

From Assistive Technology to Intelligent Pedagogy: How AI Can Transform Individualized Instruction for Learners with Disabilities

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HOW TO CITE:

Nishat Zafar, Nazish Andleeb,
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(2026). From Assistive
Technology to Intelligent
Pedagogy: How AI Can Transform
Individualized Instruction for
Learners with Disabilities
International Journal of Special
Education, 41(23s), 1594-1612

ABSTRACT:

Artificial intelligence (AI) is shifting assistive technology from a largely tool-centered model toward increasingly adaptive, data-informed and pedagogically responsive forms of support. It's a significant integrative offer for considering that transition and the potential that 'AI' may have in creating more individualized teaching that doesn't repeat patterns of exclusion, surveillance, bias and dependence. It draws on recent systematic reviews, meta-analysis, international policy guidance, accessibility standards and fundamental research relating to universal design for learning (UDL), assistive technology and personalized learning and integrates evidence from a range of learning disabilities, including autism, sensory disabilities, physical disabilities and intellectual/developmental disabilities. Giving to the evaluation, AI eased systems can enhance to the purposes of modified education by adaptive job sequencing, multimodal depiction, dialog and linguistic ropes, computerized feedbacks, brainy education, insides alteration finished convenience, communiqué provision and nursing development and contextually support. This signal is talented, as a 2026 meta-analysis originate an intermediate result scope (Hedges' $g = 0.588$) for general effect of AI interferences for scholars with infirmities, with advanced consequence dimensions when the consequence degree was a theoretical attainment amount, and a 2025 methodical appraisal of AI interferences for pupils with erudition incapacities comprised 11 revisions with optimistic conclusions, though there is noteworthy jeopardy of prejudice. These exposes are altogether about protected yet confident hopefulness in its place of high-tech determinism. In the midpoint of the discussion there is a trust that no one should expression at AI as an another for the singular teachers or counsellors, peoples or agency of beginners. Instead, it requirements to be an ingenious coating of teaching in a situation where admittance is at the central and the humanoid issue is leading. The artefact essences on the Intelligent Individualized Pedagogy (IIP) outline which contains seven values of communication: (1) pupil intervention, (2) convenience by strategy, (3) active personalization, (4) multimodal framework, (5)

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human-AI co-regulation, (6) evidence-based adaptation, and (7) principled answerability. The system distills these concepts into a pedagogical process – from learner profiling to setting goals, adapting the learning process with the help of AI to formative assessment, teacher feedback, and subsequent learning process adjustments – which can be repeated. Implications for teachers, teacher educators, school leaders, and policy makers and researchers, especially in low resource environments, are provided. At the end of the article, the authors say that the transition to be enacted is not “From teacher to AI” but rather “From static accommodation to responsive pedagogy” where AI can “broaden the scope, precision, and speed of the accommodation that can be provided to a diverse group of students.

Keywords: Artificial intelligence; assistive technology; individualized instruction; special education; inclusive education; learners with disabilities; adaptive learning; universal design for learning; intelligent pedagogy; teacher-AI collaboration

1. Introduction

The shift in educational inclusion has been from a question of 'place' to a more challenging question – can children and young people with disabilities participate, communicate, learn and demonstrate their competence on equal bases. The right to inclusive education is enshrined in article 24 of the United Nations Convention on Rights of Persons with Disabilities with a particular focus on reasonable accommodation, support provided in the general education system and individualized measures to help maximise a person's academic and social development. In reality, however, many classrooms are still utilizing standard pacing, standard conceptions of content, and assessment formats that, to a great extent, rely on a very limited means of seeing, hearing, communicating, moving and demonstrating knowledge. Assistive technology (AT) has always challenged these assumptions and provided alternative routes to gain access and/or participate. The next challenge is to move beyond access to instructional systems that will be able to continuously respond to the needs of individual students.

Artificial Intelligence (AI) offers the opportunity to rethink this transformation. The use of traditional assistive technologies of a fairly stable nature such as screen reader for converting text to speech, augmentative and alternative communication for providing symbols or

synthesized speech, switching to provide access to the digital environment etc., are very useful. Such tools can be enhanced with a layer of interpretation and adaptation more so with an AI. Identifies patterns of learner interaction, develops alternative representation, offers feedback, makes predictions as to where learner will most likely need additional scaffolding, helps create scaffolding between what teacher offers and what can be offered to make it more accessible to the learner. This new chance isn't only “smarter assistive technology.” It is a shift to a ‘Smart Pedagogy’ where accessibility, assessment, personalization and instruction decision making are functioning in harmony.

This is particularly pertinent when considering the identified complexity and diversity of disability. It is important to note that 2 learners with the same diagnostic label can have vastly different strengths, communication preferences, sensory profile, executive function demands, and prior knowledge and/or environmental barriers. Individualized instruction can therefore not be viewed as matching a disability category and a technology. Successful learning cannot happen if the support assistance does not know about the learner, the task, its context and what is important to learn. Nevertheless, AI's capacity to process large data volumes and aid in adaptive developments is significant, while it also poses considerable threats. Information is sensitive

when it is about “disability, behaviour, communication, attention, performance etc.” Algorithmic systems include ableist bias as pre-programmed, can make incorrect recommendations and prioritise measurable ‘engagement’ over ‘autonomy, belonging and deeper learning’.

