

ASSISTIVE TECHNOLOGY



Assistive Technology and Transition Planning

Many students with disabilities require assistive technology to participate in and benefit from their educational programs. Students may use assistive technology to increase their participation and achievement in the general education curriculum or to increase their independence and participation in functional activities. When an Individualized Education Program (IEP) Team determines that a student requires assistive technology, the devices and services that are required should be documented in the IEP and made available to the student in a timely manner. Training for the student, the school staff, and his family should be provided to support the successful use of the assistive technology.

As IEP Teams begin to address transition for a student with a disability, it is important that the student's need for assistive technology be addressed in the Transition Plan in the IEP as well as in other sections as appropriate. If a student uses assistive technology in the school setting and requires it in post-secondary environments, the Transition Plan becomes the legal document that specifies how the technology will be used to support employment, community participation, and independent living goals.

In this section, you will learn about the range of assistive technology devices that are available to support student success at school and in post-secondary environments. You will also learn basic procedures for determining student assistive technology needs and for integrating technology into the student's educational program. Specific strategies to promote transition planning are also provided.

Definitions of Assistive Technology Devices and Services

Assistive technology devices and services were first defined in federal law in the Individuals with Disabilities Education Act of 1990 (Public Law 101-476). These definitions remained unchanged until 2004 with the passage of the Individuals with Disabilities Education Improvement Act (Public Law 108-446) when an exemption to the definition of an assistive technology device was added to clarify a school system's responsibility to provide surgically implanted technology such as cochlear implants.

Assistive Technology Device

Assistive technology devices are identified in the IDEA 2004 as:

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.

The term does not include a medical device that is surgically implanted, or the replacement of such device.

(Authority 20 U.S.C. 1401(1))

Although the IDEA uses the term "device", it is important to recognize that assistive technology

devices required by students with disabilities include hardware and software as well as stand-alone devices. Almost any tool can be considered to be an assistive technology device except for those assistive technology devices that are surgically implanted and have been excluded from the definition of an assistive technology device as defined in IDEA.

The definition of an assistive technology device is very broad and gives IEP teams the flexibility that they need to make decisions about appropriate assistive technology devices for individual students. Assistive technology includes technology solutions that are generally considered instructional technology tools, if they have been identified as educationally necessary and documented in the student's IEP. For example, a classroom computer with a word processing program can be considered assistive technology for a student who demonstrates difficulty in writing and spelling if the IEP team has determined that it is educationally necessary. Assistive technology devices can be purchased from a local store or a vendor that specializes in the production and sale of assistive technology devices. These devices often need to be modified or customized to meet the individual needs of a student with a disability. For example, a computer keyboard may need to be adapted through the addition of tactile locator dots for a student with a visual impairment. When determining assistive technology needs, IEP teams should consider commercially available solutions that may be used "as is" or ones that can be modified to meet the student's unique needs. In some situations, it may be necessary to construct a device to meet the student's needs.

A range of assistive technology devices are available. Some are relatively "low technology" and inexpensive. For example, a pencil grip is an assistive technology device that may be used by a student with a physical disability to improve handwritten communication through increasing the student's grasp of and control over his or her pencil. An adapted cup with enlarged handles may be used by a student who has difficulty holding a standard cup. Other devices are more "high technology" tools and are often more expensive. An example of a "high technology" tool is an augmentative communication device in which a student types in messages on a communication display and they are spoken aloud.

Assistive technology devices are available in a variety of categories to address functional capabilities of students with disabilities. These categories include but are not limited to:

Academic and Learning Aids: Electronic and non-electronic aids such as calculators, spell checkers, portable word processors, and computer-based software solutions that are used by students who has difficulty achieving in the educational curriculum

Aids for Daily Living: Self-help aids for use in activities such as eating, bathing, cooking, dressing, toileting, and home maintenance

Assistive Listening Devices and Environmental Aids: Electronic and non-electronic aids such as amplification devices, closed captioning systems, and environmental alert systems that assist students who are hard of hearing or deaf with accessing information that is typically presented through an auditory modality

Augmentative Communication: Electronic and non-electronic devices and software solutions that provide a means for expressive and receptive communication for students with limited speech and language

Computer Access and Instruction: Input and output devices, alternative access aids, modified or alternative keyboards, switches, special software, and other devices and software solutions that enable students with disabilities to use the classroom computer

Environmental Control: Electronic and non-electronic aids such as switches, environmental control units, and adapted appliances that are used by students with physical disabilities to increase their independence across all areas of the curriculum

Mobility Aids: Electronic and non-electronic aids such as wheelchairs (manual and electronic), walkers, scooters that are used to increase personal mobility

