

Assistive Technology

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Assistive/adaptive technology is a very broad expression and is not limited in context by which many of us categorize “technology”, specifically as equipment.

Assistive/adaptive technology is simply any device that can be used by an individual (disabled or otherwise) to perform tasks that might otherwise be difficult or impossible; in simple terms, it is anything that levels the playing field for an individual, making life more equitable and accessibility universal. We encounter these assistive/adaptive devices everyday, and some are so common place that they are simply overlooked; for example, the cutout in a curb which was originally designed to assist wheelchair-bound individuals.

Assistive/adaptive technology devices can range in complexity from very simple to the very high tech. The following table is a sampling of various assistive/adaptive technology devices by category as I see them.

<b>Simple</b>	<b>Moderate</b>	<b>High Tech</b>
Sheep skin chair cover	Large print Bingo cards	Prosthetic limbs
Adjustable classroom table	Telephones with large keys	Eye-controlled computer
Putty designed to strengthen a person’s grip	Audio books	Recumbent and hand-propelled bicycles
Magnifying mirror	Push button door opener	Hearing aides
Soft grip on pen	Finger pen	Speech recognition software that converts speech to text
Flash cards	Electric hole punch	Text to speech software that reads the text aloud
Supportive back belt	Spell check function in software	Touch screen monitor
	Trackball mouse	
	Ergonomic keyboard	

As you can see, many items that we use every day can be considered as assistive or adaptive technology, and with a little contemplation this list could be quite extensive. Similarly, assistive/adaptive technology devices have been created to serve individual needs ranging from the very simple to severely debilitating conditions.

### Assistive Technology in Learning

Disabilities are often identified at a very early age, even before the child reaches typical school age. Intervention by parents at this early stage can ensure that the child has a more successful school experience. Careful selection of toys designed to foster learning is one way that parents can address learning or physical disabilities during the early formative childhood stages. But, how can parents select toys that enable their disabled child to play and learn as other children do, and what resources are available to parents with disabled children?

This very issue became the focus of a group that formed Lekotek (Swedish for play library), which is an international program to help identify and make available assistive toys for disabled children. Their philosophy is that through play with adapted toys, children with disabilities can learn to interact with less difficulty, with the world around them. This type of early intervention by parents in the home can make the transition to a classroom learning environment much easier for the child. Lekotek's website ([www.ableplay.org](http://www.ableplay.org)) is a great resource for professionals and families working with disabled children. The website offers product information categorized by disability to help in the selection of appropriate toys.

What role does assistive/adaptive technology play in the public school environment?

By law, specifically the Individuals with Disabilities Education Act (IDEA), public schools must enable students with disabilities to have access to education in an environment with the least restrictions possible, based on the student's personal needs. The IDEA reaches far beyond physical access to the building (i.e. handicap accessible spaces); it literally means that public educational facilities must create an Individualized Education Program (IEP) for each child with disabilities and take whatever measures are necessary to ensure equal access for the child to educational resources.

These educational resources may include items identified as assistive/adaptive technologies; some examples are: dedicated computers or laptops with special features, such as increased font and text sizes; AlphaSmart keyboards to allow for note taking; recording devices; hearing devices; translators; and software applications with adaptive features, such as converting text to speech and speech to text.

Many technologies being implemented by schools are not initially identified as being assistive/adaptive, but in reality they are by design. Interactive white boards, a very popular technology, allows for student hands-on interaction with the classroom curriculum. Often information presented on an interactive white board is in both text and graphical format making it understandable by most students. Individual students can manipulate information on the white board by touch or remote input device, which makes the information accessible for all students. Another such technology that aids all students is a classroom sound enhancement system, which makes the teachers voice or audio from the computer, DVD/VCR player, or other audio device to be delivered at a consistent

audio level so that all students can clearly hear the information regardless of their distance from the source of the audio.

Boardmaker Plus software by Mayer-Johnson is used by Speech Therapists in the Kalamazoo Public School district. This software incorporates the use of picture communication symbols and is a drawing program combined with a graphics database that has the ability to talk and play recorded sounds and movies. This feature-rich software is highly adaptable to the individual student's needs and can help bridge the gap between general classroom instruction and learning. ([www.mayer-johnson.com](http://www.mayer-johnson.com)).

Many other assistive/adaptive software options are available to enable students with physical or learning disabilities to achieve in the educational setting; some examples are: IntelliTools Classroom Suite and Kurzweil 3000 for reading and writing; iTalk2 and The Go Talk Pocket for communication; and Read&Write Gold and Dragon NaturallySpeaking for text-to-speech/speech recognition. The options for computer-based assistive/adaptive software and technology equipment are comprehensive offering many options for allowing equal access and opportunities for students.

Often, the educational resource provided by a school district is an Occupational and/or Physical Therapist who is involved in the student's IEP process and delivers individualized services to the student. This therapist may also visit the student's home and work with the parents so that they can more effectively work with their child to overcome the disability or challenge. In extreme cases, the school district may provide a paraprofessional who is assigned to a specific individual to assist the student in a wide variety of ways, from moving between classes to tutoring in specific curricular areas.

With the wide adoption of web-based programs for use in the educational setting, efforts to provide universal accessibility have reached as far as web-based application construction. These universal accessibility features include the addition of text descriptions on graphics, ensuring that navigational graphics are intuitive and easy to read, and selective use of frames and tables in website design.

Universal design and assistive/adaptive technology methodology is not limited to the school environment, they have been adapted to the work environment as well. Employees must be offered regular, and sometimes ongoing, opportunities to learn new processes and techniques to make them more effective on the job. Many of the same technologies that are embraced by schools are also being used by companies in their training programs to ensure equal accessibility to all employees, resulting in a highly effective workforce.

Assistive/adaptive technology is a vast field dedicated to ensuring equal opportunity for all individuals with physical or learning disabilities. When school districts research and implement the use of these technologies, they are creating a learning environment that strongly supports the success of all students, while adhering to laws that require accommodation for students with physical and learning disabilities.

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