
TECHNOLOGIES THAT ENHANCE THE EDUCATION OF STUDENTS WITH LEARNING DISABILITIES

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Abstract: About assistive technology we can say that it is an “umbrella”, a term that refers to any service-based product or technology that enables people with disabilities of different ages, activities in their daily lives, education, work or leisure time. The aim of this paper is about technologies which enhance the education of students with learning disabilities. But what do we mean students with LD, why do we need technologies and what kind of technologies do we have for students with LD (learning disabilities)? According to some researches “Students with learning disabilities are not “dumb” or “lazy.” In fact, they usually have average or above average intelligence”. Learning disability is a term which describes a type of problem which has to do with learning problems, for example students with problems in writing, reading, speaking, listening and so on. Learning disabilities can be identified while children are in the elementary school. This is possible because children while are in elementary school they face with these kinds of problems. When they start school or when they start to learn teachers also parents can identify that child has problem for example if they cannot read or have other problem. So, assistive technologies are technologies that can help students with disabilities to perform and to achieve what they want. Nowadays we have so many technologies. For example, abbreviation expanders, these software programs allow a user to create, store, and re-use abbreviations for frequently-used words or phrases. Audio Books & Publications-Recorded books allow users to listen to text. Electronic Math Worksheets are software programs that can help students organize, work through math problems on a computer screen. We have also many technologies which help students to achieve successes. For example students who have problem with reading can use tool that might read textbooks through the computer that can scan and read it e.g. optical character recognition, students with poor vision may use enlarged text, also we have alternative keyboards, these keyboards have special overlays that customize the appearance and function of a standard keyboard. Students who have problem with math may benefit from a tool - electronic math worksheet and this tool helps students to calculate and work with math problems, speech recognition software program may help students who have problem in writing, students can dictate a word into microphone and the spoken word will appear on the computer screen like a text. To sum up, nowadays we have so many technologies which can help students in education to achieve success.

Keywords: assistive technologies, students, learning, disabilities, computer.

1. INTRODUCTION

Learning disability is a term which describes a type of problem which has to do with learning problems, for example students with problems in writing, reading, speaking, listening and so on.

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Teachers can help students with intellectual disabilities have more access to appropriate education and develop independence through the use of assistive technology. Assistive technology is technology used by individuals with disabilities in order to perform functions that might otherwise be difficult or impossible. Assistive technology can include mobility devices such as walkers and wheelchairs, as well as hardware, software, and peripherals that assist people with disabilities in accessing computers or other information technologies. For example, people with limited hand function may use a keyboard with large keys or a special mouse to operate a computer, people who are blind may use software that reads text on the screen in a computer-generated voice, people with low vision may use software that enlarges screen content, people who are deaf may use a TTY (text telephone), or people with speech impairments may use a device that speaks out loud as they enter text via a keyboard. (What is assistive technology?, 2019)

2. ASSISTIVE TECHNOLOGIES

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 students 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. One of the biggest myths is that using AT will prevent kids from learning academic skills. That’s simply not true. For instance, experts agree that listening to audiobooks doesn’t keep kids from learning to read. While AT has many benefits, keep in mind that it can’t “cure” things like dyslexia or ADHD. It can’t replace good teaching and instruction, either. (Martin, n.d.)

The use of assistive technology must be a joint effort. To achieve this laudable feat in improving the learning of students with learning disabilities, they identified the principles behind the introduction of this technology into the teaching – learning process. They identified that:

- Assistive technology can only enhance basic skills, and not replacing them. It should be used as part of the educational process, and can be used to teach basic skills.
- Assistive technology for students with disabilities is more than an educational tool; it is a fundamental work tool that is comparable to pencil and paper for nondisabled students .
- Students with disabilities use assistive technology to access and use standard tools, complete educational tasks, and participate on an equal basis with their developing peers in the regular educational environment.
- The use of assistive technology does not automatically make educational and commercial software/tools accessible or usable.
- An assistive technology evaluation conducted by a professional, knowledgeable in regular and assistive technology, is needed to determine whether a child requires assistive technology devices and services and should be specified in the students ’s instructional plans.
- Assistive technology evaluation must address the alternative and augmentative communication needs, that is, ability to communicate needs and change the environment for students with disabilities.
- To be effective, an assistive technology evaluation should be ongoing process. (Neeraja & Anuradha, 2016)

3. HOW TO BRING ASSISTIVE TECHNOLOGY INTO YOUR CLASSROOM?

Teachers put a lot of time and effort into designing classroom activities that encourage students to read, write, communicate, play, move, and socialize. They strive to ensure that all students have opportunities to grow and learn, but students with disabilities can face barriers to their participation in classroom activities. To lower those barriers, teachers can access a set of tools—collectively called assistive technology—that have been designed to help these students participate fully and naturally in inclusive learning environments.

