Addressing Assistive Technology Needs in Special Education

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Assistive technology is critical to maximize the functional skills of the person with a physical disability at home, work, and school. As assistive devices become increasingly complex and expensive and more options are available, the need for an assistive technology specialist is enhanced. Recent regulations and advances in technology are affecting the type, quality, and comprehensiveness of assistive technology service provision and need for assistive technology specialists. The occupational therapist’s role as an assistive technology specialist is illustrated in an example of an assistive technology program within a special education setting.

Within the special education setting, the role of assistive technology in meeting the educational goals of the student with disabilities has increased. As assistive technology has become increasingly complex and expensive, and more options are available, the need for an assistive technology specialist and an effective service provision model is enhanced. Recent legislation, such as the Individuals With Disabilities Education Act of 1990 (IDEA) (Public Law 101-476), is also affecting the selection, acquisition, and use of assistive technology for the student with a physical disability. The purpose of this article is to: (a) discuss the role of the occupational therapist as assistive technology specialist; and (b) provide an example of an assistive technology program within a special education setting that emphasizes team decision making in the school, home, workplace, and community.

Assistive Technology Federal Regulations

Assistive technology was defined in 1988 in the Technology-related Assistance for Individuals With Disabilities Act (Public Law 100-407). The IDEA, previously known as the Education of the Handicapped Act, expanded this definition and specifies the inclusion of assistive technology as an integral part of the special education student’s individualized education program (IEP). Assistive technology devices are defined in these regulations 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 individuals with disabilities” (IDEA, p. 2). The type of assistive technology services that the school system must provide are those that assist the student in the selection, acquisition, or use of an assistive device. The law specifies such services to include the following:

1. Evaluation of the student with disabilities, including a functional needs assessment of the person within his or her customary functional environments, such as the school, home, community, and vocational settings.
2. Purchase or other acquisition of the assistive device for the person with disabilities.
3. Assistance with the selection, design, fit, adaptation, customization, maintenance, repair, and replacement of the assistive device.
4. Coordination of the overall educational plans and programs for the person.
5. Education, information, training, and technical assistance, as needed, for the employers, other professionals working with the person, and any other person who is involved with the functional aspects of the person.

Public Law 101-476 requires the educational system to address the student’s assistive technology needs along
with the student’s other educational needs. Although passage of this law provided promise for students with physical disabilities, issues regarding technology services will probably surface. For example: Are existing school personnel sufficiently trained in assistive technology to appropriately dictate students’ needs? What are the funding options for assistive devices, which can be expensive? How do we ensure that appropriate technology is being recommended for the student? How do schools obtain assistive devices for evaluation?

Although Public Law 101-476 mandates the provision of assistive technology services for the student with disabilities, it does not clearly indicate who should pay. Traditionally, students with disabilities have used health insurance to obtain funding for medically oriented devices such as wheelchairs, standers, and bathing equipment. Often, the student’s educational and vocational needs are benefited by the use of this equipment. For example, a student with cerebral palsy who has an adapted wheelchair is better able to move within the school; sit in an upright position, which enhances visual pursuit; and engage in bilateral upper extremity educational and vocational activities. This student benefits from using his wheelchair (paid for by health insurance) not only for mobility, but also in the classroom where improved positioning provides secondary educational and functional benefits. Assistive devices frequently meet overlapping medical, vocational, educational, and functional needs of the person with disabilities. When they are required to address an educational need, however, rather than a medical need, the school must identify a funding source, such as the Board of Education Services for the Blind, state department of vocational services, private industry, or the city school system. Examples of education-oriented assistive devices include adapted computers, inclined writing boards, augmentative communication devices, or page turners.

When is the public school expected to pay for assistive technology services and devices? A policy statement from the United States Department of Education, Office of Special Education Programs, suggests that if the IEP team determines that a student requires assistive technology to receive appropriate public education, the IEP must designate assistive technology services and devices as special education or as related services, and that the services must be provided at no cost to the student (Chandler, 1991).

