



Assistive Technology:

**▶ An Introductory Guide
for K-12 Library
Media Specialists**

**by Janet Hopkins
with a chapter by JP Schnapper-Casteras**

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Table of Contents

Acknowledgments/Product and Company Acknowledgments	ix
About the Author/Contributing Author	x
Introduction	xi
Chapter 1 Inclusive K–12 Education and Library Services	1
The School Library	2
The Hub of the Inclusive School Community	2
Shaping the Future	3
The School and Library Staff	4
Attitudes and Awareness	4
Collaboration	4
Architects of Inclusion	4
The Clients	5
Students and Staff with Disabilities	5
Chapter 2 Definitions and Legal Considerations	9
Assistive Technology	10
Low Tech	11
High Tech	12
School Reform Initiatives and U.S. Legislation	12
No Child Left Behind (NCLB)	13
Individuals with Disabilities Education Act (IDEA)	14
Rehabilitation Act of 1973 (Section 504), The Americans with Disabilities Act (ADA)	18
Chapter 3 The Role of Assistive Technology in Schools	21
The Functional Role of Assistive Technology	22
Access to Information	22
Access to the Curriculum	22
The Value of AT for Educators	23
Social and Psychological Value of AT for Students	24
Skill Development and Specialization	24
Competency and Independence	25
Self-Esteem and Peace of Mind	25
Lifelong Tools Promote Participation	25
Chapter 4 Assistive Technology Teams	31
AT Team and Guidelines	32
AT Mini-Assessment	33
Quality Indicators for Assistive Technology	33
Education Tech Points Framework	34
Assistive Technology Policy Checklist	34

	Assessment Methods	35
	SETT (Student, Environment, Task, Tool) Framework	35
	FEAT (Functional Evaluation for Assistive Technology)	36
	Assistive Technology Consideration Quick Wheel	36
Chapter 5	Assistive Technology Funding	39
	Jurisdictional Funding Sources	40
	Grant Seeking	40
	Government Sources	41
	Corporate Sources	41
	Funding and Grant Writing Resources	42
Chapter 6	Accessibility Initiatives	45
	Bookshare.org	48
	Center for Applied Special Technology (CAST)	51
	Recording for the Blind & Dyslexic	51
	Project Gutenberg eText Library	51
	AssistiveMedia.org	52
	American Foundation for the Blind (AFB)	52
	Canadian National Institute for the Blind (CNIB)	52
	International Children’s Digital Library	53
	National Center for Accessible Media (NCAM)	53
	Private Services	53
	eBooks, and Books on Tape and CD	54
Chapter 7	Library Accessibility Needs	55
	Facilities	56
	Workstation Characteristics	57
	Seating	58
	Lighting	58
	Materials	58
	Selection	58
	Accessibility	59
	Technology	59
	Mouse, Keyboard, Screen	59
	Software	59
	Time Limits	60
	Personnel	60
	Attitudes	60
	Communicating	61
	Accessibility	61
	Professional Development	61
Chapter 8	Built-In Computer System Accessibility Features	67
	Windows	68
	Macintosh	72
	UNIX	73

	Other Resources	74
Chapter 9	The Linux Operating System and Accessible Free Software (By JP Schnapper-Casteras)	77
	Introduction to Linux	77
	Free	77
	Open Source	78
	Developed by Volunteers	78
	Many Shapes, Sizes, and Distributions	78
	Console AND Graphical	78
	The Linux Landscape	79
	Linux Accessibility Tools	79
	Console	79
	Graphical Desktop	80
	GNOME	81
	KDE	82
	Other Tools	83
	Deploying Linux	83
	Is Linux Right for You?	83
	Learning Linux	84
	Hands-On Time	84
	Extensions, Customizations, and New Features	85
	Deployment	85
Chapter 10	Mobility Issues and Resources	87
	Wheelchair Accessibility	88
	Facilities	88
	Furniture	89
	Special Services	90
	Alternative Computer Access Technologies	90
	Touch Screens	90
	Mouse Alternatives	91
	Alternative Keyboards and Hands-Free Text-Entry Software	91
	Head-Pointer, Eye-Tracking, and Speech-Navigation Technologies	92
	Other Support and Access Devices	92
	Page Turners	92
	Book Stands	92
Chapter 11	Print Disability Issues and Resources	95
	Hardware	95
	Closed Circuit Television (CCTV)	95
	Scanners and Headphones	96
	Large Monitors and Magnifying Monitor Screens	96
	Customized Keyboards	96
	Braille Display and Braille Output	97
	Software	97