Incomplete but now around indication that suggestion base now has a minute additional material, but mottled. In their systematic literature review and meta-analysis of AI interventions across students with disabilities, Zhang et al. (2026) found that the academic and social-emotional outcomes had average unkind overall result of AI-based interferences (academic: Hedges' $g = 0.814$; social-emotional: Hedges' $g = 0.361$), and that the regular result of the AI-based interferences was advanced on theoretical consequences than it was on social-emotional consequences. In the meantime, there is the potential for publication bias and heterogeneity and care must be taken with their interpretation. Chemists may use AI to help out with their calculations; Paglialunga and Melogno (2025) conducted a systematic review and identified 11 studies involving a total of 3,033 students with learning disabilities who benefited from AI interventions in this area. Seven of the ten studies in this analysis rated as having moderate ROB and three rated as high/serious ROB. Seven of 10 (70%) studies were of moderate ROB while 3 of 10 (30%) studies were of high/serious ROB. The results showed that there has been a good justification for experimentation arising from research and not blind acceptance.

Hence the need for a gap in theory and practice that calls for the contributive effort of the present article. Many ongoing conversations have been discussing AI use cases based on the technology employed, like robots, adaptive learning, large language models (LLMs), computer vision or virtual reality. These categories may be useful but they can also be used to cover over pedagogical rationale for the technology and the need for the learner. This is not so much a matter of which AI tool is ‘out there’, but which instructional

problem is it tasked with solving, how does it evolve, who propels its evolution, what evidence is generated that supports it, and is the evolution increased agency for the learner?

In this paper, we believe that the application of AI should not be a one-stop solution but should be carried out in an architecture built by human teachers, and personalized education can be revolutionized in such an architecture. It establishes the framework of Intelligent Individualized Pedagogy (IIP), therefore it involves topics of assistive technology and UDL, individualized education planning, adaptive learning and ethical AI. The framework is designed for special and inclusive education and is also technology-neutral so that it will continue to be applicable even if specific AI products vary.

2. Assistive Technology to Intelligent Pedagogy.

Keep in mind that AT is NOT just a tool but rather a means to achieve and/or improve the functional capacity and full inclusion of a person. Current policy advice highlights the importance of both commercially available and modified or customized products and that services with a technology are as crucial as the technology itself. An example is IEP teams being urged by the United States Department of Education to consider whether a child requires an AT service and/or device, and meaningful access to education is contingent upon the technology and the skills or expertise the child must master to use it. This has a very important meaning for AI as any kind of intelligent systems can never be pedagogically neutral. Its usefulness will depend upon its use, its data base, interfaces and instructions procedures.

Traditionally, assistive technologies are employed to rectify a problem between the learner and the learning environment in which he or she operates. By using a text-to-speech device, the dyslexic learner can decrease the decoding workload imposed on the learner by the text. Screen reader, magnification or tactile output can be used by a learner with a visual impairment. Input can be via switch access, or eye-gaze for

Motor disability learner. A Learner who cannot speak is allowed to use AAC to communicate. These technologies can break down barriers, without compromising the learning objective. Thus, AT can be considered to be part of the social or interactional understanding of disability, with the difficulty being made up of the individual's impairment and the characteristics of their environment.

AI adds a new capability as it is able to modify, real-time, an assistive environment. Consider text-to-speech. A traditional speech output system is used. An intelligent system can also identify words that are new to a learner and automatically change the sentence structure as needed, change voice speed (as the learner likes), display pictures of key content in the sentence, or help answer comprehension questions. This is an important pedagogical difference. This first of these primarily provides information access. The second one can then potentially engage in a process of access, comprehension, practice and feedback. But this is not necessarily beneficial for all. A strategy that removes discipline vocabulary that must be learned is called simplification. Errors can be in automated explanations. When students are overly supported, productive struggle and autonomy diminish.

In this sense, this article's notion of intelligent pedagogy entails that the computer adaptation comes with an explicit pedagogical intent. An intelligent pedagogical system must be capable to give at least five answers to the following questions. What is the end of the learning you are aiming for? Second, What block(s) prevents or is the progress? Thirdly: What is an adaptation that impacts that barrier in a way that does not unnecessarily result in a reduction in the learning goal? Fourthly, what evidence will point to success with the adaptation? Fifthly, who should intervene by a teacher, specialist or learner and when?

This logic is unique because it defines intelligence based pedagogy to distinct to what is termed as "personalization" (which is limited to contents recommendation). Personalization of a series of commercial adaptive platforms favors the

selection of the subsequent element. Personalization (for students with disabilities) may also be any of the following: an alternative method of responding, breaking down cognitive and/or time constraints, communication accommodations, extended time limits, or a combination of any of these. But therein must be more than just one aspect of "personalization".

