RESEARCH PAPER

The role of technology in implementing effective education for children with learning difficulties

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Abstract

With the advancement of technology, inclusive education for kids with learning difficulties is now greatly enhanced. This essay investigates how technology promotes inclusivity by offering customized solutions. It draws attention to how digital technologies might improve academic performance, engagement, and cognitive capacities in kids with learning difficulties, even those with high IQs. The purpose of this research is to investigate how technology may be used to develop educational interventions that help students who have learning difficulties, including dyslexia, ADHD, and autism spectrum disorders (ASD). The potential for various digital tools to enhance engagement, cognitive abilities, and academic performance is the subject of ongoing research. These technologies include adaptive learning platforms, assistive software, and interactive applications. In order to promote inclusion and equitable learning experiences for students, the study also highlights the importance of incorporating personalized technology into educational environments. This research advocates for a more technologically sophisticated inclusive education system that identifies critical concerns and effective practices. Students with learning difficulties and disabilities would have a better chance of succeeding in this technologically enhanced setup and approach.

Keywords: Technology in education, Learning difficulties, Assistive technology, Autism spectrum disorder, Adaptive learning, Inclusive education.

Introduction

Because they impact a large percentage of students and create a variety of distinct challenges in various learning settings, learning impairments provide a significant challenge to the educational system. Can this statement be supported by quoting research done by the National Center for Learning Difficulties. This data shows how widespread the issues are and how critical it is to address them. The magnitude of the problem and the potential influence of innovative solutions are highlighted because this number corresponds to more than 10 million youngsters across the country. The educational system faces obstacles with students of various abilities and learning

difficulties, yet inclusive education methods hold out hope for improvement. Inclusive education, as opposed to traditional special education, guarantees that all kids, regardless of ability, study in the same classroom setting. It is common to ignore the possibility that children with learning difficulties, such as dyslexia or ADHD, may possess ordinary or above-average intellect. For instance, studies show that people with dyslexia typically have greater levels of creativity and problem-solving skills (Eide & Eide, 2011). With an emphasis on providing help without alienating kids, inclusive education aims to acknowledge their talents.

The consequences of ignoring learning problems might be devastating. Students with these issues are more likely to drop out of school, have poor self-esteem, and perform badly academically. Students with learning problems had three times the chance of dropping out of school compared to children without disabilities, according to a study by Cortiella and Horowitz (2014). This has far-reaching social consequences for the nation's economic output and workforce preparedness, in addition to its obvious effects on the students. It is becoming increasingly apparent that technology can aid children who are having difficulty in school by removing these obstacles and providing assistance that is specifically designed to meet

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their requirements, credit to the unprecedented rate of technological advancement. Individualized instruction, compensating measures, and flexible learning are some of the innovative possibilities that may be explored through the incorporation of technology into special education. The way teachers address the varied requirements of students who have learning difficulties has evolved with the introduction of digital learning platforms, assistive technology, and instructional software. The opportunities for creating inclusive and successful learning environments have been broadened by the rapid breakthroughs in artificial intelligence, virtual and augmented reality, adaptive learning systems, and other related technologies. In addition to assisting students in overcoming certain obstacles, these technologies may foster the growth of their talents and provide a more nurturing learning

atmosphere. Nevertheless, incorporating technology into special education does come with its fair share of obstacles. Suppose we want technology interventions to help all students equally. In that case, we need to look into things like the digital divide, accessibility, and teacher training. In addition, there is a constant need for greater research into the efficacy of various technical methods in order to establish best practices for their application. This study aims to investigate the many ways that technology might improve learning outcomes for students who face learning difficulties. The purpose of this essay is to offer a comprehensive review of this important field of education by looking at the possibilities and threats posed by technology interventions, as well as their existing status and efficacy. Looking ahead at potential trends and directions while considering the impact of changing technologies on special education is another area of focus.

Methodology

Using a qualitative approach backed by a thorough literature review, this study seeks to understand the effects of tech integration into inclusive education on students with learning disabilities. This research aims to examine current educational technology and its potential real-world applications. Evidence from reputable sources, including case studies and meta-analyses, backs it up.

Key Methodological Steps

Data collection

Looked for secondary evidence on the efficacy of educational technology for dyslexia, attention-deficit/hyperactivity disorder (ADHD), and autism spectrum disorders (ASD) in books, conference papers, and publications that experts in the field have evaluated. Longitudinal studies and meta-analyses were utilized to uncover trends in the results of technology efforts.