Blind and Low Vision	98
Literacy	99
Tactile Resources	101
Descriptive Video Service	101
Web Accessibility	101
Browser Accessibility Options	102
Web Site Design Standards	103
W3C Consortium	103
W3C Web Accessibility initiative	103
Trace Center's Designing More Usable Web Sites	103
Testing Tools	104
Chapter 12 Hearing Impairments	107
Instructional Strategies	108
Assistive Listening Devices	109
Captioning	110
Other Technologies	112
Chapter 13 Portable Technology Options	115
OCR Scanning and Text-Reading Devices	116
Magnification Devices	116
Portable Keyboards	116
Cassette, CD, MP3 Players, and Other Devices	117
Student Use Rules, Device Security, and Tracking Systems	118
Chapter 14 Creating Accessible Learning Materials	121
Resources	122
BookBuddi	122
Fabula	123
Creating Accessible Books Using PowerPoint, Clicker, and HyperStudio Software	124
Copyright Laws (Reproduction for the Disabled)	124
Copyright Law of the United States (Chafee Amendment)	125
Canadian Copyright Act [Section 32. (1)]	127
Chapter 15 Professional Development Resources for Educators	131
Online Training	132
Online Discussion and Collegial Support Groups	132
Associations and Organizations	134
Certification Programs	135
Conferences	136
Appendix	
Free eText Resources	139
Index	141

Table of Figures

Figure 2.1:	assistive.net Product Search Page	10
Figure 4.1:	Assistive Technology Mini-Assessment	33
Figure 6.1:	Microsoft Word Toolbar	46
Figure 6.2:	A view of the original Times New Roman text style and size selected for font and spacing customization in Microsoft (MS) Word.	46
Figure 6.3:	A preview of the text adjusted to bold Arial text and increased in size on the font adjustment window of MS Word.	46
Figure 6.4:	A view of the original text after the character spacing has been expanded using MS Word.	47
Figure 6.5:	A view of the control panel of NextUp.com's TextAloud MP3 software showing the Wav and MP3 output file format.	47
Figure 6.6:	AutoSummarize Feature of Microsoft Word	48
Figure 6.7:	Bookshare.org	49
Figure 7.1:	Computer Lab Assistive Technology Exploration and Training Center—Adaptive Computer Technology Room	64
Figure 8.1:	Microsoft Accessibility Homepage	69
Figure 8.2:	Microsoft Accessibility Step by Step Tutorials	69
Figure 8.3:	Microsoft Accessibility Guides by Disability	70
Figure 9.1:	Linux Landscape	79
Figure 9.2:	Gnopernicus Main Menu	81
Figure 9.3:	Gnopernicus Braille Monitor	81
Figure 9.4:	GNOME Onscreen Keyboard Main Menu	81
Figure 9.5:	KMouseTool Menu	82
Figure 9.6:	KMag Window	82
Figure 9.7:	KMouth Window	83
Figure 9.8:	Deployment Tradeoffs	84
Figure 10.1:	EnableMart.com	90
Figure 11.1:	ZoomText 8.0 Magnifier and Magnifier/Screen Reader	99
Figure 11.2:	Student using Kurzweil reading technology.	100
Figure 11.3:	Aurora Prediction window adjusts the word choices whenever a new letter is typed.	100
Figure 13.1:	Laser PC6 Portable Computer	117
Figure 13.2:	Assistive Technology Tracker	119
Figure 14.1:	BookBuddi Screen Shot	122
Figure 14.2:	Fabula Project	123

