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## MODULE 1: ENGLISH FOR SPECIFIC PURPOSES (SPECIAL NEEDS AND DISABILITY)

### LESSON 12

#### TECHNOLOGY ENHANCEMENT FOR PEOPLE WITH SPECIAL NEEDS.

Words and Phrases	Transcription	Definition	Translate into Uzbek
<b>CAI</b>	/si:/ /ei/ /ai/	Computer Assisted Instruction	
<b>Caption</b>	/'kæpf(ə)n/	in LSN context, printed text of a program shown on a screen (e.g., video or television screen) or computer monitor that displays what is being said (sound portion).	
<b>CCTV</b>	/si://si:/ /ti:/ /vi:/	closed circuit television, ordinarily made available for people who have hearing limitations.	
<b>Computer Assisted Instruction</b>	/kəm'pjʊ:tə(r)/ /ə,sɪstɪd 'lɪvɪŋ/ /ɪn'strʌkf(ə)n/	the use of computer programs to teach people, in LSN's context, especially people with special needs	
<b>DAISY</b>	/di:/ /ei/ /ai/ /si:/ /waɪ/	Digital Accessible Information System	
<b>Decoder</b>	/di:'kəʊdə(r)/	a machine attached to, or built into, a television that translates the electronic signals of a closed captioned video program into words. The words are then printed on a screen with the rest of the video images.	
<b>Talking Book</b>	/tə:kɪŋ / /bʊk/	books recorded in any medium for listening	
<b>TDD</b>	/ti:/ /di://di:/	telecommunication device for hard of hearing and deaf people	

<b>Text-To-Speech System</b>	/tekst/ /tu:/ /spi:tʃ/ /'sɪstəm/	a system that converts normal language text into speech; ideally, it can allow people with visual impairments or reading disabilities to listen to written works on a computer	
<b>ICT</b>	/aɪ/ /si:/ /ti:/	Information and Communication Technology	
<b>Assistive Device</b>	/ə'sɪstɪv / /dɪ'vaɪs/	a device or system used to maintain, increase or improve the functional capabilities of people with disabilities	
<b>Adaptive Devices</b>	/ə'dæptɪv/ /dɪ'vaɪs/	devices designed or modified to meet the needs of people with disabilities	
<b>teleTypewriter</b>	/teli/ /'taɪp ,raɪtə(r)/	a device with an electronic text display and a keyboard that allows persons with hearing or speech disabilities to have a visual, two-way 26 telephone conversation. Similar telecommunication devices can have different names in different countries.	

# 15 Assistive Technology Tools & Resources For Students With Disabilities

Assistive technology tools are among the least ‘celebrated’ but most crucial tools in K-12 education today.

According to the [National Education Association](#) (NEA), the number of U.S. students enrolled in special education programs has risen 30 percent over the past 10 years. Additionally, the NEA reports that nearly every general education classroom in the country includes students with disabilities, as three out of every four students with disabilities spend part or all of their school day in a general education classroom. One tool to help students with disabilities even in the face of a special education teacher shortage is assistive technology. Today, assistive technology tools can help students with certain disabilities learn more effectively. Ranging in sophistication from ‘low’ technologies such as a graphic organizer worksheet to ‘high’ technologies including cutting-edge software and smartphone apps, assistive technology is a growing and dynamic field. Several areas of assistive technology and sample products may be found in any given classroom, making a difference in how students of all abilities learn.

## **Background On Assistive Needs & Supporting Technology**

### [Assistive Technology Module](#)

This isn’t a tech tool but a short kind of ‘course’ that offers an overview of assistive technology (AT) and explores ways to expand students’ access to it in the classroom

### [Assistive Technology Act \(AT Act\)](#)

A summary of the Assistive Technology Act and its consequences for educators.

### [AEM Student Summary Worksheet](#)

A resource that, for example, helps teachers “think about whether the student 1) can gain information from print-based educational materials used across the curriculum by all students, 2) needs materials in a specialized format, or 3) needs modified content or alternative materials.”

