closed circuit television read/write systems, cassette tape recordings, large print books,

braille materials, computer screen reading adaptations such as enlargement, synthesized voice and refreshable braille, scanners, optical character readers, reading machines, electronic note taking devices, braille writers, copy machines which can increase the size or contrast of images, halogen or other lighting modifications, and vision stimulation devices such as light boxes.

Physical Education, Recreation, Leisure and Play

A student with a disability has a right to an appropriate physical education program through inclusion in a regular physical education class or adapted physical education. Assistive devices include beeping balls or goal posts, wheelchairs adapted for participation in sports, game rules in adapted sports or fitness/exercise equipment. Adapted recreational devices include drawing software, computer games, computer simulations, head wands for painting, interactive laser disks, and adapted puzzles.

Assistive Toys and Switches[42]

Because "play" is the work of infants and toddlers and preschoolers, assistive devices such as switch operated toys serve a vital role in the development of young children with disabilities. They provide these children with opportunities to develop their play skills with both objects and their peers while giving them more control over their environment.[43] A full range of toys can also ensure that children with special needs have a full range of sensory inputs and that playing with these toys offer them a variety of different movement patterns. Finally, playing with switch operated toys helps build important cause and effect and choice-making skills which help prepare a child for communication aids and computer use.[44]

Positioning

In the classroom, individuals with physical disabilities may need assistance with positioning so that they can participate effectively in school work or in other everyday or natural environments. Generally, nurses and therapists try to achieve an upright, forward facing position by using padding, structured chairs, straps, supports, or restraints to hold the body stable and in a comfortable position. Also considered is the child's position in relation to peers and the teacher or service provider. Often, it is necessary to design positioning systems for a variety of settings so that the student can participate in multiple activities in school, at home, or in other natural environments. Examples of equipment used for positioning are side-lying frames, walkers, crawling assists, floor sitters, chair inserts, wheelchairs, straps, trays, standing aids, bean bag chairs, sand bags and so forth.

[42] Wilds, p. 6.
[43] Musselwhite.
[44] Wilds p. 11.

Transportation Aids

Assistive technologies also include aids that give independence in personal transportation, such as hand-controls, car-top carriers, custom cars and vans and child restraints.

Vocational Skills

Preparing students for work often involves skills training with equipment adaptations needed to accomplish tasks. Jigs are devices used to mechanically maintain the correct positional relationship between a piece of work and the tool, or between parts of work during assembly. They are constructed to meet the individual needs of the student to carry out specific tasks.[45]

What is the most common type of assistive technology device used in educational settings?

The simple answer is computers. Computers are the main core of devices within the category of cognitive or educational devices. Because the primary job of schools is the education of children, people immediately think of computer technologies when assistive technology is mentioned for a child with special needs. Today, though, simply saying a computer is needed is an insufficient response. Hardware and peripheral needs, software requirements, and alternative access are important and ever changing issues. Knowledge of basic terminology and specialized assistive computer technologies is vital to users.

How are assistive technologies different from educational computer technologies that are already used in so many schools?

It is important to note that while assistive computer technologies may be very similar to regular educational computer technologies, for students with special needs that require these technologies, the computer is a *necessity*, not just an improvement. While a word processor might make one student's work look better, that same computer might provide the only way a student with special needs can finish written assignments independently.

The distinction between assistive and everyday technologies is becoming less clear as the concept of ***universal design*** is incorporated into conventional technology. Both fields are broadening and converging. Universal design concepts are concerned with designs of technology that provide access to all people. Most of what is considered assistive computer technology is truly just technology that makes computers more accessible to all.

[45] RESNA (April 1992), p. 6-9.

Are computers appropriate for use by children in Birth to Three programs?

Computer technology can help very young children acquire important developmental skills and work toward their individual goals. A variety of software programs have been developed for this population (some for children as young as 6 months). These programs help infants and toddlers learn and practice cause and effect and early choice making. They help these children build fine motor and visual motor skills. Children who are introduced to and become comfortable with assistive computer technologies before they start school have a distinct advantage and are better able to keep up with their non-disabled peers.[46] The focus should be on developmentally appropriate programs rather than those that stress academics.

What are the basic terms in assistive computer technology?

Basically, the computer consists of an integrated combination of ***hardware*** and ***software***. The term hardware is used to refer to the computer components - the actual pieces of equipment - such as the computer box or ***CPU (central processing unit),*** the ***monitor***, and the ***disk drive***. Beyond the basics of any computer system are additional, optional pieces of hardware called ***peripherals.*** Common peripherals include printers, scanners, external drives, and certain assistive technology devices, such enlarging systems attached to the computer.

The term ***software*** refers to the electronic instructions that tell the computer what to do. ***Application*** and ***program*** are other common words that refer to software.

When the term ***assistive*** is added to either hardware or software descriptions, the specific products were either created or customized to meet the needs of people with disabilities. In some cases, these products are specifically and exclusively used by people with special needs. In other cases, products available to the general public can be become assistive technologies when they are customized or used in unique ways to meet special needs.

The combination of hardware and software allows for processing of information provided to the computer. The key to processing is the ***operating system***. The operating system is the complex programming that tells the computer system millions of mundane, but extremely important, things every minute. It tells the computer what to do when a key is pressed, what kind of electronic dots to put on the screen, how to save a piece of information, when to access the disk drive to retrieve data, and all of the other functions that must occur when the computer is turned on. The operating system gives different brands of computers their different characters.

Most common computers have three hardware modes:

input - controlling information to be given to the computer;
processing - the internal manipulation of information; and
output - the communication of information back to the user.

[46] Pacer Center, Inc. p. 5

Computers may be equipped with the following types of input, processing, output software and hardware to help individuals with disabilities:

Input	Processing	Output
alternate keyboards interface devices joysticks keyboard modifications keyboard additions optical pointing devices pointing and typing aids switches with scanning scanners and optical character recognition (OCR) trackballs touch screens	abbreviation expansion macro programs access utilities menu management programs reading comprehension programs writing composition programs writing enhancement tools: word prediction spell checking grammar checking reference programs	braille displays and embossers monitor additions screen enlargement programs screen and text readers speech synthesizers talking and large print word processors

The hardware is useless without software, an electronic instruction book on a floppy disk or CD-ROM that tells the computer how to interpret, manipulate or control the information. Software is essential to the functional use of a computer. *There is no absolute best software, and new software is constantly being released. The child's individual needs and strengths at a particular point will guide the selection of software, and the availability of this software must drive the hardware choices.* Some examples of everyday software types are included below. For many of these categories, specifically created software programs for students with special needs are available.

Education and Training	Productivity Applications	Games and Recreation
early language skills building early learning keyboarding reading writing math and science problem solving language arts social studies	word processing charting, graphing and statistics desktop presentations databases spreadsheets desktop publishing finance and accounting project planners	sports simulation interactive novels chess and other board games mysteries and adventures
Graphics and Design	**Communications and Utilities**	**Music and Sound**
computer assisted design digital photography drawing / painting animation	telecommunications on-line services security / anti-virus	training composing recording

How are alternative and augmentative communication technologies used in schools and in the natural settings of infants and toddlers?

For schools to be responsible for the provision of alternative and augmentative communication devices, that device or the need for a device must be part of the IEP. Many augmentative communication devices are used exclusively by a single student because of highly individualized student needs and the need for individual programming of a device. Students typically use these devices in a wide variety of environments even within the school setting because they need the ability to communicate in the class, on the bus, during therapies, in the lunchroom, and at recess.

If use of or work with the device is required outside of the school setting and this use is also part of the IEP goals, objectives, and/or services, then access to that technology has to be provided by the school. In practice, many children learn, practice, and use augmentative communication devices provided by the school as part of the their educational program at home and in the community.

In the case of augmentative communication devices for children in early intervention programs, the devices should be used across all the natural settings so that the child learns how to communicate with a variety of different people in different circumstances. Many experts in the field believe that the inclusion of a variety of different augmentative communication strategies is particularly important for young children and recommend a program that uses signing, devices, gestures, and communication pictures and boards.[47]

How are mobility technologies used in schools and in the natural settings of infants and toddlers?

While many mobility devices, such as wheelchairs and walkers, are provided through private insurance, it is not inconceivable that a school would supply mobility technology if such a device meets educational vs. medical necessity definitions and meets the standards and requirements under IDEA or Section 504, including FAPE or LRE. For instance, a student might need access to several classrooms in a large school. The use of a walker or wheelchair might be required so that the student can get to class in a timely and safe manner. The use of these mobility technologies could provide the student with full access to his or her classes and full attendance time in these classes.

Mobility devices are particularly important for infants and toddlers. The importance of learning about, interacting with, and moving through the environment cannot be overstated for young children. In the first years of life, children learn about their environment, label it, and begin to interact with objects and people just by the ability to move from one place to the next as independently as possible. Assistive mobility technologies are, therefore, extremely valuable for young children with physical disabilities so that they can learn and explore just as their peers do.

[47] Pacer Center, Inc.

How are environmental control technologies used in schools and in the natural settings of infants and toddlers?

For those students who have daily living skills included in their IEP goals and objectives, low tech assistive technology devices such as special holding devices, pencil grips, specialized feeding spoons, switch controlled fans, and a variety of other devices have regularly been used to help prepare for community or vocational needs.

With increasing dependence on technology in all areas of life, though, the inclusion of assistive technologies in student transition plans, both in job preparation and community living, is becoming increasingly common. Assistive technologies that help students control or operate in a given environment more independently can be included in training that prepares students with special needs for post-secondary education and/or employment.

Environmental control devices also play an important role in the lives of very young children with disabilities. Because of the emphasis on family centered services, assistive technologies which help children eat, drink, bathe, or interact with their family members are particularly important.

What is the difference between *access* and *exclusive* use?

Most students need ***access*** to assistive technology to perform certain tasks more independently and/or successfully. Each student's need for assistive technology must be determined on an individual basis, and the IEP Team will determine if a student needs a particular device all of the time or only occasionally. If a student only requires occasional use, it is appropriate for other students to share the same technology device as long as it is needed at different times.

There are other technologies, though, that by their customization or function imply ***exclusive use*** by one student. These kinds of items, such as specialized communication devices or customized wheelchairs, are purchased essentially for the "personal use" of one person. In addition, it should be clearly understood that any device or service purchased through a student's private insurance or Medicaid funding is for the exclusive use of that child because ownership resides with the child or his/her family.[48]

In the case of assistive technologies provided as part of an IFSP, devices tend to be used much more exclusively because they very often "follow" a child from environment to environment. While the agency may retain actual ownership of a device when that agency paid for the majority of the technology, the device travels with the student (even into school) until it is replaced or the child no longer has a need for it.

The issue of access or exclusive use should be clearly addressed in the evaluation report and recommendations and final determination of the kind of use is a function of the IEP or IFSP process.

[48] RESNA, p. 22.

EVALUATION

Evaluation is an important part of the IEP/IFSP process. Once the IEP team has determined a student's educational goals, the role AT might play in the student's achievement of these goals needs to be discussed. In terms of the IFSP, an AT evaluation should be routinely considered when a child is first assessed for eligibility in early intervention programs.

When should an assistive technology evaluation be conducted?

With the 1997 reauthorization of IDEA, consideration of assistive technology needs for *all students* ages 3-21 currently receiving special education services is now required every time an IEP is written.[49] If technology use is required for the student's special education or related services program and/or if the student's access to technology in the regular education environment is limited, then the use of assistive technology should be explored Consideration should also be given to the potential use of AT in providing appropriate educational accommodations and modifications.