UDL can be a useful platform to this practice. The CAST 2024 UDL Guidelines 3.0 include multiple means of engagement, representation and means of action/expression with a focus on learner agency. They clearly specify optimisation of access to assistive and accessible technologies and tools. AI has the potential to augment UDL in multiple ways including multiple representations and multiple response pathways at the last minute. For instance, a teacher might turn a complex text into a narration, an explanatory text and a set of prompts, and/or an image-based set of prompts; but the learner still has the choice of the representation. The key is that the choice, not automation is important.

The continuum can thus be used to describe the transition from AT to intelligent pedagogy. They are accessed at the first level using technology. At the second one, it offers lodging. At the third level it 'adapts instructional processes'. It supports the teacher's decisions on level 4 on learning analytics and recommendation. Ninth, it is an element of a human/AI pedagogical ecosystem (and co-ordinated). In and of itself movement along this continuum should not be interpreted as progressive. The value of additional intelligence can actually only be quantified by the influence it has to provide enhanced chances for learning within a frame of autonomy, privacy, dignity and accessibility.

3. Evidence Base: what research is current and to support the idea?

However, the state of the evidence is nuanced. The AI-based interventions appear to hold promise for influencing a range of learning and participation outcomes for children and young people with disabilities, but with some

considerable variation based on disability group, outcome, and technology and study type.

The nearest meta-analysis is a direct one by Zhang et al. (2026) in Review of Educational Research. The researchers included 29 quasi-experimental/experimental studies and calculated an overall effect size of AI with students with disabilities of Hedges' g factor (0.588), statistically significant. Their analysis used 239 effect sizes with a number of 41 independent samples with significant heterogeneity. An average g value of 0.929 was derived from academic results and $g = 0.382$ from the social-emotional results. Specific learning disabilities and intellectual and developmental disabilities were the other primary evidence base focal areas with autism spectrum disorder having the next largest proportion. Further, publication bias was present: After a trim and fill adjustment, the estimated effect was smaller ($g = 0.269$ approximately). Especially for scholarship at Q1-level, it is a finding that underscores the significance of the entire context of evidence of the quality of the study, and reporting bias of positive findings.

An additional reminder to caution, that also comes from the systematic review performed by Paglialunga and Melogno's (2025). They analyzed 11 studies, 10 independent experiments and 3,033 individuals, with locations of the vast majority of the participants in the samples across groups of dyslexics or across groups of other specific learning disorders. Popular ways to intervene were through adaptive or personalised learning and game based learning. The authors found the results of all the studies analyzed demonstrated positive effects, including large effect sizes in mathematics and reading in some of the studies. None of the included studies were assessed as having low risk of bias however. The concentrated nature of the number of beverages classified in the moderate and high/serious risk categories means that the size of effects cannot be construed as the precise amount of effect in real life. Not to say nothing about the effectiveness of AI, rather, that it is a missing area

in which the larger bore designs, longer follow-up, and transparency of reporting is needed.

However, Voultsiou and Moussiades conducted a larger systematic review study in 2025 that tried to include 139 studies relevant to AI, VR, and Large language models in special education. The themes to emerge from the review were mainly related to personalization, social engagement, cognitive development and accessibility/teacher uptake. It also listed common problems: issues with access, teacher readiness challenges, such as using limited resources and ethical issues, were also mentioned. The breadth of the review reflects some of the fast development in this field and establishes that "AI in special education" is no one intervention category. Using mechanisms and evaluation methods vary between robots, speech recognition, Intelligent Tutoring Systems, Computer Vision, LLM, Adaptive Learning Platforms and Immersive technologies.

An especially salient example is in the field of autism. Attendbots, gaze trackers, speech analysis machines, socially assistive robots or robots that facilitate social communication and emotion-based understanding have been some of the AI-enabled interventions used. A systematic review of the use of AI tool for psychosocial enhancement in autism in the last couple of months revealed that the domains like joint attention, social communication, reciprocity, emotion recognition, and engagement with tasks were improved, with intervention being short, the use of different methods, and small sample sizes. A quality assessment of AI-supported autism interventions conducted in 2026 also indicated that, although AI is also suitable for supporting autism interventions for adults, the evidence is premature and more research is needed. This reinforces an AI-as-Mediator or AI-as-Scaffolding framework to not be used as a replacement for the teacher, therapist or caregiver interaction.

An additional area for learning might be learning disabilities where the level of intensity, feedback and the manner of presenting and pacing practice are modified. Some selected studies were identified to demonstrate good overall outcomes:

a large arithmetic-fluency effect for children with mathematics difficulties ($d = 1.63$) and a large reading-comprehension effect in one study as reported by the 2025 review by Paglialunga and Melogno. While these results are promising, certain cautions need to be included with regard to method. However, not everything that has one large effect in one little intervention or context of use, necessarily has one large effect across all interventions or contexts.

There is also a lack of correlation between accessibility and personalization as communicated through the evidence. AI can increase accessibility through the creation of captions, alternative text, speech output, translation, simple language, and visual supports and representations. But accessibility is a necessary condition, it is not an objective. The worksheet might be presented to the learner, and the teaching itself might not fit due to the learner's prior knowledge/experiences, his motivation or his cognitive load. Finally, smart pedagogy is when accessibility information is connected with decisions about teaching and learning.