## **Text-To-Speech Assistive Tools**

As an assistive technology, text-to-speech (TTS) software is designed to help children who have difficulties reading standard print. Common print disabilities can include blindness, dyslexia or any type of visual impairment, learning disability or other physical condition that impedes the ability to read. However, other students can benefit from TTS technology, such as children that have autism, attention deficit hyperactivity disorder (ADHD) or an intellectual disability.

The technology works by scanning and then reading the words to the student in a synthesized voice, using a large number of speech sounds that make up words in any given context. With the advances in speech synthesis, TTS technology is more accurate and lifelike than ever.

### [Tech Matrix](#)

Search a database of nearly 400 products using extensive criteria tailored to assistive and educational technologies.

## **Kurzweil 3000**

The [Kurzweil 3000](#) is a leader in TTS software for individuals that struggle with literacy. In addition to a range of TTS features, the full-featured software program integrates abilities that can help students in other areas, potentially appealing to those who may have a non-print disability or those who may not typically consider a TTS program. Some of the features include:

- Multiple TTS voices
- Support for 18 languages and dialects
- Talking spell-checker
- Picture dictionary graphics for more than 40,000 words
- Text magnification
- Tools for test taking, essay writing, note-taking, reference and more

The Kurzweil 3000 strives to provide students with a multi-sensory approach to literacy learning. It is available for Windows and Macintosh.

Graphic organizers can be effective in helping students to organize their thoughts during the writing process. As an assistive technology, graphic organizers can be a strong choice for students with dysgraphia or disorders of written expressions — particularly the conceptual aspects of writing.

Graphic organizers work by helping the student map out a course of action. Depending on the type of writing, the graphic organizer can prompt the writer to describe an object, chart out a course of events or perform some other task that can help in planning the piece. Graphic organizers vary by type and technological sophistication.

### **Low-Tech Handouts**

Graphic organizers do not need to be technologically advanced; in fact, they can exist in simple handout form.

Sample handouts can be found at the Houghton Mifflin Harcourt Company. The sandwich chart can assist students with paragraph writing. The sequence chart can help with narrative writing and the ordering of events. The sense chart is designed for descriptive writing, where writers are prompted for terms that characterize and express an item. Dozens of other sample charts exist and can help students with virtually any type of writing.

### **Draft:Builder**

[Draft:Builder](#) is a writing tool that integrates outlining, note taking and draft writing functions to break down the writing process into three steps. Using a graphical organizer, the program helps the student visualize the project and insert information into the appropriate place without having to conceptualize the whole process. It then automates the process of creating the paper, where the student can drag and drop what is written in each note to the rough draft.

Other features include a talking spell checker that uses TTS technology, a bibliography tool, a dictionary and the ability for teachers to add locked text into the program for further guidance. Draft:Builder is available for Windows and Macintosh.

### **Assistive Listening Systems**

A variety of assistive listening systems, or hearing assistive technology, can help students who are deaf or hard of hearing, as well as those with other auditory and learning problems. According to the [National Association for the Deaf](#), assistive listening systems can be used to enhance the reach and effectiveness of hearing aids and cochlear implants, or by children who do not need those tools but still need help hearing. Assistive listening systems use a microphone, a type of transmission technology and a device for capturing and bringing the sound to the ear. The specific transmission technology used in the system is typically what contrasts one type of assistive listening system from another.

### **FM Systems**

According to the [American Speech-Language-Hearing Association](#) (ASHA), FM systems are the best choice for children with sensorineural hearing loss. The most common type of hearing loss for all ages, sensorineural hearing loss occurs when the inner ear (cochlea) or nerve pathways from the inner ear to the brain are damaged. FM systems work using radio broadcast technology. With a transmitter microphone and a receiver, the teacher and student can maintain a consistent sound level regardless of distance and background noise. Additionally, ASHA notes that the hearing aid microphone can be turned off, so the student can concentrate on the teacher alone.

### **Sound-Field Systems**

Sound-field systems are a strong choice for classrooms that need to assist listening for all children in the class. ASHA notes that these systems benefit not only children that have hearing loss, but those that have other auditory and learning problems, such as language delays, central auditory processing disorder, articulation disorders and development delays. Additionally, sound-field systems can be used for students who are learning English as a second language.