In the case of children from birth to age three, the evaluation should be carried out as part of the original referral and evaluation process, as the child's needs change, or when external factors (such as changing medications and conditions) dictate changes in the type or uses of technology. In particular, young children should be considered for an assistive technology evaluation when it appears that they need help to play more independently, communicate more effectively, sit, stand or move more independently, or feed themselves.[50]

How is the need for assistive technology devices and/or services determined?

The need for assistive technology devices and services is determined through an assistive technology evaluation. The evaluation can be conducted by capable professionals within the school district or Birth to Three program or by outside evaluators. Careful consideration should be given to evaluators' experience and training with assistive technology devices, services, and implementation, as well as their abilities to integrate the technologies into the curriculum through the IEP or into natural settings through the IFSP.

[49] 20 U.S.C. §1414(d)(3)(v)
[50] Pacer Center, Inc., p. 84.

What is an assistive technology evaluation?

Assistive technology evaluations differ somewhat from “typical” evaluations conducted as part of placement or review of a child’s needs and strengths. There are virtually no standardized tests to “find out” what kind of technology he or she needs to use. Instead, a good assistive technology evaluation looks at the results of all recent evaluations, along with the current IEP goals and objectives. The evaluation team or evaluator should interview people who work with the child, talk with the child’s parents, and interact directly with the child and the devices. The environment is carefully examined, especially when the device has to work in a variety of settings.

The actual evaluation process consists of considerable observation coupled with trials with a full range or continuum of possible devices from low to high technology. Data are gathered from these trials about the effectiveness of various technologies to meet the child’s needs. Information is collected concerning the child’s ability and accuracy when using various technologies, including the positioning and settings that work best. Finally, the child’s and family’s feelings about the actual devices tried are duly noted. (The feelings of the parents in regard to the assistive technology are a primary focus in the process of selecting devices for infants and toddlers, but it is clear that even very young children can show what they like and dislike by how they interact with different devices.)

Are there different kinds of assistive technology evaluations?

The field of assistive technology is often referred to as a “cutting edge” technology, one that changes faster than what most people can keep up with. As the number of devices and the complexity of those technologies has grown exponentially in the past few years, many people who work extensively in this area have found the need to specialize in different areas of assistive technology. Typically, these people have expertise in areas like assistive computer technology, augmentative communication, mobility and positioning, or environmental control and design. Other assistive technology experts specialize in age or disability-specific technologies, such as visual impairment devices, early intervention assistive technologies, and services or technologies for persons with hearing impairments.

While many people who regularly work with assistive technology have knowledge in a variety of areas, they are often most comfortable evaluating and making recommendations in only one or two areas. For this reason, a team based evaluation with a variety of experts is often the best choice. When a team is not available and the child or student has a variety of assistive technology needs, then they might require several different kinds of assistive technology evaluations or an evaluation that includes several specific components.

Who is responsible for gathering information about assistive technology devices and services?

Under the federal definitions and IDEA, the school system or agency providing early intervention services is responsible for assistive technology services, one of which covers "providing for the acquisition" and "selecting" of devices.[51] The selection and acquisition process is often aided by all members of the IEP or IFSP Team who bring their observations and knowledge to the meeting, as well as by the AT evaluation team members who have expertise in the particular area of assistive technology needed. While parents can help in the process of gathering information about assistive technology devices or services, the responsibility for gathering this information ultimately rests with the school.

Current Birth to Three System procedures suggest that "much of the information for an assistive technology evaluation" can be gathered from general assessment information and reports and other intervention information that has already been gathered. In addition, information from parents provides valuable information before, during, and after evaluations. Where a child of that age can't usually verbalize feelings about using certain technologies, parents who are closely attuned to their children can provide such information as well as their own feelings about the use of the technologies within the family.

Who conducts an assistive technology evaluation?

The assistive technology evaluation should be conducted by an evaluator or group of evaluators who are knowledgeable about the specific disability needs of the child as well as the specific assistive technology devices and services that are available to meet his or her needs. Very often an evaluation team is assembled for this purpose from within the district or region. Occasionally, it is necessary to bring in an independent evaluator with specific expertise in a given area of assistive technology. Members of an assistive technology evaluation group should include an assistive technology specialist, the special education teacher, an occupational therapist, a physical therapist, a speech and language pathologist, the school nurse, or any other person regularly working with the student. Other professionals, including rehabilitation nurses and physicians and rehabilitation engineers, should be consulted or included more formally as team members, as appropriate.

Input from parents and the student is also essential for a complete evaluation. Some evaluators or evaluation teams videotape evaluation sessions, so that all participants can view and comment on the needs and strengths found during the evaluation before the report is submitted. Mostly importantly, the assistive technology evaluator or evaluation team "must have knowledge and experience in relation to the possible intervention strategies, devices, and services which may help to meet the specific need of the child."[52]

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[51] 34 CFR §300.6(b) and (c)

[52] Chambers, A.C. (1997) *Has Technology Been Considered? A Guide for IEP Teams.* Albuquerque: CASE/TAM, p. 10.

Are there certifications/licenses required for an assistive technology evaluator or trainer?

There are currently no certification or licensure requirements for assistive technology experts through the State Departments of Education, Mental Retardation or other state agencies. People with expertise in this area typically hold various professional titles, including special education teacher, computer consultant, occupational therapist, physical therapist, speech and language pathologist, rehabilitation engineer or rehabilitation nurse. However, a number of national organizations (RESNA and American Speech-Language-Hearing Association, for example) have established, or are developing, competency tests or other requirements for their members who work in the AT area.

It is important to note, though, that not all professionals who work with students with special needs are knowledgeable about, or capable of, conducting assistive technology evaluations. In fact, at the present time, the number of professionals who have any degree of expertise with assistive technology is relatively small. Therefore, it is absolutely necessary for the IEP/IFSP Team to determine the AT expertise of all evaluators.

Where is the assistive technology evaluation conducted?

IDEA requires that an evaluation be performed in functional settings in which the child will use the assistive technology (e.g., the classroom, day care, gymnasium, bus, and home). This is also true for children receiving early intervention and school provided special services.

Conducting an evaluation in the child's customary environment is important for a number of reasons. First, since children are more at ease in these settings, observations and trials are more realistic. Secondly, the actual physical environment is an important part of the evaluation, especially when considering the need for electrical outlets, when equipment has to be moved across settings, or when lighting (natural or electric) affects the use of the equipment. In addition, a thorough evaluation takes into account seating and positioning the technology that is already available, and how easily the child can access and use that current technology. Trials of possible devices, though, can be carried out in lab or demonstration settings, in which the children, parents, and service providers can evaluate differences between options as easily as possible.

What should be included in the assistive technology evaluation?

Regardless of the disability, all AT evaluations should include the following components:

- an observation period involving the student/child in his or her current environment(s);
- the use of current equipment (if applicable);
- discussions with all members of the child's team, including the family, concerning goals/objectives/strengths;
- assessment of the child's health status,
- trials with a number of device options and assessment of their impact on desired behaviors, learning and health status.

The evaluation should be looking for needs or problem areas with the express purpose of tying a specific device to a specific need/goal/objective. The evaluation process should take into account the personal preferences of the student/child and family, the academic and related service goals and objectives, recent test results and report summaries, and concerns (in the case of the 3-21 year old children) about FAPE and LRE as they apply to assistive technology use.

Procedures for assistive technology assessments in the Birth to Three System require that information on the child's needs and abilities be examined in four different areas:[53]

- **physical and resources** general health and developmental,(including special medical considerations) vision, hearing, gross and fine motor function
- **cognitive resources:** ability to use switches, make choices, use scanning, understand language, use language to communicate, and respond to prompts or training trials.
- **emotional resources:** response to stimuli, reinforcers, attention span, distractibility and social interaction.
- **environmental resources:** what equipment is currently available, what is the physical environment, what supports are available, comfort with use of the technology.

What should be included in the assistive technology evaluation report?

The assistive technology evaluation report should include direct answers and recommendations to the questions posed by the IEP or IFSP Team regarding the use of assistive technology. The assistive technology evaluation report should include pertinent information regarding the reasons for evaluation, background of the student or child (including testing results that list strengths and weaknesses), observations of the child in the mainstreamed or typical natural environments, observations of the child using currently available technologies, and observations of the child using a variety of possible assistive technology options.

If the report recommends AT, it should include a full range of options or minimum specifications for equipment and, a detailed justification if one device is recommended over all other choices. Equipment choices should consider current equipment, as well as high and low tech options. If at all possible, recommendations should be prioritized and put on a time-line for implementation. In assistive technology assessment reports for children in the Birth to Three System, funding options must also be included as well as information about vendors and possible repair and maintenance providers.

The evaluation report should also contain clear expectations and sequences for training, including approximations of set-up and initial training time, as well as a complete listing of those who should be trained and how often the training should take place.

[53] CT Birth to Three System Procedures Manual: Assistive Technology revised 8/27/97

What role should the child's or parent's likes and dislikes play in the final recommendations?

There's an old cliche about "leading a horse to water..." that seems to be particularly appropriate to the successful implementation of assistive technology into a child's program. The best device in the world will not work if the child won't use it. One reason a device may not be used is that it is the wrong technology. Another reason could be that the student hasn't been trained how to use the technology. However, an often overlooked explanation is that the student simply doesn't like the device — even when all the experts, when everyone else on the team, feels they have provided the very best device. This is particularly true of devices that make students "look different" from their peers, especially in junior or senior high school settings. For this reason, it is important that the evaluator and IEP Team make sure they have listened to the likes and dislikes of the student during the evaluation.

In the case of very young children, the parents' preferences and feelings about particular devices often determine whether the implementation and use of these devices will be successful. Parents who understand how a device works and believe that it plays an important role in their child's development will provide more and better opportunities for the child to learn about and use the devices.

In many cases, successful choice and use of a device often requires an extended "trial period" with the device via rental or lease programs, giving the student or child an adequate chance to learn and use the technology and then evaluate its usefulness to him or her. In situations where a variety of different technologies, both low and high tech, serve the same needs, the child should also be provided, when appropriate, with reasonable access to several of these technologies for a trial period to make decisions about when and where to use each device.

Why is it important to provide for trial use of devices?

Many assistive technology devices are expensive, and schools, as well as other agencies who provide assistive technology, need to avoid the purchase of inappropriate equipment whenever possible. A good and thorough evaluation helps prevent these costly mistakes; but occasionally, a device that appeared to work well during the evaluation period will not be the best choice over a prolonged period of use. This occurs for a number of reasons including the child's changing needs, the difference between short term use with a one-on-one evaluator vs. long term independent use, and the child's real feelings about using the technology. For that reason, the use of "trial periods" for devices is recommended. However, "while it would be helpful if assistive technology companies would allow free trial periods or offer loaners at no cost, this rarely happens."[54] Some companies do, however, allow for equipment rental (with the ability to apply the cost of rental to purchase price), or they have return policies.

[54] Missouri Department of Elementary and Secondary Education.

How does the IEP Team make decisions based on the evaluation recommendations? (What are some of the parameters of choice making?)

There are a number of questions that the IEP Team should answer when deciding about the inclusion of assistive technology in a student's IEP. Based on the recommendations included in the evaluation report, the team should discuss the following questions. Discussion of these issues should be reflected in prior written notice.