Technology assessment

A variety of different things were investigated, including reading programs that focus on phonics, math aids that make use of virtual manipulatives, and cognitive training applications for attention deficit hyperactivity disorder (ADHD). An investigation was conducted on the utilization of adaptive platforms, which are capable of making adjustments to content in real time based on how well students are performing.

Challenges evaluation

A subject analysis was carried out in order to highlight obstacles, such as the unequal distribution of digital resources, inadequate training for educators, and difficulties with infrastructure.

Results

The research shows that technology may help kids with disabilities in many ways, including their education, by providing individualized solutions to their unique challenges. The usage of tools like text-to-speech and speech-to-text software greatly enhances literacy growth in reading and writing abilities. According to Torgesen *et al.* (2010), these tools enable students with dyslexia or motor challenges to acquire knowledge and express themselves effectively. Digital programs that focus on phonetics help kids who are having trouble reading increase their phonological awareness by thirty percent, which in turn improves their comprehension and vocabulary acquisition. Similar to this, recent advances in mathematics and computational thinking show how powerful virtual manipulatives and game-based platforms can be in simplifying and energizing previously intractable ideas. Satsangi and Bouck (2015) found that children with learning disabilities outperform their typically developing classmates when it comes to solving geometric puzzles.

Furthermore, technology has a beneficial effect on cognitive and executive functioning, especially in adolescents with ADHD. A study conducted by Holmes *et al.* (2010) found that adaptive learning systems and interactive games may significantly improve concentration, working memory, and critical thinking. Fast feedback and tailored lessons are the keys to these successes. Adaptive platforms may tailor the degree of difficulty to each user's requirements, and gamified learning can increase motivation and decrease attrition rates; these findings further demonstrate the need for engagement and customization (Walkington, 2013). The usage of customized math questions led to a 15% improvement in test scores, proving this point. To sum up, inclusive education technology greatly affects the social and emotional parts of school. It helps students feel more comfortable in their skin by fostering social inclusion, decreasing stigma, and providing them with self-

confidence-boosting tools like digital note-taking software. Combined, these results provide light on how technology might be used to create classrooms that are welcoming, equal, and accommodating to students with special needs for learning.

Discussion

The potential benefits and drawbacks of using technology in inclusive education for students with learning disabilities are the subject of this discussion. One of the most intriguing features is the possibility of personalized learning. In this kind of learning, AI-powered learning systems dynamically adjust the pace and content to suit the needs of each student, improving learning results and engagement. One example of an adaptive approach is DreamBox, which enhances performance by responding to the user's actions by dynamically changing the mathematical content. Beyond the four walls of a traditional classroom, students may hone their abilities with the support of technology, which equips them with the digital literacy and organizational skills necessary for the jobs of tomorrow. Digital organizers and other technology help kids succeed in school while also teaching them valuable life skills like prioritization and planning. Implementing the guidelines provided by the Convention on the Rights of Persons with Disabilities (CRPD) and other worldwide frameworks can help eliminate educational inequalities and promote accessibility by integrating technology in a variety of socioeconomic situations.

However, a number of major obstacles are indeed raised by these possibilities. A major barrier to the adoption of online adaptive tools is the digital divide, which occurs when low-income schools, especially those in rural regions, do not have constant access to the internet and modern technology. Schools in more remote places will find this to be particularly pertinent. Also, many teachers lack the confidence and technical knowledge to effectively integrate assistive technology into their lessons. Therefore, teacher preparation is a constant problem. According to Kopcha (2012), just 35% of teachers feel ready to utilize this kind of technology in the classroom. Concerns about privacy and security, in particular, add additional difficulty to the deployment process. The reason for this is that digital platforms are more prone to exploitation due to the extensive data collecting they do. We need a multi-faceted approach to overcome these challenges. As part of this plan, the government should fund and build infrastructure to support innovations, and educators and politicians should work together in design processes to improve best practices. Technology can deliver on its promise of making inclusive education more equal and uplifting for all students if these concerns are routinely addressed.