Pre-vocational and Vocational Aids: Electronic and non-electronic aids such as picture-based task analysis sheets, adapted knobs, and adapted timers and watches that are used to assist students in completing pre-vocational and vocational tasks

Recreation and Leisure Aids: Electronic and non-electronic aids such as adapted books, switch adapted toys, and leisure computer-based software applications that are used by students with disabilities to increase participation and independence in recreation and leisure activities

Seating and Positioning: Adaptive seating systems and positioning devices that provide students with optimal positioning to enhance participation and access to the curriculum

Visual Aids: Electronic and non-electronic aids such as magnifiers, talking calculators, Braille writers, adapted tape players, screen reading software applications for the computer, and Braille note-taking devices that assist students with visual impairments or blindness in accessing and producing information that is typically present in a visual (print) modality

(Adapted from the Assistive Technology Guidelines for Kentucky Schools,
Kentucky Department of Education)

A particular student with a disability may require assistive technology solutions from one or more of the above categories. For example, a student with a severe intellectual disability may use an augmentative communication device to supplement his or her communication skills, adaptive switches to participate in leisure activities, and an adapted keyboard for accessing the software applications on the classroom computer.

The above listed categories of assistive technology devices are not disability specific. For example, a student with a learning disability who has difficulty focusing on the teacher's lecture in class due to processing difficulties may require an assistive listening device to amplify the teacher's voice in a classroom. Students with various types of disabilities use adapted tape recorders originally developed for visually impaired and blind children to access audio-taped reading materials.

The need for assistive technology devices is determined by the student's IEP committee. Typically, assistive technology solutions are identified through consideration of assistive

technology or through an assistive technology assessment. Once an assistive technology device has been determined educationally necessary, the student's IEP team should document the required device(s) in the IEP. Information on considering and assessing the need for assistive technology devices and documenting assistive technology devices is included in subsequent sections of this manual.

Assistive Technology Service

As defined in IDEA, an assistive technology service is

Any service that directly assists a child with a disability in the selection, acquisition, and 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 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.

(Authority 20 U.S.C. 1401(2))

As stated in the IDEA, assistive technology services are provided to assist in the selection, acquisition, and use of an assistive technology device. Often an IEP team focuses their energies on the device itself and forgets that the assistive technology services, as described in this document, are critical to the student's use of the device. For some students, appropriate assistive technology devices are identified through an evaluation which the IDEA specifies must be conducted in the student's customary environment. After, a device has been selected to meet the student's needs, the next step or "service" is to actually provide the assistive technology device for the student's use. After the device has been obtained, and if appropriate modified, all appropriate individuals should be trained in the use of the device and the device should be made available for the student's use across instructional settings as needed.

Prior to IDEA 2004, there was some discussion as to whether a school system was responsible for the maintenance, programming, and replacement of surgically implanted assistive technology devices such as cochlear implants and whether or not these would be considered assistive technology. The following excerpt from IDEA addresses this issue:

For a child with a surgically implanted medical device who is receiving special education and related services under this part, a public agency is not responsible for the maintenance, programming, or replacement of the medical device that has been surgically implanted (or of an external component of the surgically implanted medical device)

(Authority 20 U.S.C. 1401(1), 1401(26)(B))

Although the school system, under the present legislation, is not responsible for maintaining, programming, and replacing surgically implanted assistive technology devices, the IDEA states that the system does have a responsibility to ensure that the external components of these devices are functioning properly.

Each public agency must ensure that the external components of surgically implanted medical devices are functioning properly.

(Authority 20 U.S.C. 1401(1), 1401(26)(B))

In summary, the definitions of assistive technology devices and services are clearly defined in the Individuals with Disabilities Education Act of 2004. These definitions have also been included in the State Rules for Special Education. Each student's IEP team should consider the student's need for assistive technology devices and services and any required assistive technology should be addressed in the student's IEP and provided to a student in a timely manner.

Determining Student Assistive Technology Needs

Each student's IEP Team is required to consider assistive technology devices and services as a special factor in the development, review, and revision of the student's IEP. In order to effectively consider assistive technology, the IEP Team must be knowledgeable about the types of assistive technology devices that are available to address the students needs and they should use a defined decision making process to determine if assistive technology is required. If technology is required, The Georgia Project for Assistive Technology has developed a series of guiding questions that the Team can use to assist them in considering a student's assistive technology needs. These questions are as follows:

- What do we want the student to be able to do (standards, relevant instructional tasks, functional tasks, vocational tasks, and goals)?
- Can the student accomplish these tasks or achieve these goals independently using standard classroom tools?
- If not, can the student accomplish the tasks or achieve the goals when provided with accommodations or modifications?
- If not, can the student accomplish the tasks or achieve the goals when provided with

- currently available assistive technology?
- If not, what additional supports, including assistive technology, need to be provided?

