Assistive technology and autism: Expanding the technology leadership role of the school librarian

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Assistive Technology is any device, auxiliary aid, or low to high technology tool that allows a user with a disability (cognitive, physical, or neurological) to perform tasks that would be extremely difficult or impossible without the apparatus. Access to assistive technology in schools and public places is an attempt to “level the playing field” for individuals with disabilities by providing them with access to services, education, and employment. Technology support enables individuals with disabilities to complete daily living activities, work successfully, benefit from learning environments, and enjoy leisure time. School librarians can serve in leadership roles for students with autism, their families, and other school professionals by locating assistive technology tools; training teachers, families, and students to use these tools, evaluating the effectiveness of the devices; helping teachers integrate equipment into the school curriculum; monitoring student progress on and satisfaction with the apparatus; and helping teachers modify the curriculum to better support individualized student learning.

Introduction

Assistive Technology (AT) tools are used frequently by educators in Special Education Programs to expand opportunities for students with disabilities. The 1975 Education for the Handicapped Act (EHA – P. L. 94-142) defined provisions of special and regular education that were appropriate for children with disabilities and guaranteed a free and appropriate public education (FAPE) to children with disabilities (Treppa, 1988). It described the need for an individual education plan (IEP), required children to be educated in the least restrictive environment (LRE) possible, and supported parental involvement in the education of their children with disabilities. Funding for AT was made available through The Education for the Handicapped Act in 1967 (Sze, 2009). An amendment in 1986 expanded the range of students served. Previously, the needs of students between the ages of 5-21 were addressed; the 1986 amendment made it possible to provide services to younger children ages 0-5 with special needs.

Further amendments in 1990 changed the name of the Act to the Individuals with Disabilities Education Act (IDEA), extended eligibility to children with autism, and defined assistive technology devices and services that could be included in a student’s IEP. An additional amendment in 1997 mandated the use of AT devices and services in the IEP and granted families permission to use devices purchased by the school in the home setting (Sze, 2009; Treppa, 1988). An amendment to IDEA in 2004 defined AT as any device or system that improved, increased, or maintained the functional capability of an individual with a disability (Myles, 2009). This manuscript defines AT, describes some of the characteristics of learners with autism, and explores
the leadership role of school librarians in the integration of AT to support students with autism. Findings from an online survey which explored the type of services school librarians provide to students with autism and their knowledge of technology to assist students with autism are presented.

**Definition of Assistive Technology**

Assistive Technology includes both non-technical auxiliary aids, mechanical, and electrical devices: dry-erase boards, photo albums, three-ring binders, tape recorders, timers, calculators, voice output devices, scanners, digital cameras, trackballs, augmentative and alternative communication devices, computer software, simulations, and virtual reality. These implements can help an individual with a disability (visual, hearing, cognitive, physical) accomplish a task that would otherwise be impossible, extremely time consuming, or difficult without the tool. In an attempt to create a broad network of access to AT for individuals who are elderly and those with disabilities, The Assistive Technology Act (The Tech Act) of 1998, (P.L. 100-407) was passed. The Tech Act funded state level programs and services that allowed individuals with disabilities to obtain assistive technology tools (The National Center on Accessible Information Technology in Education, 2002-2010).

The use of these specialized tools allows the individual with a disability to live independently and fully participate in schools and workplaces across the United States. The Tech Act defines assistive technology as equipment, products, devices, tools, and software that are either commercially designed or customized to increase the functional capability of an individual with a disability. Reauthorization of The Tech Act in 2004 (P. L. 108-364) provided assistive technology devices and/or services to any child or adult with a disability in an effort to support them in their daily activities, work related tasks, learning, and leisure activities.

