article 5
Assignments 8, 9 and 10

11 Considering Technology in the Inclusive Classroom

This is an important topic, given the society in which we live and the increase in available tools to help our special needs population. Schools have undergone incredible changes through the years. Scientific discoveries have yielded benefits that have trickled down to educational forums to address student needs. The one-room schoolhouse certainly did not offer today's classroom's range of technological options available to help all learners with varying abilities succeed. Included in this chapter are technological activities and resources that teachers can implement in their lessons. Technology, when used effectively, complements good teaching strategies.

BENEFITS AND PROMISING FUTURES

The Technology-Related Assistance for Individuals with Disabilities Act of 1988 and the 1997 Amendments to the Individuals with Disabilities Education Act (IDEA) are two federal laws that mandate that schools provide students with disabilities with instructional and assistive technology services. The law's intent is for technology to maximize accessibility and increase relevance for children with disabilities.

Assistive technology is defined as any item, or product, whether acquired commercially, off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities. (P.L.101–407, The Technology-Related Assistance Act of 1988)

Many technological advances were achieved because of the personal dedication and commitment of caring individuals. Necessity is the parent of some inventions. For example, Louis Braille, who was blind, invented the raised tactile system of dots for writing and reading. His vision enabled others to see. An engineer who was also the father of a son with

hydrocephalus invented the shunt, which is used to drain extra fluid from the brain. Alexander Graham Bell invented the telephone by accident while he was seeking to create an amplification system for those with hearing impairments. In Christopher Reeve's book, *Nothing Is Impossible: Reflections on a New Life*, he documented his progress as he tried to find a way for himself and others with spinal cord injuries to walk. He poignantly reiterated how the heart, mind, and spirit are not diminished by a body's limitations. Mr. Reeve didn't have the word "limitations" in his vocabulary. Technology and increased medical knowledge are also limitless.

- Future technological advances offer endless possibilities for those with physical disabilities. Scientists are building smart wheelchairs, robotic limbs, and other devices that will help people manipulate objects and walk again. Computer implants might one day help people who are paralyzed to walk by controlling impulses with their minds.
- Breaking of the genetic code offers hope in detecting and rectifying predisposed conditions such as Alzheimer's and Down syndrome.
- PET scanning enables doctors to see inside the human body.
- Technologies such as the MRI and CAT scans have been developed that evaluate differences in our brains, making it possible to identify some emotional illnesses such as schizophrenia, and increasing the likelihood of more and better treatments for such conditions.

CLASSROOM/COMMUNITY IMPLICATIONS AND RESOURCES

Technology can be as simple as using larger writing implements and pencil grips, or taping paper to a desk to help those with fine motor difficulties. It might mean one child uses an eyedropper, while another uses a turkey baster. Technology augments the curriculum, in a range of topics from the Brothers Grimm to Malcolm X. Students can be involved in an Iditarod Web Quest or even watch the virtual dissection of a frog. E-books with digital texts, e-mail, instant messaging, voice-operated computers, video conferencing, and multimedia presentations are all examples of technology enhancing communications and learning. Technology can help students with disabilities increase their mobility and independence despite sensory or physical issues.

Students can now gain academic information and research through both commercial and home-made products to achieve greater independence in schools and the community. Teachers can use technology to motivate and instruct students while increasing their own classroom productivity. Most important, teachers in inclusive classrooms use technology to enhance the curriculum, guiding and monitoring student usage for effective instruction. Written work improves as students gain more information and understanding of topics under the teacher's guidance.

Everyone benefits when technological advances help those with disabilities become active participants in society. The level of disability acceptance a person with a disability has affects whether he or she might embrace or reject many of the technological changes, but just the mere existence of the technology offers increasing possibilities for the future.

