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The Effective Practices to Follow Assistive Technology for Children with Learning Disabilities

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Abstract

The present study explores the effective practices to follow Assistive Technology (AT) for children with Learning Disabilities (CwLD). Irrespective that AT is not widely accepted in schools, it may benefit CwLD. AT can help children with and without LD communicate more effectively with one another. Teaching children with LD to read and connect letter recognition with articulation was a turning point for teachers who saw the value of using AT. The usage of AT assisted children after several more conventional methods failed.As an outcome, students began using AT-based reading programs. The practice had a dramatic effect on the children's pronunciation. There was no way for these children to advance their schooling due to the absence of educational options. Using this AT, all children had access to the information in the classroom. To use AT effectively, teachers must be well-trained and skilled. High-level national perspectives and other connected components must be considered for a nation to achieve IE. AT is just one factor in the overall scenario. Student learning issues necessitate the use of AT. Children need to learn how to utilize AT in the classroom by their teachers effectively. Teachers' opinions on AT for children with LD were valued in this study. AT has brought about much-needed quality in education by providing a level playing field for CwLD to demonstrate their various talents and prove they can learn and function alongside their non-disabled peers in classrooms. It will assist educators and other experts select which AT tool is ideal for the CwLD in the classrooms. Every CwLD must have the chance to use AT and attend their school systems and obtain the educational opportunities they need as an outcome in the classrooms.

Keywords: Assistive Technology, Effective Practices, Follow and Classrooms, Learning Disability.

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Introduction

Almost one billion people use assistive technology. As the population ages and technology and assistive devices merge, this figure will climb to 2 billion by 2050. Regulations and legislation, as well as population and technology demands, determine the framework. Contrary to popular belief, AT is non-invasive and external to the human body. The world of technology is indeed converging. Implants and other helpful equipment are among the most recent AT accessible. According to facts, emerging items are more likely to supplement rather than replace traditional assistive technologies. Scientific technologies are constantly advancing, and many of them can now increase or restore human functions that have been lost. A LD is a problem with one or more basic cognitive abilities needed to understand and use a language. This handicap can make reading, writing, and completing mathematical calculations challenging (Rufus, Liman, Abubakar, & Kwalzoom, 2015).Support AT was supposed to provide several benefits by assisting writing for children with LD who found the task of writing uncomfortable on a consistent schedule (MacArthur, 1996). CwLDis educated in general education classrooms and face numerous hurdles compared to their peers (Wood et al., 2017).The WHO defines AT as "actions whose overall goal is to improve and sustain a person's functional independence in terms of the relationship and overall well-being" (WHO, 2020).AT is gaining popularity and drawing the interest of parents and experts due to the potential to improve people's lives with CwLD. AT aids many CwLD with the skills they need to succeed in school, work, and independence in daily life, from strategy to increase communication and computer systems to environmental laws and regulations. Thanks to the support of new and expanding technologies, opportunities abound for today's CwLD, bringing with them previously inaccessible objectives. As essential as AT has been for students at all levels of learning, CwLD's use of computer technologies has benefited tremendously and improved lives, supplying many CwLD with choices for getting involved in their numerous academic settings and identifying and problem-solving, and also broadly available programs to assist all teachers and students try to solve classroom learning concerns. This study will clarify why AT is used for CwLD; describe different types of AT, such as written language, reading, listening, memory, and arithmetic innovations; highlight the importance of selecting the appropriate advanced technologies for CwLD, and provide instructional guidance for teaching assistants in the classrooms.