**Characteristics of Autistic Students**

The population of individuals with ASD is heterogeneous; individuals in the spectrum vary in their intellect, functional ability, preferences, language ability, motor skills, and cognitive ability. “One size fits all” is not a phrase that can be applied to this group. Within the Autism Spectrum, several classifications of disorders exist: Rett’s Disorder, Asperger’s Disorder, Pervasive Developmental Delay – Not Otherwise Specified (PDD-NOS), Autistic Disorder, and Disintegrative Disorder (Bregman, 2005). Each of these has its own particular attributes, though there are common denominators: deficits in communications skills, deficits in social skills, and restrictive and/or repetitive behaviors. It is common for an individual in the autism spectrum to have normal or average intelligence. Some individuals in the spectrum possess skills that make them a genius in a narrowly defined area, which relies on memorization, pattern recognition, computation, musical, or artistic talent. Other individuals can be borderline, below average, or mentally retarded. A diagnosis of autism will set the stage for specialized support; students with autism need language, behavioral, and social skills support in order to be successful (Bregman, 2005; Tsai, 2005).

**Special Needs of Autistic Learners.**

Many students with autism have expressive and receptive language deficits; they may be unable to fully express themselves or they may be unable to completely understand what is said. This dynamic creates a barrier between them, their teachers, and other learners. The meanings of words, jokes, and sayings are not always understood, and interpretations of language are literal. Autistics see the world in black and white, rather than shades of grey. This becomes a problem when they need to make inferences and draw conclusions from things they hear or read. Many autistic learners have unusual, repetitive, and restrictive behaviors. They may rock, flap their hands, put their fingers in their mouth, or engage in other behaviors that seem strange to individuals who do not understand autism. Their self-stimulatory behaviors are an attempt to calm themselves and help them cope with the stress of their environment. The behavior serves a definite purpose, but it can cause isolation and ridicule. Social skills are especially difficult for individuals with autism. Being socially acceptable depends on using the appropriate behaviors at the right times, and being able to predict what is expected based on the unspoken queues (facial
expressions, body language, posture) of others. This is problematic because many autistics are unable to accurately understand, recognize, and interpret the facial expressions, emotions, and perspectives of others without a great deal of training and practice.

**AT for Autistic Learners.**

Assistive technology can address the special needs of autistic learners and allow them to experience more independent learning. Three categories of assistive technology: high, mid-level, and low can be used to improve the communication skills, organization, motivation, academic skills, independence, and attention of students with ASD (Kroth & Edge, 2007; Myles, 2009; Stokes, n.d). High-level assistive technology includes computers and videotaping. Mid-level includes battery-operated devices that are less complex than high-level devices. Mid-level assistive technology devices are calculators, overhead projectors, and recording instruments. Low-level assistive technology includes visual supports that do not necessarily involve electromechanical tools. Highlighting tape, photo albums, laminated photographs, reminder cards, activity schedules, photo albums, and picture communication symbols are considered low level AT.

AT can provide needed accommodations and reduce the amount of direct teacher support. It has the potential to benefit individuals at all levels within the spectrum because of its diverse applications, ease-of-use, and ability to address all areas of deficit – communication, social skills, and academics.

AT for communication includes dedicated augmentative communication devices like the DynaVox, Liberator II, and communication applications on the iPad and iPod touch: iCommunicate, iConverse, LearntoTalk, SpeakIt!, and others. Hetzroni and Tannous (2004) examined the effects of a computer-based program on the communication of children with ASD in a multiple baseline research design. The intervention was effective at improving the communication functions across all subjects. Decreases in delayed and immediate echolalia (repetitive phrases and words) and irrelevant speech were significant, appropriate speech increased significantly across all three settings, and transfer occurred from the computer-based simulation to the classroom.

Appropriate social skills can be learned though thoughtful and intensive intervention (Durand, 2005), explicit instruction, and video modeling - a promising technology tool (National Autism Center, 2009). Video modeling has been successfully used to teach students with ASD conversation and play skills, social communication, emotional perception, spontaneous requesting, social initiation, and perspective taking (D’Ateno, Mangiapanello & Taylor, 2003; MacDonald, Clark, Garrigan & Vangala, 2005; Nikopoulos & Keenan, 2007; Owen-DeSchryver, Carr, Cale & Blakeley-Smith, 2008).