If the IEP Team determines that the student requires assistive technology through this consideration process in order to receive a free appropriate public education (FAPE), the needed technology should be documented in the IEP and made available to the student.

When the IEP Team does not have enough information to address the student's assistive technology needs through the consideration, the Team should seek assistance from a person knowledgeable about the types of assistive technology needed by the student. If this consultation does not yield the information needed to determine the technology that is required, the student should be referred for an assistive technology evaluation. This evaluation should be conducted by a multidisciplinary team in the student's customary environment. A written report should be developed that includes a summary of the information considered in the evaluation, a summary of the student's performance during the evaluation and recommendations for assistive technology devices and services.

Documenting Assistive Technology in the IEP

When an IEP Team determines that a student requires assistive technology, the types of devices and services that are required by the student should be clearly specified in the IEP. When assistive technology is required by a student for whom a Transition Plan is being developed, the technology can be addressed in the Transition Plan as well as in other sections of the IEP. In the Transition Plan, it is important to address assistive technology in the transition activities and services that are required for the student to achieve employment, community, and independent living goals. It may also be necessary to address assistive technology as a related service.

Please refer to the sample transition plans found in this manual for sample transition plans that include assistive technology.

Integrating Assistive Technology into the Curriculum

Once the required assistive technology has been identified and documented in the IEP, it should be made available to the student. The student, school staff, and the student's family, if appropriate, should receive training in the use of the device(s). Students should know how to use the device, when to use the device, and how to trouble-shoot basic technical problems. Data should be collected on the use of the device to document use and make modifications in assistive technology programming.

Planning for Post-Secondary Success

As the student approaches graduation from high school, the Transition Plan should include information about the types of assistive technology devices that are required in the post-secondary environment. The plan should also address any training and supports that are needed for the student's continued use of assistive technology. The team will need to explore options for funding the needed technology and identify agencies that can support the student's continued use for assistive technology. The Georgia Tools for Life website at www.gatfl.org provides a

comprehensive listing of funding sources for assistive technology in the Dollars and Cents Funding Guide available on their website.

Other agencies such as the Board of Regents and the Department of Labor have resources to support students who use assistive technology. Transition teams should assist students in locating the available resources and in contacting the resources as appropriate.

A critical part of the transition process for assistive technology is making sure that the student develops the self-advocacy skills to clearly communicate his or her assistive technology needs upon graduation from high school. Students who have access to appropriate assistive technology devices and supports are more likely to participate, succeed, and achieve in their post-secondary environments.

Tools for Life

Georgia DOL/VR/Tools for Life Program

1700 Century Circle B4

Atlanta, GA 30345

(404) 638-0384

(404) 486-0218 (fax)

1-800-497-8665

1-800-497-8666

1-800-497-8667

www.gatfl.org

Georgia Project for Assistive Technology

Georgia Department of Education

Division for Special Education Supports

1870 Twin Towers East

Atlanta, GA 30334

(404) 463-5288

(404) 651- 6457 (fax)

www.doe.k12.ga.us

www.gpat.org

Center for Applied Special Technology (CAST) www.cast.org

UNIVERSAL DESIGN FOR LEARNING (UDL)

The passage of the No Child Left Behind Act brought the issue of educational accountability into focus for all children, including students with disabilities, second language learners, disengaged learners, and students with behavioral concerns. Educators are challenged to teach high standards to the diverse needs of learners present in classrooms today.

It is evident that a ‘one-size-fits-all’ approach to education is not effective. One solution to addressing the individual differences of students is Universal Design for Learning (UDL). UDL provides a framework for creating flexible goals, methods, materials, and assessments that accommodate learner differences. Universal design is not a menu of ideas and strategies that provides one solution for all learners. Instead, it provides a mechanism for teachers to meet the multiple needs of diverse learners.

The concept of UDL originated in architecture and product development allowing a wide variety of users to obtain access. Structural changes such as curb cuts and ramps allowed many individuals easier access to public buildings and facilities. Speaker phones and close-captioned television are just a couple of examples of products available to accommodate a wide variety of users.

UDL is not a plan solely for students identified with specific disabilities. Many UDL features eventually benefit everyone. UDL is based on the power of technology to make education accessible and beneficial for all.

Print-based teaching can no longer meet the challenge of providing instruction to meet the needs of all learners

- Physical barriers for students with motor difficulties
- Sensory barriers for students with perceptual difficulties
- Cognitive barriers for students with learning and mental difficulties
- Language barriers for students for who English is a 2nd language
- Decoding barriers for emerging readers

Relevant Research

Recent research in the area of neuroscience demonstrates how brain processes work to acquire information. These processes vary from one individual to the next. The Center for Applied Special Technology (CAST) had identified three primary brain networks and the role they play in learning. (CAST, 2005)

- **Recognition networks**—How we identify and categorize what we see, hear, and read.
 - Identifying letters and words is a recognition task.
 - The ‘what’ of learning
- **Strategic networks**—How we organize and express our ideas.
 - Writing an essay or solving a math problem are strategic tasks.