Communication	Hearing	Physical	Visual	Academic
Communication boards for students with limited speech let them make their daily needs be known by pointing to given pictures Text from websites can be read aloud with special software that also hooks up to dictionary definitions of more difficult vocabulary words. Text-to-speech technology, for students to hear what they have written. Write Outloud. www.donjohnston.com Talking picture and word-processing programs for students to write stories with pictures rather than typing words. Writing with Symbols, Mayer Johnson www.mayer-johnson.com/Communication tools can be as simple as accessible key rings that hold individual pictures or Post-it notes that students and teachers can write on, point to, or read. Mirrors Clip art More visuals	Closed captioning on television programs and videos TDD/TTY/TT, telecommunication devices for the deaf, which transpose the spoken word into written text to allow telephone conversations Assistive listening devices (FM systems) with teachers using a wireless microphone and students using receivers in hearing aids that amplify sounds Cochlear implants www.cici.org Cochlear Implant Association, Inc. (CIAI) www.project salute.net Successful Adaptations for Learning to Use Touch Effectively Outlines Graphic Organizers Post-its Communication Boards www.agbell.org www.sensory resources.com	Alternative keyboards with switch access help physically challenged students. www.intellitools.com Project ACCESS-Best Practices for Physical Disabilities http://depts.stcc.edu/ods/ACCESS/bpphysical.htm Hand splints, trackballs, or touch screens with body controls such as the blinking of eyes, raising eyebrows, or tapping of fingers or feet for students with limited mobility who cannot use a traditional mouse on the computer Wheelchairs range from those that allow people to stand up to ones made of PVC material that can be rolled onto a beach. Voice activation can bypass a keyboard www.nanopac.com/ Sensors placed in legs help those with physical impairments. Talking word prediction programs to help students with fine motor difficulties. Co-Writer www.donjohnston.com Velcro mat on desk Beanbags for more comfortable classroom seating and gym activities	Tape recorders play audiotaped versions of literature. National Library Service for the Blind and Physically Handicapped. www.loc.gov/nls Recording for the Blind and Dyslexic (800) 221-4792, www.rfbd.org To learn more about Braille, www.afb.org/braillebug ATMs that talk Products such as checkers with different-shaped pieces, calculators with large print or ones that talk, copy machines that enlarge, books on tape, talking compasses, art books with pictures you can touch to see, or a ball with a bell inside. www.project salute.net	Software that augments content areas, e.g., brainpop.com (movies) funbrain.com Writing programs that predict the next word a child might type, or correct grammar and punctuation www.mindplay.com, www.donjohnston.com Hand-held electronic spellers to find correct spelling or vocabulary www.franklin.com Multimedia instruction with videos, digital text, cameras, graphics, and sound, with auditory and visual instructions, and feedback Graphics program: www.inspiration.com Highlighters, portable keyboards www.alphasmart.com Smartboards Interactive whiteboards www.smarterkids.org

Sample High School In-Class Lesson—Combining Literature and Technology

Requirements for Literature Assignment: Students first read one of the four books, then complete assignment as follows:

1. Students conduct research with given websites or ones of their own to provide more detailed information about the characters (at least three), setting, plot, resolution, themes, concepts, and symbolism. Notes from sites must be submitted with final project.

2. An eight-paragraph essay as detailed below is then written:

Par. 1 Introduction—Reason you chose this book, brief overview of what will follow
Par. 2 Analysis of characters
Par. 3 Setting—Where and when the story takes place
Par. 4 Synopsis of plot, sequence of events
Par. 5 Climax and ending, how story was resolved
Par. 6 Themes/Concepts/Symbolism presented in book
Par. 7 Compare book with online research about characters, settings, themes, authors
Par. 8 Conclusion—State your opinion and overall impression of book and what further insights you gained from research

Book Choices:	To Kill a Mocking Bird, by Harper Lee	The Crucible, by Arthur Miller	Of Mice and Men, by John Steinbeck	Catcher in the Rye, by J. D. Salinger
Characters	Scout, Jem, Dill, Tom Robinson, Atticus Finch, Arthur (Boo) Radley	Reverend Parris, Abigail Williams, Tituba, Betty Parris, Reverend Hale, John Proctor, Elizabeth, Sarah Good, Mrs. Putnam	George Milton, Lennie Small, Curly, Slim, Lulu, Candy, migrant workers	Holden Caulfield, Phoebe, Stradlater, Ackley, Sally Hayes, Mr. Antolini
Setting	Alabama, Great Depression, 1930s	Salem, Massachusetts, Comparing 17th to 20th century	California ranch, Salinas Valley, 1940s	New York City, Central Park, Penn Station, Rockefeller Center, 1950s
Plot/Resolution	Lawyer's trials with court, community, and family while defending a falsely accused black man in the poor South	Salem witchcraft during Puritan society	Relationship between a man and his friend, as he tries to help him with cognitive disabilities	Monologue told by sixteen-year-old boy, Holden Caulfield, who left a private school and went through some difficult times
Themes/ Concepts/ Symbolism	Race relations in the South Criminal justice Prejudice	Adversity Justice Communism McCarthy era	Migrant workers Friendship Innocence Cognitive/physical disabilities	Childhood vs. adulthood, Teenage depression
Sites for Research	www.novelguide.com/tokillamockingbird www.adl.org	www.novelguide.com/thecrucible/ www.questia.com	www.novelguide.com/ofmiceandmen/ www.thearc.org/faqs/mrqa.html	www.novelguide.com/thecatcherintherye/ www.nmha.org