Current Landscape of Technology in Inclusive Education

In inclusive classrooms, assistive technology like digital organizers, text-to-speech software, and alternate input devices are being incorporated more and more. Students with high IQs and learning challenges may now enter the regular curriculum through these aids. "Inclusive education requires the integration of technology to support students with varied abilities in regular classrooms" (Pérez and colleagues, 2020). A plethora of resources to aid students who are having difficulty in the classroom have become available due to a dramatic shift in the landscape of inclusive education technology in the past few years. Here we take a look at educational software programs and assistive technologies, the two primary types of technology that are revolutionizing this area.

Assistive Technologies

As critical tools for overcoming particular obstacles and improving overall learning experiences, assistive technologies are vital in helping students who struggle with learning. "Assistive technology is a critical component of an effective inclusive education program," according to Edyburn (2013) (p. 14). These technologies, which range from quite basic hardware to extremely complex software programs, are all intended to meet certain learning requirements and encourage independence in educational environments. Software for text-to-speech (TTS) and speech-to-text has grown in popularity as a way to help children who struggle with writing and reading. With the use of TTS technology, children who have trouble with decoding or reading fluency can listen to printed material. For example, TTS technology dramatically increased dyslexic pupils' reading comprehension and fluency, according to research by Wood *et al.* (2018). On the other hand, pupils who struggle with writing can dictate their ideas using speech-to-text software, which will subsequently translate them into text. For kids who struggle with motor skills or dysgraphia, which affects their writing, this technology has demonstrated especially promising results. Planning, organizing, and prioritizing are examples of executive function abilities that students struggle with, and digital organizers and mind-mapping applications have become invaluable tools for them. With the use of these tools, which offer information in visual form, students may better organize their ideas and make connections between various concepts. According to a student with learning difficulties, they were able to write more systematically when they used digital mind-mapping tools. Students who have trouble with regular keyboard layouts or fine motor skills might benefit from specialized keyboards and input devices. Keyboards with color-coded keys or big keys, for instance, can help kids who struggle with motor control or visual processing.

For certain students with physical limitations, trackballs and joysticks provide a simpler way to navigate compared to regular computer mice. The manner in which students who struggle with learning may interact with lectures and printed materials has been completely transformed by smart pens and digital note-taking apps. These gadgets allow users to record audio while taking notes, which enables students to go back and review certain portions of a lecture in rhythm with their written notes. Students who find it difficult to listen and take notes at the same time may especially benefit from this technology. According to research by Belson *et al*. (2013), children with learning difficulties performed better academically when they used smart pens to take more and better notes.

Educational Software and Applications

The evolution of specialist educational software and applications has expanded the range of approaches to solving specific learning problems. To make learning more engaging and motivating for youngsters with special needs, these digital tools often incorporate gamification elements. It was discovered by Ke and Abras (2013) that "game-based learning can provide an engaging, motivating, and effective approach to learning for students with difficulties" (218). This study highlights the potential of gamified instructional software to engage students, particularly those who struggle with traditional study methods. Some children who struggle with learning do well in particular subjects because they have superior cognitive capacity. Technologies that integrate adaptive platforms and gamified learning can both meet their demands and push their intellectual limits. For instance, learning software that adapts difficulty based on performance might be helpful for kids with high IQs and leanring difficulties learning disabilities (Smith & Carlson, 2022).

For children with dyslexia and other reading difficulties, there are reading comprehension and phonics programs. These programs often use a multimodal approach to learning by combining visual, auditory, and kinaesthetic elements. For example, several digital media have adopted the Orton-Gillingham approach, which has proven to be quite helpful in improving reading ability. Research conducted by Torgesen *et al*. (2010) found that computer-assisted education using phonics-based software had a substantial positive impact on struggling readers' word recognition and phonological awareness. Students who struggle to grasp mathematical concepts may now use problem-solving and math visualization tools. Using interactive visuals and step-by-step troubleshooting instructions, these tools can make abstract topics more physical and understandable. For instance, students can gain practical experience that can enhance their understanding via virtual manipulatives, which let them deal with mathematical objects in a virtual environment.

