

Assistive Technology (AT)

to Support Students with Special Needs

by Janet Hopkins



Acknowledgements

Janet Hopkins is a British Columbia secondary school teacher and a Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) certified Assistive Technology Practitioner. Questions or comments can be directed to at_consultingbc@yahoo.ca .

This resource has been made possible by generous grants from F.K. Morrow Foundation and Maple Lodge Farms Foundation.

The URLs for the websites were verified prior to publication.
Users should be aware that these designations may change.

Table of Contents

Section 1: Providing New Learning Options

Definitions and Discussion

Rationale for Implementing AT in Schools

Trends

Section 2: Issues for Canadian Educators, Administrators, and School Districts

Awareness, Training, Funding

Ongoing Evaluation of Students and AT Products

Information Sharing

AT Acquisition Pointers

Section 3: Resources to Support Students with Special Needs

AT for Specific Disability Categories

- Vision
- Hearing
- Mobility
- Communication
- Learning Disabilities
- Autism Spectrum Disorders

AT and Curriculum Integration

AT For Multiple Computer Operating Systems

- Add-on Assistive Technologies
- Built-in Accessibility Features

Section 4: Successful Implementation

Student Need

Evaluation and Follow-up

Support

Section 5: Online Directory

Databases

Conferences

Discussion Forums

Organizations

References

Section 1: Providing New Learning Options

Definitions and Discussion

K-12 educators in Canada are working with greater numbers of special needs students in specialized and general education classrooms. These students have unique learning needs that pose challenges for themselves, their families, schools, and teachers.

Making the school curriculum accessible to all students is a priority for educational jurisdictions around the world. One strategy being adopted with increasing success is the implementation of assistive technologies to support students with special needs.

Assistive technology (AT) is also known as adaptive technology. However, assistive technology has become the more widely used term for the broad range of supports available to assist people with various cognitive, sensory, physical, communication, learning, and other challenges that limit participation and learning opportunities.

Assistive technology is a system or support that allows a person with a disability to work around his/her area of challenge. Assistive technology does not provide a “cure” for a condition or disability; it helps the user to accomplish a task more independently. Well-matched assistive technologies provide solutions for people who experience barriers to learning (or other pursuits) as a result of disabling conditions.

The following definitions from the Individuals with Disabilities Education Act (IDEA), federal law in the United States, are widely quoted in resources discussing AT as it relates to the field of education:

Section §300.5 Assistive technology device

..., *assistive technology device means 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 a child with a disability.*

(Authority: 20 U.S.C. 1401(1))

Section §300.6 Assistive technology service

..., *assistive technology service means any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device.*

The term includes

- a) *The evaluation of the needs of a child with a disability, including a functional evaluation of the child in the child's customary environment;*
- b) *Purchasing, leasing, or otherwise providing for the acquisition of assistive technology devices by children with disabilities;*
- c) *Selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing assistive technology devices;*
- d) *Coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs;*
- e) *Training or technical assistance for a child with a disability or, if appropriate, that child's family; and*
- f) *Training or technical assistance for professionals (including individuals providing education or rehabilitation services), employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of that child.*

(Authority: 20 U.S.C. 1401(2))

IDEA '97 Final Regulations

Rationale for Implementing AT in Schools

Advances in technology provide new options for individuals with disabilities to participate in and accomplish tasks. It is important for Canadian educators to deploy enabling technologies that allow all students to reach their potential. Assistive technology helps many students to access information, connect with others, and participate in ways that would not be possible without the use of AT.

Continued advancements in the field of computer technology are driving the successful deployment of AT in education. Computer-based assistive technologies provide a strong rationale for AT implementation in Canada's schools and complement the "low tech" tools and strategies already familiar to many educators.

All students need the skills and opportunity to participate in our increasingly information-focused society and economy. The ubiquitous role of the computer is accelerating electronic communication and expanding electronic interaction through desktop, laptop, tablet, and handheld computers. Digital alternatives and the advent of e-commerce, e-government, and e-learning services present opportunities for individuals with special needs to exploit and benefit from these resources through the use of assistive technologies.

