Assistive Inclusive technology for learning

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Inside this manual

1. What is assistive technology for learning?
2. Different types of assistive technology
3. Contact details of organizations for further assistance

Preamble: There are many myths about assistive technology for learning. The first myth is assistive technology is used only by students with special needs. It is not true only students with special needs assistive technology. Assistive technology can enhance quality of learning for all students from pre school to higher education.

The second myth is about cost of assistive technology that it is expensive and countries with low resources cannot afford them. Contrary to the fact assistive technology in countries like India with a large number of potential users could be made available at a
low cost as it is the number of users that would bring down the cost of manufacturing the assistive technology.

The third myth assistive technology is highly advanced technology. But in reality assistive technology is an application of basic engineering technology for learning. For example in the picture given below most of these assistive technologies are not made specifically for any disability but technologies which already exists are used to enhance the quality of learning for learners with special needs.

Let us learn about various assistive technologies needed in schools and home to enhance quality of learning. Assistive technology is any device, software, or equipment that helps people work around their challenges. Some examples of assistive technology are text-to-speech and word prediction. Assistive technology includes low-tech tools, too, like pencil grips.

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Technology is everywhere these days. But did you know that there are specific tech tools that can help people who learn and think differently? These tools—called assistive technology, or AT—are often inexpensive and easy to use.

What is assistive technology? How can kids and adults benefit from these tools, and where do you start? Read on to learn more.
Assistive Technology Basics

AT is any device, software, or equipment that helps people work around challenges so they can learn, communicate, and function better. A wheelchair is an example of AT. So is software that reads aloud text from a computer. Or a keyboard for someone struggling with handwriting.

These tools can help people work around their challenges, while also playing to their strengths. This is especially important for kids who struggle with learning—whether in reading, writing, math, or another subject. AT can help these kids thrive in school and in life. And that can help grow their confidence and independence.

There lots of myths about AT. Some wrongly believe that using AT is “cheating.” Others worry that kids who use AT may become too reliant on it.

Assistive technology is required by all age groups

4 Assistive Inclusive technology for learning
Examples of Assistive Technology Tools

Despite the word “technology,” not all AT tools are high-tech. AT includes many simple adaptive tools, like highlighters and organizers. A great example of low-tech AT is a pencil grip.

Many AT tools are high-tech, though. And because of advances in technology, tools are now available on a variety of platforms:

- Desktop and laptop computers
- Mobile devices (includes smartphones and tablets)
- Chromebooks (and the Chrome browser used on any device)

Examples of high-tech AT tools include text-to-speech (TTS), dictation (speech-to-text), and word prediction. But there are hundreds of AT tools that can help with learning challenges. For more examples, explore:

- Assistive technology for reading
- Assistive technology for writing
- Assistive technology for math
- Assistive technology for listening comprehension
Some of these AT tools are free. Some tools are even built into mobile devices. (Watch as an expert explains how to turn on TTS on a smartphone or digital tablet.)

How to Find the Right Assistive Technology Tool?

With so many AT tools available, finding the right one can be overwhelming. One good approach is to choose AT that targets a specific struggle. For example, if a child struggles with writing, try dictation technology. As the child speaks, words appear on the screen.

People with access to a mobile device, like a smartphone or a digital tablet, can add AT tools to it with apps. Explore these ideas:

- Apps to help young kids with reading
- Apps to help teens with organization
- Apps to help with note-taking
- Apps to help younger kids build self-control
- Apps to help teens and tweens build self-control
- Meditation apps for kids
- Apps for back-to-school challenges
- Websites, apps, and games to help with learning to type

Assistive technology should be chosen based on specific need and not on disability labels. Each assistive technology is designed with a specific objectives, therefore choosing the right technology for right purpose is necessary.
Assistive Inclusive technology for learning
Assistive technology doesn’t have to be high-tech! Here are 5 great examples of easy-to-use, low-tech or no-tech AT tools that help build children’s communication skills.

1. **AT Tool: Communication Photographs**
   - **What It Is:** Individual digital photos of actual items, people, actions, places, and feelings of a child’s environment.
   - **How to Use It:** Introduce the photo prior to an activity.
   - **How It Helps:** Links to objects in the environment to build communicative intent. Reinforces familiar receptive vocabulary and introduces novel words.

