

ASSISTIVE TECHNOLOGY FOR PRIMARY SCHOOL CHILDREN WITH LEARNING DISABILITIES

By

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Abstract

The use of assistive technology to help elementary school students with learning difficulties is examined in this abstract. It looks at how different electronic tools affect social and intellectual growth, emphasizing how they might improve inclusive education. The evaluation explores particular software, hardware, and instructional techniques designed to meet a range of learning demands. It also covers the difficulties, factors to take into account, and potential paths forward when integrating assistive technology into elementary school for kids with learning problems.

Keywords: *assistive technology, primary school, children, learning disabilities.*

Introduction

Assistive technology refers to the devices and services that are used to increase, maintain, or improve the capabilities of a student with a disability (Dell, Newton, & Petroff, 2012). While the phrase assistive technology may make us think of computers and computerized devices, assistive technology can also be very low-tech. For example, pencil-grips (the molded plastic grips that slip over a pencil) are considered assistive technology. Assistive technology (AT)

helps individual with many types of disabilities — from cognitive problems to physical impairment.

The use of technology to enhance learning is an effective approach for many children. Additionally, students with Learning Disabilities often experience greater success when they are allowed to use their abilities (strengths) to work around their disabilities (challenges). AT tools combine the best of both of these practices. AT tools combine the best of both of these practices.

Learning Disabilities (LD)

Learning disability is a general term that describes specific kinds of learning problems. Over time, it is also called as learning difficulty and developmental disability. Whatever way it is said, It can cause a person to have trouble learning and using certain skills like reading, writing, listening, speaking, reasoning and doing maths. Children with learning disability, speak well, are smart and intelligent but with academic difficulties leading to emotional and behavior problems leaving the child frustrated and defeated. These children seem to have difficulty not only in processing information received from visual and sensory perceptual experience but also in organizing data to help read, write and to do maths.

Assistive Technology for Learning Disability

Assistive technology for Primary School Children with Learning Disabilities is defined as any device, piece of equipment or system that helps bypass, work around or compensate for an individual's specific

learning deficits. Assistive technology doesn't cure or eliminate learning difficulties, but it can help your child reach her potential because it allows her to capitalize on her strengths and bypass areas of difficulty. For example, a student who struggles with reading but who has good listening skills might benefit from listening to audiobooks.

In general, Assistive technology compensates for a student's skills deficits or areas of disability. However, utilizing Assistive technology does not mean that a child can't also receive remedial instruction aimed at alleviating deficits (such as software designed to improve poor phonic skills). A student could use remedial reading software as well as listen to audiobooks. In fact, research has shown that Assistive technology can improve certain skill deficits (e.g., reading and spelling).

Assistive technology can increase a child's self-reliance and sense of independence. Children who struggle in school are often overly dependent on parents, siblings, friends and teachers for help with assignments. By using Assistive technology, child can

experience success with working independently.

What type of Learning Problem does Assistive technology address?

Assistive technology can address many types of learning difficulties. A student who has difficulty writing can compose a school report by dictating it and having it converted to text by special software. A child who struggles with math can use a hand-held calculator to keep score while playing a game with a friend. Moreover, a teenager with dyslexia may benefit from Assistive technology that will read aloud his employer's online training manual. There are Assistive technology tools to help students who struggle with problem.

Listening: Certain assistive technology (AT) tools can help people who have difficulty processing and remembering spoken language. Such devices can be used in various settings (e.g., a class lecture, or a meeting with multiple speakers).

Mathematics: Assistive technology (AT) tools for mathematics are designed to help people who struggle

with computing, organizing, aligning, and copying mathematics problems down on paper. With the help of visual and/or audio support, users can better set up and calculate basic math problems.

Organization and memory: Assistive technology (AT) tools can help a person plan, organize, and keep track of his calendar, schedule, task list, contact information, and miscellaneous notes. These tools allow him to manage, store, and retrieve such information with the help of special software and hand-held devices.

Reading: There is a wide range of assistive technology (AT) tools available to help individuals who struggle with reading. While each type of tool works a little differently, all of these tools help by presenting text as speech. These tools help facilitate decoding, reading fluency, and comprehension.

Writing: There is a wide range of Assistive technology (AT) tools available to help students who struggle with writing. Some of these tools help students circumvent the actual physical task of writing, while others

facilitate proper spelling, punctuation, grammar, word usage, and organization.

Kinds of Assistive Technology Tools:

The term “Assistive Technology” has usually been applied to computer hardware and software and electronic devices. However, many AT tools are now available on the Internet. AT tools that support primary students with LD include:

Abbreviation expanders: Used with word processing, these software programs allow a user to create, store, and re-use abbreviations for frequently-used words or phrases. This can save the user keystrokes and ensure proper spelling of words and phrases he has coded as abbreviations.

