THE DISABILITY LAW RESOURCE PROJECT'S

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FACT SHEET #1

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COMING TO TERMS WITH TECHNOLOGY

MANY FORMS OF TECHNOLOGIES EXIST AND HAVE BENEFICIAL APPLICATIONS FOR STUDENTS, INCLUDING THOSE WITH DISABILITIES. HAVING A COMMON VOCABULARY AND AN UNDERSTANDING OF THE PURPOSES OF THESE TECHNOLOGIES CAN HELP SCHOOL-BASED STAFF SELECT, USE, ADAPT, AND MONITOR THESE TYPES OF TECHNOLOGIES MOST APPROPRIATELY.

INTRODUCTION

Throughout the evolution of technology, a number of terms have emerged to describe the different applications of technology in various disciplines. In the field of education alone, terms such as *accessible information technology, assistive technology (AT), educational technology, electronic and information technology (E&IT), information technology (IT)*, and *instructional technology* are all found in the literature.

Although several of these terms are often used interchangeably in the educational arena, subtle differences exist. This fact sheet reviews five terms currently used to describe the benefits of technology for students with disabilities: *information technology; adaptive equipment; assistive technology; electronic and information technology*; and the latest term to appear on the scene, *accessible information technology*.

INFORMATION TECHNOLOGY

Information technology includes any product used to acquire, store, manipulate, or transmit information; this can include computers, multimedia, telecommunications, services (including support services), and related resources and equipment.

Within the educational setting, information technology may be confused with a variety of other terms such as *adaptive equipment* or *assistive technology*. While these may not be information technologies, they are all very much interconnected within the educational process; each is distinguished by its own application and resulting benefits.

ADAPTIVE EQUIPMENT

Adaptive equipment is best described as any item, piece of equipment, or product system, whether acquired commercially, modified, or customized that is adapted to increase, maintain, or improve capacities of individuals with disabilities. Equipment is adapted to better meet a student's

cognitive, sensory, or physical needs rather than the student adjusting to fit the device. Adaptive equipment allows people with certain limitations to improve, expand, and extend their capacity to interact with their environments and to function more independently.

Examples of adaptive equipment include:

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- a reading aid device (see picture at right) for students who are unable to support books or magazines because of limited use of their hands, arms, or shoulders;

- an adjustable table for a computer station to accommodate students in wheelchairs;

- electronic switches used to drive a wheelchair for students with limited use of their hands and arms; and

- a switch-adapted mouse (see picture at right) for students with little or no fine motor control.

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In the school setting, *adaptive* is often used interchangeably with the term *assistive*, or the two words are often combined into *adaptive/assistive technology*. Assistive technology is the umbrella under which adaptive technologies fall.

Assistive Technology

Assistive technology includes any piece of equipment or product system, whether acquired commercially, modified, or customized that increases, maintains, or improves functional capabilities of individuals with disabilities. Assistive technology includes both the devices and the services; for example, this may include a hearing test to fit a hearing aid or an assessment of students' needs related to IT.

As functional alternatives to standard operations, many assistive technologies serve as solutions designed to assist students in overcoming specific limitations. Because the majority of IT is designed for use by the general population and not specifically for individuals with disabilities, many assistive technology devices are developed after the fact to address accessibility issues. IT can be adapted and/or retrofitted with assistive technology on a case-by-case basis to meet the needs of each individual student. While IT can be thought of as universal, assistive technologies are more individualized. Assistive technology is not necessarily a high-tech device. For example, a pencil wrapped with tape to make it easier to hold for a student with limited muscle control is an example of a low-tech assistive technology device.

Examples of assistive technology include:

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- an alternative keyboard (see picture at right) for accessing a computer by students with physical, visual, and/or cognitive needs;

- hearing aids for students with a hearing loss;

- a speech synthesizer that voices words as they are entered on a keyboard by students with speech impairments; and

- a Braille notetaker (see picture at right) for students who are blind.

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- information kiosks (see picture at right), ATM machines, Web sites and other electronic resources.

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Electronic and Information Technology (E&IT)

Electronic and information technology includes both information technology and equipment; it is an interconnected communications environment that consists of interactive, coordinated, interoperable, and networked information systems. In contrast to adaptive equipment and assistive technology, which are considered supplemental and compensatory, E&IT is best described as a built environment.

E&IT mediates access to and use of all types of information; it is specific to the environment of communications and information.

Examples of E&IT include:
- computers, software, and peripherals;

- video equipment and multimedia products that may be distributed on videotapes, CDs, DVDS, or the Internet;

- telecommunication equipment and products;

- office products such as photocopiers, fax machines, and calculators; and

Accessible Information Technology

In schools, the term *accessible IT* refers to IT used by either students or employees of educational entities that can be accessed and used in multiple ways.

When electronic and information technology provides only one way for users to gain access to or manipulate information, it is considered inaccessible. An example of inaccessibility is an automated or timed self-service transaction system that may not have delayed response time for individuals with limited hand control who may require additional cues or more time to select options via buttons on a touch sensitive screen.

If products and environments are to be accessed by users with a variety of abilities and disabilities, they need to be universally designed to be used without the need for adaptation.

Examples of accessible IT include:

- textbooks on CD-ROM and DVD that contain voice narration for students with visual impairments or cognitive disabilities;

- software tutorial programs that allow both use of the mouse and the keyboard by students with limited fine motor skills;

- accessible Web pages for students who use a variety of hardware configurations and software such as screen readers (viewable by as many browsers as possible, limited use of graphics, flow of text from left to right); and

- instructional software with voice narration, captioning, and sign language interpretation allowing students access to information through alternate formats.

Accessible IT involves much more than tools and access; it also encompasses an instructional philosophy that encourages a student-centered approach to learning. As an essential piece of the learning environment, accessible IT, if implemented correctly, is a means to increased and improved outcomes for all learners.

Similar to the concept of universal design, accessible IT is best considered during the design stage of the instructional process (such as during lesson planning). During this phase, careful thought can be given to how technology should be implemented and integrated into instruction.

For further reading, visit:

AccessIT Frequently Asked Questions
    Topics include: assistive technology, universal design, information technology, electronic and information technology, and accessibility.
http://www.washington.edu/accessit/faqs.php?Button=QA

Adaptive Devices
http://www.pnwboces.org/specialed/tam/adaptive.htm

Alliance for Technology Access
http://www.ataccess.org

Assistive Technology
http://www.abledata.com/

Assistive Technology Act of 1998
http://www.section508.gov/docs/AT1998.html

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