2. **AT Tool: Visual Scene**
   - **What It Is:** Large photograph of a familiar environment (laminated or preserved with a page protector).
   - **How to Use It:** Position the photo in front of the child to link icon and object.
   - **How It Helps:** Depicts actions, people, and interactions in context, to help the child build vocabulary beyond nouns.

3. **AT Tool: Communication Icons with Printed Label**
   - **What It Is:** Individual icons printed on single laminated cards.
   - **How to Use It:** Select the appropriate icon card for the child.
   - **How It Helps:** Represents objects, actions, people, and other vocabulary in a higher level of symbols representation.

4. **AT Tool: Activity Board**
   - **What It Is:** Various sizes and numbers of photos and icons displayed on a board.
   - **How to Use It:** Position core words in the same place on repeated boards to show steps of activities in sequence.
   - **How It Helps:** Supports comprehension and expressive language.

5. **AT Tool: Clock Scanning Communicators**
   - **What It Is:** Visual display of communication choices on a clear plastic clock face.
   - **How to Use It:** Attach selected objects/photos/frames on clock face. Child controls the pointer with the touch of a switch until the desired symbol is reached.
   - **How It Helps:** Great way to communicate choices and desires.

Accessibility for all

Universal Design

ASSISTIVE TECHNOLOGY
Any item, system, or product used to improve the functional capabilities of people with disabilities. Assistive technology can be bought off-the-shelf, modified, or custom-made.

ADAPTIVE EQUIPMENT
Adaptive equipment is a subcategory of assistive technology; it refers to something specifically designed for people with disabilities.

Assistant Inclusive technology for learning
7 WAYS THAT ARTIFICIAL INTELLIGENCE HELPS STUDENTS LEARN

Other technologies which are used by adult learners

The role of artificial intelligence in education is always a hot topic. While some fear that artificial intelligence will take over education to the detriment of students and teachers, others claim that artificial intelligence will revolutionize and improve education.

While we’re far from seeing robots in the classroom, artificial intelligence is making its way into education. Certain tasks can be made easier through the use of artificial intelligence. Grading, for example, can be done quickly and easily using artificial intelligence. The most important way that education will transform education is by simply helping students to learn. In this piece, I will discuss 7 ways that artificial intelligence helps students learn.

Students can receive more personalized tutoring.

When your child fails to understand the material covered in the lesson, it can sometimes be a challenge to make sure they catch up. Our classrooms are oversized and children are lost in the shuffle. Parents may have a difficult time teaching the new standards expected of young children, particularly because they are so distant from their own elementary school days.

Artificial intelligence can fill in the gap with crowd-sourced tutoring from professionals and more advanced classmates. Students can avoid the shame and embarrassment of asking for excess assistance in front of their peers without sacrificing their grades and achievements. Tutoring is more accessible and affordable than ever before using these digitized programs.

The computer sets the perfect pace.

For years, qualified educators have known that there is no such thing as a one-size-fits-all approach to teaching a lesson. It’s nearly impossible to incorporate every possible learning style into each lesson while setting the perfect pace. Fast learners need to stay engaged while slow learners can’t be left behind. With the number of students increasing, the perfect pace is an elusive concept. Now, artificial intelligence can help to set the perfect pace for every student.

The individualized programs allow students to move on at their own rate. Particularly because the maturity levels and attention spans of elementary-aged students vary wildly, this gives children an ideal opportunity to explore academics at a comfortable speed. It is neither overwhelming nor frustrating for them to learn.

Technology can present material in understandable terms.

Students with learning disabilities often have a difficult time reading more advanced texts. They may not be able to follow complex sentence structures, or they could struggle with popular idioms found in the text itself. Scientists and researchers are molding artificial intelligence that can make these harder texts into more understandable
resources. They might create a simpler sentence or replace popular quips with plainer alternatives. It should be a great way for students with learning disabilities to better relate to and engage with the material.