Sze (2009) identifies a variety of assistive technology devices that can be applied to cognitive (reading, writing, and mathematics), visual, hearing, communication, and physical disabilities. She lists the following for reading support: reading machines, instructional software, portable handheld dictionaries, instructional software, and reading pens. Additional items include e-books, interactive and audible books, reading applications for iPad and iPod touch (iBooks, dictionaries, ICDL Books for Children, iStoryTime Kids Books, Stanza, Zinio, Stories2Learn, Kobo, and others). Autistic students who have difficulty writing can benefit from speech recognition software (Dragon Dictate; Via Voice, spelling and grammar checkers, prediction programs, instructional software, note takers, and speech synthesis software (Write Outloud Intellitalk II). AT tools that support mathematics instruction include talking calculators, math software, computerized calculators, online math manipulatives, and iPad and iPod touch applications like PopMath, Time Money, Math Magic, Cloud Math, Freddy Fraction, etc... These provide visual practice for learning basic math facts: counting, multiplication and division, and fractions.

**Review of Literature**

Literature reviewed on ASD and AT began with a university EBSCO-host database which permitted searches of Academic Search Complete, Education Research Complete, ERIC, Family Studies Abstracts, Library, Information Science & Technology Abstracts with Full Text, MEDLINE, PsycARTICLES, PsycCRITIQUES, Psychology & Behavioral Sciences Collection, PsycINFO, Science & Technology Collection, Social Sciences Abstracts (H.W. Wilson), and SocINDEX. Keywords used included Autism and Assistive Technology, and ASD and Assistive Technology. Peer
reviewed journal articles published from 2001 to 2011 were reviewed, and those that were empirical literature reviews and those with experimental designs that utilized a form of AT as the treatment were included. Additionally, only studies with children under the age of 18 diagnosed with ASD were included, and the AT device had to be used to improve communication, social, or functional skills. A total of 85 articles were found, and of those, 15 met the inclusion criteria. Additional articles meeting the inclusion criteria were selected from personal collections and technology and computing journals. The articles covered a variety of devices considered to be AT: iPod touch, AAC, interactive books, activity schedules, PDAs, and Virtual Environments.

Myles (2009) identified 10 research studies conducted on the use of AT devices by students ages 10-17 with ASD. A total of 85 students were represented, and her results indicated that outcomes were positive across all studies. The studies involved the use of a variety of high-tech AT tools: PDAs, software for recognizing emotions, robots, vibrating pagers, switch training, voice output communication aids, micro-switch communication systems, touch-sensitive screens, and computer-based language tools. The devices were used to teach a variety of skills: communication, the recognition of emotions, joint attention, social interaction, self-help, task completion, problem solving, motivation, and appropriate behavior.

Tools like the iPod touch and iPad fall into the high-tech AT category; these tools were not designed specifically for individuals with ASD, but they are becoming popular tools to help individuals with autism learn language, social skills, appropriate behavior, and academic skills. Video modeling and least-to-most prompting were used to teach three autistic students to use the iPod touch to watch preferred videos without adult assistance (Kagohara, 2010). Stories videoed were downloaded to an iPod touch, and they facilitated functional social skill development in adolescents (Retherford & Sterling-Orth, 2009). Videos of students transitioning independently were created and downloaded to a video iPod touch and shown to four students who had difficulty with transitions. The video presentations were combined with response-based prompting procedures. The students were able to transition independently; their inappropriate behavior decreased, and they maintained their transitioning skills weeks after the intervention (Cihak, Fahrenkrog, Ayres, & Smith, 2009).

Millar, Light, and Schlissier (2006) conducted a meta-analysis to determine the effect of alternative and augmentative communication on the speech production of individuals with developmental disabilities. Twenty-three studies were identified, and six were used in the final analysis. Seventeen studies were eliminated because of methodological issues. After receiving instruction in manual signs or non-electronic systems, 89% of the cases demonstrated modest gains in speech production. In cases where participants were autistic, speech production increased.

Carnahan, Basham, and Musti-Rao (2009) investigated whether or not interactive books with and without music affected the active engagement (time on task and appropriate interaction with learning materials) of students with ASD. The researchers found that interactive books with music increased in each student’s active engagement in small group learning activities.

