

### **Taxonomy of Assistive Technology**

According to the Assistive Technology Act of 1998 As Amended (PL 108-364), the term “**assistive technology device**” means any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.

The “AT Act” goes on to define “**assistive technology service**” as any service that directly assists an individual with a disability in the selection, acquisition, or use of an assistive technology device. Assistive technology services include (A) the evaluation of the assistive technology needs of an individual with a disability, including a functional evaluation of the impact of the provision of appropriate assistive technology and appropriate services to the individual in the customary environment of the individual; (B) a service consisting of purchasing, leasing, or otherwise providing for the acquisition of assistive technology devices by individuals with disabilities; (C) a service consisting of selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, replacing, or donating assistive technology devices; (D) coordination and use of necessary therapies, interventions, or services with assistive technology devices, such as therapies, interventions, or services associated with education and rehabilitation plans and programs; (E) training or technical assistance for an individual with a disability or, where appropriate, the family members, guardians, advocates, or authorized representatives of such an individual; (F) training or technical assistance for professionals (including individuals providing education and rehabilitation services and entities that manufacture or sell assistive technology devices), employers, providers of employment and training services, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of individuals with disabilities; and (G) a service consisting of expanding the availability of access to technology, including electronic and information technology, to individuals with disabilities.

The following represents one way of classifying assistive technology devices in terms of the function with which the devices enable persons with disabilities to have greater independence, safety, improved health, etc. The purpose of this taxonomy is to remind you of the scope of assistive technology, and its potential impact on all aspects of living.

Devices may fall into one or more categories, for example, a flashing signal that alerts you when someone knocks on your door may be useful both at work (worksites modification) and at home (home modification). Electronic and information technology is represented across categories, as access to “E&IT” may be employed for communication, work, home, learning, and other functions. The listed devices are just examples to illustrate the category, and are not exhaustive lists of all possibilities in the category. In addition, note that each category may include services, as well as the devices themselves.

**Communication:** This category includes equipment and services to enhance **face-to-face communication** as well as **telecommunications** and **written communication**. It includes augmentative and alternative communication (AAC) devices which supplement or replace natural speech, and may range from language boards to computers with speech synthesizers and specialized software. Telecommunications devices include text telephones (TTYs or TDDs), speaker phones, amplified phones, phones that can be operated by voice command and phones with features like automatic dial, memory or speed dial, re-dial and more. Writing aids include devices ranging from adaptations for holding pens to electronic note takers and computers, along with generic or specialized software. **Assistive listening devices** enhance communication by amplifying auditory (especially speech) signals and improving reception and/or discrimination (e.g. personal listening devices; hearing aids).

**Seating and positioning:** Modifications to wheelchairs or other seating systems can provide greater body stability, trunk/head support and upright posture, and reduce pressure on the skin surface (cushions, lumbar supports). This category may also address the application of assistive devices to improve an individual’s health, safety, and function in positions other than upright, e.g. sidelying or prone.

**Power mobility:** These three or four-wheeled vehicles (including scooters and chairs) for independent personal mobility are generally powered by battery. Mobility may entail movement in space (e.g. through stand and/or tilt features) as well as distance. Frequently, powered mobility entails a customized system for access as well as custom seating and positioning.

**Manual mobility:** Four-wheeled chairs or beds (e.g. gurneys) used for personal mobility may or may not afford independent movement, depending upon the physical capacity of the user (strength, endurance, flexibility) to propel the chair unassisted. When the user cannot independently operate the device, s/he relies on another individual to push him/her “by hand”, e.g. manually). Frequently, manual mobility entails a customized system for seating and positioning.

**Mobility aids:** This category may include walkers, canes, and other devices used for improving personal mobility.

**Vehicle modifications:** Vehicle modifications may be required for driver or passenger safety, control, and access, and may include hand controls, zero-resistance steering, ramps, wheelchair lifts, wheelchair “tie-downs”, and other changes.

**Leisure/recreation:** A variety of specialized equipment or adaptations may permit participation in a broad range of leisure and recreational activities, including captioning for television and video, large key remote controls (e.g. for TV; radio), drawing software, switch-operated knitting machines, page turners, bi-skis, etc.

**Worksite modification:** Providing equipment or adapted equipment, alternate positioning, and other changes to the workplace or work materials may permit access and greater participation, independence, accuracy, productivity, and efficiency. This may include “generic” office equipment (hands-free telephone, electric staplers, paper folders); customized tools (switch-activated can crusher); specialized computer software, input or output systems (e.g. screen readers, voice recognition); and adaptations to work surface height or location.

**Home modification:** Adaptations may permit access, independent mobility, assure safety, and increase participation in routines of daily living and overall independence within the home. This may include changes to counter and fixture heights, provision of stair glides and stair lifts, lifting systems help people move from one room to another as well assist in transferring (e.g. from bed to bath), ramps, railings, intercom systems, and automatic door locks. For people with sensory impairments, home modifications can include household appliances that substitute one type of signal for another (e.g. doorbells that activate flashing lights rather than chimes; smoke detectors that vibrate.)

**Learning aids:** There are a variety of devices and software that can facilitate learning, enhance memory, improve organization and facilitate the execution of multi-step tasks or other skills. This may include computers with specialized software that provides prompt sequences, personal planners and organizers, calculators, and hand-held spell-checkers.

**Environmental controls (“electronic aids to daily living”):** Electronic switches or systems can enable people with disabilities affecting mobility, strength, and/or fine motor dexterity to control household devices and appliances, or make other changes in their immediate environment. It is possible to control everything from TV and stereo, to door locks, thermostats, and curtains, through the application of environmental control units (ECUs), sometimes called electronic aids to daily living.

**Vision aids:** Devices that assist with vision needs by increasing contrast, enlarging images, or substituting tactile or auditory signals for visual ones can make a big difference. Devices and strategies include the use of digitized/recorded materials, audio description, Braille, magnifiers, closed circuit televisions (CCTV), and reading machines. Vision aids may be useful for school, work, as well as community living.

**Self care / activities of daily living:** These devices and adaptations increase participation or independence in such activities as eating, dressing, toileting, as well as in routine tasks such as getting out of bed, cooking, and doing laundry. This may include devices ranging from clothing with Velcro closures, medication dispensing systems, built-up handles on utensils, electric toothbrushes, microwave ovens, and special burner shut-off valves for gas ranges.

*For more information about assistive technology and about the assistive technology-related programs of Pennsylvania's Initiative on Assistive Technology (PIAT), contact us at 800-204-7428 (voice/TTY) or [piat@temple.edu](mailto:piat@temple.edu), or <http://disabilities.temple.edu>*

*(Pennsylvania's Initiative on Assistive Technology in the Commonwealth's "Assistive Technology Act Program", funded under a grant from the US Department of Education, Rehabilitation Services Administration).*