**Artificial intelligence helps educators identify learning disabilities.**

The first step in learning to work with these disabilities is identifying their presence in a student. Not all of the current testing methods are highly effective at pinpointing learning disabilities like dyslexia or dyscalculia. New artificial intelligence systems are being developed to help teachers administer more effective testing that could uncover some of these often-hidden conditions. Once they can be properly identified, educators can tap into the resources available for a learning disability.

**Students can use AI to give reliable feedback.**

One of the most prominent issues with teaching students who have a learning disability is the inability to provide consistent feedback. In a large classroom setting, it can be a challenge to slow down to help a handful of students. With artificial intelligence rapidly developing, students can receive more reliable feedback directly related to their own performance. The system won’t move on until students demonstrate mastery of the concept, and it allows them to work through the material at their own pace if necessary.

**Educators can have more data.**

The numbers rarely lie when it comes to determining classroom success. With the advent of artificial intelligence, educators have more access than ever before to a variety of data that can assist them in identifying student weaknesses. This data may reveal areas where teaching isn’t effective or subjects where the majority of students are struggling. It also gives educators a better glimpse at how students with learning disabilities are truly doing in comparison to their peers.

**Making education global.**

Thanks to artificial education, students now have the ability to learn anywhere, anytime. This means that if a student has to miss school for personal or medical reasons, they can easily stay caught up with the school work via...
artificial education software. Students also have the ability to learn from anywhere in the world, making higher quality education for rural students and those in low economic areas accessible and affordable.

With the help of AI, students can learn more from home and come to the classroom with a set of core competencies that teachers can then build on. Artificial education is leveling the playing field of education for students across the globe and giving those without access to quality education equal opportunities.

**Conclusion**

While artificial intelligence and education may seem like a futuristic invention, it’s present in our lives and education systems today. With the help of artificial education, we can make both students’ and teachers’ lives easier. Artificial education gives every student the opportunity to receive a quality education, and individualizes learning.
Assistive technologies used in classrooms

There is one of the core strategies schools use to help with learning and thinking differences. Some adaptive tools are low-tech and some are pretty fancy. Here are some common examples.

1. Audio Players and Recorders

It may help your child to be able to listen to the words as she reads them on the page.

Many e-books have audio files, and smartphones and tablet computers come with text-to-speech software that can read aloud anything on your child’s screen. If she struggles with writing or taking notes, an audio recorder can capture what the teacher says in class so your child can listen to it again at home.

2. Timers

From wristwatches to hourglass timers, these inexpensive devices help kids who have trouble with pacing. Timers can be used as visual aids to show how much time is left to complete an activity. If your child has difficulty transitioning from task to task, timers can help him mentally prepare to make the switch.

3. Reading Guides

Reading guides are good tools for kids who have trouble with visual tracking or who need help staying focused on the page. The plastic strip highlights one line of text while blocking out surrounding words that might be distracting. The strip is also easy to move down the page as your child reads.
4. Seat Cushions

An inflatable seat cushion can help kids with sensory processing and attention issues. The cushion can provide enough movement and stimulation to help a child maximize his focus without having to get up and walk around.

5. FM Listening Systems

Frequency modulation (FM) systems can reduce background noise in the classroom and amplify what the teacher says. This can help with auditory processing issues as well as attention issues. The teacher wears a microphone that broadcasts either to speakers around the room or to a personal receiver worn by the student. FM systems are also used to help kids with hearing impairment, autism spectrum disorder and language-processing issues.

6. Calculators

Depending on your child’s math issues, it might be appropriate for him to use a basic calculator in class. There are also large-display calculators and even talking calculators. A talking calculator has built-in speech output to reads the numbers, symbols and operation keys aloud. It can help your child confirm that he has pressed the correct keys.

7. Writing Supports

If your child has trouble with writing, try using plastic pencil grips or a computer. Basic word processing programs come with features that can help with spelling and grammar issues. For students whose thoughts race ahead of their ability to write them down, different kinds of software can help. With word prediction software, your child types the first few letters and then the software gives word choices that begin with that letter. Speech recognition software allows your child to speak and have the text appear on the screen.
These kinds of software are built-in features on many smartphones and tablet computers.