Alternative keyboards: These programmable keyboards have special overlays that customize the appearance and function of a standard keyboard. Students who have LD or have trouble typing may benefit from customization that reduces input choices, groups keys by color/location, and adds graphics to aid comprehension.

Audiobooks and publications:

Recorded books allow users to listen to text and are available in a variety of formats, such as audiocassettes, CDs, and MP3 downloads. Special playback units allow users to and search and bookmark pages and chapters. Subscription services offer extensive electronic library collections.

Electronic mathematics worksheets:

Electronic mathematics worksheets are software programs that can help a user organize, align, and work through math problems on a computer screen. Numbers that appear onscreen can also be read aloud via a speech synthesizer. This may be helpful to people who have trouble aligning math problems with pencil and paper.

Freeform database software:

Used in conjunction with word processing or other software, this tool allows the user to create and store electronic notes by “jotting down” relevant information of any length and on any subject. He can later retrieve the information by typing any fragment of the original note.

Graphic organizers and outlining:

Graphic organizers and outlining

programs help users who have trouble organizing and outlining information as they begin a writing project. This type of program lets a user “dump” information in an unstructured manner and later helps him organize the information into appropriate categories and order.

Information /data managers: This type of tool helps a person plan, organize, store, and retrieve his calendar, task list, contact data, and other information in electronic form. Personal data managers may be portable, hand-held devices, computer software, or a combination of those tools working together by “sharing” data.

Optical character recognition: This technology allows a user to scan printed material into a computer or handheld unit. The scanned text is then read aloud via a speech synthesis/screen reading system. Optical Character Recognition (OCR) is available as stand-alone units, computer software, and as portable, pocket-sized devices.

Personal FM listening systems: A personal FM listening system transmits

a speaker’s voice directly to the user’s ear. This may help the listener focus on what the speaker is saying. The unit consists of a wireless transmitter (with microphone) worn by the speaker and a receiver (with earphone) worn by the listener.

Portable word processors: A portable word processor is lightweight device that is easy to transport (e.g., from classroom to home). It can be helpful to children who may have trouble writing by hand and prefer to use a keyboard. Word processing allows the user to edit and correct his written work more efficiently than doing so by hand.

Proof reading programs: Students who struggle with writing (e.g., spelling, grammar, punctuation, word usage, and sentence structure) may benefit from software programs (included in many word processing systems) that scan word processing documents and alert the user to possible errors.

Speech recognition programs: A speech recognition program works in conjunction with a word processor. The user “dictates” into a microphone,

and his spoken words appear on the computer screen as text. This can help a user whose oral language ability is better than his writing skills.

Speech synthesizers / screen readers: These systems can display and read aloud text on a computer screen, including text that has been typed by the user, scanned in from printed pages (e.g., books, letters), or text appearing on the Internet.

Talking calculators: A talking calculator has a built-in speech synthesizer that reads aloud each number, symbol, or operation key a user presses; it also vocalizes the answer to the problem. This auditory feedback may help him check the accuracy of the keys he presses and verify the answer before he transfers it to paper.

Talking spell checkers and electronic dictionaries: Talking spell checkers and electronic dictionaries can help a poor speller select or identify appropriate words and correct spelling errors during the process of writing and proofreading. Talking devices “read aloud” and display the

selected words onscreen, so the user can see and hear the words.

Variable speed tape recorders: Tape recorders/players allow a user to listen to pre-recorded text or to capture spoken information (e.g., a classroom lecture) and play it back later. Variable speed control (VSC) tape recorders speed up or slow down the playback rate without distorting the “speaker’s” voice.

Word prediction programs: Word prediction software can help a user during word processing by “predicting” a word the user intends to type. Predictions are based on spelling, syntax, and frequent/recent use. This prompts kids who struggle with writing to use proper spelling, grammar, and word choices, with fewer keystrokes.

Conclusion

Assistive technology can reduce students’ dependence on others to read, write, and organize their work (MacArthur, Ferretti, Okolo, & Cavalier, 2001; Mull & Sitlington, 2003). When provided with effective strategy instruction, outlining programs and

concept mapping software can help with planning, and word processing, spell check, word prediction, and speech recognition can offer support for transcription and revision (MacArthur, 2009). While assistive technology can support struggling learners, MacArthur (2009) cautions that technology by itself has little

impact on learning. In order for students to benefit from the technology, educators must have an understanding of assistive technology and how to embedded it within quality instruction. (Batorowicz, Missiuna, & Pollock, 2012; Lee & Vega, 2005; Marino, Marino, & Shaw, 2006; Michaels & McDermott, 2003).

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