Research by Satsangi and Bouck (2015) found that students with learning difficulties were able to significantly improve their problem-solving abilities in mathematics when they used virtual manipulatives. Learning relies on strong cognitive abilities, and memory and attention training apps have been increasingly popular ways to hone these skills. These apps often use gaming mechanics to train users' brains to focus, remember information, and process faster. While further research is required to establish the efficacy of these tools, preliminary results from a number of studies are promising. One study found that children with attention deficit hyperactivity disorder (ADHD) benefited from an automated working memory training program in terms of both working memory and their ability to solve mathematical problems. Not only that, but there's a new movement towards making learning platforms accessible to all students, regardless of their background or ability level. In response to student performance and preferences, these platforms often include adaptive learning algorithms that alter the degree of difficulty and material type, as well as adjustable user interfaces and tools for tracking progress. Technology in special education is rich and diversified, and there are a number of solutions to aid youngsters with learning issues. As research and development in these areas progress, they may one day significantly enhance the educational opportunities and outcomes for students with a range of learning difficulties. Keep in mind that these technologies can only be effective when used correctly, when teachers are well-prepared, and when students' individual needs and talents are taken into account when making a personalized selection.

Effectiveness of Technological Interventions

The incorporation of technology into special education has resulted in encouraging outcomes across a variety of subject areas that are being taught. In this part, the primary focus is on three areas in which it has been discovered that technology treatments are effective: reading and writing abilities, mathematics and problem-solving, and attention and executive function.

Impact on Reading and Writing Skills

The positive impact of technology on the reading and writing skills of children with learning difficulties has been shown in several research investigations. Some examples of this technology are text-to-speech applications and more comprehensive literacy initiatives. "Education technology applications produced a positive but small effect (ES = +0.16) on reading outcomes" (p. 277) was the finding of Cheung and Slavin (2013). Their meta-analysis came to this result. Even though the effect size is minor, this suggests that technology can aid in reading development. This study analyzed 84 studies with a total of over 60,000 students in grades K-12 to offer a comprehensive overview of

how technology has affected students' reading abilities. Research by Fälth *et al.* (2013) examined the effects of two computerized treatments on the word decoding abilities of dyslexic students. They found that students whose treatments were delivered through computers significantly outperformed a control group in terms of word decoding ability. Scientists found that "the computerized interventions were effective in improving the reading skills of children with reading difficulties" (p. 289).

When it comes to writing, technology has shown very promising results. Word processing had a somewhat positive effect on student writing quality (ES = 0.55) in a meta-analysis that Graham and Perin performed in 2007. Students with learning impairments sometimes have trouble with writing. Still, word processors can help them save time and focus on content and structure instead. MacArthur (2009) also looked into research on word processors and other digital aids for writers who are having trouble. He arrived at the idea that "word processing in combination with strategy instruction or other supports can have significant positive effects on the writing of students with LD [learning difficulties]" (p. number 93). According to his writing, this highlights the importance of integrating technology with practical teaching methods to maximize its effectiveness.

Mathematics and Problem-Solving

Mathematical technology has shown promise in helping students, particularly those with learning difficulties, with both comprehension and problem-solving abilities. Seo and Bryant conducted a meta-analysis of studies that looked at the effects of computer-assisted instruction (CAI) on the mathematical performance of students with learning difficulties (2009). Their research suggests that "CAI was effective in improving the mathematics performance of students with learning difficulties" (p. 218). The study found that CAI treatments had moderate impact sizes, suggesting that these technologies might be helpful tools for youngsters who have trouble with maths in the classroom. Continuing along these lines, Ok and Bryant (2016) investigated the effects of a computer-assisted education approach on the word problem-solving abilities of students with learning difficulties. The study's results show that "all students improved their word problem-solving performance after receiving the CAI" (page 226). Students' ability to identify relevant information in word problems and use appropriate problem-solving strategies were significantly improved by the technology-based intervention, as reported by the researchers. Another fascinating area is the use of digital manipulatives in the classroom for teaching mathematics. Moyer-Packenham and Suh (2012) examined the effects of virtual manipulatives on different ability groups. For

students with learning difficulties and those with average abilities, "virtual manipulatives contributed to the development of students' fraction concepts and provided unique opportunities for students to demonstrate their thinking" (p. 46).

