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Assistive Technology: An Educational Overview and Recommendations

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EXECUTIVE SUMMARY

This memo briefly describes what assistive technology (AT) is, summarizes how it differs from other accessibility terms, compares the different types of AT, and outlines the legal structures and barriers for supporting and using AT in schools, workplaces, and at home. Understanding the components of AT, how it is supported in our legal codes, and the barriers to its usage for many people is vital for disability and consumer rights advocates as well as those charged with maintaining and supporting these rights. The goal of this memo is to serve as an introduction to the world of AT for advocates and policymakers. We also aim to remind those who may be in a position to assign or support the usage of AT about the rights and barriers people with disabilities have when it comes to accessing and using AT.

KEY FINDINGS

- Assistive technology (AT) usage is widespread, and a majority of people will use one or more assistive technology devices at one point in their lives.
- A majority of protections and regulations related to assistive technology are directed towards students, leaving a wide gap for individuals outside the public education system who need ATs in the workplace or at home.
- Misunderstandings and misconceptions about assistive technology are two of the most significant barriers to its use in the workplace and schools.

INTRODUCTION

Assistive technology (AT) refers to any item, piece of equipment, software program, or product that is used to increase, maintain, or improve the functional capability and/or independence of persons with disabilities.[1] AT may be store-bought software; modifications like tennis balls on a walker; or custom made, like a 3D-printed prosthetic hand.[2] **Most people will need assistive technology at some point in their lives.** Some may need it only temporarily, others for a longer period or throughout their lives. Globally, more than 2.5 billion people need one or more ATs, with that number expected to grow to an estimated 3.5 billion people by 2050 as the global population continues to age.[3]

While the definition of AT is fairly broad, it should not be confused with other similar terms. Though similar in concept, "accessible technology," "universal design," "universal design for learning," and "accessible educational materials" each have different definitions under federal law.

- ***Accessible technology*** refers to a category of technology that is designed to support many different users.
- ***Universal design*** is a design philosophy for delivering products and services that are usable by people with the widest possible range of functional capabilities.
- ***Universal design for learning*** is a pedagogical framework to effectively address diverse learning styles.
- ***Accessible educational materials*** are print- and technology-based educational materials designed to be usable across the widest range of learner variability.[4]

Many kinds of AT may cost the user little or nothing, even for some very expensive devices. **One study of employers found that 61% of employers that helped their employees find accommodations paid nothing for them, as they were often simple adjustments** (e.g., modifying an employee's work schedule, changing a company policy). Even for the more expensive devices, employers viewed the long-term benefits of offering AT devices or services as far exceeding the costs.[5]

Most people will need assistive technology at some point in their lives.

AT Classifications

There are a handful of ways to group ATs. Some classify them based on their technological or mechanical complexity (e.g., low-, middle-, or high-tech), while others group them by the type of service or benefit they provide to users (i.e., vision, hearing, speech communication, etc.). An example of classification based on technological complexity is demonstrated in the "Assistive Technology for Students with Disabilities" report from the New York State Education Department's Office of Special Education. The report includes three AT categories:

- **Low-tech:** homemade or purchased items that are not very sophisticated
  - Examples: wrist stabilizers, adapted pencil grips, crutches, walkers
- **Mid-tech:** items that require some sophisticated technology in their creation and/or use
  - Examples: visual timers, automatic page turners, adaptive switches
- **High-tech:** items that are advanced in design and digital in nature
  - Examples: mobile devices, motorized wheelchairs, screen-enlargement applications, text-to-speech software[6]

An example of the type-of-service classification is the state of Minnesota's online Guide to Assistive Technology. The guide includes 12 AT categories:

- **Vision** (e.g., braille displays)
- **Hearing** (e.g., doorbells with flashing-light alert)
- **Speech Communication** (e.g., communication boards)
- **Learning, Cognition, and Developmental** (e.g., audio books)
- **Mobility, Seating, and Positioning** (e.g., canes)
- **Daily Living** (e.g., adapted eating utensils)
- **Environmental Adaptations** (e.g., ramps)
- **Vehicle Modification and Transportation** (e.g., adaptive seat belts)
- **Computers and Related Peripherals** (e.g., alternative keyboards and input devices)
- **Recreation, Sports, and Leisure** (e.g., playing-card shuffler)[7]