Sound-field systems use a microphone that projects sound through mounted speakers around the classroom. In classrooms that have good acoustics, sound is able to travel evenly throughout space, eliminating problems of distance between the speaker and each listener.

Advertisement

### **Sip-and-Puff Systems**

Sip-and-puff systems are used by students who have mobility challenges, such as paralysis and fine motor skill disabilities. These systems allow for control of a computer, mobile device or some other technological application by the child moving the device with his or her mouth. Similar to a joystick, the child can move the controller in any direction and click on various navigational tools using either a sip or a puff. An on-screen keyboard allows the child to type using the same movements.

Sip-and-puff systems are a type of switch device, which refers to the technology used to replace a computer keyboard or mouse. Other switch devices include buttons or other objects that a student can touch, push, pull, kick or perform some other simple action that can then control the device.

### **Jouse3**

The [Jouse3](#) is a sip-and-puff system that allows children to control a device using any part of the mouth, cheek, chin or tongue. Due to its accuracy and quick response, home users can use it for drawing or computer games. It can mount to the desktop, a

bedframe or any other type of structure; it does not require a headpiece or placement on the body of the user.

The product supports Windows, Macintosh, Linux and Unix based computers, in addition to Android and iOS mobile devices. It can support one or two external switches, and has two types of mouthpieces.

### **Sip-and-Puff Systems From Origin Instruments**

[Origin Instruments](#) offers a range of sip-and-puff products that students can use to control an electronic device. Using a head mounted or gooseneck user interface, or available tubing for a custom solution, the child can control a mouse, joystick or keyboard with ease. The primary system is powered using USB technology.

The product supports Windows, Macintosh and Linux based computers. Two pressure switches connect the system to the user interface solution for use on electronic devices.

### **Proofreading Software**

Proofreading software is a branch of assistive technology that goes above and beyond the typical proofreading features found in a word processing system, such as correcting words frequently misspelled by students with dyslexia. A number of other features offered within this category can help students work on his or her English skill set to become a more effective and accurate writer.

Although primarily geared towards individuals with dyslexia, proofreading software can be helpful to those with any type of learning disorder that makes writing and reading challenging.

### **Ginger**

[Ginger](#) offers several features that can help students with dyslexia and other learning disorders with writing. It is also designed for speakers of languages other than English. Some of the features include:

- Grammar checker that analyzes context to determine any errors or misspellings. For instance, Ginger can recognize whether 'there,' 'their' or 'they're' should be used in a sentence, which is a common mistake in writing.
- Word prediction and sentence rephrasing tools that can be helpful for students learning how to construct sentences properly.
- TTS functionality so students can hear what they've written.
- A personal trainer that provides practice sessions based on past mistakes made by the student.

Ginger is available for Windows and Mac, as well as iOS and Android mobile devices.

### **Ghotit**

[Ghotit](#) is specifically designed for students with dyslexia and other learning disorders who have difficulties with writing. The name is inspired by the word "Ghoti," which is a constructed term that illustrates irregularities in the English language. And since many spellings are counterintuitive — especially for those with dyslexia — Ghotit dedicates itself to assisting children and adults who struggle with writing accurately.

It features the ability to learn from the user's past mistakes, personalizing suggestions for spelling and grammatical errors. Ghotit can predict words, check passages of text

contextually, read text aloud using TTS technology and recognize split and merged words. It also includes an integrated dictionary for students to quickly look up a word.

### **Math Tools**

A range of technology and tools can help students that have trouble with math, most commonly found in a learning disability called dyscalculia. Dyscalculia makes it difficult to grasp numbers and it is characterized by a general lack of understanding in the field of math.

Assistive technology in math is not just for those with dyscalculia. It can also help students with blindness, fine motor skill disabilities or some other type of disability that makes it difficult to perform math-related work.

## **5 Examples of Assistive Technology in the Classroom**

Assistive technology is designed to help students who have learning disabilities.

Whether students have physical impairments, dyslexia or cognitive problems, [assistive technology](#) can help them to function within the classroom. These tools include any type of equipment or device that helps students to compensate for their learning disabilities. While they are unable to eliminate learning problems entirely, they can help students to capitalize on their strengths and minimize their weaknesses. Among the most innovative technologies available today, the following five are the most popular.