Questions about Assistive Technology for the IEP Team to Discuss:

- What problem will the assistive technology device solve?
- Will the solution enable the student to function more independently and/or more successfully?
- Are there implications for the child's health status (e.g. effects of required positioning on respiratory or cardiac status?)
- What are the limitations of the device?
- Are there a number of equal device options for consideration?
- How flexible is the device? Can it "grow" with the student's needs and abilities?
- Is there a way that a currently available piece of technology can be modified to meet the need?
- Does the student like the device?
- Is the device safe and/or sturdy?
- Is the technology current enough to provide service and parts options for the immediate future?
- Are the size and weight of the device important issues?
- If the device is carried between home and school, what precautions need to be made?
- Has the device been on the market long enough to establish itself and for problems to have been worked out?
- Has there been or is there the possibility for an adequate trial period?
- What are the guarantee and warranty options?
- How complicated is the learning curve for this device?
- Is this device available or will it be back ordered?
- Is training included in the purchase or rental price?
- What is the expected lifetime of the device?
- What is the repair history of the device?
- Are there any hidden costs (batteries, custom modifications, alternative power systems, mounting, device compatibility)?
- Why is this technology more appropriate than other low-tech or no-tech alternatives?
- Have all the functional environments of the student's use of the assistive technology been considered?
- Can the device be used for a number of different tasks?

How does the IFSP Team make decisions based on the evaluation recommendations?

The following areas should be discussed by the IFSP team when reviewing the recommendations in the AT evaluation report:

- skills, needs and likes of the young child;
- child's sex and age;
- child's home and family activities;
- child's transportation to other settings and natural environments;
- the parent's goals for the child;
- the technology continuum;
- purpose and features of the technology (e.g., durability, flexibility, and size);
- length of time the technology will last or be used;
- usefulness of the technology with other devices being used;
- ability of the child to independently and successfully learn and use the device; and
- ease of repair.[55]

The potential effect of the technology on the child's health status should also be discussed.

[55] Parette et al, p.71.

ASSISTIVE TECHNOLOGY
IN THE IEP AND IFSP

What is the connection between the IEP and assistive technology?

Assistive technology must be considered when a student's IEP is developed, reviewed or revised. It is important that the IEP Team understand that consideration for assistive technology use, even when fully implemented, must be an "ongoing process" because "change in environment, change in the student skills/needs, and new technology may influence the process."[56] Some school districts have found it advantageous to name case managers or other support personnel to coordinate the implementation of all of these services in a timely and complete fashion.

How can assistive technology be included in the IEP?

The implementation of assistive technology as part of a student's educational program necessitates the addition of that technology to the IEP as specifically as possible. Everyone involved in implementing the IEP needs to know when and where specific technologies are to be used to meet the needs for which they have been recommended.

1. **Supplemental Aides and Modifications**
   Assistive technology in the IEP falls in this area when the technology device or service is provided in the regular classroom or other education-related settings to help the student be educated in the least restrictive environment. In this case, the assistive technology appears in regular education modifications. When AT is addressed in this way there should be clear statements about what equipment will be used in what subject settings and what personnel will have responsibility for implementation and/or oversight.

   The Pennsylvania Technology Instructional Support System divides these kinds of modifications into Method, Material, and Accommodation Technologies. Many of their specific method and material accommodation technologies consist of low tech devices and aides (such as color coding strategies, note cards, highlighters) and accommodation technologies consist of mid to high tech devices (such as tape recorders, calculators, and computer access).[57]

[56] Chambers, p. 26.
[57] Marquetter, J.

2. **Special Education**
   In most cases, addressing a student's assistive technology needs will have specific ties to special education goals and objectives. For example, the goal might be for the student to "Use the computer independently for writing." Specific objectives might include actual computer use skills such as turning the equipment on and off, saving and loading files, printing, etc. Goals might also include more subject specific objectives including learning to use specific software, to finish tasks independently.

3. **Related Services**
   Assistive technology may also be included in the IEP as a related service similar to occupational therapy, physical therapy, speech-language services, or health services, or in support of other related services. IEP goals and objectives need to be developed when AT is included as a related service.

How can assistive technology be included on the new Connecticut IEP forms?

There are a number of places on the IEP form recommended by the Connecticut State Department of Education where discussions about assistive technology can be reflected and specific information recorded.

- The **PPT Recommendations** can summarize decisions about AT.

- The **PPT Minutes** can include information about the discussions regarding AT.

- The **Prior Written Notice** page contains places to report actions proposed or rejected by the PPT, the reasons for the decision and information that supports the decision. These sections can include requests for AT evaluations, leasing or purchasing equipment, training the child, family or staff, or seeking the services of an AT consultant. For example, the AT evaluation can be listed under the "Other" designation of Evaluation Procedure, Tests, Records, or Reports the IEP Team used as a basis for its decision to acquire a particular device for a child.

- Information about the child's **Present Levels of Educational Performance** should be used to guide the PPT's decisions about the need for AT. This section must indicate how the child's disability affects the child's involvement and progress in the general curriculum and for preschool children, how it affects the child's participation in developmentally appropriate activities.

- The **Measurable Annual Goals** should reflect the use of AT to perform certain tasks. AT may be a means to help the child reach a goal. It should not be the goal itself.

- **Short Term Objective / Benchmarks** that will be achieved through the use of assistive technology should clearly state what technology will be used to meet that objective so that

everyone involved in implementing the IEP understands where, when, and why the student will use the technology.

For instance, the goal statement below might contain a number of objectives that could be impacted directly by specific low-, mid- and high-tech devices. In the example, the first objective states a benchmark for achieving the written communication goal, but the technology is not mentioned. Someone reading the IEP may have no idea of the intended use of assistive technology. The restatement of that objective clearly indicates the use of assistive technology. With objectives that include the specific technology, everyone involved in implementing the IEP knows and understands what is expected and what will be used.

GOAL: The student will demonstrate narrative writing commensurate with the third grade language arts curriculum

Short Term Objective or Benchmark:
The student will write a paragraph with at least 5 sentences demonstrating appropriate grammar, punctuation, and spelling.

Short Term Objective or Benchmark *with assistive technology:*
The student will write a paragraph with at least 5 sentences demonstrating appropriate grammar, punctuation, and spelling using the computer with word processing, word prediction, and spell checking software.

- **Assistive technology must be considered every time an IEP is developed**. On the state recommended IEP form there is a space below the grid for services to check off whether assistive technology is required and to provide some specific information about particular requirements. There is also a section that includes information about whether a student who is deaf or hard of hearing requires assistive technology.

- Actual assistive technologies can be listed or checked off on **the Modifications or Adaptations Checklists on** the state recommended IEP form. Many of these modifications fall under the category of supplemental aides, which by federal statute include assistive technology. However, it is not enough to simply check off low-, mid-, and high-tech devices. Everyone on the team needs to know when and where to use these technologies.

How can assistive technology be included in an IFSP?

Under Part C of the IDEA, assistive technology devices and services are required only when they relate to the developmental needs of infants and toddlers and their families. Assistive technology devices must be part of interventions required to aid in developmental tasks such as mobility and interaction with the environment, communication, and cognition, and inclusion of assistive technology as part of early intervention services must address "family needs."[58] When considering

[58] 20 U.S.C. §1436(d)(4)

an assistive technology device to help meet a student's IEP goals and objectives, the education aims are of primary importance; but when considering assistive technology as a way to help a child meet his or her IFSP goals and objectives, the family needs are of primary importance.[59] However, neither Part B nor Part C of IDEA covers devices which are required for medical or life-sustaining purposes.[60] Inclusion of assistive technology in either the IFSP or the IEP must occur on an individual basis and must be based on the child's needs, the family's concerns, and intervention priorities and resources.[61]

How can assistive technology be included in a student's transition services?

Transition services are designed to help students prepare for long-term, adult outcomes. Transition services are part of the IEP for children ages 14–21. Assistive technology can be a part of the transition services designed for these students as they prepare for independent living, vocational placements, and community experiences.[62] The use of assistive technology in transition services can be coordinated by the transition or vocational counselor who also helps coordinate the purchase and use of assistive technology for the student. As a student goes through the transition process, various agencies are involved with actual implementation of the plan. Decisions regarding which agency is responsible for providing the assistive technology must be determined during the IEP process, and if the services are not provided by other agencies, the PPT must be reconvened to identify alternative strategies.[63]

If a device is specified in the IEP, what is required of the school district?

Once a specific device or piece of software becomes a part of the IEP, the school is responsible for purchase and installation of the device or software;[64] training of the child, parents, and staff,[65]as appropriate; ensuring availability to the student; and proper and consistent functioning of the device or software.[66] If the device or software is not available or working, or if the student has not been trained to use it, the district is failing to properly implement the IEP.

If a device is specified in the IFSP, what is required of the early intervention program?

The early intervention program serving the needs of the child must help secure appropriate funding and all of the other services required under federal and state regulations. The program is responsible for gathering information, determining and putting funding options in place, arranging for set-up and training, and monitoring the use, maintenance, and repair of the device as needed.

[59] Parett, et al, p. 13.
[60] 20 U.S.C. §1402(22),(25) and (29) and 1432(4)
[61] Parett et al, p. 13.
[62] New York state Education Department, p. 30
[63] P. L. 105-17, Section 614 (d) (5)
[64] 20 U.S.C. 1402(2)(B) and 1 ECLPR ¶ 245 (1991)
[65] 20 U.S.C. 1402(2)(E) and (3)(F)
[66] 20 U.S.C. 1402(2)(C)

Under what conditions can a student use the assistive technology outside of school?

On a case-by-case basis, if the IEP team determines that the child needs access to assistive technology devices in order to receive FAPE, the use of school-purchased devices in the child's home or other settings is required.[67] This need should be clearly stated in the IEP. Examples of AT use beyond the school day environment include the use of assistive technology such as computers with specialized software to complete homework, or augmentative communication devices which need to be used at home in order to practice and reinforce communication skills. When it is not feasible to move the technology between these two locations, the school is responsible for providing a similar system at home for the student's use, for providing the same software for use on a home computer, or for providing an equal alternative for completing the given work.[68] Discussion of the need for assistive technology beyond the school day setting and the resulting decision should be reflected in written prior notice.

Under what conditions can a child use the assistive technology outside of the early intervention program site?

For children in the Birth to Three System, service providers and service coordinators encourage the use of different assistive technologies across the all of the child's natural settings. In many cases, the family actually owns the technology in use by the child because of funding options developed in the IFSP, so the use of the devices in all settings, especially the home, is expected.

Can the school require a student to bring a device from home?

If parents independently provide an assistive technology device, the school cannot require that the device be brought to school. In fact, parents can insist that another device be provided for school use if the device is included in the student's IEP. However, it is not uncommon to find schools and parents working together either jointly funding some devices or sharing in the purchase of several devices. This is especially true when the device is used across the entire spectrum of the child's environment. However, it should be noted that these arrangements are purely voluntary on the parents' part.[69] It should also be noted that there are no barriers that prevent a child from bringing his or her own assistive technology from home for use in school.[70]

What is the school's responsibility if a student is using a privately owned device in school?

