

JYOTI B.ED COLLEGE RAMPURA FAZILKA

SUBJECT ⇒ INCLUSIVE SCHOOL

TOPIC ⇒ ASSISTIVE TECHNOLOGY IN INCLUSIVE
EDUCATION IN SPECIAL REFERENCE TO

● COMPUTER ACCESSIBILITY

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ASSISTIVE TECHNOLOGY

Introduction ⇒ Assistive technology and adaptive technologies have opened many educational horizons to children, particularly to those having disabilities. Technology is providing more powerful and efficient tools to teachers who work with children with disabilities. Assistive technology has been found to be the first step for many next steps for a child with a disability to play with other children, go to school and be educated and to become successful citizen.

Meaning: Assistive technology is any kind of technology that can be used to enhance the functional independence of a person with a disability. Often, for people with disabilities, accomplishing daily tasks such as talking with friends, going to school and work, or participating in recreational activities is a challenge. Assistive Technology device are the tools to help to overcome these challenges and enable people living with disabilities to enhance their quality of life and lead more independent life.

Definition

According to the World Report on Disability (WHO, 2011) produced by the World Health Organization and the World Bank, defined Assistive Technology as 'any item, piece of equipment, or product, whether it is acquired commercially, modified, or customized, that is used to increase, maintain or improve the functional capabilities of individuals with disabilities.'

Assistive technology was defined in 1988 by the US Technology Related Assistance of Individuals with Disabilities Act as '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 functional capabilities of individuals with disabilities.'

USE OF ASSISTIVE TECHNOLOGY FOR INTELLECTUALLY DISABLED CHILDREN

1. Home Living → This domain addresses such activities as preparing and eating food, taking care of clothes, dressing, bathing

and Personal hygiene and operating home appliances. Examples of Assistive Technology supports in this domain include \Rightarrow picture based cookbooks, video instruction and audio prompting to assist with completing household tasks, shower chairs, smart phones to use in keeping shopping lists etc.

- 2) Community Living \Rightarrow This domain focuses on activities such as using transportation, participation in recreation activities, accessing public buildings etc. Examples of AT include \Rightarrow wheelchair-accessible buses, battery-controlled card shufflers, picture-based email programmes, smart homes to facilitate independent living.
- 3) Lifelong Learning \Rightarrow This domain focuses on interacting with others while making educational decisions, learning functional academics and using learning strategies, acquiring self-determination skills. Examples of AT supports in this domain include Audio books and e-text supports for reading and listening comprehension, Personal digital assistants, screen magnifiers.
- 4) Health and Safety \Rightarrow This domain emphasizes taking medications, avoiding health and safety hazards, obtaining health care services, learning

how to access emergency services and maintaining emotional health. Examples of AT tools that support this domain include picture-based cook books, exercise videos, internet-based nutritional programmes, life alert watches.

TECHNOLOGY FOR VISUALLY DISABLED CHILDREN

1. Enlarged Text ⇒ For students with some existing visual function, providing text information in enlarged format may be the simplest strategy.
2. Video Magnifier ⇒ A video magnifier can be used for other objects as well. It may be in the form of handheld device, a stand-alone device or work with a computer, TV or projection system.
3. Digital Text ⇒ The use of digital text provides one of the widest range of options to students with the varying needs. Visual aspects of documents and text can be customized, a variety of supports can be easily integrated and digital text can be obtained through numerous resources.
4. Audio Books ⇒ Audio Books are generally recorded using human voice and can be accessed through the use of specialized computer software devices.

or mainstream tools like MP3 players.

5) Braille Embosser ⇒ A braille embosser allows the students to print out their completed work in braille format.

6) Refreshable Braille Display ⇒ A refreshable braille display can be used as a peripheral device with a desktop, laptop or mobile computing device providing braille translation of documents, websites, and other text information.

TECHNOLOGY FOR CHILDREN WITH LEARNING DISABILITIES

1) Alternative Keyboards ⇒ These programmable keyboards have special overlays that customize the appearance and function of a standard keyboard.