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► Product and Company Acknowledgments

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► **About the Author**

Janet Hopkins has worked as a secondary school teacher in central British Columbia, Canada, since 1981. She has taught in both general and special education classrooms and is a RESNA (Rehabilitation Engineering and Assistive Technology Society of North America) Certified Assistive Technology Practitioner. She works as a consultant and freelance writer through her business, Assistive Tech Educational Consulting. Hopkins is the founder and moderator of the Assistive Technology Canada Listserv, an online discussion group to support educators and members of the public who have an interest in special needs technology. Hopkins is co-maintainer of the Linux Accessibility Resource Site and writes and publishes “Special Needs Tech News,” a free quarterly e-newsletter. Hopkins has written articles about assistive technology for *ComputerEdge*, *Closing the Gap*, *Inclusion Times*, *AbilityHub*, *Canadian Disability Magazine*, *Diabetes Self-Management Magazine*, *Library Media Connection*, *YES Magazine*, and other publications. Hopkins was the first Canadian recipient of the Curriculum Associates, Inc., “Excellence in Teaching Cabinet Grant” and has done writing work for the National School Boards Association. Hopkins lives with her husband and three children in Kamloops, British Columbia. More information about her work is available on her Web site <<http://ca.geocities.com/janethopkinsbc>>. Hopkins can be contacted by e-mail at <AT_Consulting@Canada.com>.

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Introduction

If you are not already aware of the term assistive technology (AT), it may sound unfamiliar and intimidating. AT is a relatively new and rapidly emerging field. It is a technology sub-specialty that is usually associated with professionals working in the fields of special education and rehabilitation. Like most educators, you have probably not received pre-service training, methodology, or professional development related to AT.

Increasingly, educators are learning about the educational role of assistive technology and its potential to bolster student achievement. It is true that many professionals now working in the field of assistive technology have devoted a great deal of their personal time to learn about AT. Why did they do it? Why do they continue to do it?

I cannot speak for all of the educational AT enthusiasts on the planet, but I have my own reasons for wanting to submerge myself in the field. In 1997, I was assigned to a new position as the severe learning disabilities teacher at a mid-sized high school. Partly because I had brand new computer equipment arrive that year and partly because I felt poorly equipped for the assignment, I started to research technology options for my students who had severe learning disabilities.

I became familiar with the Internet and taught myself how to surf the Web. I stumbled across the term “assistive technology” while visiting a Web site about learning disabilities. That single resource led me to many other online AT resources. I became fascinated and wanted to learn more.

My search for AT solutions led to the classroom implementation of some innovative products I had discovered through my cyber travels. It was incredibly rewarding to find, investigate, and evaluate new products and to see how they could help my students. It was just as exciting for the students who thrived on AT as it was for me. We shared the adventure and the enthusiasm for new technologies and this helped them to demonstrate their knowledge and learn more independently. Introducing my students to assistive technology made me feel more useful as a teacher than I had ever felt in my career.

It is not necessary for all educators to have an in-depth knowledge of AT to be effective in their jobs. However, it is necessary for some educators to gain knowledge about the field of assistive technology. Educators who interact with special needs students and their parents need to have knowledge about AT. Parents, who are strong advocates for their children, are becoming informed about assistive technology and expect educators to have knowledge and experience with AT.

Inclusive schools are the norm across most of the western world. Parents want their children with disabilities to have opportunities to learn and participate along side their able-bodied peers. As the K–12

library media center is the central learning resource in most schools, it is incumbent upon administrators and library media specialists to provide accessible facilities and resources.