8. Graphic Organizers

Graphic organizers can be low-tech. There are many different designs you can print out that can help your child organize his thoughts for a writing assignment. There are also more sophisticated tools such as organizing programs that can help him map out his thoughts. Talk to your child’s school about finding the right assistive technology for your child.
Soft technologies - Examples of Assistive Technology in the Classroom

1. Electronic Worksheets. Students with learning disabilities like dyslexia can use electronic worksheets to complete their assignments. ...
2. Phonetic Spelling Software. For many children with learning disabilities, reading and writing can be a challenge. ...
3. Talking Calculators. ...
4. Variable Speed Recorders. ...
5. Videotaped Social Skills.

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Electronic Component Worksheets and Resources-augmented text books - virtual reality manuals
Conclusions

Assistive technology enhances self learning there are innumerable benefits for the learners at all levels when teachers are trained to train learners to use assistive technology linking it with the curricular goals.
WEBSITE RESOURCES

We hope this introductory list of websites will prove helpful. We know the possibilities are almost endless for internet resources and we encourage you to share some of your favorites with us in future editions.

Resources in India

1. [https://nleap.icmr.org.in/NLEAP.pdf](https://nleap.icmr.org.in/NLEAP.pdf)
4. [https://unesdoc.unesco.org/ark:/48223/pf0000219827](https://unesdoc.unesco.org/ark:/48223/pf0000219827)

**www.at4kids.com**

AT4Kids is a blog designed to be a one-stop resource for ideas and information for those wanting to learn more about the use of AT with children in the special education setting. This site offers helpful hints, program and product reviews, AT recommendations, links to great new finds on the web, and lists of resources for "all things AT".
www.abledata.com

ABLEDATA provides objective information about assistive technology products and rehabilitation equipment available from domestic and international sources. Although ABLEDATA does not sell any products, we can help you locate the companies that do.

www.gpat.org

GPAT provides a range of assistive technology professional development and technical support services to local school system staff, students, and their families. GPAT's mission is to develop and enhance local expertise in assistive technology to ensure that students with disabilities have access to the assistive technology devices and services that they need in order to participate, progress, and achieve in their educational programs.

www.gatfl.org

- this web site is a resource for service providers, teachers, parents, consumers and their circles of support
- this web site incorporates an assistive technology evaluation, and information on specific difficulties (i.e., reading, writing, memory organization and math)
- also incorporated are success stories of adolescents and adults using assistive technology to help them live more independently
- this web site does not substitute for one-on-one information with an assistive technology provider, whether in the school system or in a rehabilitation setting.

www.nationaltechcenter.org

The National Center for Technology Innovation (NCTI), funded by the U.S. Office of Special Education Programs (OSEP), advances learning opportunities for individuals with disabilities by fostering technology innovation. We seek to broaden and enrich the field by providing resources and promoting partnerships for the development of tools and applications.
by developers, manufacturers, producers, publishers and researchers

www.nsnet.org A terrific site, offering links to free software and resource information, subdivided and categorized for easy access.

www.techpotential.net/attoolbox

Technology to Unlock Potential Assistive Technology toolbox—both high and low-tech resources

More Sites on the Web

- [www.setp.net](http://www.setp.net). This is the site for the Special Education Technology Practice journal and the May/June 2006 issue focuses on professional development. From this site, you can download the free pdf article, “90 Days of Summer” or use the electronic calendar link with live links to the daily explorations.

- [www.qiat.org](http://www.qiat.org). This listserv is an excellent resource for information related to assistive technology.

- [www.ttac.odu.edu](http://www.ttac.odu.edu). The Training and Technical Assistance Center (T-TAC) at Old Dominion University is funded by the Virginia Department of Education. A range of information is available from their Newsletters, Info Topics, and Links. Both the current and archived newsletters can be accessed and each one provides information on a range of topics, including assistive technology.

- [www.iburkhart.com](http://www.iburkhart.com). Linda Burkhart’s website focuses on Technology Integration in Education with topic headings for elementary school, middle school, and special needs.