2) Electronic math worksheets ⇒ Electronic math worksheets are software programmes that can help a user to organize, align and work through math problems on a computer screen.

3) Graphic organizers and outlining ⇒ Graphic organizers and outlining programmes help users who have trouble organizing & outlining information as they begin a writing project.

- 4) Audio books and publications → Recorded books allow users to listen to text and are available in a variety of formats, such as audio cassettes, CDs, and MP3 downloads.
- 5) Talking calculators → A talking calculator has a built-in speech synthesizer that reads aloud each number, symbol or operation key which a user presses.

TECHNOLOGY FOR PHYSICALLY DISABLED CHILDREN

1. Mouth Stick → A device that enables users to control input through a stick that they manipulate with their mouth.
2. Adaptive Keyboard → There are a wide range of alternative keyboards in the market to help motor-impaired users including compact, expanded, on-screen, concept rubber & ABC Keyboards to find out more about alternative keyboards.
3. Sticky Keys → A method of typing where modifier keys, such as shift, control, command and Alt/option, will "stick" down and apply to the next keystroke, so that only one key needs to be pressed at a time.

- 4.) Slow Keys ⇒ A slow key is extremely useful for people with motor impairments that make it difficult to target keys accurately or that cause unpredictable motion.

TECHNOLOGY FOR HEARING DISABLED CHILDREN

- 1.) Hearing aids ⇒ Hearing aids do not distinguish between speech and noise as a normal ear does, and cannot "tune out" much of what a child does not want to hear. Although hearing aids are good in one-on-one & small group situations, they also amplify all sounds including background noise.

- 2.) Cochlear Implants ⇒ The cochlear implant is an exciting piece of technology that offers severe-to-profoundly deaf children the opportunity to access sound which otherwise would not be available to them with traditional hearing aids.
Components of the Implant ⇒ Receiver, Headpiece, and speech processor.

- * Receiver ⇒ The receiver is placed under the skin behind one ear & a wire that leads from the receiver to an electrode is placed in the fluid of the cochlea in the inner ear.

- * Transmitter ⇒ A small headpiece is worn just behind the ear and contains the microphone that picks up sound in the environment & the transmitter that sends sound through the system.
- * Speech Processor ⇒ The speech processor, which shapes & amplifies the sounds picked up by the microphone, is worn on the body, either behind the ear or on a belt.
- 3 F.M System ⇒ A Frequency modulated system is a type of assistive listening device that can be used in a classroom or other large area.
- 4 Audio Induction Loop ⇒ This technology only works with hearing aids that have a telecoil, so it is not available to everyone. The induction loop transmits a signal that's picked up by the telecoil in the listener's hearing aid.

TECHNOLOGY FOR CHILDREN WITH SPEECH AND LANGUAGE DISORDERS

Assistive Technologies that may benefit students with speech or language disorders: Augmentative & alternative communication devices that may include synthesized speech, keyboards and alternative keyboards, Touch-sensitive pads, Alternative input devices, Trackball, Mouse sticks, Eye-tracking technology, switches, Abbreviation expansion.

Fortunately, advances in computer technology have led to the creation of specialized devices - called augmentative and alternative communication

devices - that help make it possible for individuals with no speech, or individuals with poor speech, to overcome their communication problems.

Augmentative and alternative communication systems vary in terms of their portability, complexity, input method, vocabulary representation format, and means of output delivery.

A speech disorder occurs when the speaker's articulation, voice quality or fluency patterns impair the listener's ability to understand the intent of the speaker. A language disorder occurs when either the sender or the receiver of the message is unable to use the sounds, signs or rules of the communication language.

Conclusion ⇒ we can conclude that the Assistive technology in inclusive education in the use for intellectually disabled children, visually disabled children, for hearing disabled children, children with learning disability for speech and language disorder children and technology for physically disabled children all are important.

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