Under a policy statement issued by the OSEP, the school "shall be responsible for such a device (a device that is part of the student's IEP and is provided by the parents) if the utilization of the

[67] 34 CFR §300.308(b) and 18 IDELR 627 (1992)
[68] Chambers, p. 13
[69] Wolfenden, p. 11
[70] Wolfenden, p. 20

device is noted in the student's IEP as a supplemental aid."[71] In addition, if the device the parents furnished is no longer available or is no longer in working order and "therefore is no longer available for purposes of implementing the student's IEP, the public agency is responsible for either continuing to implement the student's IEP by providing a substitute device, or for reconvening the student's IEP team for purposes of the reviewing the student's IEP, and if appropriate, revising its provisions."[72]

What are the parents' responsibilities when a device that is purchased by the school is used outside of school?

Because the school retains ownership of the device, the school is typically responsible for the device even when the child takes it home.[73] However, some school districts and parents have worked out reasonable expectations concerning the use of the equipment outside of school, including repair if necessary. The ultimate responsibility rests with the school as the owner of the equipment.

Can schools and early intervention programs place restrictions on the use of equipment that they own?

To the extent that their decisions do not contradict laws, regulations, and other legal precedents and policy statements at the federal level, some school systems and early intervention programs have found it advisable to set and discuss policies about the use of assistive technology outside of the school or controlled settings. Some of these policies might be referred to as "common sense" statements, but open discussion of them during the IEP/IFSP meeting ,and/or at the transition planning meeting, helps ensure that everyone has the same expectations and understandings.

[71] 21 IDELR 1057 (1994)
[72] 34 CFR §300.343(a) and 21 IDELR 1057 (1994)
[73] 21 IDELR 1057 (1994)

Among the kinds of policies that a school or Birth to Three program should consider putting in writing are:

- requirements that the device is used exclusively by the child;
- requests for reasonable use of the equipment including a request, for instance, that the computer be used only with the surge protector sent home with it;
- requests that all problems with the equipment that arise at home be reported as soon as possible;
- requirements that the device be returned to the school the day after it is taken home or by predetermined schedule;
- requirements that only IEP or IFSP approved software be added to the computer;
- requirements that programs or settings not be changed or added to unless individuals affected by these changes are appropriately trained; and
- procedures for transporting equipment between home and school or early intervention site.

If equipment is repeatedly abused, the school or early intervention program needs to determine whether the problem arises from lack of understanding or training, or willful neglect or abuse. The PPT or IFSP Team should reconvene to determine the reasons for the problem and to find other ways to meet the IEP/IFSP goals and objectives (e.g., staying after school to use the equipment under supervision, providing supervised use of the equipment at home). Some districts/programs have the parents sign an agreement that describes the policies for out of school/program use of AT equipment.

What happens after the equipment arrives?

After the delivery of the equipment, several very vital assistive technology services must be performed as soon as possible. First, the equipment needs to be *set-up and customized* to meet the child's particular needs as defined in the evaluation report. Secondly, *training* needs to start as soon as possible and before the technology is regularly included in the child's program. Training should be made available to the child, his or her parents if appropriate, and all service providers who work with the child and might be using the technology. One person from the staff should have primary responsibility and extra training on system maintenance, and training updates should be regularly scheduled. In addition, it is often necessary to provide a "question-answer" service during the early weeks of use as problems which were not covered in training almost always arise.

Who is responsible for repairing, replacing and updating assistive technology devices in schools?

If the device is purchased by the school district or outside agency, that agency has the responsibility to repair, replace and update the assistive technology. These requirements fall under the definition of assistive technology services.[74] Equipment updates are required by statute and definition if the update would benefit the child and is not just for cosmetic purposes.[75] However, in the area of computer technology, especially software, the need to keep up with updates is often necessary as computers and equipment change.

[74] 21 U.S.C. §1402(2)
[75] Chambers, pp. 10-11

As noted before, if the family has provided a device voluntarily for use in the FAPE of the child and the use of the device is included in the IEP, it is reasonable to expect that the school is responsible for repair or replacement of the device, if necessary. If that device should "go out of service," and its use is still part of the student's IEP, the school would be responsible for providing a temporary device.

What happens when equipment is being replaced or repaired?

If an assistive technology device or service is part of the child's IEP or IFSP, then the technology must be available to him or her for fulfilling the goals and objectives of the IEP or IFSP. If a device needs repair or maintenance, the school or early intervention program is responsible for providing alternative access or temporary use of another device or equivalent during the period of time the regularly used device is out of service.

Who should be trained?

The definitions for assistive technology services are very specific about who should be trained to use the assistive technology devices:

- a child with a disability or, if appropriate, that child's family; and
- professionals (including individuals providing education or rehabilitation services), employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of children with disabilities.[76]

Training sessions on the use of the device should include the parents of the child but need not be scheduled to meet just the parents' schedules. Training of the parents is especially important when a device is to be used, even infrequently, at home and when the technology is to be used by very young children.

When should training occur?

Federal definitions concerning when training sessions for families, professionals and AT users should be conducted, or how long these sessions should be, are not available. Good practice within this field suggests that training be conducted in a series of beginning or introductory sessions, followed by training that includes fine tuning of the technology use. In addition there should be yearly updated training sessions to help professionals working with the child keep up with recent developments in the technology and/or changes in the child's IEP/IFSP that relate to AT use.

While there are a variety of training formats in use, hands-on training in the use of the device is most valuable in shorter segments, especially if the users are new to the technology, followed up at

[76] 20 U.S.C. §1402(2)

two- to three-week intervals, and with access to the trainer for questions as they arise. Training very young children to independently use assistive technology devices requires consistent positive reinforcement, short training periods, and frequent repetition. It is also important to standardize training on the devices across all settings and with all service providers for individual children.

As school districts plan training in connection with their regular education technology initiatives, consideration should be given to integrating AT into professional development activities. In addition to being cost and time effective, it also sends a positive message about the inclusion of children with disabilities in regular education programs.

Are there different kinds of training?

Very often schools conduct a variety of training sessions, including overview training to introduce the features and basic use of the device to everyone associated with the child; more detailed training for the people who will have to support, maintain, and teach the device; and student training on the device. In the case of the student training, shorter periods of training time and repetition of training, with access to the trainer as needed, are desirable.

Schools may provide training by utilizing their own personnel and/or through outside resources. Review of training needs should be an on-going process responding in particular to the student's changing needs, changes in staff, or as a student transfers from one location or classroom to another within the district.

Training can take many forms and can include different people at different times. There are four categories or kinds of training in addition to the training on the device provided to the student:[77]

1. General staff training at the awareness level.
2. Student-specific training of staff members who will work on a daily basis with the student and the technology, including knowing where to get help when needed and methods to evaluate the student's use of the device.
3. Peer group awareness training geared to provide the student's peers with an understanding of the device and its use.
4. Parent training, especially when the device is to be used at home.

What can be done if the equipment is abused or repeatedly damaged?

The behavior of a child "may not be a reason a school district elects not to provide the device" if the child requires that device for FAPE. However, a prudent school system would want to consider a student's behaviors and needs when making a decision about what kind(s) of technology to provide.[78]

[77] Kennan, pp. 22-23.
[78] Chambers, p. 13.

Similar considerations are also appropriate when equipment provided for an infant or toddler is repeatedly damaged. In the case of devices used by very young children, the team might need to reconsider the device's applicability to the child's needs, abilities, and settings and/or to provide additional training to the parents and service providers in care and maintenance of the equipment.

ASSISTIVE TECHNOLOGY IN THE SCHOOL

How does assistive technology fit into the school's or district's educational technology plan?

Assistive technology should be a part of every district's technology plans and purchases so that schools begin to deal with assistive technology needs pro-actively instead of reactively.[79] In setting up technology plans, districts should incorporate basic assistive technology software, for example, when setting up computer labs. They should take into account student access to computers and carefully examine the environment so that at least some of the equipment is accessible to all students in terms of scheduling, workstation access, keyboard use, etc. Districts ought to include awareness level training in assistive technology use as part of their in-service technology training sessions, requiring that all teachers and support personnel become aware of the full range of assistive technology devices and services.

It is also wise to encourage the involvement of district or building wide technology coordinators in the issues of assistive technology, especially as those technologies impact building wiring, work station access, computer system choice, and specialized software on the network. While many computer coordinators are eager to learn about any new technologies, including assistive technologies, most have little or no specific knowledge in this area.

If a child enters school already using assistive technology, how does the school integrate that technology?

Under current guidelines, students who have access to assistive technology provided through early intervention programs may bring their devices with them into the school setting. (It is suggested that the actual devices and their uses be specifically written into the 90-day transition plan.) Initial team meetings between the Birth to Three program and school district can discuss how the child is currently using the equipment, what purpose the devices serve, and what needs remain to be met. As long as the student still needs the specific devices, he or she may continue to use them in school or at home. When the device is no longer needed, or when the school re-evaluates the child's needs and provides school owned assistive technology, the original device is returned to the same Birth to Three program which originally provided it to the child and family.

[79] Sweeney, p. 27.

How can assistive technology help a student do the same work as other students?

Some assistive technology is designed to help students complete their assigned work more rapidly and/or more independently. For example, word processing, word prediction, and spell checking software can become an "electronic pencil" for students who have been struggling in these areas. In some cases, students who have had previous work modifications including shorter or fewer assignments may find that the use of assistive technology provides them with the ability to do all of the same work as their other classmates. Other cases involve the use of augmentative communication devices, both high or low tech, which provide a way for students to take part in classroom discussions or to answer teacher questions. The primary issue here is *access*. Students must have access to devices as needed within the classroom or at home for homework in order to take full advantage of the technology and do the same work as other students.

How can assistive technology help teachers modify student work?

Some students in inclusive classroom settings need their work modified to best meet their needs and abilities. Assistive technology can help teachers provide these modified lessons by changing the presentation or response formats or by reducing the amount of energy required by the student to complete a task. Presentation or response formats can be modified in a number of ways to meet the needs of individual students, including but not limited to:

- enlarging of print materials;
- computerizing of work normally completed by hand (e.g. scanning worksheets into the computer with the addition of answer fields);
- changing the mode of presentation (e.g. changing a printed text into auditory presentation);
- modifying the readability level of the information;
- modifying test and quiz response formats (e.g. changing an essay question format into multiple choice or fill in the blank formats); and
- changing written response requirements into audio-taped answers.

How can assistive technology provide participatory learning experiences?

Participatory learning experiences facilitated by assistive technology can provide a number of ways for all children to take an active part in learning experiences and classroom activities. In some cases, the assistive technology facilitates full participation, such as is the case with wheelchair equipped vans and buses which allow the student to go on school field trips with everyone else. In other cases, the technology allows the student to participate in activities more independently than would be possible without the use of the device. An example of this type of participatory inclusion would be the use of a switch operated Spin Art. While the student using the switch might need help putting the papers and inks into the Spin Art, he or she would be able to independently control the actual length of time the device spins and decide what colors are used for the art project. As with the use of any assistive technology, the device needs to be able to increase or maintain functional capabilities, not provide total independence.

How can assistive technology provide collaborative or cooperative learning experiences?

The use of assistive technology often provides an important means for children with and without disabilities to work and learn together. In some cases the technology "levels the playing field" so that children with disabilities can take part in class group work and cooperative learning experiences. In other cases, assistive technology provides a way for students with special needs to share their knowledge about technologies and actually teach other people. Computer use is an ideal area for students with special needs to share their special knowledge with their classmates.

How can assistive technology be used to create and/or customize individual student lessons?