Trends

Currently, the United States has a more highly developed educational assistive technology model than exists in other countries. The Individuals with Disabilities Education Act (IDEA) is American federal law that influences educational service across the United States. Under the IDEA, all students on an Individual Education Program (IEP) must be considered for assistive technology. The IDEA, along with other legislation such as the Americans with Disabilities Act (ADA) and the Rehabilitation Act (Section 504), is part of a national strategy that strives to provide special needs students with a free, appropriate public education in the least restrictive environment possible.

This strategy is bolstered through the United States Department of Education, which provides federal funding to state authorities to support assistive technology initiatives. Federal legislation and funding have fostered awareness among politicians, educators, advocates, families, and others of the value of AT in education, lifelong learning, career advancement, and the societal inclusion of people with disabilities.

The United Kingdom's Special Educational Needs and Disability Act 2001 requires schools to develop accessibility strategies and plans, but does not include specific language on technology support for students.ⁱⁱ

In Australia, the Disabilities Discrimination Act (DDA) protects students from discrimination in education. However, there is no language in the DDA addressing assistive technology consideration.ⁱⁱⁱ

The United Nations Educational, Scientific and Cultural Organization (UNESCO) project, *New Opportunities for Children and Young People with Disabilities* (2004-2005), focuses on inclusive education in developing countries. The overall goal of the project, is to promote the benefits and availability of new information and communication technology to improve the lives of young people with disabilities.^{iv}

In Canada, the provinces and territories control the delivery of educational services and establish their own systems. There is no Pan-Canadian K-12 educational strategy on the provision of assistive technology for special needs students. The sample of provincial special education websites, reports, guidelines, and assistive technology services listed below indicates variation on AT service provision. While information on AT service provision is available for some jurisdictions, there is little or no AT service information apparent for other jurisdictions.

- British Columbia – Special Education Technology-British Columbia (SET-BC)
<http://www.setbc.org/>
- Alberta – Special Needs
http://ednet.edc.gov.ab.ca/k_12/specialneeds/
- Saskatchewan – Special Education Unit
<http://www.sasked.gov.sk.ca/k/pecs/se/tqual.html>
- Manitoba – Special Materials Services page
<http://www.edu.gov.mb.ca/ks4/blind/specmat/index.html>
- Ontario – Special Education
<http://www.edu.gov.on.ca/eng/general/elemsec/speced/speced.html>
The *Education Act*
<http://www.edu.gov.on.ca/eng/general/elemsec/speced/edact.html>
- Quebec
<http://www.meq.gouv.qc.ca/GR-PUB/menu-curricu-a.htm>
- Newfoundland and Labrador – Student Support Services
<http://www.gov.nf.ca/edu/dept/sss.htm>
- Prince Edward Island – Assistive Technology
<http://www.gov.pe.ca/educ/index.php3?number=74839&lang=E>
- New Brunswick – Student Services Unit
<http://www.gnb.ca/0000/anglophone-e.asp#2>
- Nova Scotia – Effective Special Education Programming and Services: Response to the Report of the Special Education Implementation Review Committee (2003)
http://www.ednet.ns.ca/pdfdocs/studentsvcs/seirc/response_to_seirc.pdf

Note: Recommendation 15 of this report deals with the provision of assistive technology. Nova Scotia has targeted \$1.1 million dollars for assistive technology over the 2003-2004 to 2005-2006 school years.^v
- Northwest Territories
<http://www.ece.gov.nt.ca/>
- Yukon – Special Programs
<http://www.education.gov.yk.ca/specialprograms/>
- Nunavut – Department of Education
<http://www.gov.nu.ca/education/eng/index.htm>

Without legislation addressing assistive technology entitlement for students with special needs, the implementation of AT in K-12 schools is susceptible to inconsistencies. Some jurisdictions focus their AT services on students in exclusive categories such as autism, vision, hearing, and physical disability, while students with learning disabilities, often strong candidates for AT support, are less likely to be targeted for AT services.

Achieving equity of access to AT services in schools across Canada may be a challenge without federal legislation, funding, or national standards. Comparatively few in-service and pre-service AT training opportunities are available for educators across Canada. Therefore, administrators and teachers in our schools and entering our education systems frequently have limited knowledge of AT. This gap presents an enormous opportunity for the expansion of education-specific assistive technology services and professional development opportunities in Canada.