### **1. Electronic Worksheets**

Students with learning disabilities like dyslexia can use electronic worksheets to complete their assignments. These worksheets help students to line up words, equations and numbers on their assignments. On some of the worksheets, text-to-speech or speech synthesizing technology is even available.

### **2. Phonetic Spelling Software**

For many children with learning disabilities, reading and writing can be a challenge. Phonetic spelling software is designed to automatically convert the student's typing into the word that they intended to write. For alternative reading options, students can always check out audiobooks. With the audiobook, students can follow along in their text and overcome reading difficulties.

### **3. Talking Calculators**

Students who have dyscalculia can benefit greatly from a talking calculator. The gadget makes it easier to check assignments, read numbers and perform calculations. While the talking calculator is a fairly simple tool, it offers an exceptional benefit for students who would otherwise struggle in math classes. Other than talking calculators, students can also check out text-to-voice devices. They function on the same concept of

converting written words into an audible track. Students can use these devices to check their spelling or to improve their reading comprehension skills.

## 4. Variable Speed Recorders

Everyone has a different learning style, and many students struggle with understanding auditory lectures. For these students, a variable speed recorder is an ideal solution. In essence, the student just has to hit record while they are in class. Afterward, the recording can be slowed down or sped up for the student to listen to it again and again. If the pitch of the recording is hard to understand, students can modify the pitch up or down to make their lectures more accessible.

## 5. Videotaped Social Skills

Autistic children and other children with learning disabilities may struggle to figure out normal social interactions. In the past, the most common way to learn social interactions was to practice them. Unfortunately, many children inadvertently behaved inappropriately as they tried to learn what defined “normal” social interactions. With videotaped social interactions, students can learn important life skills and social behavior without accidentally offending someone. In addition to interpersonal skills, these videos can work for self-help, linguistic, academic and emotional problems as well.

Learning disabilities can manifest in a variety of different ways. From mild disabilities to debilitating problems, these disabilities affect the student’s ability to learn and take part in a classroom. Unfairly stigmatized in popular culture, it is now possible to use technology to overcome many learning disabilities. From offering students ways to slow down the lecture to providing talking calculators, these technological devices are able to meet the student’s unique needs. With help, students can become the competent, exceptional individuals that they already have the potential to be.

# Enhancing AI technology performance helping people with disabilities

One billion people around the world are experiencing some form of [disability](#), it’s a more than 15% of the world’s population. Due to these disabilities, there are many barriers for them to access basics services like education and employment. However, building a deep connection between people with disabilities AI technology can improve its own performance and take technology products to

the next level of formation. Although, most of the population is living in devolving countries and expecting to grow due to factors such as aging, stunting, and natural disaster.

Now, in developing counties 90% of children with disabilities do not attend schools due to [learning difficulties](#), AI technology can create such tools with the help of AI [workflow](#) system which can build a deep connection between people with disabilities and let them help with marginalization, example, an artificial AI technology hand can learn human natural hand's movements and reactions while storing [information](#) in data memory system; hence, altricial technology hand would know when it needs to use those moments to use for future events automatically and collaborate with natural hand to perform the task. Such tools can make life easier for people with disabilities and a pivotal moment to help to make technology better.



People with disabilities

Similarly, [3D](#) technology and [virtual reality](#) technology can contribute to building more such [tools](#) to help people with disabilities, products like Motiontion savvy UNI, Solar Ear, ISEEWHATYOU SAY, Heyleight's Cherished Charms and Robotic Vision for hearing, deaf and visually impaired. Therefore, AI technology tools can help to enable people of disabilities to come out to share their new idea's to enhance the technology product's performance to use easier.

Emotional intelligence helps technology to perceive about Specific Learning Disabilities [phases](#) quickly which succor to build technology better for people with disabilities, allowing to break down the barrier for them or their families to guide people with disabilities for assistance with their needs to get a better education with latest technology devices; also, helping them to understand the high-risk situation in the event of an emergency and fostering the work environment which gives them reasonable understanding with technology to contribute their experience to make a better world.