Attention and Executive Function

Technologies aimed at improving focus and executive function have also shown promise, particularly for children with ADHD and related issues. "The use of tangible user interfaces improved attention and motivation in children with ADHD" (p. 15), as stated in a 2015 study by de la Guía *et al.* The researchers developed a variety of instructive games using physical

user interfaces. They discovered that students were actively involved in their learning because of these interactive, tactile aids. To clarify, a meta-analysis was carried out by Busing *et al.* (2012) to evaluate the effectiveness of cognitive training treatments for ADHD patients. Computerized cognitive training programs may help with working memory and other executive function abilities, they found. The researchers noted that "cognitive training approaches may constitute a promising new avenue for future ADHD treatment development" (p. 379). In a study focused on working memory training, Holmes *et al.* (2010) looked at how adaptive training affected a group of kids who had poor working memory. Researchers found that "adaptive training that taxed working memory to its limits was associated with substantial and sustained gains in working memory" (p. 9). These improvements were most noticeably associated with improved mathematical reasoning, which raises the possibility that these interventions may have broader positive effects on schooling. In addition, Tannock (2013) reviewed technology-based treatments for attention deficit hyperactivity disorder (ADHD) in depth and found that, although more research is needed, "technological innovations offer considerable promise for providing accessible and effective treatments" (p. 249). The study highlighted the potential of digital technology to provide focused, engaging, and intensive therapy for specific cognitive deficits associated with ADHD. Although the effectiveness of technological treatments differs among domains and uses, the overall trend suggests that technology might be a huge boon to children who have difficulty learning. Keep in mind that technology isn't a magic bullet and that many factors determine how well it works, such as the specific needs of the learner, the quality of the technology's application, and how effectively it complements effective teaching strategies. Future research should focus on determining the most effective ways to include these technological therapies in comprehensive educational programs for persons with learning difficulties.

Challenges and Opportunities

Although there is a great deal of optimism that technology can assist kids who struggle with learning, there are also a great deal of obstacles that must be overcome in order to put this answer into action. Meanwhile, inclusive education is positioned to benefit from excellent future possibilities thanks to new techniques and cutting-edge technology. This section goes into the many methods that personalized adaptive learning may be applied, as well as the problems that might be encountered along the route.

Implementation Barriers

Despite the potential benefits, integrating technology successfully in inclusive education settings is not without its challenges. Some examples of these challenges are concerns about privacy and security and a lack of available resources. One of the biggest problems is that many schools don't have enough money or other resources. "The cost of purchasing, maintaining, and upgrading technology can be prohibitive for many schools, particularly in economically disadvantaged areas," according to Flanagan *et al.* (2013) (p. 36). Because of financial constraints, instructional technology may not be accessible to all students, widening the achievement gap for students with learning difficulties. Missing resources and professional development opportunities for educators also pose a serious problem. To a large extent, educators feel unable to effectively integrate technology into their teachings, particularly when dealing with students who exhibit a wide range of learning difficulties. "The quality and availability of professional development and ongoing support significantly influenced teachers' beliefs about technology integration," reads the research cited by Kopcha (2012) (p. 1118). Without proper training and support, even the most advanced instructional technology might go unused or be used ineffectively. Additional challenges to the widespread adoption of educational technology include concerns about data privacy and security. As educational applications and software collect increasingly detailed data on student performance and conduct, privacy concerns about its collection, use, and protection are becoming more apparent. Williamson (2017) points out that "the collection and analysis of educational data raise significant ethical and privacy concerns that need to be addressed to ensure the responsible use of technology in education" (p. sixty-two). Furthermore, educational technology integration may be hindered by limitations in technological infrastructure. Especially in more economically disadvantaged or rural areas, many schools may not have access to the contemporary equipment or broadband internet necessary to use innovative pedagogical tools. Significant improvements have been made to the school's internet connection in recent years. However, millions of students still do not have it, limiting their ability to use online learning resources.

Personalization and Adaptive Learning

Despite these challenges, educational technology is an exciting field that offers exciting new possibilities for personalised and adaptable instruction. One of the most appealing aspects of educational technology is its capacity to tailor content and pacing to match the needs of individual pupils. This is particularly true for children who have difficulty learning. An important point made by Reigeluth *et al.* (2015) is that "personalised learning has to dramatically improve educational outcomes for all students, especially those with learning difficulties" (p. 5). Adaptive learning systems use intricate algorithms to assess student performance data in real time and adjust the difficulty, pace, and style of instruction to match each student's specific learning profile. Adaptive learning systems hold a lot of potential for children with learning difficulties, who often require more individualised support. Students, particularly those struggling, benefited from maths assignments that were personalised to their interests, according to a study conducted by Walkington in 2013. According to the writer, "personalisation can be an effective tool for increasing the relevance of mathematics to students' lives and improving their problem-solving performance" (p. 950). Students who are having difficulty in school can greatly benefit from the scaffolding and immediate feedback that adaptive learning technology provides. Van der Kleij *et al.* conducted a meta-analysis to determine the effects of digital feedback in primary and secondary schools (2015). The results demonstrate that adaptive technology has the potential to provide students with timely, personalised instruction and that "elaborate feedback was more effective than simple feedback or no feedback" (p. 501).