Section 2: Issues for Canadian Educators, Administrators, and School Districts

Awareness, Training, Funding

Preparing Canadian educators and schools to deliver assistive technology and services to special needs students is a complex issue requiring systematic support and commitment.

Ensuring that an AT initiative receives widespread support requires ministry, board, management, educator, parent, and student awareness. Ideally, it is desirable to educate representatives from all of these interests about the educational applications of assistive technology.

Annual AT conferences, such as the California State University Northridge (CSUN) Technology and Persons with Disabilities Conference (Los Angeles), Closing the Gap (Minneapolis), and the Assistive Technology Industry Association Conference (Florida), provide outstanding opportunities to learn about the most up-to-date assistive technologies used in education today.

Assistive technology policy, funding, and educator training are key issues for Canadian education leaders.

Ongoing Evaluation of Students and AT Products

Successful assistive technology implementation requires careful consideration of a student's unique learning needs as well as knowledge of the expanding array of AT options available to educators.

The task of matching appropriate AT to individual learner needs requires consideration of:

- the specific characteristics of the student (age, abilities, preferences);
- the learning environments where AT will be used;
- the learning goals that the AT is intended to support.

Ongoing evaluation of student development and learning requirements is necessary to assess whether a student's assistive technology needs are being met appropriately.

Adding to the complexity of assistive technology service provision is the wide range of products available:

- Low tech: erasable pens; coloured coding systems and overlays; tactile and manipulative learning products; highlighter pens and tape
- Mid tech: battery operated devices such as tape recorders, timers, lighted handheld magnifiers, books on tape
- High tech: portable computerized devices; standard and specialized computer hardware and software

Ongoing evaluation of assistive technology products requires periodic review of available products, updates, and emerging technologies.

Information Sharing

Assistive technology is a dynamic field with many professionals contributing to the collective knowledge about accessible education and AT solutions. An efficient way for educators to learn about AT is to explore the numerous resources on the Internet and join available online communities devoted to the dissemination of AT knowledge (see Section 5).

As AT evaluation often depends on lengthy trial periods, it is productive for educators to work together through collegial forums to support each other. District, regional, and international online discussion groups have been established to promote collaboration among AT service providers.

AT Acquisition Pointers

Sharing information facilitates the identification of AT options for students with special needs. It also helps educators to continuously update their knowledge in order to make informed AT recommendations and acquisition decisions.

Some acquisition points to think about:

- Consider user goals, preferences, and educational settings.
- Consider the range of low-tech, mid-tech, and high-tech solutions (avoid high-tech options for low-tech issues or stigmatizing options that students are unlikely to use).
- Consult with other staff, professionals, at facilities in your region such as universities, colleges, and libraries to find out which assistive technologies are already in use.
- Consider assistive technology costs, training, and support requirements.
- Seek information about low/no cost open source, freeware, or shareware software options.
- Consider system (hardware and software) compatibility issues.
- Consider the ease of implementation, durability, and transitional value of the product.
- Where possible, obtain trial products (hardware, software, devices) for extended trial periods before making a selection.
- Consider the licensing agreements and upgrade policies. (Some single user licenses allow one user to install the software on multiple computers for personal use, while others restrict installation to a single computer or device.)
- Consider the level of technical support provided by the vendor.
- Consider the number of students who will benefit from the technology.

Section 3: Resources to Support Students with Special Needs

AT for Specific Disability Categories

Educators can apply a number of classroom accommodations and learning strategies to assist students with specific learning needs. Review the strategies to assist students with special needs resource at the University of Toronto's Special Needs Opportunity Windows (SNOW) site <http://snow.utoronto.ca/best/accommodate/index.html>.

Vision

As visual impairments range from low vision conditions to blindness, AT selection will depend on the characteristics and severity of a student's vision impairment. Students with low vision may find that text-to-speech software and/or screen magnification software or other magnification technology such as a closed circuit television (CCTV) will allow greater learning independence.

Students with severe visual disabilities may require auditory and tactile access to learning resources. For students who are blind, screen reading technologies and Braille output technologies provide computer-based access to digital text resources.