A number of currently available authoring programs and assistive technology devices now exist to help teachers and other professionals create and customize lessons specifically designed for individual students. Authoring software like HyperCard, HyperStudio, or Digital Chisel allow teachers to create computer lessons, quizzes, and tests which provide multi-sensory presentations, consistent and repeated trials, and immediate feedback and reinforcement. In addition, the use of digitized images also allows teachers to create lessons which match the students' world. Some of these specialized programs also allow students to complete work on the computer rather than with paper and pencil. In actual practice, teachers often find that these specially created lessons can be shared with all students in the class.

How can assistive technology help the student who needs relearning or more practice?

A number of assistive technology software programs and devices (e.g. switch operated toys,) provide a consistent, self-pacing, and reinforcing way to learn, relearn, and practice skills to mastery. In addition, software or devices often offer alternative modes of presentation which would help the student learn the material more completely or retain it more readily. Many students also respond best to programs that provide immediate reinforcement and correction if needed.

How can assistive technology provide a multi-sensory learning experience?

Multi-sensory learning is an important component in many special education programs. It allows the student to learn or practice material in a variety of different ways that increase retention and speed mastery. With the advent and wide use of CD-ROM programs, presentations and reinforcements in these programs often include graphics, animation, printed text, speaking, and music.

How can assistive technology provide access to reference materials for student research?

For some students, the physical act of getting to and accessing information in large reference books is beyond their current abilities because of physical, visual, or reading disabilities. The recent development of reference works on disk, CD-ROM, and the Internet has provided independent access to dictionaries, thesauruses, encyclopedias, research materials, atlases, and a variety of research tools. In addition, the use of screen and text readers allows access to the material within these resources for people with vision impairments and other print disabilities.

How can assistive technology help student organization?

Personal information management systems (PIMS) along with computer software and personal dictation devices that voice record short oral messages can all provide ways to help students organize their work and keep track of assignments independently. There are also a wide variety of low tech devices which can help students organize and keep track of their work. Highlighter pens and tapes, Post-it Notes and flags, colored dots, and colored pens offer easy to use accommodations which provide students with more independence and success in organizing and keeping track of their work.

How can assistive technology help students with note taking?

Note taking, especially in middle school and high school, presents a variety of problems for students with motor, learning, hearing and vision disabilities. A number of different strategies for helping students in this area exist, and many involve the use of assistive technology—both low and high tech.

AT devices that may be used to help students take book or class notes include:

- highlighter tapes and markers, colored pens and adhesive dots;
- audio tape recordings of teacher lectures or classroom discussions;
- copies of teacher notes or overheads;
- copies of peer notes (some schools use NCR paper for this task);
- dedicated word processors or portable computers for taking class notes; and
- graphic organizers (print and software) for taking book notes and organizing them in outline form.

Teachers may not refuse the request for teacher notes or for the audio taping of a lecture if it is specified in the IEP.[80]

[80] 34 CFR §300.347 and 18 IDELR 1039

What kind of assistive technology provides help with listening?

Human interaction, whether social, recreational, instructional or vocational, is highly dependent on listening, hearing and speaking. Noise that interferes with the quality of auditory signals can have profound effects on the development and learning of children with disabilities. Some children are born with hearing impairments and others acquire them in early childhood or later in their school years. Young children are particularly susceptible to ear infections that can cause temporary or fluctuating hearing impairments. In some cases, the hearing impairment is the primary disability; in others it is related to some other disability. Still other children with no outward evidence of disability have difficulty attending to and processing auditory information. Assistive technology devices that help make sounds louder or clearer are called assistive listening devices (ALDs). The most typical ALDs are hearing aids and frequency modulated (FM) systems. Hearing aids increase the loudness and/or clarity of sounds in the environment, including background noise. FM systems by-pass background noise and provide a direct link between the sound source and the listener. Students with normal peripheral hearing who have difficulty with auditory attention or central auditory processing may benefit from an FM system. As more educators understand the impact of noise on listening and learning, there has been a growing interest in using systems that make the important sound source stronger than background noise for all participants in a particular setting by using sound field amplification equipment.

What kind of assistive technology provides help with math?

There is a continuum of assistive technology devices which can help students work successfully and independently in math. Low tech devices include manipulatives such as rods, cubes, rubber stamps, tiles, and number lines. Paper aids, such as graph paper or bold lined paper, aid in writing out problems. Mid tech devices include calculators, some of which “talk”, and devices like the abacus. Higher tech devices include computerized calculator software, programs which allow students to do math computations on screen, math worksheet generators, and curriculum enhancement, drill and practice software.

What kind of assistive technology provides help with writing?

There is a continuum of devices which can assist students with written tasks. Low tech devices include, but are not limited to, special pens and pencils to adjust or facilitate proper grip and special papers with dark or raised lines. Mid tech devices can include spell checkers or slightly higher tech devices like portable word processors. High tech writing aids also cover a wide range . Word processors, regular and interactive spelling checkers (both auditory and visual), grammar checkers, word prediction software, talking word processors, and voice recognition technologies all provide different writing tools for students with different needs.

What kind of assistive technology provides help with reading?

There is a continuum of devices which can assist students with reading tasks. Low-tech devices include, but are not limited to, highlighting markers, tapes, and pens, and cardboard cut-outs to help students track from left to right and from line to line. Mid tech devices include the use of taped books and, for younger children, talking books. High tech devices include text and screen reading software for computers and dedicated scanning and reading devices as well as CCTV and screen or text magnifying systems.

What kind of assistive technology provides help with daily living skills and vocational preparation?

A number of technologies, both on and off the computer, help students prepare for daily living environments and vocational placements beyond Pre-K through 12 education. In many cases, these technologies involve the use of environmental control technology to prepare the student to be as independent as possible. For example, a student who has been using switches to access computer or communication technologies could begin learning how to use switch access for environmental control devices that turn on and off electric devices (lamps, televisions) or that control electric devices (TV/VCR remotes, timed use of a mixer). Students with physical disabilities could learn how to use hands-free phones. Students with augmentative communication devices could learn and practice use of specialized communication options in the community or on the job. Students might also explore vocational options that directly involve the use of computer technology (data entry, Internet use) or use assistive technologies to perform job tasks (splints and holding devices, magnifiers, switch operated office devices).

How does assistive technology relate to student use of the Internet?

When access to reference and other print materials is an issue for a student with physical, visual, hearing, or learning disabilities, the IEP team should consider the use of the Internet and other on-line services to provide access to research materials and e-mail communication. For students with print or visual impairments, access to text on the Internet can be obtained through screen and text reading software.

How important is collaboration and information sharing between team members when using assistive technology?

The successful use of assistive technology requires the sharing of information and tasks, especially when students are using the technology to have their work modified or to have lessons created. Problems which arise in the use of the technology in one area may spill over into other areas. Likewise, solutions and strategies discovered in one area may benefit use of the technology in all other areas. In addition, the time involved with the creation of lessons can best be shared among all the team members. For example, a parent might create a community related HyperStudio lesson with digital photos, the teacher might create an electronic-text (e-text) of the chapter on

communities from a social studies book, and the speech and language pathologist might create a communication board for the student's use in the community.

Collaboration is also important at the district and regional level. A number of user groups, associations, and other groups could be utilized in locating and sharing work already completed. "Reinventing the wheel" for every student with special needs is a waste of important time, energy, and resources.

Does the use of assistive technology require additional staff time?

An important element in the successful implementation of assistive technology is the planned scheduling of staff time for training, use, and maintenance of the devices and for the development and refinement of lessons involving individual assistive technology device use. In particular, if modification or computerization of lessons is involved, the time commitment must become a scheduled part of someone's day. Device use often needs to be fine tuned in the beginning and changed as the student's needs and strengths change. Activities such as scanning, lesson creation, programming of augmentative communication devices, backing up files, installing software, and creating computerized tests all take time and expertise. Not providing that time almost always ensures that the device will rapidly fall into disuse.

What role should the regular education teacher play regarding assistive technology?

The use of assistive technology within the regular education classroom can be a positive experience for students and teachers alike, or one more job that falls on the shoulders of an already busy classroom teacher. The regular education teacher's use of the assistive technology and attitude toward the technology is often influenced by the degree of training he or she has received and his or her inclusion in plans to use the assistive technology. Regular education teachers who embrace and become advocates for the use of assistive technology often find that it can benefit all of the students in their classrooms. The use of technology, such as software which creates worksheets and tests, can be beneficial for students with special needs who complete their work on screen, as well as other students who use print copies of the same lesson at their desks.

IDEA '97 requires, to the extent appropriate, the involvement of the regular education teacher in all aspects of IEP development, review, and revision, including any considerations given to assistive technology.[81] The involvement and participation of the regular education teacher, Pre-K through grade 12, is critical in ensuring the integration of AT to maximize the child's learning in the general education curriculum.

[81] 20 U.S.C. §1414(d)(B)(ii)

How important is it to have an assistive technology resource person in the school?

An assistive technology resource person can be the most vital component in the successful, long term use of assistive technology.[82] Qualifications for AT resource persons include:

- direct experience working with students with disabilities and devices;
- interest, motivation, and experience in assistive technology and its potential for improving student's access to the curriculum;
- willingness to receive ongoing training in assistive technology and computer technology;
- knowledge about special education policy and practices;
- ability to work well, communicate clearly and collaborate with all members of the team;
- knowledgeable about resources for assistive technology; and
- perception by others as a support person rather than the sole source of technology information.[83]

How do vocational coordinators help incorporate assistive technology into transition services?

When conducting vocational evaluations or placing students in school or community-based vocational settings, vocational counselors and transition coordinators can be instrumental in determining the need for any assistive technology devices or services that may enhance the student's productivity or independence in the workplace. The Transition/Vocational Coordinator may devise needed adaptations or request the assistance of a skilled rehabilitation engineer to assist in the assessment.

If the purchase of assistive technology will be needed for post secondary activities, the coordinators can serve as a resource to identify the availability of appropriate technology, as well as the agencies and programs that may assist in the financing of these purchases.

What is the role of the principal regarding assistive technology?

The school principal provides the effective leadership necessary for proper implementation of the major provisions of IDEA at the building level. Decisions relative to allocation of resources, development of curriculum, and assignment of personnel are major responsibilities of the building administrator. The principal needs to be aware of the resources available to support team recommendations. Those resources may include district funding, an inventory of physical resources within the district, and knowledge of where to turn for out-of-district resources and training that is necessary. As districts move forward with general education technology initiatives, the school principal can be a strong advocate for integrating assistive technology with these plans (e.g. regarding purchasing equipment and professional development).

[82] New York State Education Department, p. 14.
[83] New York State Department of Education, p. 15.

What is the role of parents regarding assistive technology?

Parental support for the implementation and use of assistive technology, even when used only in the school setting, is vital to its successful, long-term use. If an AT device is also being used at home, then communication and coordination between home and school is absolutely necessary. Parents are often sources of help in activities such as the development of lessons, collection of e-texts, development of communication boards, and evaluation of device use.

What is the role of other school personnel regarding assistive technology?

Anyone in the school or associated with school-related activities (e.g. transportation, field trips, cafeteria use, extra-curricular activities) who has contact with the student using the device should have at least an awareness level of training regarding the use and safe handling of the device. In addition, when the device needs to "interact with" the environment, such as when permanent electrical connections or specialized wiring connections have to be set up in class, or when architectural or furniture modifications need to be made, it is important to actively involve district staff in these areas as soon as possible.

