

From the national Center for MH in Schools & Student/Learning Supports at UCLA

## An Introductory Information Resource

# *Technology's Role in Enhancing IDEA's Policy for Inclusion\**

**Samantha J. Garcia** a UCLA undergraduate working at our Center in 2024, had a personal interest in focusing on this topic. She produced the following paper which we thought did a fine job in providing an introductory overview to the topic.

\*This document was prepared by **Samantha J. Garcia** as a participant with the national Center for MH in Schools & Student/Learning Supports at UCLA in 2024.

The center is co-directed by Howard Adelman and Linda Taylor and operates under the auspices of the School Mental Health Project, Dept. of Psychology, UCLA.

Website: <https://smhp.psych.ucla.edu>

## **Abstract**

The integration of students with disabilities into general education classrooms, mandated by the Individuals with Disabilities Education Act (IDEA), aims to create inclusive educational environments that are tailored to the diverse needs of all students. While some traditional inclusion strategies are effective, the utilization of technology, specifically artificial intelligence (AI), offers new opportunities for enhancing inclusivity in classrooms. The COVID-19 pandemic forced educators around the world to quickly transition to online learning, which uncovered both the challenges and the potential of technology in enhancing inclusive education. In this study, the benefits of using AI to improve accessibility and inclusivity for students with disabilities will be explored. Despite concerns regarding privacy, ethical implications, and the risk of dehumanizing education, AI offers multiple solutions for overcoming barriers to learning. By providing personalized instruction and data-driven feedback, AI can help bridge gaps in learning, support teachers in managing diverse classrooms, and promote greater engagement and intrinsic motivation among students. Drawing parallels to the historical adoption of assistive technologies, such as audiobooks and hearing aids, this study argues that AI, when used responsibly, can be a transformative tool in creating inclusive educational spaces. Additionally, it emphasizes the importance of investing in teacher training that will equip educators with the skills to effectively implement digital technologies into the classroom.

## Technology's Role in Enhancing IDEA's Policy for Inclusion

In 1975, United States President Gerald Ford enacted the Education for All Handicapped Children Act, which mandated that all students with disabilities have equal access to public education in the least restrictive environment possible. In 1990, U.S. President George H.W. Bush amended and renamed this legislation as the Individuals with Disabilities Education Act (IDEA), which remains in effect today. This law requires schools to integrate students with disabilities into general education classrooms and to develop individualized education plans (IEPs) that address each student's unique needs, with the consent of their parents or guardians.

*To the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled, and special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability of a child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.*

Individuals With Disabilities Education Act Part B.  
Assistance for All Children With Disabilities, Section 5A

Integrating students with disabilities into general education classrooms is referred to as inclusion. This approach offers numerous advantages, including increased opportunities for collaboration and teamwork among students, a sense of belonging in the educational environment, preparation for working in a diverse world, and equal learning opportunities for all students. Typically, students with disabilities are paired with an aid that can provide individualized assistance and support within the general education setting. However, the

COVID-19 pandemic in 2020 significantly impacted schools' ability to offer one-on-one support during distance learning. While distance learning limited opportunities for students with disabilities and learning or behavioral issues, the new form of teaching revealed the benefits of utilizing technology in the classroom.

### What Technology Can and Can't Do

More than one billion people around the world require one or more assistive technologies or devices to support their day-to-day lives (Lynch et al, 2022). Yet, only one in ten people have access to these technologies, which limits their ability to participate in several facets of life (Lynch et al, 2022). Examples of assistive technologies include hearing aids, communication boards, speech-generating devices, and smart home technologies. The lack of access to these technologies can make daily tasks more difficult to accomplish for people with disabilities.

While many of these technologies are deemed beneficial to supporting individuals with disabilities, utilizing artificial intelligence (AI) in the classroom has yet to be fully accepted as an assistive technology that can enhance inclusion and personalized learning.

There are several concerns surrounding the use of AI in education. A main concern is that AI is an invasion of students' privacy. For AI to develop personalized instruction and individualized education programs (IEP), the software must collect and analyze personal data about each

student. Additionally, students and parents may not be aware of or understand how AI functions, what it stores, and who has access to the data it collects. This factor makes it difficult for students and parents to give informed consent. Both of these concerns question the ethical standards of utilizing AI in the classroom.