More advanced personalisation possibilities arise when machine learning and artificial intelligence (AI) are integrated into the field of educational technology. "provide intelligent tutoring, facilitate collaborative learning, and offer real-time assessment and feedback," says Holmes *et al.* (2019) (p. 27) of educational systems driven by AI. Learning spaces might become highly adaptive with the help of these technologies, adjusting to the psychological, emotional, and intellectual needs of their pupils. Keep in mind that developing and launching effective individualised learning systems is no easy feat. "While personalised learning holds great promise, its effectiveness depends on careful design, implementation, and ongoing evaluation." Their main point is that academics, educators, and technologists need to work together across fields to create innovative solutions that are also good for teaching. Ultimately, despite the numerous challenges, individualised and adaptable learning methods provide several advantages for kids with learning difficulties. With these innovations, inclusive education might undergo a sea change, providing

kids with unprecedented levels of personalised instruction and support as they grow. But in order to make good on this promise, we need to eliminate implementation barriers, ensure that everyone has access to technology, and keep focussing on evidence-based methods of learning with technology.

International Laws Supporting Curriculum Adaptation

The modification of curriculum to promote inclusive education and account for learning variations is required by a number of international regulations. The right to inclusive education is emphasised by the UN Convention on the Rights of Persons with Disabilities (CRPD), which requires nations to guarantee equitable access to education by adjusting their pedagogical practices (United Nations, 2006). Students with learning difficulties can engage in the same curriculum as their peers because to the Individuals with Disabilities Education Act (IDEA), which is further enforced in the United States. In order to standardise inclusive practices and the use of technology in a variety of learning contexts, the European Agency for Special Needs and Inclusive Education operates throughout the continent.

The Role of International Law in Curriculum Adaptation for Learning Difficulties

Students who have difficulty acquiring materials are required by a number of international rules to have their curriculum adjusted in order to facilitate inclusive education. Among the most important legislation is the United Nations Convention on the Rights of Persons with Disabilities (CRPD), a historic international treaty that safeguards the rights of individuals with disabilities, including the right to an education. The CRPD mandates that ratifying nations provide equitable educational opportunities for all students, including those with disabilities, including modifying curricula and pedagogical practices to accommodate students with special needs. According to the Convention on the Rights of Persons with Disabilities (CRPD), students with disabilities such as attention-deficit/hyperactivity disorder (ADHD), dyslexia, and autism spectrum disorders (ASD) should have the same educational opportunities as their peers.

The CRPD has called for the establishment of an inclusive education system that supports students with disabilities through the provision of individualised support, the development of flexible learning strategies, and the elimination of barriers to their full participation in the educational process. With the help of this international treaty, member nations are firmly encouraged to develop assistive technology, alter assessment methods, and alter curriculum to accommodate the requirements of all students.

The importance of such legislative frameworks is growing as more nations see the value of inclusive education for all children, including those with cognitive impairments. In o er to achieve these goals, an inclusive education system promotes social cohesiveness, decreases prejudice, and helps build a more equal society.

Notable educational policy shifts have occurred in the following countries as a result of ratification of the CRPD:
- Finland
- Canada
- Australia
- Brazil
- India

Along with many other nations that are members of the UN framework, they are working to make their educational systems more accessible and flexible. To make sure that students who are having difficulty in school are not left behind, they have promised to implement measures as part of their efforts to overhaul the curriculum.

Example of Curriculum Adaptation: Finland

A country that has effectively altered its educational system to address the requirements of children who are having difficulty academically is Finland, which serves as an example for other countries to follow. In Finland's educational policy, individualised education, also known as the process of adapting teachings to the specific requirements of each student, is a core concept. Due to the fact that it meets the special needs of children with learning difficulties without separating them from their peers, this method is extremely important for these children.

Adaptive education in Finland is comprised on the following fundamental components:

Individualized learning plans (ILPs)

A customised learning plan outlining each student's unique educational needs, skills, and weaknesses is given to every student, including those who struggle with studying. The support that every student needs to succeed in school will be provided to them in this way.