The blind and low vision product database on ABLEDATA

http://www.abledata.com/Site_2/blind_and_low_vision_gen.htm

Assistive Technology for People who are Blind or Visually Impaired on DisabilityResources.org

<http://www.disabilityresources.org/AT-BLIND.html>

Hearing

Students with hearing impairments benefit from accommodations that may include the use of interpreters, preferential seating, and visual cues. Many of these students also use assistive listening devices such as hearing aids and personal FM systems. Increasingly, schools are experimenting with classroom sound amplification systems to accommodate students with hearing impairments and central auditory processing disorders. There are now some sophisticated and expensive speech recognition technologies available, such as *iCommunicator*™, that translate an instructor's voice to text and sign language on a computer screen. Some students who are deaf are discovering this technology is helpful in classroom settings.^{vi}

ABLEDATA deaf and hard of hearing product page

http://www.abledata.com/Site_2/deaf_HOH_gen.htm

CODI: Cornucopia of Disability Information – Hearing Impairments

<http://codi.buffalo.edu/hearingq.htm>

Mobility

Students with mobility challenges have a wide range of learning needs in their educational settings. Students who do not have the use of their hands to interact with a computer can make use of alternative access and input AT. Options need to be appropriately matched to the specific needs of students. Some examples of hardware and software used by students with mobility challenges include switch activation and scanning software, speech recognition software, touch pads and touch screens, onscreen and alternative keyboards, head mouse, foot mouse, joystick, and sip and puff activation technologies.

Special Needs Opportunity Windows (SNOW) resources:

- Alternative Mouse Products
<http://snow.utoronto.ca/technology/products/alternate-mouse.html>
- Alternative Keyboards
<http://snow.utoronto.ca/technology/products/alternate-keyboards.html>
- Voice Recognition
<http://snow.utoronto.ca/technology/products/voice-recognition.html>

Assistive Technology Training Online (ATTO): Overview of Switch & Scanning Systems

<http://atto.buffalo.edu/registered/ATBasics/AdaptingComputers/SwitchInterface/index.php>

Communication

Students with speech disabilities may use augmentative and alternative communication (AAC) products, devices, hardware, and software to enable communication. These products range from low-tech symbol/picture boards and wallets to high-tech portable or handheld computers equipped with AAC software.

Communication Aid Manufacturers Association

<http://www.aacproducts.org>

SNOW: Voice Output Communication Aid Product Resources

<http://snow.utoronto.ca/technology/products/voice-output.html>

Learning Disabilities

Students with learning disabilities can be strong candidates for assistive technology support. Some of these learning disabilities include developmental speech and language disorders (articulation, expressive language and/or receptive language disorders) as well as academic skills disorders (reading, writing and/or arithmetic disorders).

Learning Disabilities Online – Technology

http://www.ldonline.org/ld_indepth/technology/technology.html

Assistive Technology Evaluation Guide for Students with Learning

Disabilities http://www.ldonline.org/ld_indepth/technology/evaluation.pdf

Georgia Tools for Life Learning Disabilities and Assistive Technology

<http://www.gatfl.org/ldguide/default.htm>

SchwabLearning.org – Assistive Technology Guide

<http://www.schwablearning.org/articles.asp?r=488&q=4>

Autism Spectrum Disorders

The characteristics of students with autism spectrum disorders (ASD) vary considerably. Students with ASD process and react to information and other stimuli in unique ways. Some students with ASD enhance their communication abilities through AAC support. The use of computers, specialized software, and other technologies may provide organizational support and improve levels of focus.

Assistive Technology for Children with Autism

<http://www.cesa7.k12.wi.us/sped/autism/assist/asst10.htm>

AT Tools and Strategies Assessment Kit for Students with Autism Spectrum Disorder and Assistive Technology Tools & Strategies Assessment Manual for Children with ASD

<http://www.wati.org/WatiMaterials.htm>

AT and Curriculum Integration

Assistive technology is now in use in general and special education classrooms (K-12 and postsecondary) and AT training centres. Library services for students with disabilities are also enhanced through the integration of assistive technology. Increasingly, AT is being provided in K-12, postsecondary, and public libraries.^{vii} Assistive technology resources provide curriculum and information access and support the acquisition of valuable transitional skills enabling the achievement of postsecondary and vocational goals.