Computerized activity schedules may facilitate new learning through the use of video, sound, dialogue, imagery and words used as instructional stimuli (Stromer, Kimball, Kinney, & Taylor, 2006); they may also help the learner with ASD become more independent. Activity schedules are perfect aids for autistic individuals who have problems organizing, completing timed tasks, scheduling, and generally managing their time. These aids eliminate the need for constant reminders, and they can significantly increase learning for individuals with ASD (Stromer, Kimball, Kinney, & Taylor, 2006).

Students with ASD have effectively used Personal Digital Assistants (PDAs) as reminder and self-promoting tools (Mechling, Gast, & Seid, 2009; Myles, Ferguson, & Hagiwara, 2007). Many individuals with ASD find it difficult to shift between visual and auditory stimuli when they are attending to tasks. PDAs add customizable support in the form of visual (video, pictures) and auditory (timers, reminders) prompts that increase the students’ independence and decrease their reliance on others.

Stroud (2009) examined technology-based tools that helped autistic learners acquire basic life skills in the virtual world Second Life. The students learned to converse with their peers and practice every-day actions like banking. The feedback from students was overwhelmingly positive, and the district expanded the pilot and added six additional schools. Stroud (2009) also discussed other successful applications of high-tech AT tools: e-Pals, word prediction programs, Starfall’s Learn to Read Online Program, Fàcèland (recognition of facial expressions, and Virtual Expert
Virtual Reality (VR) has been successfully used with students in the Autism Spectrum. Herrera, Alcantud, Jordan, Blanquer, Labajo, and De Pablo (2008), found a significant increase in pretend play and a high degree of generalization as a result of using a virtual environment. In one of the earliest case studies on the use of VR, participants accepted the VR helmet, identified familiar objects and their properties, and located and moved objects (Strickland, Marcus, Mesibov, & Hogan, 1996). The success of VR has been tied to its ability to promote generalization and transfer by presenting real life situations. It can also limit sensory overload, provide individualization, and foster individualized treatments.

In a qualitative case study, participants with ASD enjoyed using their virtual environment. They thought the environment was useful, and they generalized some of the content to real-world settings (Parsons, Leonard, & Mitchell, 2006). Virtual Reality Technology is useful for the autistic population because it includes role-playing in simulated settings, repeated practice across different contexts, flexible responses, stability, and a predictable environment which minimizes anxiety, panic, and obsessive-compulsive disorder – conditions commonly co-morbid with ASDs (Bregman, 2005; Gillott, Furniss & Walter 2001; Kim, Szatmari, Bryson, Steiner & Wilson, 2000).

Bosseler and Massaro (2003) developed and evaluated a computer-animated tutor called Baldi to teach vocabulary and grammar to students with autism. In their 6-month experiment, students completed 2 sessions with Baldi each week that lasted from 10 to 40 minutes. Students gained a substantial number of vocabulary words and retained 91% of their knowledge when they were retested 30 days later.

School Librarians as Leaders Supporting Autistic Students with AT

School librarians understand the importance of incorporating technology into the daily instruction of students. For instance, the American Association of School Librarians [AASL] has written a statement indicating how school librarians support the National Education Plan in schools. According to the statement, under the direction of school librarians, the school library becomes an environment that helps students comprehend 21st-Century literacies: digital, visual, textual, and technological. The statement provides examples of technology integration actions based on the AASL’s Standards for the 21st Century Learner (2009). Generally speaking, the statement describes school librarians as leaders in technology integration who can help transform schools into sophisticated learning environments. School librarians can initiate following actions to promote learning with technology:

- Teach students to assess the validity and authenticity of electronic resources;
- Collaborate with teachers to teach research skills and integrate digital and print resources into curricula;
- Instruct teachers and students on the ethical use of technology and digital resources;
- Connect technology tools to national, local, and state educational standards;
- Train teachers to use technology to engage students by using technology.