- Concerns include*
- >invasion of privacy*
- >dehumanizing the learning experience*
- >cheating*

Dehumanizing the learning experience in schools is another large concern surrounding the use of AI in education. If students are primarily learning through AI-generated teaching plans, collaboration between students and their peers and teachers may be limited, or changed. In addition to providing academic instruction to students, teachers play a role in the social and emotional development of students. Teachers often act as supportive figures for students as they navigate through the educational process, which is something that AI can not do.

The main question surrounding the use of AI in education is to what extent can it be utilized before crossing the threshold of cheating. Softwares like ChatGPT can produce full essays and answer exam questions in seconds. Although other forms of AI can detect

AI-generated content, there is no foolproof way to ensure that students are not using AI to complete entire assignments. Furthermore, a conclusive determination regarding whether the use of AI is considered plagiarism and the necessity of attributing credit to AI remains unclear.

Despite the range of concerns surrounding the integration of AI into educational settings, there are multiple arguments for its potential to enhance inclusivity. One of the most significant advantages of utilizing AI in the classroom is its ability to create personalized educational programs, or Individualized Education Plans (IEPs), through a data-driven approach.

- Despite concerns,*
- there are many ways*
- AI has potential to*
- enhance inclusivity*

Traditionally, IEPs are designed collaboratively by a team of educators and the student's parents or guardians, taking into account the student's personal preferences and needs. However, AI can expedite this process by quickly analyzing student data to generate an IEP (Herman, 2022). Once created, this plan can be reviewed and revised by the IEP team and parents, ensuring it aligns with the student's evolving needs.

With similar data, AI can develop tutoring programs to address specific learning gaps, offering individualized support at the student's own pace and according to their preferred learning methods. An example of this is **TutorAI.Me**, which is a software that generates learning plans for a topic of the individual's choice. As the student uses the tutoring program more, AI will have a better grasp on the abilities and learning style of the student. These AI-generated programs can also offer feedback to teachers and parents about the students' progress and identify specific needs. That way the teacher can adjust instruction to tailor to the areas needing improvement and possibly create collaborative groups of students that share similar interests and needs.

In addition to tutoring programs, educators can use learning management systems to enhance access to course materials, simplify the assignment submission process, and foster improved communication among students and peers. Widely used learning management systems used in schools today like Google Classroom and Canvas facilitate these functions and

*AI can act as an innovative tool supporting diverse learners by enabling them to overcome barriers to success in the classroom*

were implemented by more educators during distance learning. Similarly to distance learning, using learning management systems in the post-pandemic classroom provides greater accessibility for students who are absent or require additional review of specific topics. These management systems also can track data about students' progress, which allows teachers to identify and address learning gaps.

Furthermore, AI can play a role in inclusion by serving as a form of cognitive prosthesis. Dr. Dave L. Edyburn of the University of Wisconsin-Milwaukee first introduced this idea in 2006. The concept of cognitive prostheses suggests that AI can function as an assistive technology that compensates for gaps in students' cognitive abilities. Similarly to hearing aids, specialized keyboards, and Braille displays, AI can assist individuals with specific disabilities. AI can also offer unique and personalized ways for students to engage with educational material. In doing this, AI can act as an innovative tool for supporting diverse learners by enabling them to overcome barriers to success in the classroom.

As of the 2017-18 school year, United States class sizes averaged 20.9 students. Some states, like California and Utah, experienced even larger averages that exceeded 24 students per class. The unbalanced student-to-teacher ratio presents significant challenges, as it becomes increasingly difficult for educators to tailor instruction to the individual needs of each student while simultaneously maintaining an appropriate pace to ensure students' readiness for the next grade level. Therefore, AI can serve as a valuable adjunct to traditional teaching methods - helping teachers balance personalized instruction and efficient delivery of curriculum.

**Available Evidence on Technology as a Tool for Enhancing Inclusion**

Technological advancements are often met with hesitation and resistance. Throughout time, society has witnessed the initial rejection of several technological innovations. For example, audiobooks began to rise in popularity around the 1960s when cassette tapes became an accessible form of recording audio. At the time, educators debated whether listening to an audiobook could produce the same level of cognitive development as reading a traditional, printed book. While each form of consuming literature has its own advantages, audiobooks made consuming literature accessible to individuals with impaired vision. The adoption of this new form of reading required educators to reassess their established views on the purpose of reading. In this case, the emphasis shifted from the act of reading and vocalizing words to the broader goals of the comprehension and consumption of reading material.