Public Law 101-476 cites a potential conflict between the educational goals and the medical needs of the student with disabilities. Traditionally, the latter have been the major determinant for assistive technology, partly because of available funding sources (i.e., health insurance), but also because needs assessments were usually performed at medically based clinics. The devices often recommended by such clinics are those that the staff members are accustomed to recommending and for which insurance is likely to pay, such as wheelchairs, bathroom equipment, or sanders. The disadvantages of taking a student to a nearby hospital or medical clinic to assess his or her assistive technology needs are that the assessment takes place outside the student’s customary school, home, or work setting, and may not include the important persons in the student’s life, such as teacher, school therapist, job coach, or even bus driver. The academic, environmental, functional, perceptual, cognitive, social, vocational, and behavioral issues that surface when evaluating students with disabilities within their customary environments and with persons who provide valuable information about their functional skills are critical in ensuring appropriate assistive technology choices. Integration of assistive devices into the classroom will be enhanced if the technology needs assessment occurs within the educational setting and as a focus of the educational team. The team approach, with its close and constant communication and feedback among team members and its capability for ongoing observation of the student, encourages the integration of assistive technology in the classroom.

In a position statement on its long-range goals, RESNA (an Interdisciplinary Association for the Advancement of Rehabilitation and Technologies) stated that

Integration is one of the most important national issues in the field of special education technology today. The full power of assistive technology is rarely achieved in the nation’s schools because teachers and other service providers lack knowledge of strategies that provide for true integration of technology into the existing curriculum . . . If assistive devices were successfully integrated, they would be more readily available, more accessible, and used across all relevant areas of a student’s Individualized Education Plan.” (RESNA Special Interest Group on Special Education, 1991, pp. 7-8)

The Occupational Therapist as Assistive Technology Specialist

Although occupational therapists have a history of helping persons with disabilities to enhance their function through the use of special equipment (Hopkins & Smith, 1988; King, 1978), many other professionals, such as rehabilitation engineers, physical therapists, and orthotists, have also been involved in recommending assistive devices. The difference is that occupational therapists emphasize function (the ability to perform specific tasks) within the home, work, and educational settings. In the educational setting, the occupational therapist focuses on the student’s abilities and remediation needed to enhance educational function. Assistive technology provides the occupational therapist with an ideal medium for promoting function and reducing interference with independent function.

The increase in complexity and quantity of adaptive aids and technology has made it difficult to keep informed of new products, advancing technology, and methods for their use. Trefler (1987) recommended that
In 1982, an occupational therapist at ACES (Area Cooperative Medical Services) initiated an assistive technology program. In my experience, the assistive technology specialist needs to have specialized skills to accomplish the following tasks:

1. Maintain a comprehensive and current knowledge of assistive technology by attending workshops, reading the literature, joining technology-oriented associations such as RESNA and maintaining an active literature file on assistive technology information.
2. Be an information resource for other professionals and family members regarding assistive technology choices and funding resources.
3. Be available as an interagency resource and expert regarding legislation that affects the student's work, home, and educational environments.
4. Facilitate cooperation between the educational team, family, and student in choosing appropriate technology. Assist other professionals and family members in analyzing the educational needs that can and cannot be met through assistive technology.
5. Help make appropriate assistive devices available for trial use to observe and analyze the student's performance within his or her customary environment(s).
6. Provide support and training to facilitate the integration of the assistive devices into the school, work, and home settings. School staff members may require assistance in monitoring whether the device is meeting educational objectives, as well as training about assistive technology concepts, trends, and technological advances.
7. Justify use of the technology to third-party payers by providing information regarding the student's clinical, educational, vocational, and functional needs.

Individualized Design Service: A Special Education Assistive Technology Program

In 1982, an occupational therapist at ACES (Area Cooperative Educational Services) recognized that the medical model did not meet the assistive technology needs of students with disabilities. An assistant technology program called Individualized Design Service (IDS) was initiated. It was thought that the educational team and the family, with their knowledge of students' daily function in the school and home, could effectively evaluate and train students who needed assistive technology. The program emphasis was to refine assistive technology recommendations relative to the students' medical and functional needs within their customary environments. ACES, a non-profit private agency, provides special educational services for 53 towns in south central Connecticut.

The IDS program is based on a transdisciplinary educational model. Assessments occur within the functional setting in which assistive technology will be used, such as in the classroom, worksite, community, and home. The aim of assistive technology assessment and application is to enhance the student's overall function in the areas of functional and life, cognitive, academic, career, and vocational skills. The team approach, which includes daily, close, and ongoing communication among members, enables accurate and consistent assistive technology assessment and program implementation in meeting the FEP.