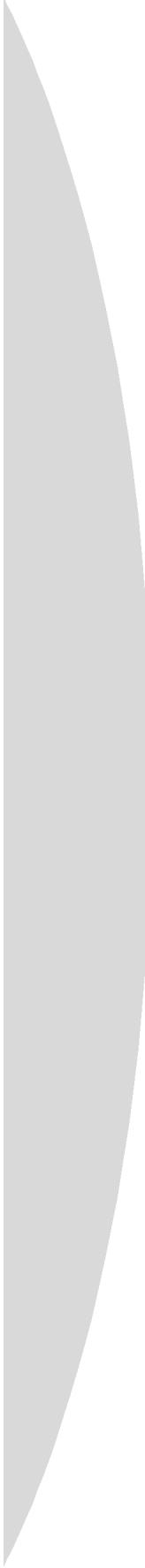
This book is a guide that will assist K–12 library media specialists and others who are unfamiliar with assistive technology or have limited knowledge about AT. The book presents topics related to inclusion and accessibility, information about categories of assistive technology, and online resources that will help readers to extend their knowledge through independent Internet research.

Chapters 1 through 5 include discussion of the library media center’s role within the inclusive school setting, as it relates to both students and staff. The concept of universal design for learning is reviewed along with relevant legislation and school reform initiatives. The role of assistive technology, AT teams, assessment, and funding considerations are also addressed. Technology options, categories, accessibility needs, and initiatives are covered in Chapters 6 through 14. The final chapter provides information related to professional development opportunities and online opportunities that provide collegial support.

The book contains a combination of factual information and opinions, based on the experiences and expertise of people who have contributed information through interviews and sidebar submissions, as well as an entire chapter—Chapter 9 (Linux/Open Source), written by JP Schnapper-Casteras. These generous and experienced contributors have helped me to present a “conference within a book.” The table of contents and index are quick reference tools that allow the reader to scan the book for information on specific topics. However, it is recommended that the book be read from start to finish, as the concepts and technologies discussed early on provide a foundation for understanding the content in subsequent chapters.

It is important to mention that it is not possible for the visual content of a book of this length to provide a complete review of all of the AT-related products, Web sites, and resources that exist. Readers should understand that the products that have been mentioned or selected as visual examples are often not the only available products of their kind. Readers are encouraged to investigate numerous product options before making a selection or purchasing decision. There are resellers, developers, and helpful online searchable databases in addition to those mentioned in the book that can help readers learn about a wider range of products and resources. The products that are pictured or discussed in this book are included as examples and represent the wide range of technologies and resources available. While these products may be appropriate options for some consumers, it is not suggested that they will meet the needs of all consumers.

You will not learn everything about assistive technology by reading this book. As innovative technologies are continuously being developed, it is impossible for any one person to know it all in this



field. However, this book provides an orientation that can reduce the time required to gain a basic level of understanding about this field. Unfortunately, this book cannot provide hands-on experience with assistive technology, but information about conferences and software download links, which can help you gain that experience, are listed.

This book is shaped through my own interest in assistive technology, as well as the valuable contributions, expertise, and collective knowledge of many people and organizations. It will guide you on your AT journey and help you make connections that will allow you to continue to learn about assistive technology.

Inclusive K–12 Education and Library Services

Many special educators are expanding their knowledge about the field of assistive technology. Assistive technology (AT) can help improve access to print and electronic text resources for individuals with disabilities. AT can also help to minimize other barriers to learning and using a computer. As library media centers are the schools' centralized information and learning resources, it is important for library media specialists to become aware of the value of AT. Students with disabilities require specialized support to access library materials and computer technology. Library media specialists must establish partnerships with special educators as well as general educators to ensure that special needs students receive appropriate library services and access to assistive technology.

Over the last 10 to 20 years, considerable changes have taken place in North American education systems with respect to the provision of services for students with disabilities. Education systems have been successful in expanding the range of K–12 programming available to students. The “one size fits all” style of teaching has been gradually shifting toward instructional methods that recognize the existence of multiple learning styles. Educators are becoming more aware of the increasingly diverse characteristics of students within the education system. Classroom teachers and library media specialists are continuously evaluating the needs of their students and reinventing their instructional materials, settings, delivery, and strategies to engage all learners.