Simple ways to incorporate assistive technology:

Closed-captioning in videos: Adding or turning on closed-captioning in all videos, including YouTube and GoNoodle, assists students in making connections between text and audio representations of language. Captioning is an assistive technology tool that is free and easy to use: simply push the CC button underneath a video.

Closed-captioning provides missing information for individuals who have difficulty processing speech and auditory components of visual media. It is crucial for students who are hard of hearing and can support students’ reading skills.

Graphic organizers: Graphic organizers are a no-tech AT tool that offers a simple, effective way to provide writing support to elementary, middle, and high school students who have dysgraphia, executive function challenges, and other learning challenges.

Students with executive function challenges who struggle with organization, for example, can benefit from the visual organization of their thoughts and ideas, and graphic organizers “clarify implicit relationships contained in the text in a way that text alone may not.” Likewise, students with dysgraphia—which affects handwriting and fine motor skills, word spacing, and the general ability to put ideas and thoughts onto paper—can benefit from graphic organizers.

This tool can help struggling writers show what they know and organize their thoughts before they start to write, which can make writing less intimidating. Having printed graphic organizers available in your classroom for all students is an easy way to provide an assistive technology tool to struggling writers of all ages.

Classroom seating: To help students focus their attention in order to learn, it’s helpful if teachers are able to provide a variety of seating options in the classroom. Examples of supported seating include beanbag chairs, yoga balls, wobble stools, carpet squares, and wedges for active sitting, which is “seating that naturally encourages us to stay in motion, rather than passively relaxing into a slouch or attempting to rigidly hold a ‘correct’ pose.”

Visual timers: Time can be abstract for students with executive function challenges or autism. Students may become anxious when a teacher says, “You have 10 minutes left to work on this test.” Using a visual timer—a device that makes the concept of time easier to understand and monitor by providing a clear indication of the time remaining and elapsed for tasks—can help students prepare for transitions and ease test anxiety as they are able to see at a glance how much time is left.

Teachers can place a physical visual timer on their desk or elsewhere at the front of the classroom, or project one on their interactive whiteboard during timed class activities, projects, or tests.

Speech-to-text software: Students with print disabilities such as dyslexia can struggle when producing written assignments. However, if your classroom uses Google Docs, all of your students—those with and without disabilities—have access to an important free tool called voice typing, which is found under the Tools tab. (Dragon Dictation and VoiceNote are similar tools that are also worth trying.)

Speech-to-text is a form of assistive technology that allows students—and teachers—to dictate into their computer and watch their words appear as text on the computer screen, without typing. I've found that students with and without disabilities like using this tool.

Teachers may want to create a space for voice typing in a corner of the classroom, where classroom sounds won't be picked up by the computer microphone. If all students have the opportunity to rotate through this area, voice typing should not carry any stigma. (Sullivan, 2019)

4. ASSISTIVE TECHNOLOGY APPS AND TOOLS FOR STUDENTS WITH DISABILITIES

ABC Reading Magic is a 5 parts series of apps that build off each other to improve reading skills. The three core skills that these apps focus on are blending, segmenting, and reading. These apps also expand your child's vocabulary so that he/she can recognize and pronounce words that are not normally found in the everyday vocabulary of young learners. Included are progressive skill-building games in skill levels that most other reading programs overlook: blending, segmenting and reading. This time-tested and proven process utilizes phonics principles that help improve your students 's phonological processing ability, giving he/she strong foundations in reading. Each app includes built-in lesson plans as well as male/female voice, font style, and letter color options. (ABC Reading Magic Series, n.d.)

Easy Spelling Aid is a tool to help you spell problematic words. Simply touch the microphone button, say the word or phrase, and receive the correct spelling, displayed in your chosen writing style. The software is designed to recognize a variety of accents and is fine-tuned to pick up on students 's voices. Easy Spelling Aid is suitable for students of all ages.

Audible is an essential assistive technology that may be used by individuals with reading problems. It is the leading provider of premium digital spoken audio information and entertainment on the Internet, offering customers a new way to enhance and enrich their lives every day. Audible content includes more than 215,000 audio programs from leading audiobook publishers, broadcasters, entertainers, magazine and newspaper publishers, and business information providers.