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Children with Learning Disability

The children with LD refers to delays, deviations, and areas that need improvement in necessary academic fields such as math, reading, writing, spelling, and speaking that are not caused by mental retardation, sensory deficiencies, or emotional problems. It's a broad educational term label that can be applied to various circumstances. Unfortunately, most of these children will never be diagnosed with a learning disability.A LD is a neurodegenerative disorder with several underlying mental factors involved in learning while using spoken or written language. One symptom of the disability is the incapability to hear, think, speak, read, write, spell, or perform mathematical calculations. An LD is neither treatable nor recoverable; it is a lifelong challenge. Unfortunately, most of these children are never diagnosed with LD.Dyslexia is among the many types of LD. It is a language disorder characterized by challenges in single sequencing words, which usually indicate inadequate phonemic processing capabilities. Dyslexia is described by varying difficulty with various forms of language, most notable written form and dialect problems, and problems with reading. Because of some failure to understand between many teachers and school authorities, these children are frequently marked as slow, behind, unproductive, and inadequate. Deficiencies lead to low self-esteem, and these children will innately try to learn and achieve before dropping out. Children with LD are a variety of people. These pupils are a diverse population who may experience high-stress levels in several areas. For instance, one pupil with LD may find reading hard, whereas another struggle with written expression but not reading. LD effects can also be classified as mild, moderate, or severe. The ability of students to cope varies as well. A few kids learn to adjust to LD well because they 'transfer' as not having a disability, whereas others struggle their entire lives to do simple things. LD is a lifelong condition that always begins in childhood (Bowe, 2005).Identifying letters and numbers, recounting facts, intending to align figures, and comprehending abstract concepts such as place value and fractions are all part of math. Learning mathematics disorders, or dyscalculia, are specific impairments in math ability or calculation skills that can make any of these difficult for children (Fletcher & Forman, 1994).CwLD commonly finds it challenging to recognize the word linked to the child's knowledge of sight vocabulary in the classrooms.

Assistive Technologies for Children with Learning Disability

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Instead of acquiring and using technology that doesn't meet your child's specific needs, make sure you purchase and utilize technology that does. Risk to child behavior exists in all forms of technology. The use of technology in the classroom has proven to be beneficial to many students. Children with LD have a higher chance of success when they can use their skills to work around their disabilities. Children with LD regularly utilize AT tools at school, at home, and even in public. Studies show that children with LD can benefit from AT basis on the results (Starcic & Istenic, 2010 Wood, et al., 2017). Particulars of LD students rarely hear from their teachers about the potential advantages of technological devices (Rufus etal. 2015: Susan, 2009; Wood etal., 2017). Teachers' perspectives and experience are critical to the success of technology successful implementation (Cope & Ward 2002). Because of this, teachers' thoughts on the effectiveness of AT for students with LD must be considered. The tools you use to construct a storage unit for your equipment are entirely under your control. An AT device makes it easier for a child with LD to accomplish their goals. According to recent research, children with LD can benefit from the use of AT. To help your child reach their full potential, a therapy like AT may be an option. Listening to audiobooks instead of reading can be beneficial for those who have difficulty reading. Using AT tools, combining the best characteristics of both approaches is possible. Modern classroom technology has made it possible to differentiate instruction and strengthen the role of CwLD. Since there are so many options available in stores and on the internet, there is no single technique for choosing the right AT for CwLD. Educators and parents in developing nations face numerous obstacles when trying to acquire the equipment they need, including a scarcity in schools and a lack of availability in most local shops and markets (Liman, Adebisi, Jerry & Adewale, 2015).Each of the AT categories targets a specific demographic. The 1998 AT Act, which was updated in 2004, defines AT as anything used to augment, maintain, or improve the functioning skills of people with disabilities (Cook and Polgar, 2014).With AT, CwLD can be more self-sufficient since it provides a wide range of adjustments and adaptations, unlike computer software or hardware, which are more limited. When teachers use computers in the classroom, they should know that this does not necessarily qualify as computer-aided teaching. The usage of AT should be based on the identified needs of the CwLD. If a child is experiencing trouble writing because of grammar or memory issues, AT may assist.An AT tool should be chosen based on your child's

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preferences. When the youngster becomes used to the new tools, the teaching-learning process will shift. Children with LD should bear this in mind while choosing tools. Teachers who utilize AT to assist children with LD in the classroom and at home must adhere to a few general instructions. Children with LD have difficulty reading, listening, math, writing, and memory/organizational skills. The following are essential AT tools for Reading, Writing, Listening, and Mathematical skills.