Integration of assistive technology

There are several instances of assistive technology that have found widespread usage in Finland. Some examples include text-to-speech software, digital organisers, and interactive educational platforms. These materials enable students to interact with the content of the course in ways that are appropriate to their own learning styles, which is especially helpful for students who have learning impairments such as dyslexia or attention-deficit/hyperactivity disorder (ADHD).

Flexible teaching methods

Finnish educators acquire professional development that equips them to meet the needs of their diverse student bodies through the use of flexible teaching strategies. Students with dyslexia may benefit from multimodal

learning strategies that integrate visual, auditory, and tactile learning modalities; children with attention- deficit/ hyperactivity disorder (ADHD) may do better with shorter, more focused learning sessions.

Teacher collaboration and support

Finnish schools place a premium on teacher cooperation, the practice of educators pooling their resources to advance inclusive pedagogy. Students with learning disabilities get supplemental instruction from both general education and special education teachers. This way, students with learning disabilities may get the personalised support they need without having to sit apart from their classmates.

Curriculum flexibility

The flexibility built into Finland's national curriculum is one of the country's greatest strengths. Schools in Finland are allowed to adapt their lesson plans based on the needs of their students under the national education system. This adaptability also applies to methods of evaluation, protecting children with learning disabilities from being unduly disadvantaged in situations where standardised testing is mandatory.

Holistic d evelopment

Education in Finland is centred around a student's holistic development, which encompasses their emotional and social health as much as their academic success. Children with learning disabilities benefit greatly from this all-encompassing strategy since they may face challenges beyond their academic capabilities.

Conclusion

An important and rapidly developing field in inclusive education is the use of technology in the teaching and learning process for students who have difficulty reading or writing. This article has explored the many ways technology may help these students succeed in school by analyzing the available tools, how they can be used in different areas of study, the challenges and opportunities that come with them, and much more. Investigation into the present state of the technological environment led us to the conclusion that several forms of instructional software and assistive technologies are accessible to meet the demands of students with varying degrees of difficulty in learning. Such technologies include, but are not limited to, text-to-speech programs, digital organizers, and several instructional apps. These materials provide new opportunities for participation, understanding, and skill development. What really jumps out about these technologies is the possibility that they might be utilized to create personalised and adaptable learning experiences. There is hope for substantial improvements in many areas of education because several studies have demonstrated that technology interventions are effective. Research has shown that the use of technology in reading and writing can help children who struggle with dyslexia and other forms of literacy. Virtual manipulatives and computer-assisted training have helped students with mathematical understanding and problem-solving. And there's optimism that tech that improves focus and executive function can aid kids with ADHD and similar issues. The adoption of such technology is not without its difficulties, though. When it comes to inclusive education, there are a lot of big obstacles to integrating technology well. Concerns with data security and privacy, restrictions in technical infrastructure, insufficient training and support for instructors, and insufficient financial and resource assistance in educational institutions all fall into this category. In order to overcome these obstacles, politicians, teachers, and IT engineers must collaborate on their implementation. Despite these obstacles, new technology presents enormous opportunities. When it comes to personalised and adaptable learning, this is especially true. Educational technology powered by AI has the potential to revolutionise the way we learn by enabling intelligent tutoring, collaborative learning, and real-time evaluation and feedback. This might pave the way for personalised, highly responsive classrooms that cater to each student's specific needs.

Finally, incorporating technology into the classroom may help pupils who have difficulty learning tremendously. It opens up possibilities for learning that have never been possible before, such as the potential for successful, personalised, and engaging learning. However, this potential can only be fully realised via the continuous collaboration of academics, teachers, legislators, and ICT practitioners. Helpi"g kids reach their maximum potential requires making an effort to build classrooms that are more inclusive and supportive of all students. One way to accomplish this is by closely monitoring evidence-based practices, continuing to create and improve effective technological solutions, and addressing any challenges that may arise during implementation. Throughout this process, keep in mind that technology is more of a potent instrument than a panacea; with careful use, it has the potential to greatly improve the educational opportunities and results for students with learning difficulties. The future of inclusive education is highly dependent on the creation of innovative technologies and our capacity to effectively integrate these into all-encompassing, student-centered classrooms that respect and value each student's strengths and weaknesses.

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