Can assistive technology be used to help a student take part in the Connecticut Mastery Test (CMT) or Connecticut Academic Performance Test (CAPT)?

There are a number of allowable modifications for special education or Section 504 students who take the CMT or CAPT under provisions of their IEPs or accommodation plans. Among the allowable CMT or CAPT modifications, the following relate to the use of assistive technology:

- braille and large print for students who are blind or visually impaired;
- use of a word processor *without the use of a spell check or grammar check* for all written portions of the test; and

Permission for the use of these modifications must be secured in advance from the State Department of Education.[84]

[84] Connecticut State Department of Education, pp. 10-13.

FUNDING AND OWNERSHIP

Who pays for the assistive technology devices and services identified in the IEP?

The school district is responsible to pay for the devices and services that are recommended in the IEP. As indicated in statute and regulations under IDEA, all parts of special education and related services provided to a child with disabilities must be "at no cost to the parents." This "no cost" rule (FAPE) applies to assistive technology devices and prohibits school districts from excluding assistive technology services or devices based solely on their expense.

Who pays for the assistive technology devices and services identified in the IFSP?

The Connecticut Birth to Three System funds assistive technology devices, but they are considered as the "payer of last resort". A Birth to Three program is responsible for accessing funding for devices under $250. With devices over $250, the Birth to Three System is responsible for funding assistive technology devices and services after the program has tried to access third party payments. This means that the family, program, and/or vendor must pursue any and all other funding options (including recycled devices) before requesting the Birth to Three System to pay for a device or service related to assistive technology use. Typically, parents and programs look at private insurance, Medicaid (as a part of an Early Periodic Screening and Diagnostic Testing), Children with Special Health Care Needs, or Board of Education and Services for the Blind funding when appropriate. Actual funding plans may include a number of funding sources, including parent contributions, insurance, and the Birth to Three System. If third party funding ends up paying for 51 percent of the device's cost, then the device belongs to the family. If Birth to Three funds pay for more than 50 percent of the device, that technology is owned by the Birth to Three System.

Typically, insurance and Medicaid pay for equipment and devices that fall under the category of "Durable Medical Equipment." This includes equipment such as daily living aides, standers, positioning systems, prosthetics, augmentative communication devices and hearing aids. It seldom includes learning tools like computers, switch-operated toys and assistive play equipment. "Life-sustaining equipment" such as suction machines, is not covered by the Birth to Three System.

Is a school district required to pay for an independent assistive technology evaluation as it must for educational evaluations?

Under a policy statement issued by the OSEP, the issue of assistive technology evaluations and re-evaluations is specifically addressed.[85] The term "evaluation" is defined as procedures to determine whether a child has a disability and the educational needs of the child. An assistive technology evaluation falls under this classification.[86] In addition, under IDEA Part B's procedural safeguards, the parent has a right to an independent evaluation at public expense "if the parent disagrees with an evaluation conducted by the public agency."[87] This right to an independent evaluation is part of the initial evaluation process or may be part of triennial reevaluations or more frequent reevaluations at the request of the parents.

Can the cost of an assistive technology device ever be a consideration?

The only time cost can be considered is when the IEP team is considering two ***equal*** alternatives that would help a student receive an appropriate education. Here, the school may select the less expensive device.[88]

Can schools be required to purchase personal devices such as hearing aids and eye glasses?

On "a limited basis and under unique circumstances" based on the individual needs of students with special needs, devices such as hearing aids or eye glasses *may* be considered assistive technology devices. The consideration here is the educational need of the device as opposed to the medical need. In other words, the student must require the device in order to benefit from his or her educational program. In order for the school to provide the device, the device must be part of the IEP.[89]

How is the purchase of hearing aids handled in the Birth to Three System?

The purchase of hearing aid systems is a special consideration under the Birth to Three System. Children in this program who need hearing aids are entitled to both the device and services associated with dispensing, testing, and operating the device. The Birth to Three System has developed a detailed protocol for audiologists working with these young children who need hearing aids. Funding options for the purchase of the actual devices are explored in the same ways as they are for other assistive technology devices (see page), but funding for assessment, trials, testing, training, and monitoring is covered through the Birth to Three System. It is also important to note that the audiology clinics in Birth to Three programs each maintain a collection of hearing aids for loan, demonstration, and trials. Cochlear implants are not considered an assistive technology device covered by the Birth to Three System.

[85] 23 IDELR 565 FISHER (1995)
[86] 20 U.S.C. §1414(a)(1)(B)
[87] 20 U.S.C. §1415(b)(1) and 1415(d)(2)(A)
[88] Golinker, p. 4.
[89] 22 IDELR 629 BACHUS (1994)

Can schools require parents to use their private insurance to pay for necessary devices and services?

Schools cannot require parents to pay for devices or services identified on the IEP nor can they require that the parent's health insurance pay for these items. Schools can, though, use Medicaid to pay for assistive technology that is part of a child's FAPE.

Can early intervention programs require parents to use their private insurance to pay for necessary devices and services?

Birth to Three System funding guidelines require that third party funding be explored first for devices. Funding sources might include the parent's private insurance. If the parent's insurance pays for more than 50 percent of the device, the parents retain total ownership of that device.

Can school systems and the Birth to Three System use Medicaid funds to purchase assistive technology devices?

Medicaid is a jointly funded federal and state program for medical assistance for selected low-income populations. It covers a broad range of medical and remedial services, including therapeutic interventions such as occupational therapy. Some services are required under the federal law for all states; others are covered by state definitions. Commonly covered Medicaid expenses in the area of assistive technology include wheelchairs, walkers, and hearing aids or glasses for children and youth.[90] Children who are determined to be eligible under Connecticut's Medical Assistance Program[91] can receive certain assistive technology devices and services. Under the state regulations for Medicaid Payment of School Based Child Health Services durable medical equipment prescribed in an IEP[92] can be purchased or rented by school districts for the exclusive use of students who are eligible for Medicaid. Those devices specifically listed in the regulation for School Based Child Health Services Section 17b – 262-213 through 17b – 262 –224 include: augmentative communications devices, crouch screen voice synthesizer, prone standers, corner chairs, wheelchairs, crutches, walkers, auditory trainers, and suctioning machines. In addition, the regulation permits "other medical supplies and devices necessary, and incidental to, IEP related services."[93] In Connecticut, school district may access Medicaid payments in accordance with CGS 10-76d (a) (2) through (9).

Of special note is the Early and Periodic Screening, Diagnosis and Treatment program (EPSDT) which was created to enable children from birth to age 21 to receive any medically necessary treatments that may not be available under the state's Medicaid program. In terms of applying this program to a student's access to assistive technology devices or services, a physician's prescription can serve to justify the need.[94]

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[90] RESNA (1992)
[91] CGS §17b-261
[92] Regulations of Connecticut State Agencies, Section 17b 262-218 (c)
[93] Regulations of Connecticut State Agencies, Section 17b 262-218 (c)
[94] Sweeney, p. 32.

Who can use the Connecticut Tech Act Loan Fund to purchase assistive technology devices?

Under current regulations governing who can access Tech Act sponsored assistive technology loan funds (such as the loan fund under the Connecticut Tech Act Project), schools and public agencies cannot use these funds, even if they are trying to procure devices or services for individual students or children. The loan funds are designed for the private use of the child and his or her family. These funds can be used for any device or service that the person with a disability needs. The loan programs provide funds at low interest rates and longer repayment schedules if the person or his/her family qualifies for the loan.[95] Information about this loan program is available from the Connecticut Tech Act Project (See Connecticut Resources section.)

Are there options other than the outright purchase of equipment?

There are times when a school, agency, or family should actually look to long-term lease or rental of equipment as the most prudent way to provide assistive technology. Renting equipment might be the best strategy if a student or child is expected to significantly improve or lose skills.[96] Long-term lease arrangements are often advantageous when technologies, like computers, are constantly being updated and changed. Leasing means that the school and the child are not burdened with obsolete equipment in just a few years.

Who owns the device?

If the school district purchases the device, the school district owns it. If the device is purchased through a Birth to Three program, then the program retains ultimate ownership. This ownership, though, does not, by its nature, preclude use of the technology outside of the school building. If the device was purchased through the child's private insurance or through Medicaid, then the device belongs to the child and must be used only by that child.[97]

Devices purchased as part of recommendations for children in the Birth to Three System are owned by the party which has paid for the majority of the device. Because the Birth to Three System is the payer of last resort, devices purchased in major part or wholly through funding from other sources are considered "owned" by the family.

Can a school search out other sources of funding to provide assistive technology devices and services that are part of a student's IEP?

Other funding services include private funding and loan programs through non-profit disability associations, such as the National Easter Seal Society, March of Dimes, Muscular Dystrophy Association, United Way, United Cerebral Palsy Association, and Braille Institute. Service organizations within the state and community should also be considered and contacted as possible

[95] Sweeney, p. 33.
[96] Keenan, p. 28.
[97] Keenan, p. 29.

alternative funding sources. Included in this group are organizations such as the Lions Club, Masons, Veterans of Foreign Wars, Elks Club, Rotary Club, Kiwanis, and Knights of Columbus.[98]

It is important to note, though, that the implementation of the devices and services required in the IEP cannot be delayed while the school system tries to find alternative funding sources.[99]

Should assistive technology devices be insured?

While not legally required, it is in the school's or Birth to Three System's best interest to insure assistive technology devices. Most school district's liability policies will cover assistive technology, but the school or the system should investigate the conditions and deductions in regard to individual child or family use of these technologies. The insurance of parent-owned devices, while they are being used in school or other natural settings, is a separate issue and should be thoroughly researched by the parties involved.

Could the use of assistive technology increase a school district's risk of liability?

Although it is conceivable that the use of an assistive technology device might increase a school system's or individual staff member's risk of liability, it is not likely. Negligent use of the device by a staff member could be one area of potential concern, but schools can lessen this risk and mitigate damages by providing and documenting all training their staff receives in regard to the safe use of particular devices.[100]

Are there any financial or budgetary guidelines for planning for equipment repair, maintenance and upgrades?

According to RESNA, "about 5 percent of the value of the equipment should be budgeted on annual repair and maintenance."[101] It is good practice to locate where repairs and maintenance can be carried out when the device is purchased, instead of waiting until the device breaks down. In some cases, ease of repair or manufacturer loan policies actually can help determine which device to purchase.

Can a school control the software that is on a school-owned computer?

Some schools have policies controlling the software that can be used on a school-owned computer and used by a student with special needs as part of his or her IEP. Other schools have chosen to put desktop protection software on these computers to control both the removal and illegal copying of commercial software that is being provided to benefit the student's education.

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[98] Keenan, pp. 26-27.
[99] 1 ECLPR ¶245 (1991)
[100] Missouri Department of Elementary and Secondary Education, p. 9.
[101] RESNA (April, 1992), p. 25.

What happens to the equipment when the student leaves the jurisdiction of special education?

If the equipment is owned by the school, the school retains ownership of the equipment when the student leaves. In cases where the child is transitioning from one agency's jurisdiction to the next, there has been some effort to make provisions for the child to keep the old agency's equipment until the new agency can provide similar equipment or "buy out" the equipment from the first agency. If the equipment was purchased through Medicaid or private insurance, the **equipment belongs to the student.**[102]

What happens to the equipment when the child leaves the jurisdiction of the Birth to Three System?