Assistive Technologies for Reading among Learning Disability

Children with LD can considerably benefit from the use of AT when it comes to reading, which includes both reading and writing. Children's reading skills can be improved and honed through "reading interventions" that are technologically enhanced. As a result, each of these AT applications benefits children with learning difficulties substantially. Computer programs are now available to help students acquire the fundamentals of reading. Write and Read Gold's text-reading method has been proved to help students read independently in the classroom (Barfurth and Michaud, 2008). Children with LD may now fully participate in classroom conversations about reading and appreciate their peers' books because of increased access to technology in the 21st-century classroom settings. Using reading AT can help children with LD improve their learning. Many teachers already use Microsoft Word to help their students read at their own pace. Copy and pasted text can be made more readable by using the built-in formatting tools in Microsoft Word. The highlighting tool is available to help pupils focus on specific aspects of work, like literary devices. Tape recorders are used to aid children with reading issues. Younger people choose to listen to audio books or read books instead of sitting down and reading them. Voice synthesizers can be used to mimic reading engines. If the content is on a computer disc, you can use a speech synthesizer to read it to the youngster. His technology might potentially be used with a scanner that can interpret images and text from printed materials. The scan results are displayed on the computer screen as soon as they are entered. Children who have difficulty interpreting printed words can benefit from this strategy and those who prefer to learn by hearing rather than seeing (Raskind, 2000). Using this software, you may also make last-minute edits to your computer file before you save it. Children can speed up the playback to retain the original audio noises on VSC tape recordings. Slower reading is better for children. Those who have trouble reading can benefit from a wide selection of AT devices. In

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any case, all of these tools help by delivering text as the spoken word to users. Decoding, fluency, and comprehension are all aided by using these technologies in the classrooms.

Assistive Technologies for Written Language among Learning Disability

Many educational endeavours prioritize students' ability to communicate their ideas in writing clearly and concisely. Children with impairments face unique challenges when it comes to writing. Children with LD usually struggle with writing fundamentals, including spelling, grammar, and even the building of margins and spacing. According to Parette and McMahan (2002), word processing on a computer screen gives only limited consistency and spelling and grammatical checks. There were far fewer spelling errors and far better organizational skills among pupils who used word processing than those who didn't (Passey and co-workers, 2004). The usage of word processors by children with LD can be beneficial. As a result, adaptive technology has a wide range of potential applications.These AT solutions can be helpful in the case of youngsters with LD. Spell checks included in word processing software come in various shapes and sizes. A growing number of word processing add-ons scan documents, show faults, and speak them out loud to users, and youngsters are gaining popularity. Choosing the correct word for a sentence might be challenging for young people because these technologies do not recognize and provide options for accurate spellings. Examples of editing include "Grammar checkers" (sometimes known as "proofreading") and other similar processes. Grammar and punctuation issues, for example, are among the things they look for. The child readily resolves problems with the computer. Students can listen to the spoken text while working on their computers with these high-quality voice synthesizers. The computer analyses and reads aloud the written information to the youngster. We're looking for grammatical flaws in the youngster's writing to ensure it's perfect. Instead of relying on a dictionary, use these resources to teach young people proper word usage (Beukelman, Hunt-Berg & Rankin, 1994). Word processors can assist their users by "predicting" the words they should enter using "predictive software." The regularity and trends of usage are taken into account when formulating projections. If your child has a problem with spelling or grammar, you can use this method.The child can observe their words appear on a computer screen as they are spoken out to by speaking into a microphone. This method does not recognize unknown words, so the youngster may use ones that sound similar instead. Children who are better speakers than writers will find speech recognition

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software a godsend. Children with LD can benefit from the usage of AT. Optical Character Recognition synthesis may be helpful for children who have difficulty reading print but can understand spoken language. AT can help children with LD who struggle to write. In addition to assisting students in avoiding the physical task of writing, these tools can help students correct spelling, grammar, word choice, and organization.