Selected online resources related to assistive technology and curriculum integration:

- Assistive Technology in K-12 Schools, Alliance for Technology Access
<http://www.ataccess.org/resources/atk12/default.html>
- Assistive Technology Integration in Special Education Teacher Preparation
<http://jset.unlv.edu/18.3/michaels/first.html>
- Center for Applied Special Technology (CAST): National Center on Accessing the General Curriculum
<http://www.cast.org/ncac/>
- Educational Resources Information Center (ERIC): Including Assistive Technology in the Standard Curriculum
<http://ericec.org/digests/e568.html>
- IDEA Practices, Professional Development Resources: Assistive Technology Integration
<http://www.ideapractices.org/resources/topic.php?subcatID=73>
- Science and Math Resources, Equal Access to Software and Information (EASI)
<http://www.rit.edu/~easi/easisem.htm>
- Special Needs Opportunity Windows (SNOW), University of Toronto
<http://snow.utoronto.ca>

AT for Multiple Computer Operating Systems

Software and systems compatibility issues affect assistive technology functionality. Educators must be aware of the system requirements for the products they are interested in acquiring. For example, speech recognition software products require computers with compatible sound cards, sufficient processor speed, random access memory (RAM), etc. to support the software's capabilities. Consult the product documentation, packaging, vendor website, or the manufacturer to ascertain whether a product will operate properly with other hardware and software in use.

Add-on Assistive Technologies

Add-on assistive technologies are available for Microsoft Windows, Apple's Macintosh/OS X, UNIX/Linux, and alternative operating systems.

Online resources can assist educators in identifying AT options that will work best in their environments:

- Microsoft Accessibility
<http://www.microsoft.com/enable/at/search.asp>
- Apple's Macintosh and Mac OS X
<http://guide.apple.com/uscategories/assisttech.lasso>
- Linux/UNIX operating systems:
 - Linux Accessibility Resource Site
<http://lars.atrc.utoronto.ca/>
 - Linux Accessibility (Adaptive Technology Resource Centre, University of Toronto)
<http://www.utoronto.ca/atrc/reference/tech/linux.html>

Built-in Accessibility Features

Built-in accessibility features provide utilities bundled in the computer's operating system (OS). These features allow user accessibility customization without additional costs.

To learn how to use built-in OS accessibility features, consult:

- Accessibility of Microsoft Products
<http://www.microsoft.com/enable/products/microsoft.aspx>
- Apple's Mac OS X Universal Access features
<http://www.apple.com/macosx/features/universalaccess/>
- Macintosh accessibility features
<http://www.apple.com/accessibility/>
- Linux/UNIX
 - GNOME Desktop accessibility features
<http://developer.gnome.org/projects/gap/>
 - K Desktop Environment (KDE) accessibility features
<http://accessibility.kde.org/>

Section 4: Successful Implementation and Outcomes

Student Need

Student needs are best determined through team consultation. A multidisciplinary AT assessment team gathers input from specialists/consultants, educators, parents, caregivers, and the student, where possible. It is productive to include an individual with knowledge of assistive technology on the team. Some districts use videoconferencing to connect AT experts with school-based teams. Team input increases the probability that appropriate AT options are considered.

Assistive Technology Training Online (ATTO) - Assessing AT Student Need
<http://atto.buffalo.edu/registered/ATBasics/Foundation/Assessment/index.php>

Assessing Assistive Technology Needs of Children with Disabilities
<http://www.nasdse.com/AAATE%20Paper.html>

Assistive Technology Assessment Criteria
http://www.isec2000.org.uk/abstracts/papers_s/sparks_1.htm

WATI (Wisconsin Assistive Technology Initiative) Assessment Forms
<http://www.wati.org/assessmentforms.htm>

Evaluation and Follow-up

Individual preferences and learning needs contribute to the success of the AT intervention. Ideally, students should have the opportunity to evaluate AT products before they are selected for use. Students who have not been adequately consulted are more likely to abandon technology that does not meet their requirements. Ongoing monitoring of students' development and learning circumstances allows for corrective action to be taken in the event that students are not succeeding with the prescribed AT.

Support

Assistive technology support services are important for both educator and student. Teachers need resources and personnel to guide them through the ever changing AT maze. Students require ongoing support to ensure that they are gaining maximal benefit from appropriate AT resources in their learning environments.