Using Computers as Reference Tools

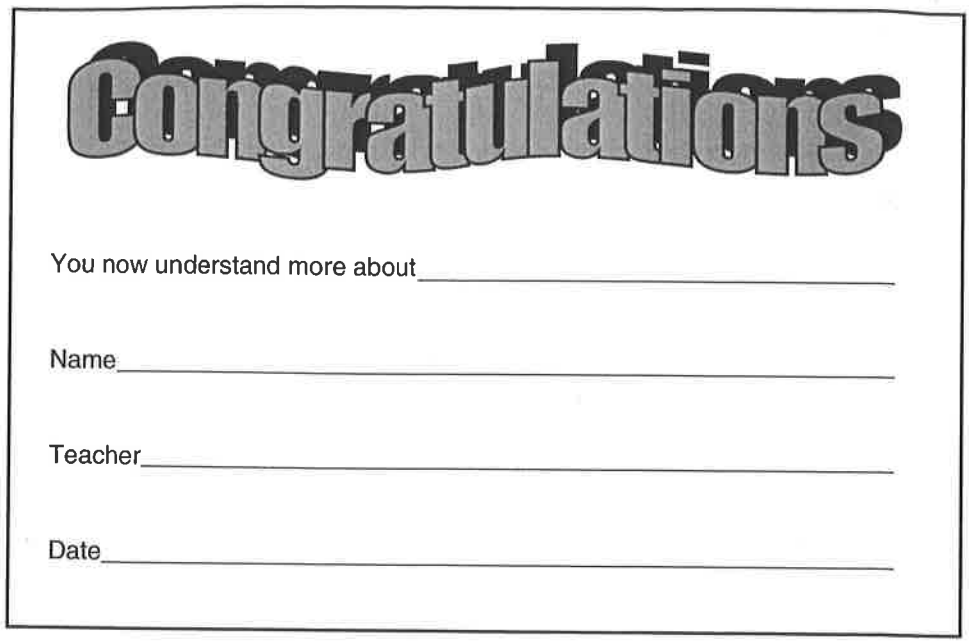
Disability Curriculum Web Search

Answer these questions by using the sites below.

Focus Questions	Web Sites
1. What's the difference between the diagnosis of Autism and that of Asperger's Disorder? 2. What are the best strategies parents and teachers can use to help students with a. Autism b. Asperger's Disorder	www.autism-society.org www.asperger.org
3. What types of modifications can be made in a classroom for children with hearing loss? 4. How do cochlear implants work?	www.agbell.org www.cici.org
5. Name some areas that can be affected by a learning disability? 6. Tell some strategies that help children with auditory-processing difficulties.	www.ldinfo.com www.ncld.org
7. What are the most common types of anxiety disorders in children?	www.nmha.org/infoctr/factsheets/index.cfm
8. Name some multimodal treatments for AD/HD.	www.chadd.org/ http://nichcy.org/pubs/
9. What are the educational/employment implications for a child with Down syndrome?	http://nichcy.org/pubs/factshe/fs4txt.htm www.ndss.org www.ndsccenter.org/ www.downsyndrome.com
10. Name some sensitivities that need to be exhibited toward children with Tourette syndrome.	www.tsa-usa.org/ www.tourettesyndrome.net/
11. Why is self-determination an important outcome for people with mental retardation?	http://www.thearc.org
12. What are some sports programs available to people with cerebral palsy?	http://www.ucpa.org

Directions: Now choose a topic and design your own curriculum web search.

Computer Certificates



Teachers can create certificates of praise on the computer as recognition for students' achievements. Simple phrases such as these validate learning strides:

Terrific math problem solving!

Excellent reading work!

Able to work well with peers!

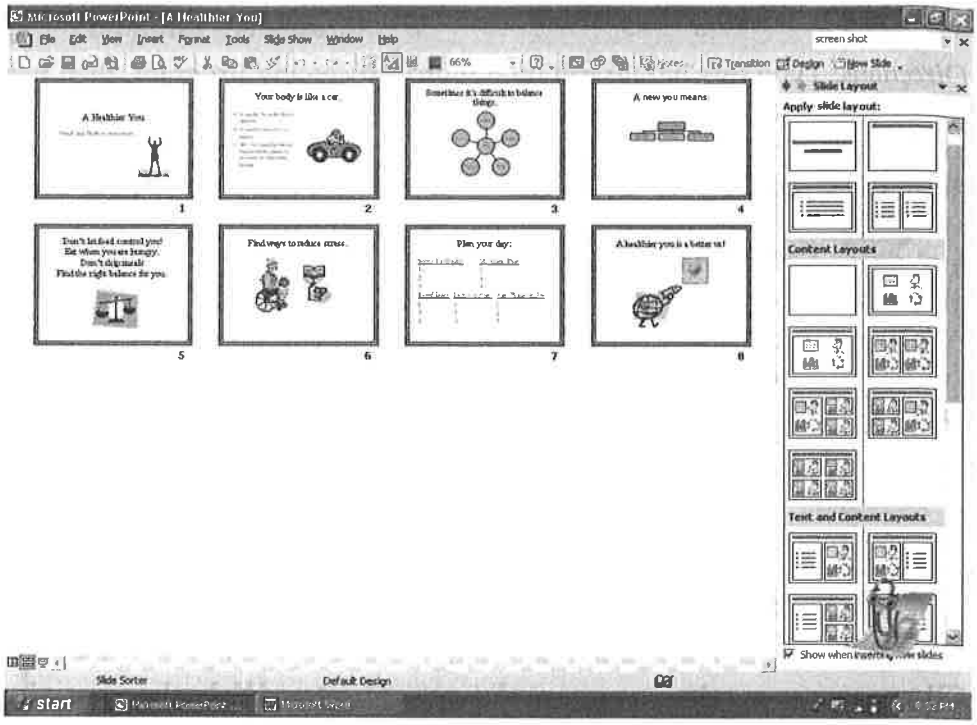
Perfect science project!