The other important finding is in regard to teacher attitudes/competence. The 2024 AI Competency Framework for Teachers devised by UNESCO strikes a balance between five core areas: human-centred mindset, ethics of AI, AI foundations and applications, AI pedagogy, and AI for professional learning. These are particularly relevant dimensions with respect to special education, understanding and knowing how to use the AI system, and understanding what the outputs of the AI system mean when implemented in special education decision making on a per-child basis. If a teacher can only prompt a Generative AI system, but not the capabilities to assess accessibility, hallucination, and bias and instructional appropriateness, they will not be ready for intelligent pedagogy.

Overall, five propositions are forwarded based on the evidence. First, AI interventions have the potential to create significant change for students with disabilities. Second, there appear to be differences in effect by outcome/technology.

Third, academic learning can have some inert, potent, effects under certain circumstances. Fourth, there is methodological immaturity in the evidence. Fifth, because more AI adoption might be the most powerful way forward, some alignment is needed between the capabilities of AI, teaching theories, learner's objectives, and rigorous evaluation.

4. AI-Enabled Pathways for Individualized Instruction

The Acceleration, Intervention, and/or Remediation Pathways that provide individualized instruction are supported by AI.

There are multiple ways that are complementary—through which AI can revolutionize individualized instruction. These pathways are meant to be considered as functions in an instructional system and not as a technologies 'shopping list'.

4.1 Adaptive learning, dynamic sequencing of tasks (repetition)

Difficulty, sequence, frequency and type of learning activity can be tailored to learner performance, through adaptive learning systems. The system can give a student with a specific learning disability some extra practice on a prerequisite skill but avoid the need to repeat content that the student already has mastered. Perhaps a learner with a problem with center, or maybe the structure will divide up a difficult task into smaller pieces, and provide a more immediate response. For an individual who has intellectual disability it may be to follow a consistent schedule of events and to add in challenge slowly over time.

The pedagogical value is the dynamic adjustment. One-to-one personalized plans were common in the past, and can now be continuously supplied with information thanks to AI. But the continuous adjustment shouldn't be at the cost of continuous surveillance. The system should only record information that is pertinent to the educational task and should allow adaptation rules to be easily comprehended by educators.

4.2 Multimodal content transformation

A single source of instruction can be presented in numerous different formats, all accessible to the use of AI. A chapter can be transformed into structured summaries, audio, captions, alternative reading levels, image descriptions and vocabulary supports or concept maps. This falls under UDL "multiple means of representation."

How the preservation of the learning goal is the key safeguard. There's no presumption of simplicity in accessible transformation. Two good methods of disciplinary concept to submit to learner. Hence teachers need to be sensitive to the difference between altering the way the pupil looks at the concept and the difference between altering the level of demand the concept puts on the pupil.

4.3 Intelligent feedback

Feedback is an important component of personalized learning. AI can instantly check reading for pronunciation, spellings, composition, mathematical methods, fluency or completion. It may also provide clues preceding to answers.

Considerations may be necessary with respect to feedback for students with disabilities. Lack of or over-focusing upon feedback can result in frustration or dependency levels. A supportive intelligent pedagogy now follows on three steps: to start with the least assistance; when the student is faltering to give more assistance; when the student is becoming competent, to give less assistance.

4.4 Development of communication and language

Natural language processing for communication impaired learners via Speech recognition, Text prediction, AAC (augmented and alternative communication) interfaces, conversation practice and translation/language modelling. AI can also help teachers to provide communication opportunities around topic matters.

One of the ethical points to note here is that the communication support should facilitate and promote communication ability on the part of the learner without imposing a norm on the learners'

communication. No one must rely on multimodal & alternative communication by default and as such it is not recognised as a means of communication.

4.5 Support to develop self-regulation and executive-function

Many learners with disabilities experience difficulties with planning, working memory, attention, initiation/monitoring of tasks. Executive functioning support can include chunking down a task, setting out checklists, reminding them about deadlines, reminding them to track their own progress and organizing materials and providing step-by-step instructions.

Support to be directed towards developing young child's independence. The idea is not to have the AI as the executive functioning unit of the learner, but for the learner to internalize the strategies. This indicates that AI systems should also have intentional fading-out procedures and chances for reflection on the part of the AI systems.

4.6 Assessment and tracking of progress, in an intelligent way

AI can help analyse response pattern, errors types, changes in response times, response time etc. This data can help inform teachers whether students may be having trouble at certain points of the lesson that they wouldn't know about through those tests that are frequently administered. Can also be used in formative assessment to determine concepts in need of reteaching.

But, automated evaluation should not be seen as a diagnosis authority. Performance that is successful when faced with a disability is situational and traces of behaviors can deceive. Confusion, motor difficulty and fatigue or accessibility issues, or for careful thinking, can all lead to a prolonged response time. The place of teacher interpretation is still important.

4.7 Start to respond to environmental and sensory changes

Some pupils find the setting to be a huge challenge. Some systems are now using AI to

potentially control a certain level of visual complexity, noise levels, or interface density and/or task transitions. Computer vision and stress- or distraction-detecting systems can potentially be used to read the environment and detect distraction or stress conditions. The uses in emotive circumstances must be conducted with highly moral attention: It can be feasible for the perception of actions to develop into a scheme that is invasive. Unless provided otherwise, generally learner control of adaptation, where possible, and clearly for some purpose, and with consent, should be the norm.