IDS promotes the use of a decision-making process for the selection of assistive technology in the following areas:

1. Mobility (e.g., manual and power wheelchairs and ambulation devices).
2. Positioning and seating in mobile and non-mobile equipment (e.g., alternative positioning equipment, classroom chairs, sidelyers, and standers).
3. Adaptive educational aids (e.g., reading devices and page turners).
4. Computer access and adaptation (e.g., alternative keyboards, speech synthesis, and specialized software).
5. Environmental control units, including switch access.
6. Transportation safety (e.g., vehicular supports).
7. Activities of daily living (e.g., hygiene and eating).
8. Job specific vocational adaptations (e.g., adapted workstations).
9. Accessibility and environmental design (e.g., ramps, lifts, and bathroom and kitchen design).
10. Adaptation of equipment for leisure and recreation (e.g., switch-activated toys and adapted bicycles).

Service is offered in a variety of ways and more than one type of intervention may be used to deal with a particular issue. For example, the IDS clinic held within the school setting is a team-oriented, collaborative process that uses a think-tank approach in solving assistive technology-related problems. An occupational therapist specializing in assistive technology serves as the facilitator, who organizes and coordinates the clinic. The "ACES Individualized Design Service Client Profile" completed
by the referring staff member is used as a planning tool for the pre-casign and clinic meetings (Shuster, 1992). This profile provides the IDS team with information regarding the student's medical history and neuromuscular status; functional skills and existing assistive devices, including level of independence within each customary environment; communication skills; accessibility needs; behavior; financial resources for assistive technology; and overall functional, educational, and therapeutic considerations regarding existing and future assistive technology. A pre-casing meeting is used to discuss the assistive technology needs of students with the objective of developing a plan of action for the clinic meeting. Input from staff members, family, and the student is encouraged at this meeting (see Figure 1). At the pre-casing meeting, it is decided which staff members should attend the clinic meeting, which is limited to key players in each case. Strategic planning is discussed and defined to handle family, funding, and other issues that affect the assistive technology decision-making process. Thus, the pre-casing meeting is critical to determine a prioritized plan. During the clinic meeting, the plan of action is carried out. Typical types of activities that occur in the clinic include:

- evaluation and simulation of assistive device design
- discussion and the weighing of alternatives with the student and family concerning the effect of various assistive device choices
- measurement and design for commercial and custom assistive device options

**Figure 1.** The adaptive equipment specialist facilitates group process among members of the adaptive equipment team.

- discussion of funding options and funding process.

**Home or work visits** are made when functional concerns that require an assistive technology evaluation outside of the school setting arise. Such visits provide a picture of what the student, family, or employer is coping with at home or work and how this situation affects the educational goals of the student. Typical areas of focus include accessibility and mobility in the home, work, and community; activities of daily living; environmental control; and computer access for educational or vocational purposes or both.

In the **classroom setting,** a student's educational, vocational, functional, and therapeutic needs are evaluated in relation to choice and customization of a device. Because existing school-owned equipment is frequently used to meet the student's needs while he or she is at school, the IDS facilitator needs to be resourceful and creative in recycling and customizing devices. Types of assistive devices include positioning equipment, such as classroom chairs, prone and supine standers, sidelyers, and bolsters; mobility devices, such as mobile prone standers, prone scooters, power chairs, and ambulation aids; controls for access to computer hardware or software, adapted tape recorders, and toys; educational aids, such as page turners and pointers; and activities of daily living equipment, such as toileting and eating equipment. When a device is needed that the school does not own, the facilitator identifies the category of needs it will meet to determine a funding source. For example, if the desired device is to address an educational need, the school or educationally based funding sources are sought, such as the Board of Educational Services for the Blind or the town school system.

**Summary**

Assistive technology is critical to maximize the functional skills of the special education student at home, work, and school. The need for an assistive technology specialist has become increasingly important as assistive technology options become more complex, expensive, and extensive, and as federal regulations mandate the need for assistive devices and associated assistive technology services. Occupational therapists in the school setting emphasize function, and thus are appropriate professionals to assume the role of the assistive technology specialist within the special education setting.

The assistive technology assessment is more likely to be comprehensive if the student's needs are analyzed in the setting within which he or she is going to use the technology. In addition, the assessment seems most accurate and choices seem most appropriate if the student's performance is observed and analyzed by those most familiar with him or her, the educational team and
family. The team approach, with its close and constant communication among members, and its capability for ongoing observation of the student, enables consistent, accurate assistive technology program implementation in meeting the IEP.

References