The Quality Indicators for Assistive Technology (QIAT) homepage

<http://sweb.uky.edu/~jszaba0/QIAT.html> hosted by the University of Kentucky, provides resources to assist school districts in the development and evaluation of AT services for students.

Adaptive Technology Outcomes, Adaptive Technology Resource Centre,
University of Toronto

<http://www.utoronto.ca/atrc/reference/atoutcomes/>

DisabilityResources.org – Assistive Technology – General Information Sites,

<http://www.disabilityresources.org/AT.html>

AT Decision-Making, Assistive Technology Training Online Project

<http://atto.buffalo.edu/registered/DecisionMaking/>

Assistive Technology Outcomes Measurement System (ATOMS)

<http://www.uwm.edu/CHS/atoms/>

Consortium for Assistive Technology Outcomes and Research (CATOR)

<http://www.atoutcomes.com/>

Special Needs Opportunity Windows (SNOW): Adaptive Technology

<http://snow.utoronto.ca/technology/index.html?showtechnology=1>

Adaptive Technology Resource Centre, University of Toronto –
Technical Glossary

<http://www.utoronto.ca/atrc/reference/tech/techgloss.html>

Section 5: Online Directory

Databases

- ABLEDATA
<http://www.abledata.com>
- Adaptive Technology Product Resources, Special Needs Opportunity Window (SNOW), University of Toronto
<http://snow.utoronto.ca/technology/products/index.html>
- Alliance for Technology Access (ATA) Hub
<http://www.ataccess.org/hub/>
- Assistivetech.net
<http://www.assistivetech.net>
- Closing the Gap Resource Directory
<http://www.closingthegap.com>
- USA TechGuide
<http://www.usatechguide.org>

Conferences

- Assistive Technology Conferences and Training Events (RehabTool.com)
<http://www.rehabtool.com/events.html>
- Calendar of Events in Disability, Rehabilitation and Assistive Technology
<http://www.starlingweb.com/adp/>

Discussion Forums

There are many Internet discussion groups devoted to assistive technology and accessibility. Additional groups can be found through search engine queries.

- ATCanada – Assistive Technology Canada Listserv
<http://ca.groups.yahoo.com/group/ATCanada/>
- attechnology – Assistive Technology Listserv
<http://groups.yahoo.com/group/atechnology/>
- Quality Indicators for Assistive Technology (QIAT) Listserv
<http://sweb.uky.edu/~jszaba0/qiatlistserv.html>

Organizations

There are many organizations and agencies worldwide dedicated to the related fields of accessibility and assistive technology.

- Alliance for Technology Access
<http://www.ataccess.org/>
- AssistiveX
<http://www.assistivex.com/public/>
- Assistive Technology Links, Industry Canada
<http://www.at-links.gc.ca/>
- Assistive Technology Industry Association (ATIA)
<http://www.atia.org>
- Rehabilitation Engineering & Assistive Technology Society of North America (RESNA)
<http://www.resna.org/>

References

-
- ⁱ IDEA '97 Law & Regs, IDEAPractices.org
<http://www.ideaactivities.org/law/index.php>
- ⁱⁱ United Kingdom Special Educational Needs and Disability Act 2001.
<http://www.hmsoc.gov.uk/acts/acts2001/20010010.htm>
- ⁱⁱⁱ Disability Education Page, Australian Human Rights and Equal Opportunity Commission Web site.
http://www.hreoc.gov.au/disability_rights/education/education.html
- ^{iv} UNESCO, Inclusive Education and ICTs
http://portal.unesco.org/education/ev.php?URL_ID=27924&URL_DO=DO_TOPIC&URL_SECTION=201
- ^v *Learning for Life – Planning for Student Success*, Nova Scotia Department of Education (n.d.), p. 19.
http://www.ednet.ns.ca/pdfdocs/learning_for_life/learning_for_life_doc.pdf
- ^{vi} *eSN Special Feature: Assistive Technologies*, eSchool News Online, Mar. 1, 2003.
<http://mycommunicator.com/eSchool-3-1-03.pdf>
- ^{vii} Hopkins, J. *Assistive Technology: An Introductory Guide for K-12 Library Media Specialists*. Worthington, Ohio: Linworth Publishing, 2004. ISBN 1586831380