4.8 Teacher decision support

AI that will assist the teacher to have the greatest impact will be the best use. A system ought to give a summary throughout work samples, pinpoint potential misunderstandings, provide digestible materials, generate differentiated activities, and surface students for deeper examination.

The statement is not that this suggestion is necessarily a conclusion, but rather it is a hypothesis that teacher decision support can save the teacher time in administration. A good system should express lack of certainty, make suggestions with reasons and accept teacher's rejection and/or changes of suggestions. Consideration of merits of professional judgment while making decisions by educators should be retained.

5. Disability-specific applications, without diagnostic determinism.

There is a need to not link an individualized pedagogy to a specific instructional profile. For AI applications, working out the functional needs and learning aims must be done first, but disability categories can be used as a guideline but is not a final decision on the choice of AI support.

Application of AI for text-to-speech, speech-to-text, predictive text, vocabulary support, structured feedback to guide-learning based on content, support for writing and in the learning of mathematics for students with dyslexia and other specific learning disabilities. The strongest is shifting from one way of practicing to another

or one way of representing to another, without having to manually design these different modes by the teacher. When however, a student is experiencing a reading problem, it isn't a ticket to easy reading. Decoding Support versus Conceptual Simplification of systems.

Structured routines, practising social communication, activities on recognising emotions, practice visual schedule, task transitions and individualized reinforcement are all possible for AI to support a learner with autism. Interactions predictability gave by a social assistive robots and language practice for a conversational system. However, autism research is another example of a technology that is created in the interest of deficit correction. Pedagogy should be smart, communication, participation, autonomy and goals for the child is personally important and not normalization just for normalization sake.

AI can be utilized for functional academics – practice everyday problem solving skills, communication skills – for students with intellectual and developmental disabilities, visual sequencing, and for vocational preparation and repetition. Especially interesting are systems that support multimodality, that is, multimodal systems that can connect symbols and images but also simplified text and audio. Still, don't tell adaptive systems that 'slower' progress is 'lower' expectations. The focus is in creating effective supports while retaining ambitious and individual goals.

Tools such as Speech to Text, captioning, sign language interfaces and visual notifications can be used with the help of AI for students who are deaf and hard to hear. It's really important that this be accurate and linguistically valid. The pitfalls of automated captions: When talking about technically complex material, when several different voices are speaking, or when certain terms and vocabulary are used with which a computer may not be familiar. Thus, AI-generated captions should be considered as tools that could be modified to become accessibility supports and might require QA by teachers.

In the case of learners with Blindness or Low Vision, AI can enable an image to be described, recognition of objects, support for OCR, as well as navigation support and multimodal interaction. These can enhance independence and viewings. But, image description systems might not be able to make assumptions or describe the context of the images. Questions by the learner should therefore be included in educational using, which can be based on the description and the mechanism of the phenomenon.

Voice control, eye gaze, and prediction typing and interaction can improve the experience of individuals who have physical or motor disabilities by using AI. The use of intelligent systems to reduce the amount of human work needed to navigate a digital environment. Here, accessibility standards play a crucial role. WCAG 2.2 pay particular attention to blindness and low vision, deafness and hearing loss, limited movement, and speech disabilities and some learning and cognitive disabilities for accessible Web content. So, next to the ability to produce, AI systems need to be tested for relying on and manipulating systems, as well, by a learner.

Benefits of AI providing structured sequences of tasks, reminders, attention-supportive interfaces or pacing for a learner with attention/executive function issues or with ADHD. But gaze or even interaction-based attention-inferring systems need to be carefully adapted, though. Behavior is observable, but isn't directly related to learning or paying attention, and surveillance can detract from trust.

The key theme of the guide for all disability groups is Functional Personalisation. The process should start with “What does the learner need to achieve?” and “What is blocking the learner?” and not “What is available out there in terms of AI to diagnose? This accords with the general human right principle of reasonable accommodation and adapting one's instructional approach to a human being.

6. Intelligent Individualised pedagogy (IIP) framework

We recommend a single framework, which is Intelligent Individualized Pedagogy (IIP), that combines the concepts of assistive technology with AI-assisted pedagogy, for use in this article. There are 7 principles and a circle of teaching and learning.

Principle 1: Learner agency. The learner should be given an active role in decisions on support. Learners should be given the choice, be able to review and indicate preference (as appropriate to their development), and change modalities and levels of support (as appropriate to their development). Do not make choices for the user with the help of AI.

Principle 2 – accessibility by design. From its concept to actual implementation, accessibility needs to be a fundamental aspect of AI systems. They are keyboard access, compatibility with screen-readers, captions, alternative input, presentation control and clear navigation and cognitive access. Accessibility should never be an afterthought or an add-on to an AI product that has been developed.

Principle 3: Dynamic personalization. Individualization should be responsive and evidence based and not set by diagnosis. The flexibility of the system should be responsive to the performance and preferences of the student, and the requirements of the task(s) and to their growth, and the teachers be able to make important decisions about instruction.