Although this book is intended to provide helpful information to library media specialists and educators across North America and beyond, this guide primarily makes reference to U.S.-based resources. These are provided to create awareness about some of the attitudinal, policy, health, and demographic influences on education. Currently, there are more educational assistive technology (AT) initiatives and extensive legislation regarding educational AT entitlement in the United States than in other countries.

The School Library

The library media center functions as a meeting place for the school community. Frequently used for staff meetings, parent/teacher gatherings, and hosting guest speakers, it is difficult to imagine another location in the school with the potential to play such a versatile role.

Although the library media center has an important social function for students and staff, its primary purpose is to facilitate independent learning, research, and study skills. This can be achieved by making resources available to support the efficient and effective use of materials by students and staff and to meet the curriculum standards and recreational needs of the school community.

The Hub of the Inclusive School Community

The library media center has the potential to be the hub of the inclusive school. However, it takes adequate funding and staffing to accomplish this. Resources that cover academic, reference, and recreational reading topics will encourage students and staff from all grades and departments to make use of library facilities. The well-equipped library media center becomes a magnet for learning and productive social interaction. Library media centers that have been neglected or understaffed in relation to school enrollment are less able to meet the needs of the entire school community. In a well-funded program, students and staff use the library media center during class time, lunch breaks, and before and after school. As long as the library media center doors are open, opportunities for individual and collaborative learning are available.

Well-staffed and equipped library media centers have been shown to have a positive influence on student academic performance. A 1994 study of schools in Colorado, Pennsylvania, and Alaska concluded that “students at schools with better-funded Library media centers tend to achieve higher average reading scores, whether their schools and communities are rich or poor and whether adults in their community are well or poorly educated” (Lance, K. Curry, 1994). The study released by the Colorado State Library’s Library Research Service and the University of Denver’s Library and Information Services Department also

concluded that library funding is important for providing adequate levels of staffing and a large collection of materials in a variety of formats.

Direct U.S. federal funding for school libraries was eliminated over 20 years ago; thus, it is now crucial for school boards and administrators in the United States to understand the important role library media centers play in supporting student achievement. As part of the Bush administration's No Child Left Behind legislation, signed into law in January 2002, there has been some recognition of the need for increased library media center funding.

Shaping the Future

In low-income neighborhoods, the school library media center may be one of the few learning resources available to enrich children's lives. On average, children who come from poor families have less exposure to reading materials before starting school than children who come from higher-income households. It is to be expected that these poorer students also have less technology available to them at home.

The emergence of a growing digital divide between affluent and poor populations should be of concern to educators and policy makers. Creating equitable access to information needs to be a priority for educational jurisdictions everywhere.

Fortunately, there have been some positive developments over the last eight years as more school computers have become connected to the Internet. The growing emphasis on technology spending has concerned some educators who worry other educational priorities may not be addressed. As long as schools make the effort to achieve a balance between traditional library and classroom materials and high-tech resources, students and staff will be well served. Internet resources complement print and multimedia materials by expanding access to up-to-date sources of information. Computers also provide new opportunities for helping students with disabilities achieve greater independence.

The National Education Association (NEA) in the United States supports federal programs to help schools buy computer technology and to upgrade classroom technology. However, the NEA believes that the provision of hardware and software alone is not the complete solution to creating better schools.

In order to prepare students to put this vast "sea of information" to good use, teachers, paraprofessionals, library media specialists and other school technology professionals themselves must have quality professional development and ongoing technical assistance. Technology's ability to transcend time and geographical limitations opens vast new opportunities. However, it's important to recognize that teaching in a new format requires vastly different skills, approaches and support

systems (Technology, National Education Association, September 10, 2002).

The number of connected classrooms and library media centers will continue to grow, but how confident do educators feel about their role in wired and wireless schools?

The School and Library Staff

Most library media specialists are capable of leading students and staff through search engine and database orientations so that able-bodied students can independently hunt for materials on a specific topic. Library media specialists as well as other educators have been able to make new technology available to staff and students, but surveys indicate that not all teachers feel prepared when it comes to teaching with technology.