## **Top 13 Assistive Technology Blogs and Websites To Follow in 2020**

## 1. [Assistive Technology Blog](#)



Minneapolis, Minnesota, United States  
**About Blog** The idea behind this blog was to educate readers about the latest and greatest in assistive technology. The affordable, state of the art technology that would change the future of people with disabilities drastically in the near future. Follow to get updates.

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## 2. [AT Today Assistive Technology](#)



Wellingborough, England, United Kingdom  
**About Blog** AT Today is the place to come to find out about all the latest developments in the world of assistive technology. It brings all the latest assistive technology news, research & innovations from around the world to healthcare professionals. Subscribe to get the latest news and updates.

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## 3. [AT3 Center News & Tips](#)



**About Blog** AT3 Center News & Tips is the blog for the State and Territory Assistive Technology Programs and their community partners. AT programs provide access to the technology, that can improve the quality of life for persons with disabilities of all ages. Follow us and learn more about their AT programs. **Frequency** 1 post / week

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## 4. [Cadan Assistive Technologies](#)



[Eagan](#), Minnesota, United States  
**About Blog** Cadan Assistive Technologies has been supporting the special needs community by providing assistive

technology devices, alternative input devices, switches, amplified phones, augmentative devices, large key and large print keyboards, Braille displays, and software for over 30 years. Follow us here and get the latest articles in your inbox.

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## 5. [Cool Blind Tech](#)



**About Blog** Cool Blind Tech strives for universal design of products, environments, programs, and services to be usable by all people. It provides the best assistive tech news, reviews, and interviews from the top blind and low vision experts. Follow to get updates. **Frequency** 1 post / week **Since** Mar 2013

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## 6. [OT's with Apps & Technology » Assistive Technology](#)



**About Blog** OT's with Apps & Technology by Carol Leynse Harpold who has done Masters of Science in Adaptive Education/Assistive Technology with 15 years of experience with evaluating and coordinating assistive technology services in the education of elementary, middle school, secondary and post-secondary students. Follow us here to keep up with the next articles.

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## 7. [Ability Powered » Assistive Technology](#)



Tennessee, United States**About Blog** Ability Powered by a disabled gamer for disabled gamers. Ability Powered's Short is well-read in accessibility so much so that she started the page Assistive Technology to help other disabled gamers. Get the go-to source for video game accessibility including reviews, tips, and more by following this feed.

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## 8. [Care is There » Assistive Technology](#)



**About Blog** Care is There provides geriatric care management, support for independent living, and assisted living enhancement. It also provides geriatric care management for clients with complex health problems or assistance in many areas of life. Follow us and get more information about assistive technology

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## 9. [The Blind Guide » Assistive Technology](#)



**About Blog** Assistive technology includes any technology which helps someone with disabilities handle activities for daily living and higher-order tasks. The Blind Guide includes resources for people experiencing vision loss and the family and friends who support them, ensuring better outcomes. Subscribe for more updates.

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## 10. [Variety KC the Children's Charity » Assistive Technology](#)



Kansas City, Missouri, United States**About Blog** Variety the Children's Charity of Kansas City has been working to help local kids be active, be social and belong for over 80 years. It helps families afford new mobility equipment and assistive technology as well as develop inclusive parks, ballparks, and playgrounds for the Kansas City community. Follow us and read the latest updates from this feed.

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## 11. [Zoomax » Assistive Technology](#)



Hangzhou, Zhejiang, China**About Blog** Zoomax is a developer and manufacturer of technology dedicated to creating independence for people with vision impairments offering a full line of low vision products, including handheld, portable and

desktop video magnifiers. Follow us to get updates about low vision and the latest assistive technology news.

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## 12. [TELESEICT » Assistive Technology](#)



**About Blog** Teleseict provides teaching and learning in special education with information communication technologies. Follow to get the latest updates from this feed. **Since** Oct 2017

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## 13. [Guam CEDDERS » Guam Systems for Assistive Technology](#)



**About Blog** Guam CEDDERS creates partnerships and pathways to increase the quality of life of individuals with developmental disabilities and their families. Follow to get more updates.

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### Reference

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