This same mentality can be applied to the implementation of AI in education. AI holds the potential to address learning deficiencies and disabilities by personalizing instruction to align with each student's unique needs and interests - increasing accessibility for all students and fostering greater engagement in the classroom.

In a study conducted at the University of Michigan in 2017, researchers found a positive correlation between using assistive technology like text-to-speech software and reading ability after one year (Lindeblad et al, 2017). The results concluded that with the support of assistive

technology, impaired readers could develop at equal rates of non-impaired students. Additionally, the study revealed that utilizing assistive technology increased intrinsic motivation and independent learning of students.

## **Implications for Schools**

With the understanding of the benefits of utilizing digital technologies to enhance learning, schools must invest in adequate teacher training to ensure technology is being used effectively and appropriately.

A Ukrainian study conducted a comprehensive analysis of the findings from three distinct research studies to construct a diagram that explains the objectives of digital technologies and the respective roles of software and hardware in fostering inclusion. The first section of the diagram categorizes the goals of digital technologies into three overarching domains: training and repetition, assist in learning, and enable learning opportunities (Abbott, 2007). The second section further distinguishes between hardware and software versions of inclusive digital technologies, highlighting the specific ways in which each can contribute to achieving one of Abbott's three identified goals. This diagram serves as a valuable resource for schools, providing guidance on how to strategically leverage digital technologies to maximize learning outcomes.

The study also focused on developing a model for preparing teachers with the skills to utilize digital technologies across a four-year period. This model was structured into three distinct stages: motivational, cognitive and operational, and reflexive. The motivational stage sought to deepen teachers' understanding of the significance and advantages of leveraging digital technologies to foster inclusivity. The cognitive and operational stage focused on equipping teachers with the skills required to effectively implement digital technology tools in the classroom. The final reflexive stage provided teachers with the opportunity to critically assess their use of digital technologies in educational settings. The researchers based the three-stage model on educational and professional training programs at Sumy State Pedagogical University in Ukraine and conducted an experiment on its effectiveness in math teachers. The results indicated that the model was effective in enhancing teachers' proficiency in utilizing digital technologies within inclusive educational spaces. Similar to the study's diagram on how to effectively use digital technology to maximize learning outcomes, the model for preparing teachers to use digital technologies in schools should be considered by educational institutions.

*Schools must  
prioritize  
digital equity  
for all students*

Schools must also prioritize improving digital equity for all students by increasing accessibility to technology and reliable internet connection for low-income students. During the pandemic, a number of schools provided students with laptops and internet hotspots to facilitate distance learning. A similar commitment is required to ensure that all students have equitable access to technology, as well as the necessary skills to use it effectively to enhance their learning experiences.

## References

- Abramson, A. (2021). **"Capturing the Benefits of Remote Learning."** *Monitor on Psychology*, American Psychological Association.
- Drushlyak, M., Semenikhina, O., Kharchenko, I., Mulesa, P., & Shamonina, V. (2023). **Effectiveness of digital technologies in inclusive learning for teacher preparation.** *Journal of Learning for Development*, 10, 177-195.
- Edyburn, D. L. (2006). **Research and Practice.** *Journal of Special Education Technology*, 21, 62-65.
- Herman, D. (2022, December 16). **The end of high-school English.** *The Atlantic*.
- Lindeblad, E., Nilsson, S., Gustafson, S., & Svensson, I. (2017). **Assistive technology as reading interventions for children with reading impairments with a one-year follow-up.** *Disability and Rehabilitation*, 12, 713-724.
- Lynch, P., Singal, N., & Francis, G.A. (2022). **Educational Technology for learners with disabilities in primary school settings in low- and middle-income countries: A systematic literature review.** *Educational Review*, 76, 405-431.
- Marino, M. T., Vasquez, E., Dieker, L., Basham, J., & Blackorby, J. (2023, May 19). **The Future of Artificial Intelligence in Special Education Technology.** SageJournals.
- National Center for Education Statistics (2022). **National Teacher and Principal Survey.** U.S. Department of Education.
- Ofgang, E. (2021, August 23). **Listening to what the research says.** *TechLearningMagazine*.
- Wigfield, A., et. al (2016). **"Beyond Cognition: Reading Motivation and Reading Comprehension."** *Child Development Perspectives*, U.S. National Library of Medicine.