Federal legislation mandates the inclusion of AT in the IEP of a student with autism or other disability. The AASL statement describes strategies school librarians use to differentiate learning for special needs students:

- Develop flexible environments that promote independent learning;
- Empower students of diverse backgrounds by teaching technology skills and providing access to technology;
- Provide universal access to students who cannot access materials in a traditional format;
- Reduce barriers that impede the integration of technology into curricula.

The support structures described in the AASL statement are reiterated by professional literature and supported by research. For example, Brewer and Milam (2006) found that school librarians are technologically savvy educators who are actively promoting technology in schools. Smith (2001) noted that school librarians who develop programs that integrate technology have a positive impact on student achievement. Students also understand the significance of the
technology skills that are taught by school librarians because these skills are not typically included in regular classroom instruction (Smith, 2006). Research further documents that school librarians who assume primary roles assisting students and staff to acquire information skills create positive changes within their schools (Dutt-Doner, Allen, & Corcoran, 2005; Jacobskind, Sandberg, & Spota, 2000). The involvement of school librarians in these studies was significant; it is unlikely that the teachers and students would have acquired technology skills without the assistance of school librarians.

Moreover, professional school librarian literature reinforces the importance of the school librarian’s involvement in the implementation of AT (Cavanaugh & Huber, 2003; Harris, 2011; Hopkins, 2003; Hopkins, 2004). In response to the abundance of professional literature and a need to understand the role of school librarians assisting special needs students, Farmer (2009) reviewed studies that illustrated collaborative effects between school librarians and special education teachers. The review noted that while special needs students can access technology in their classrooms, school libraries tend to have more current technology than the students’ special education classrooms (Farmer, 2009).

Hence, the incorporation of AT is a crucial part of the school librarians’ technology integration role because AT can be used to help autistic students access the general education curriculum, function independently, manage their time, and reduce the effects of their communication, social, and behavioral deficits (Kroth & Edge, 2007; Myles, 2009; Jones, Zambone, Canter, & Voytecki, 2010). The success of AT is dependent on careful selection and use, operational knowledge, family support, and integration of the device into the curriculum. These are all areas where school librarians can take a leadership role ensuring access, equity, distribution, appropriate training, evaluation, and support to both school professionals and families. There are many opportunities for school librarians to assist learners with autism; several key roles include technology facilitation, curriculum design, technology integration, and resource location and acquisition.

Research Questions

The purpose of this study was to examine the types of services school librarians provide to students with autism and their knowledge of technology available in their school library to assist students with autism. The following questions guided the investigation.

1. How are school librarians assisting students with autism in the school library?
2. What technology do school librarians feel is available to assist students with autism in the school library?

Methodology

508 school librarians from across the United States participated in the study. The participants included 1 school librarian from a preschool, 83 from schools that combined elementary and secondary grade levels, 99 from middle schools, 129 from high schools, and 197 from elementary schools. A request to participate in the survey was posted to school librarian listservs such as LM-NET and AASL Forum. Emails were also sent to 1000 school librarians on a list randomly compiled by the researchers using freely available online school directories. In addition, emails were sent to the AASL affiliate assembly officers requesting that they participate and post the survey to state list serves and message boards.

Data Collection and Analysis

A concurrent triangulation mixed-method design with a purposive sample was used to implement the study. This methodology was used to gain a better understanding of the responses to the closed-ended questions placed on the survey. The survey developed by the researchers was designed to collect demographic data, information about the services participants provide to
students with autism, the technology participants felt was available to assist students with autism in their current school library, and the participants’ use of Web 2.0 tools.

The software Nvivo was used to group the qualitative data obtained from the open-ended questions into themes. The software SPSS was used for the quantitative analysis of Research Question 2. A chi-square test was performed to examine the relationship between the provision of services to students with autism and the perception that the school library is equipped with technology to assist students with autism. The Spearman rank correlation was employed to determine the relationship between the use of Web 2.0 tools and the participants’ comfort level assisting students with autism.