Principle 4: Multimodal scaffolding. It may contain various platforms for information input, practice, demonstration and communication of learning (with the use of AI). The learner should not be penalised for opting to take a route different to the one suggested.

Principle 5: Human-AI co-regulation. The use of AI needs to supplement rather than replace teacher–student relationships. The teacher completes the readers' missing components of context, value, motivation, wellbeing and social meaning that are not consistently inferable from automated or automated-assisted technologies.

Principle 6: Evidence-based adaptation. There needs to be a rational behind each adaptation by

creating a pedagogical rationale. There needs to be a difference between evidence of difficulty and assumptions as to why difficulty occurred. Adaptations should be connected to measurable goals and formative data should be used to assess adaptations when possible.

Principle 7: Ethical accountability. Must take account of the principles of Privacy, Transparency, Fairness, Accessibility, Safety and Contestability in implementation. There is a need for learners and instructors to be able to determine who is using AI, what data is being collected, how the recommendations are developed, and where they can contest inaccuracies, as well as know to whom and to what user group.

The foundations of the IIP instructional cycle are based on learner profiling. Profiling should cover strengths, goals, communication preferences, accessibility needs and previous knowledge and contextual information. Should not be diagnosis dependent. The second step is but goal alignment. Academic, functional or participation goals are identified by teachers as measurable. The third stage is called barrier analysis, which is barriers to the environment, barriers to representation, barriers to interaction or barriers to instructions. The fourth stage is adaptation while using AI supports – in this stage, the supports are generated or selected accordingly. The last stage is learner interaction where the student interacts with content and is scaffolded. The 6th step is Formative Evidence Collection. The final step is teacher review, in which the results of the AI are comprehended and verified. Again, this process starts with getting in line with goals and adapting.

Human override is a key aspect of the system. The AI system should never be the sole decision maker with respect to a learner's capacity and their decision on placement or a disciplinary consequence or pathway to a high-stakes learning outcome. It adopts advisory and assistive role.

Thus, the notion of personalization in the IIP framework is not just about technology any longer, but about a pedagogical relationship.

What will assist this learner to take part in the learning process? (s)he is designed to be appropriate for the learner and for the learning activity. This maintains the core principles of special and inclusive education and capitalizes on the adapting ability of AI.

7. Capacity: Teacher-AI Collaboration.

Transition from Assisted technology to Intelligent Pedagogical is not the act of eliminating the role of a teacher but of transforming the role of a teacher. Teachers become interpreters, designers, validators and ethical stewards of AI supported learning environments. UNESCO's AI Competency Framework for Teachers is useful here as it explicitly maps into the integration of technical knowledge, human centred values, ethics and AI pedagogy/professional learning.

Some extra expertise is needed by special educators. They require knowledge in the areas of accessibility, disability specific pedagogy, individualized planning and AI and AT literacy. This entails teacher education that is more oriented towards digital creates than digital skills at large. The teachers need to develop understanding of questioning AI-generated products, identify and check AI hallucinations, assess accessibility and plan for bias and decide where automation is not appropriate.

The PD model has 5 steps. Essentially, teachers are introduced and develop their foundational understanding of AI—how it works, speech recognition systems, recommendation systems, machine learning, and generative AI. Secondly, they become familiar with accessibility and UDL guidelines. Third: They know how to take design and material adaption from real curriculum situations. The fourth is to become familiar with accuracy rates, accessibility, bias, and pedagogical congruency assessment protocols. Fifth, they conduct classroom-level small scale studies to determine whether interventions powered by AI are effective.

The collaboration of teachers and AI should not be concealed. There should be evidence for any AI recommended reading that the teacher can

view. Adapted worksheet content and accessibility should be investigated by teachers before usage if it is created using LLM. When teachers see "at risk" labels on a learner's analytics dashboard, they should look to contextual data, and not waste time taking the label at face value.

Also this model helps professionalism of teachers. But when the AI is used for productivity, there is a potential for institutions to use it as a cost reduction and/or staffing reduction tool for administration. This replacement is troublesome especially in the area of special education where much of teaching individual students is dependent upon observation and context rather than relationships. But the right corral isn't supposed to be another replacement for professional expertise, rather it's supposed to be an enabler of more professional expertise.

In this regard, the role played by teacher educators and universities is of great importance. Pre-service and in-service programming need to include opportunities for comparative learning with regards to AI generated and human designed adaptations, interrogating the errors of AI algorithms, auditing an educational Chatbot for disability bias, and creating individualised lesson sequences based on UDL and AI. The critical evaluation skills of teachers should also be included as part of the research methods courses and be able to evaluate AI interventions.

The right to refuse inappropriate automation must also be a part of professional capacity. An AI content generator that does not have the accessibility or collects too much information and data, gives unreliable recommendations for content, or contradicts content teaching goals, should not be used by teachers. Therefore, special educators, accessibility specialists, learners and families should be involved during any institutional purchasing process and not only the information-technology (IT) department should be involved.