Under current procedures, children who have access to assistive technologies provided through early intervention programs may bring those devices with them into the school setting. (It is suggested that the actual devices and their uses being specifically written into the 90-day transition plan between the Birth to Three program and the school.) Initial team meetings can discuss how the child is currently using the equipment, what purpose the devices provide, and what needs remain to be met. As long as the child still needs the specific devices, he or she may continue to use them in school or at home. When the device is no longer needed or when the school re-evaluates the child's needs and provides school owned assistive technology, the original devices are returned to the same Birth to Three program that provided them.

[102] RESNA (April, 1992), p. 29.

PARENTAL RIGHTS

What rights do parents have regarding assistive technology?

Parents of children needing or receiving assistive technology devices or services under IDEA or Section 504 of the Rehabilitation Act have all the rights afforded by these laws. The Family Educational Rights Privacy Act provides additional protection in the area of confidentiality. Copies of these laws are available from the Special Education Resource Center (see Connecticut Resources Section).

Have parental rights under the law undergone any changes in IDEA '97?

Under IDEA '97 parents must be involved in decisions made by the PPT. Parents have the right to participate in the consideration of assistive technology during the development, review, and revision of their child's IEP. Parents should be prepared to discuss why they believe assistive technology would benefit their child's educational program.

Parental rights in terms of assistive technology use with their children also include:

- the right to information about all of the possible assistive technology devices and services the child might use;
- the right to advocacy;
- the right to honest answers about the child's technology needs;
- the child's right to independence as provided by assistive technology devices;
- the right to due process;
- the right to disagree with professionals; and
- the right to have feelings about the technologies and services.[103]

How can parents be involved in decisions about assistive technology for their infants and toddlers?

Especially in the case of children from birth to age three, parents play a vital role in the choice, implementation, and use of assistive technology. They should be involved with choosing, adapting, routine maintenance, training, and on-going assessment associated with the child's use of the devices. They are also vital in sharing their dreams and visions for their family and child so that the team can better determine what kind of technologies would best suit the child.[104]

[103] Parett, pp. 22-23.
[104] Pacer Center, Inc., p. 94

Can parents request an independent assistive technology evaluation?

The school district is required to evaluate students in any and all areas of suspected disability, including assistive technology. If parents disagree with the findings of this evaluation, they may request an independent educational evaluation at public expense.[105] The school district has the right to initiate a hearing to demonstrate the appropriateness of its evaluation.[106] The school district may ask the parents the reasons for their objection to the evaluation, but it may not unreasonably delay providing the independent evaluation at its expense or initiating the hearing to defend its evaluation. If the school evaluation is found appropriate, parents may still obtain an independent evaluation at their own expense. Results of this kind of private evaluation must be considered in providing of FAPE and may be presented as evidence at a hearing.[107]

Parents of children with special needs from birth to three can also request an assistive technology evaluation. While these assessments may be carried out when a child is first evaluated for early intervention services, there are times when the child's changing needs may dictate a change in the technologies used or new implementation of technologies after the IFSP has been put in place.

Can parents provide a personally owned device for their child's use in school?

Parents can voluntarily provide an assistive technology device for their child's use at school, but they cannot be required by the school to provide a device that is required by the child's IEP or Section 504 plan. Policy letters from the OSEP have indicated that it is "reasonable" to hold that the districts assume liability for the device when it is specified in the child's IEP, and "without the use of the family-owned device, the public agency would be required to provide and maintain a needed device."[108]

This federal policy statement also notes that, if at any time, the family-owned device is no longer available for the student to use in school to fulfill his or her IEP, then the school is required to provide a substitute device or to reconvene the IEP team in order to revise, if appropriate, the child's IEP.[109]

Do parents have to use their private insurance to purchase assistive technology devices?

Schools cannot require parents to use private insurance to pay for their child's educationally-related assistive technology devices and/or services. Use of private insurance must be strictly *voluntary*, and parents should be made aware of important issues to consider when they are thinking of using their private insurance. For instance, the insurance might have an annual or

[105] 34 CFR §300.502(b)(1)
[106] 34 CFR §300.502(b)(2) and §300.502(b)(4)
[107] 34 CFR §300.502(b)(3) and §300.502(c)
[108] 21 IDELR 1057 (1994)
[109] 21 IDELR 1057 (1994)

lifetime cap, the claim might jeopardize future insurability, and/or the claim might affect future costs of insurance.[110]

Can parents be included in training for assistive technology devices that their children will be using?

Under definitions for assistive technology services, parents are to be included in training related to assistive technology devices or services for the child, as appropriate.[111] Parental involvement is particularly vital if the technology is to be used at home (as is the case with devices used by infants and toddlers), or if similar technologies are used in multiple locations. In either case, collaboration, communication and cooperation between home and school is vital. Device use should be consistent between environments, and what is done in one location should be copied and reinforced in the other. Even when the use of the device at home is not mandated by the IEP or IFSP, it is advisable to include parents in training sessions so that they have a better understanding of what the device can and cannot and what expectations everyone has concerning the technology. When training sessions are set up by the school, therefore, it is recommended that parents be invited. However, the school is under no obligation to hold training sessions which fit parents' schedules. When training sessions are set up by early intervention programs, parents are often at the center of training, and because of that, training often takes place in the home.

Does assistive technology have to be provided by the school district to a student who is enrolled in a private or parochial school system?

School districts are responsible for locating and evaluating children attending nonpublic schools who may have a disability. An assistive technology evaluation can be a part of this process. However, if the IEP team identifies a need for assistive technology, the provision of assistive technology devices and services in private and parochial schools depends on a number of different factors.

If the student has been placed in a nonpublic school by the school district as part of an IEP team decision, then the school is responsible for the provision of assistive technology.[112]

If the student is placed in a private school as a result of the parents' decision, there is no individual right to special education and related services if the school made a free appropriate public education available to the student. The school district is required to spend an amount that is equal to a proportionate amount of Federal funds made available to the District under Part B of IDEA.[113] The IEP team should develop the IEP that would be in effect if the child attended the public school. Then the school must develop a service plan for the student [114] that could include assistive technology devices or services. If the child re-enrolls in the public school, then an IEP must be developed and assistive technology requirements must be addressed.

[110] RESNA, P. 22.
[111] 20 U.S.C. §1402(2)(E)
[112] 20 U.S.C. §1412(a)(10)(B)(i)
[113] 20 U.S.C. §1412(a)(10)(A)(i)(I)
[114] 34 CFR §300.452(b)

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Wilds, M.L. (April, 1996). *Effective Use of Technology with Young Children.* Washington, DC: NICHCY New Digest.

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CONNECTICUT RESOURCES

PROFESSIONAL ASSOCIATIONS

Association of School Nurses of Connecticut
Contact: Donna Kosiovowski
Telephone: (860) 1-800-749-7177

Connecticut Chapter of the American Academy of Pediatrics
Contact: Martin Sklaire
Telephone: (203) 245-7442

Connecticut Occupational Therapy Association
Contact: Joan Sevigny
Telephone: (860) 632-2134
e-mail: http://pages.cthome.net~connota

Connecticut Society for Augmentative and Alternative Communication (ConnSAAC)
Contact: Carolann Cormier
21 Heather Court
Cromwell, CT 06416
Telephone: (860) 632-1374

Connecticut Speech-Language-Hearing Association (CSHA)
Contact: Maria Parker
213 Back Lane
Newington, CT 06111
Telephone: (860) 666-6900
e-mail: csha.assoc@snet.net

Connecticut Physical Therapy Association (PT Assoc.)
Contact: James Leahy or Kimberly Page
330 Main Street
Hartford, CT 06106
Telephone: (860) 246-4414

Prevent Blindness Connecticut
Contact: Cheryl-Ann Tubby
Telephone: (860) 347-2020

REGIONAL EDUCATIONAL SERVICE CENTERS (RESCS)

Six RESCS are located in various regions of the state. They serve as resources to the school districts in their catchment areas. For those RESCS that have Assistive Technology Resources (* beside name), the appropriate contact is given. Otherwise, the number of the Special Education Directors is given.

Area Cooperative Educational Services (ACES)*
205 Skiff Street
Hamden, CT 06517-1095
Contact: Joseph Sullivan
Telephone: (203) 407-4465

Capitol Region Education Council (CREC)*
CREC-IPM
C/o Plainville High School, Room 109
47 Robert Holcomb Way
Plainville, CT 06062
Contact: Carolann Cormier
Telephone: (860) 747-2112

Cooperative Educational Services (CES)*
25 Oakview Drive
Trumbull, CT 06611
Contact: Laura Giovanettti
Telephone: 203) 365-8891

Eastern Connecticut Regional Educational Service Center (EASTCONN)
376 Hartford Turnpike
Hampton, CT 06247
Contact: Paul Mullen
Telephone: (860) 455-0707

Education Connection
355 Goshen Road
P.O. 909
Litchfield, CT 06759-0909
Contact: John Mongeau
Telephone: (860) 567-0863

Learn (*)
44 Hatchetts Hill Road
P.O. 805
Old Lyme, CT 06371
Contact: Danielle King
Telephone. (860) 434-4800 ext. 153

STATE AGENCIES

Connecticut State Department of Education
Bureau of Special Education and Pupil Services
25 Industrial Park Road, Middletown, CT 06457
Contact: Carolyn Isakson, Education Consultant
Telephone: (860) 807-2046
e-mail: carolyn.isakson@po.state.ct.us

Connecticut Birth to Three System
460 Capitol Avenue, Hartford, CT 06106
Contact: Linda Goodman, Director
Telephone: (860) 418-6147

The Connecticut Tech Act Project
Connecticut Department of Social Services
Bureau of Rehabilitation Services
25 Sigourney Street, 11th Floor, Hartford, CT 06106
Contact: John Ficarro, Project Director
Telephone: (860) 424-4881

INDEPENDENT LIVING CENTERS

Disabilities Network of Eastern Connecticut
107 Route 32
Franklin, CT
Telephone: (860) 823-1898 (V/TDD)

Independence Northwest
1183 New Haven Road, Suite 200
Naugatuck, CT
Telephone: (203) 729-3299 (V); (203) 729-1281 (TDD)

Greater New Haven Disability Rights Activists/Center for Independence and Access
1 Long Wharf Drive, Suite 225
New Haven, CT
Telephone: (203) 562-3924 (v); (203) 624-5320 (TDD)

Independence Unlimited
2138 Silas Deane Highway, Suite 100
Rocky Hill, CT
Telephone: (860) 257-3221 (V); (860) 529-0436 (TDD)

Center for Independent Living of Southwestern Connecticut
80 Ferry Boulevard
Stratford, CT
Telephone: (203) 378-6977 (V); (203) 378-3248 (TDD)

THE SPECIAL EDUCATION RESOURCE CENTER (SERC)

25 Industrial Park Road
Middletown, CT 06457
Contact: Jack Tierney
Telephone: (860) 632-1485

ADVOCACY SERVICES

State Office of Protection and Advocacy for Persons with Disabilities
60B Weston Street
Hartford, CT 06120-1551
Contact: Gretchen Knauff
Assistive Technology Coordinator
Telephone: (860) 297-4342

Connecticut Parent Advocacy Center, Inc. (CPAC)
338 Main Street
Niantic, CT 06357
Contact: Nancy Prescott
Telephone: (860) 739-3089 or 1-800-445-CPA
e-mail: cpacinc@aol.com

APPENDIX

PUBLIC ACT NO. 97-100

AN ACT CONCERNING THE SECURITY OF ASSISTIVE TECHNOLOGY DEVICES.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. (NEW) As used in this act, unless the context otherwise requires:

(1) "Assistive technology device" means any device sold, leased or transferred in this state or to a consumer in this state on or after January 1, 1998, that is used or designed to be used to enable or enhance the ability of a person wit h a disability to communicate, see, hear or achieve mobility, including, but not limited to, (A)manual or motor-driven wheelchairs and other assistive devices that enhance a mobility impaired person's ability to achieve mobility, including seating and positioning aids, (B) telephone communication devices for the hearing impaired and other assistive listening devices that enhance a hearing impaired person's ability to hear or communicate, but not including hearing aids, (C)voice synthesized computer modules, optical scanners, talking software, braille printers and other assistive devices that enhance a sight impaired person's ability to see or communicate,(D) computer equipment with voice output, artificial larynges, voice amplification devices and other alternative and augmentative communication devices, (E) any system of such devices that, as a whole, is itself such a device,(F) any component product of such devices that is itself ordinarily such a device, and (G) any such device used primarily by a dealer, lessor or manufacturer for the purpose of demonstration to the public or to prospective purchasers or lessees. "Assistive technology device" does not include batteries used in or nonessential accessories to any such devices.