Assistive Technologies for Listening among Learning Disability

AT should be used in a specific way to the child's needs. Instances include a child's writing difficulties, such as grammatical errors and memory issues. Several hearing AT devices can be beneficial for children with LD. FM to use these gadgets, you only need a microphone and a transmitter. The technology exists to bring the voices of children directly into their ears. You can boost the pitch of your voice by using this method. These practices can help children who have difficulties hearing. Devices for Making Audio Recordings: In class, students with hearing impairments can use these devices to record what their teacher or other presenter says. Because these recorders allow children with disabilities to rehearse their speeches several times, they can benefit significantly from their use. Some children who have difficulties understanding or recalling what they hear may benefit from AT, which is true in some cases. These devices can be used in various ways (e.g., a class lecture or a meeting with multiple speakers).

Assistive Technologies for Mathematics among Learning Disability

Students with LD may benefit from computerized math worksheets. Arrangement, placement, and routing of computer-based work can be helpful for children who struggle with basic arithmetic summaries. A keyboard or a mouse can be used to accomplish basic arithmetic operations like addition, subtraction, division, and multiplication. When you utilize this tool, the best option for your material is an automated vertical format. A voice synthesizer will recite the numbers aloud to the child. Students that use this program will be able to better organize their handwritten math problems. There's a new generation of voice-activated calculators. As soon as a key is pressed, a speech synthesizer reads out the numbers, symbols, and operations. It is normal to hear the outcomes of a student's computations after they have complete a set of calculations. The child hears the mistakes if he or she presses the wrong keys. In the course of copying numbers and symbols, a kid may double-check for mistakes. The use of AT can assist a child with organizing, copying, and solving arithmetic

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problems on paper. Using visual and aural aids helps speed up the rate of setting up and solving math problems. Arithmetic apps can assist your students in organizing and solving math problems. ‘Computers can now read the numbers on their screens using speech synthesizers. Mathematics students who have difficulties expressing their thoughts verbally may find this technique helpful.

Assistive Technologies for Memory/ Organization among Learning Disability

These pieces could be used to build an electronic gadget that children with LD could store and manage their data. These tools may be handy for children who have difficulty remembering small facts. Data sets such as phone numbers, reminders, and critical dates/times cannot be recovered due to current technology limitations. These databases can be used by people of all ages, including children, to keep track of their thoughts and observations. Electronic communication has overtaken paper documentation. Adolescents can find the knowledge they need from a couple of moments using a computer. Keep a running account of all your child has learned from you over the year. Writing entails numerous phases. When you're first starting, it can be challenging for you to develop ideas for keywords or topics. 'You can get a head start on your writing by using the resources listed below: Visual aids may be helpful for children with memory problems. Creating a mental map ahead of time could be a useful technique. Motivation might help you organize your thoughts. The use of frameworks can help students plan their writing assignments. Having the opportunity to change these bubbles into familiar shapes is a sign of originality.

Conclusion

Teachers of students with LD must be flexible in their use of AT. To be effective in an inclusive classroom, all students need to access lessons and make effective and beneficial use of the AT. To develop a more effective that embraces all students, examining existing classroom adaptations and modifications is necessary. Children with LD can benefit from AT-based learning tools. Adopting this strategy may boost one's sense of self-worth and motivation, to name just a few benefits. There seems to be a deeper awareness of classroom technology within stakeholder involvement teams. It is the responsibility of team members to guarantee that existing technology can be adapted to these advancements and utilized efficiently to keep pace with children's rising abilities. A child's future is unpredictable, but assistive technology has a lot of possibilities today and in future years. This AT may be

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beneficial for children who have problems learning. Even children with special needs can benefit from it with the right AT. Students who are having problems in the classroom may necessitate using an additional aid. AT could have a tremendous impact on a child's capacity to study, participate in class discussions, and have fun. Consider the specific characteristics of each LD student while selecting an AT. The benefits of AT for children with LD cannot be realized unless teachers are actively involved. Collaboration between teachers and administrators is essential if AT integration is successful. More resources are the most effective way to aid children in their learning in the classrooms.

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