8. Ableism and Beyond – Poetics, Politics and Ethics of Data

Even the most difficult attacks on intelligent pedagogy do not need have technological aspects. They can be of moral or structural nature. Data includes social histories, and AI systems learn from that. In deficit-oriented records, disability will increase the chance that this deficit thinking will be reproduced by an AI system. Low performance might be observed for certain language(s), communication method(s) or cultural backgrounds which are not well represented within the training data. When systems are speech and/or visual and/or motor centered, learners who communicate in other ways can be considered a special case.

There are various ways in which algorithmic ableism can manifest itself. Language model may come across as a dependent representation of disabled persons. A recommendation system can reduce the level of difficulty of tasks too drastically. The automated proctoring feature can detect any unusual behavior on movement and appearance that may be out of the norm. A predictive model may represent a low potential due to successful previous models, which in turn are a consequence of no training. As illustrated here, fairness is not necessarily equal number. Consistency in math does not mean no educational exclusion.

Privacy is of high importance as well. Targeted tutoring based on AI can be sensitive information – disability information, educational facts, voices, pictorial traces, behave traces, communication traces and performance traces. The guidance by UNESCO on the application of Generative AI in education and research advocate for a human-centric strategy and highlight the need for privacy of data, ethical checks and age-appropriate application. There also need to be clear rules and policies for institutions as to these uploads of data to external AI, how long such are stored and who has access to these and whether the upload of data is used to train AI.

Do so on a principle of 'data minimisation'. Obtain the minimum information needed to have a well-defined educationally related goal. Process data institutes wherever possible, or in the region or area in question. Do not include excess info to

identify an individual. Avoid uploading students' data to third-party AI tools that lack adequate safeguards.

Significant transparency has to be present as well. To assert that AI is being utilized is not sufficient for a family. Families and pupils/learners should be made aware of the system, the information it is based; decision that it could make and how and how inaccuracies on a decision could be challenged. Human review pathway for high impact decisions is needed.

Accessibility is a value question? An AI application that produces good instructional materials – but can't be used with a screenreader – is not an inclusive technology. WCAG 2.2 can be a good place to begin in the technical aspects of web accessibility, but education institutions should go the extra mile to attempt to user test with learners with a variety of disabilities.

Addressing infrastructure is essential to equity. Stable Internet, up to date devices, subscription and probably cloud support and teachers skills will be necessary for successful implementation. Not all these conditions are the same across all schools or regions/countries. A technology failure to take into account school infrastructure may lead to a greater inequality increase. Based on this, the AI strategy in low-resource contexts should prioritize simple and easy-to-use tools, low-bandwidth and offline capabilities, readily available learning materials and easily accessible teacher-created products.

Such issues are beginning to garner more attention in policy circles around the world. With this in mind, UNESCO is promoting the use of human-centred AI in education and the European Union has published guidelines on the use of "AI in education and learning", in 2026, emphasising on the use of AI in a responsible manner and on developing capacity for educators. Newly emerging AI regulation also imposes special duties on high-risk educational applications. The principle of education is that the laws are different for each jurisdiction, but each system must have significant impact on students – therefore laws are needed that are

more than those seen in low-stakes productivity applications.

Ethical intelligent pedagogy can thus be summed up with six tests: Is the system accessible? Does it have an educationally valid aim? Is the use of the data appropriate for proportion? Does the learner get an opportunity to advert or not? Is there anyone who can take on the system? Is there any direct or indirect evidence that the intervention will be good for the population? Systems that don't work on these tests should not be used merely because they sound cool.

9. Introducing use in low resource and/or diverse educational settings.

Discussions of AI in special education are generally global and within a context of a high-resource setting. This is a serious drawback. This could be the case in several contexts, including low and middle income contexts, or in a school in South Asia which has few teachers who are trained and specialized in special education, no Internet connection, or many students. Nevertheless, such a restriction suggests that, it will be advantageous to utilize scalable intelligent support. The difficulty lies in making sure AI doesn't create, and doesn't exacerbate, inequity.

With a low resource implementation strategy, start with what's already available (in terms of devices and infrastructure). Mobile phones and a simple in-house computer or the learning platforms we have in the institution can be more sustainable than a special hardware. In many cases, software will be utilized to offer speech recognition, content adaptation, captioning as a substitute for expensive hardware. But the software accessibility and data charges have to be taken into account.

How much work teachers are required to do is also one of the really important factors. AI simply cannot be expected to offload teachers of other tasks or required to function as yet another platform to which teachers are expected to adapt. The best solution is to combine the artificial intelligence with processes already in place: lesson creation, improving accessibility, monitoring

progress and conducting 'formative assessments'. System ought to be effective, useful for pedagogy.

Language is central. Generative AI systems are not consistent in performance across languages/dialects. Where Urdu/Punjab language and/or bilingualism is identified as a form of language support, the provision of such support needs to be assessed before it is assumed. The teacher should check educational explanations and machine translations (with special vocabulary). The language resources should be designed and evaluated involving local teachers and disability groups.

It is also important that members of the family are involved. Families have unique experience and the knowledge of what communication preferences and experiences work for each family member as they learn 1:1. These are things that AI systems can't replace knowledge. Rather, they are able to provide understandable progress reports and communicate with families effectively on how they can work together with students at home with sensitivities considered.