(2) "Collateral costs" means expenses incurred by a consumer in connection with the repair of an on conformity in an assistive technology device, including, but not limited to, the cost of an alternative assistive technology device.

(3) "Consumer" means any person (A) who purchases an assistive technology device from a dealer or manufacturer for purposes other than for resale, (B) to whom an assistive technology device is transferred if such transfer occurs before the expiration of an express warranty applicable to such assistive technology device, (C) who may enforce an express warranty applicable to an assistive technology device, or (D) who leases an assistive technology device from a lessor under a written lease.

(4) "Dealer" means any person engaged in the business of selling assistive technology devices to consumers.

(5) "Early termination cost" means an expense or obligation that a lessor incurs as a result of both the termination of a written lease for an assistive technology device before the expiration of the lease term and the return of an assistive technology device to a manufacturer under subsection (b) of section 2 of this act, including any penalty for prepayment required under any financing arrangement.

(6) "Early termination savings" means an expense or obligation that a lessor avoids as a result of both the termination of a written lease for an assistive technology device before the expiration of the lease term and the return of an assistive technology device to a manufacturer under subsection (b) of section 2 of this act, including any interest charge that the lessor would have paid to finance the assistive technology device or, if not so financed by the lessor, the difference between the total amount for which the lease obligates the consumer during the period of the lease term remaining after the early termination and the present value of the consumer's remaining obligation under the lease as of the date of the early termination.

(7) "Express warranty" means an express warranty under section 42a-2-313 of the general statutes that is applicable to an assistive technology device.

(8) "Lessor" means any person who leases an assistive technology device to consumers or who possesses a lessor's rights under a written lease for an assistive technology device.

(9) "Manufacturer" means any person who manufactures or assembles assistive technology devices, and any agent of such person, including importers, distributors, factory branches, distributor branches and warrantors of such person's assistive technology devices, but does not include a dealer, a lessor or any person whose activity consists solely of referring consumers to a dealer, a lessor or any person described in this subdivision.

(10) "Nonconformity" means a condition, malfunction or defect that substantially impairs the use, value or safety of an assistive technology device or that is covered by an express warranty applicable to an assistive technology device, but does not include a condition or defect that is the result of abuse, neglect or unauthorized modification or alteration of the assistive technology device.

(11) "Person with a disability" has the same meaning as set forth in section 46a-8 of the general statutes.

Section 2. (NEW) (a) If a nonconformity in an assistive technology device occurs or exists during the term of an express warranty applicable to the assistive technology device or within two years of the delivery of the assistive technology device to a consumer, whichever is longer, and the consumer reports the nonconformity to the manufacturer of the assistive technology device or to any of such manufacturer's authorized dealers or lessors and makes the assistive technology device available for repair during such period, the manufacturer shall repair the nonconformity or cause the nonconformity to be repaired in accordance with this section. If the manufacturer authorizes a dealer or lessor to make any such repair, the manufacturer shall reimburse the dealer or lessor for the cost of such repair. The manufacturer shall respond to a dealer's or lessor's request for authorization to repair an assistive technology device not later than the end of the business day following the business day on which such request was made.

(b) After an assistive technology device is made available for repair under subsection (a) of this section, the manufacturer shall reimburse the consumer for the reasonable per day cost incurred by the consumer for the use of an equivalent assistive technology device during the repair period if: (1) The repair period exceeds ten business days, including the business day on which the assistive technology device is made available to the manufacturer or dealer for repair; or (2) the nonconformity is the same as a nonconformity for which the assistive technology device has been made available for repair under subsection (a) of this section on at least two previous occasions.

(c) If an assistive technology device is made available to a dealer or lessor for repair by the manufacturer under subsection (a) of this section and the dealer or lessor fails to forward the assistive technology device to the manufacturer in time for the manufacturer to make the repair within ten business days after the business day on which the assistive technology device was made available to the dealer or lessor, the dealer or lessor shall reimburse the manufacturer for any amount actually paid to the consumer under subsection (b) of this section.

(d) If an assistive technology device is made available for repair under subsection (a) of this section at least three times for the same nonconformity during the term of an express warranty applicable to the assistive technology device or within two years of the delivery of the assistive technology device to a consumer, whichever is longer, or is out of service due to the same nonconformity for not less than thirty consecutive or nonconsecutive calendar days during such period, and such nonconformity is not repaired: (1) If such assistive technology device was purchased, the manufacturer shall, as directed by the consumer, either (A) accept return of the assistive technology device, replace such returned assistive technology device with an alternative assistive technology device of comparable quality, size and function, and refund any collateral costs paid by the consumer or by a holder of a perfected security interest in the returned assistive technology device; or (B) accept return of the assistive technology device and refund to the consumer or to the holder of a perfected security interest in the returned assistive technology device, or both in proportions as may be applicable, an amount not exceeding the full purchase price plus any finance charge, sales tax, shipping cost and collateral costs paid by the consumer or by such holder, minus a reasonable allowance for use. Such reasonable allowance for use shall not exceed an amount obtained by multiplying the full purchase price of the returned assistive technology device by a fraction, the denominator of which is 1,825 and the numerator of which is the number of days that the returned assistive technology device was used before the consumer first reported the nonconformity under subsection (a) of this section.

(2) If such assistive technology device was leased, the manufacturer shall, as directed by the lessor in accordance with the election of remedies by the consumer, either (A) accept return of the assistive technology device, replace such returned assistive technology device with an alternative assistive technology device of comparable quality, size and function which shall be furnished by the lessor to the consumer as provided in subsection(b) of section 3 of this act, and refund any collateral costs paid by the lessor or by a holder of a perfected security interest in the returned assistive technology device; or (B) accept return of the assistive technology device, refund to the lessor or to the holder of a perfected security interest in the returned assistive technology device, or both in proportions as may be applicable, the current value of the lease, and reimburse the lessor for, and the lessor shall refund to the consumer as provided in subsection(b) of section 3 of this act, the amount paid by the consumer under the lease as of the date of such return plus any collateral costs, minus a reasonable allowance for use. For purposes of this subdivision, the current value of such lease equals the total amount for which such lease obligates the consumer during the period of the lease term remaining after its early termination under this subdivision plus the lessor's early termination costs and the value of the assistive technology device at the expiration of the lease term, if such value is set forth in the lease, minus the lessor's early termination savings. Such reasonable allowance for use shall not exceed an amount obtained by multiplying the total amount for which such lease obligates the consumer by a fraction, the denominator of which is 1,825 and the numerator of which is the number of days that the returned assistive technology device was used before the consumer first reported the nonconformity under subsection (a) of this section.

Section 3. (NEW) (a) Any consumer who elects a remedy available under subdivision (1) of subsection (d) of section 2 of this act shall first offer to transfer the assistive technology device to the manufacturer. Not later than thirty business days after the date such offer is made, the manufacturer shall provide the consumer with the refund or the alternative assistive technology device required by said subdivision. Upon receipt of such refund or alternative assistive technology device, the consumer shall, at the manufacturer's expense, return the assistive technology device having the nonconformity to the manufacturer or, if directed by the manufacturer, to a dealer, together with any endorsements necessary to make such transfer.

(b) Any consumer who elects a remedy available under subdivision (2) of subsection (d) of section 2 of this act shall first offer to return the assistive technology device to the lessor. Not later than thirty business days after the date such offer is made, the lessor shall provide the consumer with the refund or the alternative assistive technology device required by said subdivision. Upon receipt of such refund or alternative assistive technology device, the consumer shall return the assistive technology device having the nonconformity to the lessor at the lessor's expense. Upon such return, the lessor shall offer to return such assistive technology device to the manufacturer. Not later than thirty business days after the date such offer is made by the lessor, the manufacturer shall reimburse the lessor for any such refund made to the consumer plus any expenses incurred by the lessor in the return of such assistive technology device by the consumer. Upon receipt of such reimbursement, the lessor shall, if directed by the manufacturer and at the manufacturer's expense, return the assistive technology device having the nonconformity to the manufacturer, together with any endorsements necessary to make such transfer.

Section 4. (NEW) No assistive technology device that is returned by a consumer in this state under sections 2 and 3 of this act, or by a consumer in another state under a similar law of such state, may be sold, leased or offered for sale or lease in this state on or after January 1, 1998, unless full disclosure of the reasons for such return is made to any prospective consumer who may purchase, lease or receive transfer of such assistive technology device.

Section 5. (NEW) The Commissioner of Consumer Protection, in consultation with the director of the Office of Protection and Advocacy for Persons with Disabilities, may adopt regulations, in accordance with chapter 54 of the general statutes, to carry out the provisions of sections 1 to 4, inclusive, of this act. Such regulations may establish an alternative dispute resolution program to investigate and adjudicate disputes arising under sections 1 to 4, inclusive, of this act.

Section 6. (NEW) In addition to any other remedy available under the laws of this state, a consumer may bring a civil action against a manufacturer, dealer or lessor of an assistive technology device based on an alleged violation of the provisions of this act. If the court determines that such manufacturer, dealer or lessor violated any provision of this act, the court shall award the consumer the amount of actual damages caused by such violation and may, in its discretion, award to the consumer costs and reasonable attorney's fees.

Section 7. (NEW) (a) Nothing in this act shall in any way limit the rights or remedies that are otherwise available to a consumer under any other law. (b) No act or agreement of a consumer shall constitute a valid waiver of any of the provisions of this act Approved June 6, 1997

Connecticut State
Department of Education

Division of Educational Programs and Services
George A. Coleman, Associate Commissioner

Bureau of Special Education
and Pupil Services
George P. Dowaliby, Chief

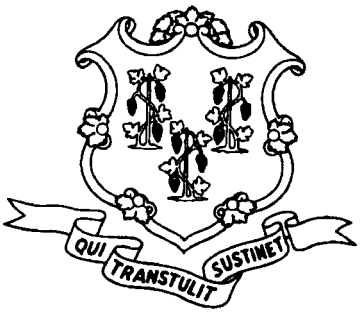
Program Enhancement Unit
Carolyn Isakson, Project Manager

Staff
Barbara S. O'Brien

Publications Office
Deborah Koval

State Department of Mental Retardation
Peter H. O'Meara, Commissioner

Birth To Three System
Linda Goodman, Director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