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Legal Structures Supporting AT

There are a handful of federal laws that protect and support individuals' rights to assistive technologies. However, **a majority of these protections and regulations are directed towards students, leaving a wide gap for individuals outside the public education system who need ATs in the workplace or at home**. The primary piece of legislation supporting the use of AT is the Individuals with Disabilities Education Act or IDEA. First enacted in 1975, IDEA includes AT as part of a "free appropriate public education."[8] Accompanying federal regulations adopted in 1992 included provisions that AT devices and services be made available to any child with a disability if required as a part of the child's special education, related services, or supplementary aids and services.[9]

In addition, children with disabilities may have a right to AT under either Title II or Title III of the ADA.[10] The Every Student Succeeds Act (2015) also supports the effective use of assistive and instructional technology to enhance teaching and learning.[11]

In 1988, Congress passed the Technology Related Assistance for Individuals with Disabilities Act to increase access to, the availability of, and funding for AT for all individuals with disabilities, in and outside of educational settings.[12] It was amended by the Assistive Technology Act of 1998 and reauthorized by the AT Act of 2004. Under these laws, states were given funding from the federal government to conduct needs assessments for those with disabilities and to develop and implement a program that directly assists people with disabilities in the selection, acquisition, or use of an assistive-technology device.[13] In Michigan, this program is operated through the Michigan Assistive Technology Loan Fund.[14] These programs are required to serve all people with disabilities, regardless of age. [15]

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Barriers to AT

Reported barriers to accessing AT in schools, workplaces, and the home include: the lack of affordability of some AT without insurance or assistance programs; privacy concerns related to tracking devices; concerns over the ease-of-use or value added by the AT; unclear eligibility requirements for disability services/programs; and the general lack of awareness of the rights to, funding mechanism supporting, and knowledge of the types of AT that exist.[16] In addition, misunderstandings about the role of certain digital AT devices can contribute to people's using AT less because employers and teachers view it "as a distraction."[17] This concern is especially prevalent in schools and leads to students with "high-incidence disabilities" like ADHD and other learning disabilities receiving access to AT at lower rates compared to their counterparts with moderate or severe disabilities.[18]

Students may also face additional barriers to AT access. Evidence suggests that a student's AT use is closely tied to their perception of their teachers' support of AT in the classroom and social stigma among their classmates regarding AT.[19] As such, **there is a strong need for comprehensive AT training for teachers and a general awareness campaign surrounding the use of AT in schools**.[20]

RECOMMENDATIONS

While regulations and protections for AT do exist, more can be done to ensure that all people are aware of their rights and can access the AT that they need. The following recommendations are targeted towards people who are in positions to administer, prescribe, and/or support the implementation of AT. Disability advocates and organizations can use these recommendations to focus their campaigning on reminding these groups of their roles in supporting and administering AT for individuals.

The recommendations are as follows:

- **Expand and fund education and training around AT for teachers and school administrators.** The public school system is one of the earliest opportunities people have to access and grow comfortable with AT. However, not everyone is aware of this fact, despite the numerous federal and state regulations that exist assuring and funding this right. Expanding and funding additional education and training about ATs and how they work in the classroom for teachers, staff, and school administrators would address the knowledge gap and help students and teachers better understand and utilize AT in the classroom.

- **Fund and mount information campaigns about funding opportunities for AT in schools, doctors' offices, and workplaces.** Mounting an informational campaign akin to anti-smoking campaigns, but about AT and the funding opportunities that exist, would let parents, adults, medical personnel, and employers know more about AT, its benefits, and how to access funding for it. Many of the barriers surrounding AT can be explained by people's not understanding what it is or what it does for people with disabilities. Addressing this knowledge gap can cut through these barriers and make it easier for people to access AT and to use it to the fullest extent in their workplaces or everyday lives.

- **Support further research and discussion about the barriers to accessing funding or support for AT in non-school settings.** Numerous research papers have been done about the benefits of AT and its usage in primary school settings. However, little research has been done in recent years about the use of AT in the everyday lives of adults and the challenges they have in using AT. Additional research into this and similar questions would better inform policymakers and disability advocates about the barriers that exist in the United States for adults trying to access and utilize AT.

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