- [www.tsbvi.edu](http://www.tsbvi.edu). The Texas School for the Blind and Visually Impaired is an excellent resource for teachers who have students with a visual impairment.

- [www.eschoolnews.com](http://www.eschoolnews.com). For a $35 yearly subscription fee, you’ll receive a bi-monthly e-newsletter detailing education related corporate and private grant sources.
TEACHER RESOURCE SITES

TEACH-NOLOGY.COM

http://www.TeAch-ology.com

This website offers teachers free access to 19,000 lesson plans, 5,000 printable worksheets, more than 200,000 reviewed websites, rubrics, educational games, teaching tips, advice from expert teachers, current education news, teacher downloads, web quests, tutorials and teacher tools for creating exciting classroom instruction.

TEACHERSFIRST

http://www.TeachersFirst.com

TeachersFirst is a rich collection of lessons and web .Materials are arranged by subject area and grade level, making it easy to quickly locate lesson plans and associated web resources.

Links to Online Resources

Deaf and Disabled Telecommunications Program (DDTP)
A California State mandated program, under governance of the California Public Utilities Commission (CPUC). Under the DDTP the California Telephone Access Program (CTAP) distributes telecommunications equipment and services for individuals certified as having functional limitations of hearing, vision, mobility, speech and/or interpretation of information.
The National Center to Improve Practice (NCIP)
2 Promotes the effective use of technology to enhance educational outcomes for
students with sensory, cognitive, physical and social/emotional disabilities.

The Design Linc
3 Informational resource website, designed specifically for people with disabilities and
special design needs, as well as those involved in their care. Assistive technology
organizations listed by state.

Assistive Technology Solutions
4 Provides plans for do-it-yourself devices to assist persons with disabilities.

Trace Research and Development Center, College of Engineering, University of
Wisconsin-Madison
5 Working on ways to make standard information technologies and
telecommunications systems more accessible and usable by people with
disabilities.

assistivetech.net
6 A prototype online information resource providing up-to-date, thorough information
on assistive technologies, adaptive environments and community resources.

AbleData
7 Premier source for information on assistive technology.

Center for Accessible Technology
8 Provides access to assistive technology that gives people with disabilities access to
computers; provides art programs to provide access to artistic expression; and
offers ongoing consultation and support to assist people with disabilities in
maintaining and enhancing access.

Alliance for Technology Access
9 A network of community-based Resource Centers, Developers, Vendors and
Associates dedicated to providing information and support services to children and
adults with disabilities, and increasing their use of standard, assistive, and information technologies.

University at Buffalo, The State University of New York, Center for Assistive Technology
Conducts research, education and service to increase knowledge about assistive devices for persons with disabilities.

Closing the Gap
Computer Technology in Special Education and Rehabilitation

DBTAC - Pacific ADA Center
Builds a partnership between the disability and business communities and to promote full and unrestricted participation in society for persons with disabilities through education and technical assistance.

AbleProject
A non-profit organization focused on helping people with disabilities (illness, accident, aging), and care providers, to locate needed mobility and assistive devices faster, easier, and at a competitive price.

Family Center on Technology and Disability (FCTD)
Serves organizations and programs that work with families of children and youth with disabilities. Offers a range of information and services on the subject of assistive technology.

AT Network: Assistive Technology...Tools for Living
Dedicated to expanding the accessibility of tools, resources and technology that will help increase independence, improve personal productivity and enhance the quality of life for all Californians.

Assistive Technology, Inc.
Serves the disability and special education markets by providing innovative software and hardware solutions for people with special needs and for the professionals who work with them.

Assistive Inclusive technology for learning
Enabling Devices: Toys for Special Children, Inc.
17 Develops affordable learning and assistive devices to help people with disabling conditions. Creates innovative toys and switches.

Dragonfly
18 Premiere source of products, from toys to technology, for children who have special needs.

WebABLE
19 Authoritative Web site for disability-related internet resources focusing on accessibility, assistive and adaptive technology for people with disabilities.

rehabtool.com: Adaptive and Assistive Technology
20 Help persons with communication, access or learning disabilities regain independence and control, thrive and become more productive, and ultimately live better lives, through leading edge assistive and adaptive technology.