Kurzweil 3000 - This is an amazing technology that allows users to engage in many activities efficiently. This technology would be helpful to many individuals who are unable to read or write due blindness disability, concentration problems due ADD/ADHD and any other disability that may prevent them from learning. This software incorporates tools that would help disabled users read, write and learn. It could translate text over 70 languages for individuals. Students may use this in classroom to complete course work. (DCCI, 2017)

MathTalk is a speech recognition software program for math that can help students with a range of disabilities. From prealgebra to Ph.D. level mathematics, students can perform math problems by speaking into a microphone on their computer. The program works with Dragon NaturallySpeaking programs for voice-to-text functionality, making it ideal for students who have fine motor skill disabilities. Students with blindness or vision disabilities can use the integrated braille translator. (15 Assistive Technology Tools & Resources For Students With Disabilities, 2019)

Talking calculators - Maxi Aids are just one well-known provider of talking calculators. These likely need very little explanation and do exactly what they say on the tin! Instead of needing to type in numbers when performing calculations, they work by registering your speech and then speaking the results out loud. These are perfect for students suffering from dyscalculia. Best of all, the technology has been in place now for a long time. As such, the cost per unit has come down significantly. Or, you could simply integrate talking calculator apps within mobile or tablet devices. (How to integrate assistive technology in every classroom in the USA and the world, 2019)

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. his type of tool benefits students who struggle with: writing. (Stanberry, 2010)

5. THE FUTURE OF ASSISTIVE TECHNOLOGY IN EDUCATION

According to Matthew Lynch assistive technology is a broad term encompassing everything from learning management software to eye gaze systems. While the category covers a variety of items, they all have one thing in common. Assistive technology makes education and learning more accessible to students with physical or learning disabilities. The role these products have in leveling the playing field for disabled students can be the difference between students who get by and those who embrace lifelong learning. The sky's the limit for assistive technology in

the classroom. The last ten years have seen advancements in how we teach and interact with deaf, blind, and learning disabled students. However, he thought that it's only the beginning. He believed that the development of educational AI will be successful in helping level the playing field for all students. And, he hoped that education funding for disadvantaged students will prioritize assistive technology for all students who need it. (LYNCH, 2018)

6. SURVEY ABOUT ASSISTIVE TECHNOLOGY

According to a research which is made in my city (Kumanovo) for Albanian students with LD at high school, I found out that the school has students with LD. The number of the students in the school were approximately from 1000-1100 but the number of students with LD are from 5 – 15 at the age of from fourteen to sixteen which is very common because the population is not very large. But is it possible that students with LD are not going to school? The school's psychologist and defectologist said that it can be possible but for some reasons, for example the mentality of people just because their parents do not want to show that their students has problem, some said that this kind of students go to special treatment, or this is possible only in the seriously cases.

People around the world use assistive technologies but unfortunately, the school which I visited, they don't have assistive technologies. Some teachers because they have participated in seminars for Assistive Technologies they are aware about these technologies, but some of them, they even does not know what kind of technologies exists for students with learning disabilities which is very bad for students and also for teachers because sometimes they does not know what to do with them, how to solve the problems.

According to my research, school's psychologists and defectologist said that students can be successful if their teacher and parents work with them, even if teachers have problem with them they should consult with psychologists and defectologist and take advices what to do with them, but is it good to have a special class at school for LD students?

Some school's psychologists and defectologist said that it should be better if schools have a special class for them and equipped with lots of assistive technologies because learning together at a normal class may be difficult for others because they can disturb other students. Some school's psychologists and defectologist said otherwise, if students with LD have a special class it will be bad because they need to be more sociability and they do not have to be different from others.

7. CONCLUSION

Children with LD can be identified when they are in their first years so parents and teachers should be more careful about them to find out if the children have any problem. So, a nowadays child with learning disabilities has easier life than in the past when assistive technologies did not exist. AT are useful for every child who has problem with reading, writing, listening, speaking and others problems. So, children with LD are not stupid, they just need to work with them more and to find the best tool which is necessary for them, help them to do their work and to feel more self-confident. Also scientists show us how we can motivate them using different ways through the special games, while stimulating them when they do a good job, giving a positive feedback etc. Therefore if someone finds out that their child or pupil has learning disabilities, they should consult with defectologist they can find information in the internet regarding to disabilities.

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