Findings

**How are librarians assisting students with autism?**

The first finding for Research Question 1 was that a majority of the respondents (79%) felt comfortable to some degree assisting students with autism. A majority of the respondents (90%) said that they personally offer services to autistic students. There were three reasons identified from the open-ended comment section of the survey for not offering services. These reasons were 1) the students are not brought to the library, 2) a lack of understanding about how to help the students, and 3) there were no students with autism in the school. When queried about the type of services offered to autistic students, 66% of the respondents provided feedback which is further delineated in Figure 1. The themes reflected in the responses were:

- Traditional library services - the provision of services such as book checkout, story times, reference services, and assisting with book selection;
- No differentiation - providing the same services to all students;
- Interpersonal relationships - building relationships with students to determine their information needs and understanding the behaviors of students with autism;
- Differentiated learning - using a variety of teaching strategies to tailor instruction to the individual needs of students;
- Supportive environment - creating a consistent atmosphere where all students feel welcomed, safe, and appreciated;
- Services for teachers - engaging in activities such as co-teaching, providing information to teachers about autism, finding alternative resources for autistic students, communicating with teachers about the behaviors and information needs of students, and interacting with paraprofessional supporting autistic students;
- Technology - providing equitable access to technology;
- Social interaction - involving autistic student in activities such as volunteer in the school library that allow them to interact with their peers;
- Promoting awareness - advocating for students by distributing information about autism;
- Services to parents - providing resources to parents to support their children’s information needs;
- Updating skills - seeking additional professional development and information to increase the understanding of autism;
- Interacting with counselors - seeking information from counselors that enables the school librarian to improve services.
These results substantiate the AASL’s assertion that school librarians support the 2010 National Technology Plan in a variety of ways. Still, the responses indicate that there is limited understanding of how technology can be used to provide educational services to students with autism. The responses reveal that school librarians continue to support intellectual freedom and help all students to develop 21st Century skills. Many of the school librarians asserted that children with autism should be afforded the same services as all students. The participants did not want children with autism to feel any different than their other students. For instance, a participant mentioned, “I feel that students with autism can be assisted just like any other student.” Another said, “We can assist autistic students in the same ways we assist other students. We recommend materials. We teach selection. We model reading. We mentor.”

**What technology do school librarians feel is available to assist students with autism?**

Respondents were asked to rate their use of Web 2.0 tools. A total of 73% of the respondents agreed or strongly agreed that they frequently use Web 2.0 tools in their libraries. The participants also listed a variety of technology tools that they felt were available in the school library to assist students with autism (see Figure 2). While these tools were available, there were a great deal of respondents who noted in the comment section of the survey that they did not know how to use technology with autistic students. For example, one participant wrote, “I believe that we have great technology available to us, but I am not sure of what would be best to use with autistic children.”
A significant finding for Research Question 2 was that an association between the provision of services to students with autism and the perception that the school library is equipped with technology to assist students with autism was found, $\chi^2(1, N=497) = 4.169, p = .041$. Examination of the cell frequencies showed that when the participants believed their library was equipped with technology to serve students with autism, they were more likely to provide services to them.

A similar finding was that the Spearman’s rank correlation for the use of Web 2.0 tools and the comfort level with assisting students was $r_s = .116, n=504, p=.009$. This indicates that the participants who were more comfortable with autistic students were more likely to use Web 2.0 tools.

The school librarians who completed this study often noted that autistic students were highly intelligent and flourished when they were provided with technology. Because school librarians are adept at using technology (Brewer & Milam, 2006), it seems that the school librarians
participating in this study found a way to reach out to students with autism by using computers. An example of a response illustrating a school librarians’ comfort with technology was, “In addition to being the school librarian, I am also the computer educator. I have a computer lab attached to the library, which houses 25 modern computers. Students with autism are integrated into many of the computer classes.” Hence, using computers for differentiated instruction is a natural way for school librarians to interact with autistic students and provide leadership in the selection of resources for them.

**Recommendations**

It can be concluded from the wide variety of technology resources listed by the participants of this study, that school librarians do have the foundational knowledge to implement AT. Nonetheless implementing a leadership role in the integration of AT requires school librarians to think of the application of technology in a specialized manner. It is not clear from the survey responses that this is currently happening.