- The ‘how’ of learning
- **Affective networks**—How we are engaged and motivated.
 - What challenges, excites, and interests the learner
 - The ‘why’ of learning

Universal design for learning enables educators to tailor instruction to accommodate individual differences in each of these brain networks.

PRINCIPLES OF THE UDL FRAMEWORK

- To support recognition learning, provide multiple, flexible methods of presentation
- To support strategic learning, provide multiple, flexible methods of expression and apprenticeship
- To support affective learning, provide multiple, flexible options for engagement

UDL provides a shift from old assumptions where teachers offer remediation for students so that they can learn from a set curriculum. Instead classroom instruction should be made flexible to accommodate learner differences.

Customized instruction offers the following:

- Multiple means of representation—providing students with a variety of mediums to acquire new information
- Multiple means of expression—providing students alternatives for showing what they know, understand, and are able to do
- Multiple means of engagement—reaching students through their interests, challenging them appropriately, and motivating them to learn

Multiple digital media assists teachers in providing multiple alternatives in order to customize their classroom instruction.

EXAMPLES OF UDL

Active Interaction



4 Talk



DynaVox 3100

Communication devices must give access to the curriculum



Step By Step Communicator

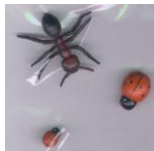
Picture Exchange Communication System, PECS



Active Interaction - reading with...



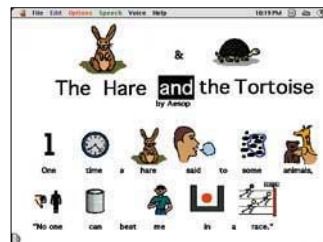
Graphics/symbols



Objects



Tactile cues



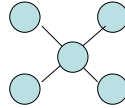
Communication device

Active Interaction - writing with...

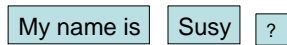
Word stamps



Graphic organizer



Sentence strips



Velcro photos or picture symbols



Drawing



The previous sources may be of help to you as you consider the transitional needs of your student. While these sources are provided to assist you in your search, it is your responsibility to investigate them to determine their value and appropriateness for your situation and needs. These sources are provided as a sample of available resources and are for informational purposes only. **THE GEORGIA DEPARTMENT OF EDUCATION DOES NOT MONITOR, EVALUATE, OR ENDORSE THE CONTENT OR INFORMATION OF THESE RESOURCES. NONE OF THESE RESOURCES SHOULD BE CONSIDERED THE ADVICE OR GUIDANCE OF THE GEORGIA DEPARTMENT OF EDUCATION.**

RESOURCES

Center for Applied Special Technology- A non-profit organization that works to expand learning opportunities to all individuals, especially those with disabilities, through research and development of innovative, technology-based educational resources and strategies. The Teaching Every Student (TES) section of the CAST website supports educators in learning about and practicing UDL. www.cast.org

CAST: NCAC- CAST established the National Center on Accessing the General Curriculum to provide a vision of how new curricula, teaching practices, and policies can be woven together to meet the needs of diverse learners. www.cast.org/policy/ncac/index.html

For Teachers: CAST has established a national consortium on using technology in the classroom. The consortium publishes a newsletter that highlights new resources, articles, announcements, and professional development offerings for educators interested in expanding learning opportunities for all individuals, especially those with disabilities. To subscribe: natconsortium@cast.org

Denham, A. (2004). *Pathways to Learning for Students with Cognitive Challenges: Reading, Writing, and Presenting*. Interdisciplinary Human Development Institute, University of Kentucky. (Online) Available: <http://ihdi.uky.edu/IEI/>

Journal of Special Education Technology-- <http://JSET.UNLV.EDU>

An online publication of the Technology and Media Division of the Council for Exceptional Children

Rose, D. & A. Meyer (2002). *Teaching Every Student in the Digital Age: Universal Design for Learning*, Association for Supervision and Curriculum Development. www.ascd.org

Rose, D., A. Meyer, & C. Hitchcock (2005) *The Universally Designed Classroom: Accessible Curriculum and Digital Technologies*. Harvard Education Publishing Group. <http://gseweb.harvard.edu/hepg/>

Stahl, S. (2002) *Diverse Learners in the General Education Classroom: Technology, Teaching, and Universal Design for Learning* (Audio (\$10.00) & Video (35.00) available from the National Association of Directors of Special Education.) www.nasdse.org

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