Once students collect a certain number of these certificates, they can trade them in for an agreed-upon reward, such as lunch with the teacher, extra computer time, no-homework pass, teaching a lesson . . . or maybe just the attention itself is tangible enough!

Word Processing Programs and Computer Tools

Directions: Type this paragraph on a word-processing program, then use the language tools of the thesaurus and spell check to revise your writing. The words with (sp) are *spelled incorrectly,* while the underlined words need to be replaced with a different or more exact word, *using the thesaurus,* or your own replacement words to expand the thoughts. Check the tool menu for other spelling and word options. Next, add another paragraph to this story, with specific details about your future plans. Afterward, use the language tools to revise that paragraph as well. After your story is completed, find an appropriate graphic that tells about your future.

Skool (sp) is a good place for good students. Classrooms give many things that will help you in lif (sp). Practis (sp) good habuts (sp) now and you will benafit (sp) when you leave skool (sp) and pick a fewchure (sp). Prepair (sp) for laytor (sp).



Students and teachers design PowerPoint presentations to visually explain concepts. Think of a topic and design your own presentation.

Microsoft has downloads and many templates for teachers at www.microsoft.com/education

More Educational Websites and Resources for Technological Information

Alliance for Technology Access (ATA) 2175 E. Francisco Blvd., Suite L
San Rafael, CA 94901
(415) 455–4575
TTY: (414) 455–0491
www.ataccess.org

IntelliTools
1720 Corporate Circle
Petaluma, CA 94954
(800) 899–6687
www.intellitools.com

Assistive Technology Industry Association
526 Davis St., Suite 217
Evanston, IL 60201
(877) 687–2842
www.ATIA.org

CAST
Center for Applied Technology
40 Harvard Mills Square, Suite 3
Wakefield, MA 01880–3233
(781) 245–2212
TTY (781) 245–9320
www.cast.org

Family Center on Technology and Disability (FCTD) www.fctd.info
National Early Childhood Technical Assistance Center www.nectac.org/

For Students
UpToTen.com
www.yahooligans.com
funbrain.com
www.ajkids.com
www.pbskids.org
www.KidsBank.com/
www.howstuffworks.com
www.kidsdomain.com
puzzlemaker.com
MiddleSchoolHub.org
Writing DEN
Typingpal.com
www.atomiclearning.com/
brainpop.com
www.webmath.com
www.aaamath.com
www.multiplication.com
www.aplusmath.com
www.allmath.com
www.poetry4kids.com
www.novelguide.com
www.English-Zone.com
www.questia.com
www.timeforkids.com
www.vlmp.museophile.com

Excellent Video (shows how technology and personal perseverance helps people with disabilities) ABC News Home Video Library
20/20 10/25/98
Segment Two
T981025–02 Deaf Blind Couple
1 (800) CALL–ABC

For Teachers
Teachers.net
www.learningfirst.org
www.inspiringteachers.com
www.adl.org
rubistar.4teachers.org
eduplace.com
Community Learning Network
www.cln.org
Educator's Reference Desk
www.eduref.org
Crayola.com
U.S. Dept. of Education home page www.ed.gov/
Helping Teachers Use the Internet Effectively
http://www.internet4classrooms.com/
SCORE Cyber Guides K–12, Schools of California Online Resources for Educators
www.score.k12.ca.us/
Higher Achievement Through Better Nutrition and Health
www.dairycouncilofca.org
www.behavioradvisor.com
discoveryschool.com
http://www.learner.org/
International Reading Association
www.reading.org/
IEP Planner
www.visionplanet.com
National Staff Development Council
www.nsdc.org/
Gradebook.com
Council of Exceptional Children (CEC)
www.cec.sped.org/
Office of Special Education and Rehabilitative Services (OSERS) www.ed.gov
NICHCY
www.nichcy.org
http://trace.wisc.edu/resources/disability-resources.shtml
http://www.closingthegap.com
www.assistivetech.net
Internet Resources for Special Children
www.irsc.org
TeacherWeb.com
www.essentialschools.org
www.whatworks.ed.gov