Training will help school librarians understand the applications AT. It has been asserted that leadership training in technology should be incorporated into school library degree curriculums (Everhart & Dresang, 2007). Moreover, there is evidence that pre-service school librarians can be taught technology integration leadership behaviors (Smith, 2010). School librarians who are currently in schools should be provided professional development based on practical application of AT (Smith, 2011). Professional development and training should incorporate the roles described below.

**School Librarians as Collaborators who Match Students’ Needs with AT**

Collaboration was emphasized in the AASL’s (2010) statement regarding the National Education Technology Plan (U.S. Department of Education, 2010). The responses made by the participants indicate that collaboration is not always an integral part of assisting students with autism. It is important to place an emphasis on this role because in order for students with ASD to benefit from AT, it must be available, carefully matched with the student’s needs, and supported by both the child’s family and the child’s teacher. The school librarian can lead the way by selecting and making AT available to meet student needs. This role requires careful planning; it should be based on a logical match between the child’s abilities, the educational environment, and the curriculum. Kroth & Edge (2007) urge educational professionals to select AT based on collaborative partnerships that involve the child, the parents, the family’s culture, the technology, and service personnel. These collaborative networks should encourage assessment, on-going support, evaluation, and the open exchange of knowledge across the child’s school and home environments.

**School Librarians as AT Trainers**

While none of the participants mentioned providing professional development to enhance services to students with autism, school librarians can assume leadership roles with regard to AT training and support. The library can be an excellent place to offer hands-on training on AT, and demonstrate available tools. Librarians can use their technical skills to access resources and help students, family members, and other school professionals understand the operation, maintenance, and care of AT devices. In addition, the librarian can supply feedback to the IEP Team about the student’s acceptance of the tool, training needs, learning curve, and difficulties. This type of feedback can be both formal and informal, and it can ensure continued use of the device. Additionally, the librarian can capture information on student satisfaction with and use of the device. This information can benefit the IEP Team and provide additional input to make sure the student’s needs are addressed.

Families of students with autism may be unaware of AT devices, their uses, availability, integration in the curriculum, and use in leisure and home activities. The librarian is in an excellent position to fill this void by offering one-on-one and small group instruction as well as compilations of AT resources, services and supports guaranteed by law. In this way, the librarian
partners with and informs families to make sure they have the knowledge they need to make informed choices about AT. Parental input influences the successful adoption and use of AT.

**School Librarians as Advocates of AT**

Just fourteen of the responses about how school librarians provide assistance to students with autism included a reference to being an advocate or promoting awareness of autism and the resources autistic students need. It is important for school librarians to assume an advocacy role and assist the teachers of students with ASD. By assuming this role, school librarians enhance the quality of education for students and support their teachers. For example, AT devices can ensure the inclusion of students with autism and lessen the teacher’s record keeping and reporting (Kroth & Edge, 2007). AT can also increase student communication, independence, and understanding; this makes it easier for the student to participate in classroom activities and follow routines. The school librarian can help by making teachers aware of multimedia resources, information technology, and AT that supports visual learning. Specialized devices, virtual fieldtrips, and Web 2.0 tools can add depth and richness to the students’ experience and allow them to understand concepts faster and easier. These supports are essential, because the needs of autistic learners are very unique and individual, and teacher preparation programs rarely include in-depth training in ASD or AT (Teffs & Whitbread, 2009; Stroud, 2009).

**Conclusion**

School librarians can become leaders in AT integration by embracing several of the roles that have been described here. AT improves the quality of education in schools, prepares students with 21st century skills, and creates a visible leadership role for school librarians. It is more important than ever to take a proactive stance in asserting knowledge of AT, because of the increasing number of students who need devices and the impending budget cuts that threaten to limit or remove library programming from schools. Hence, every effort should be made by school librarians to be in the forefront of implementing initiatives that improve the educational success and quality of life for all students, especially those with autism and other disabilities.

**References**


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**Author Notes**

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