Attitudes and Awareness

Just as there are learning variations among students when it comes to academic skill development, there will be variation among educators when it come to technological skill development.

Library media specialists may have better opportunities to work with students on computers on a regular basis than some of their colleagues in classrooms. Teachers who spend most of their time in classrooms without computers can't be expected to have the same grasp of hardware and software applications as their colleagues who have daily access to computers while they work. Students of teachers who have little background, time, or opportunity to learn about computers can really benefit from the technology skills and assistance of library media specialists.

Collaboration

Library media specialists are in a special position to assist classroom teachers and their students who wish to become more comfortable using technology. A team approach to the instructional use of technology helps teachers to improve their teaching skills and competency with technology by sharing knowledge.

Architects of Inclusion

Educators, parents, and students all play a role in shaping the inclusive learning environment. Everyone in the school community should be considered part of the inclusion team.

The Clients

Administrators, library media specialists, classroom teachers, and support personnel have a wide range of students to consider when planning lessons and purchasing learning materials. How will changes in student populations and enrollment influence education?

From 1998–99 to 2000, there was an increase of 2.6% in the number of students in the United States, ages six to 21, served under the Individuals with Disabilities Education Act. This increase in the number of special education students may be the result of improved identification of special needs students. However, infant birth weight trends signal an increase in the numbers of students who will require special education services in the future.

Technology has led to improved medical outcomes for high-risk and pre-term births. This may be part of the reason why the numbers of low birth weight babies is on the rise. From 1980 to 2000 in the United States, the percentage of low birth weight infants (<2500 grams) increased 11.8% and that of very low birth weight infants (<1500 grams) increased 24.3% (*Infant Mortality and Low Birth Weight Among Black and White Infants—United States, 1980–2000, Centers for Disease Control and Prevention*). According to the World Health Organization, the birth weight of an infant is the single most important determinant of its chances of survival and healthy growth and development. Low birth weight babies are at greater risk for developmental and learning disabilities.

Students and Staff with Disabilities

School personnel are working with a wider range of students who require special consideration when it comes to education. The rate of inclusion of special needs students in regular classrooms has been increasing. Educators need new resources to help them find ways of connecting with all of their students. Traditional materials and assistive technologies can be used together to provide better access to learning.

It is important that special needs students have the opportunity to socialize with other students. Special needs students need the opportunity to participate in class in a manner that is as similar to the participation of other students as possible. Special needs students should be given the tools they need to independently demonstrate their knowledge and abilities, with as little extra assistance as necessary.

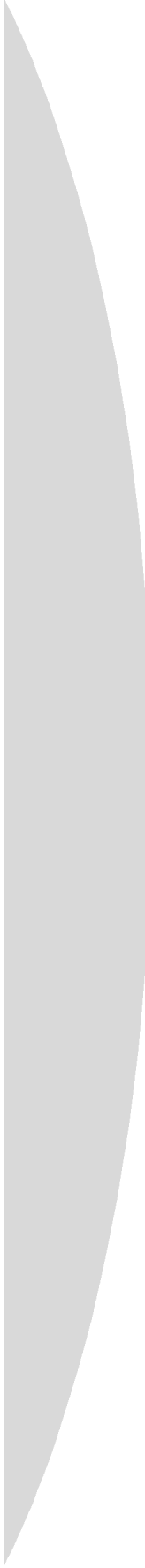
Staff members with disabilities can be excellent role models for all students. Additionally, many disability advocacy groups in the community are willing to visit schools to help create awareness. Disability awareness activities can be incorporated into many subject areas to promote discussion about disability issues. Library media specialists and other staff members can share classroom strategies that

help improve learning opportunities for students with special needs.

There are a number of excellent online resources that provide advice on classroom accommodations and strategies for students with special needs. The University of Toronto's SNOW (Special Needs Opportunity Windows) Web site has some helpful suggestions for teachers of special needs students. Strategies to Assist Students With Special Needs can be found at <<http://snow.utoronto.ca/best/accommodate/>>.

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