Model via a staged approach. Stage 1 – Need assessment (barriers, goals and resources are in place). Stage 2 is alike with regards to the small-scale piloting of 1594-1612 explicit instructional problems. The accessibility/safety test is stage 3. Teacher training & co-design with learners are in stage 4. Outcome evaluation is stage 5. Stage 6: Scaling only if based on evidence is supporting an expansion.

Procurement should include criteria for effectiveness across education, accessibility, interoperability, privacy, cost, teacher control, transparency, and levels of performance and evidence across disabled learner benefit and multilingualism. Forced to provide availability documents, as well as voluntarily discuss student data processing.

In low resource areas a slogan which will help is: intelligence where it matters. By no means does AI need to be used for all aspects of instruction. There are several ideas that come to mind: AI can offer additional feedback on writing through patterns of responses, serve as a catalyst for

communication, offer multiple representations, provide more practice, etc—teachers can use the time they spend with AI in high value activities that computers can't do as well. The most important aspect of human interaction is teaching.

Thus, this "approach is aligned with the generic vision of UNESCO, where an anthropocentric vision is adopted. Use of AI in the field of education should complement, not supplant, systems delivering education to students. To discuss about the inclusive participation of more learners and success of AI in inclusive education, is it reduced number of tool used by AI as measure of success and increase in participation?

10. Responsibilities in Assessment, Research Design and the Evidence Agenda

But, if intelligent pedagogy is to be regarded as an area of study, its evidence bases must be strengthened. A lot of currently study is small-scale studies, short interventions, and heterogeneous technologies and inconsistent outcome measures. Future research then should move beyond demonstrating proof of concept to a cumulative evidence.

Randomized controlled trials, if feasible, are needed first, especially for those interventions that say proven to be effective in academic areas. Quasi-experimental designs in the context of actual schools may be useful, but baseline differences, attrition and fidelity of implementation and contextual factors are critical, and need to be noted and reported.

Second, some of those studies should be longitudinal – those that continue over an extended period of time. Short-term performance of a system that shows better performance does not guarantee better long term learning, or independence. Research is required to ascertain benefits at the conclusion of technology adoption and cross-over transfer of strategies, getting back to the essence of things with no technology.

Third: Outcomes of studies shall be meaningful to the degree of participation. No, when a dialogue is about inclusive education, it is not only focused on academic success – there are

other domains of inclusion involved: communication, autonomy, belonging, self-advocacy, participation and quality of life. Existing literature on AI was mostly pertaining to social-emotional outcomes, and there are varying approaches to measurements, Zhang et al. (2026) conclude. More agreed and learner centred measures are important.

Finally, report accessibility as an "intervention characteristic" of "seventh Grade Reading: Failing to Read, Reading to Fail. A study should include what type of access learners with different disabilities were able to use the AI system, what accommodations were made for the different type of access and whether or not the AI system was accessible. Without these data, reproducing and/or extrapolating results is difficult.

Finally, a study of the moderating conditions and implementers is required. AI intervention may be different based on teacher expertise, class size, language, age, disability profile, intensity of use and school resources. Future studies should not only investigate the influence of contextual factors, but also when a meta-analysis provides no statistically significant moderator, as long as there is some heterogeneity, that could not be realistically explained by the role of "education" in the future study.

Sixth: It is required that disabled learners are involved in design and evaluation. Co-design can surface issues that researchers/developers may not have considered. When used to learn about disabled people in relation to disability, participatory research also has the potential to transform the project from a 'technology for' approach to a 'technology with' approach.

7th AI failures warrant as much scrutiny as AI successes. It's not just a bug when it happens in the learning space, when the explanations that the model hallucinates are wrong, or when the descriptions of images or captions or recommendations for images are wrong. Error rates, types and consequences should be reported in studies.

One methodological strand that is of special relevance is the comparative evaluation of

different levels of automation. A comparison of teacher only instruction, conventional AT and AT with the aid of Artificial Intelligence (AI-assisted AT) and full adaptive Artificial Intelligence (AI) systems can be made. This would allow identification of whether the gains are due to technology, extra instructional time, better materials, or more -pedagogically responsiveness.

The IIP schema puts forward a suitable ladder of consequences. Level 1 is access – can the learner see/read the content/can the learner engage with the content? Measures of participation: Works more independently (Level 2)? Level 3 measures learning Does the learner acquire the target knowledge / skill? Level 4 is a judgement of transfer, namely: Does the learner show transfer of the skill to a new context? Level 5 Agency: Has the student increased options for the quantity, type and timing of supports used? Ideally, the software would make progress in some aspect and not just in the initial engagement, weeding out strong AI intervention.

Intervention protocols should be pre-registered, if applicable and, negative results should be reported and exploratory analyses should be carried out separately from confirmatory analyses. It's particularly important in an expanding market such as this where there could be tempted to signal good things.

Last, it would be interesting to investigate system level effects. AI can potentially have an impact on teacher workload, access to therapists, family communication, as well as individualized education planning and resource allocation. Most of these are perhaps as important as direct students' learning, and should be investigated for "unintended benefits".

11. Policy, Leadership and Teacher Educator Implications

Policy makers should not go to the extremes of ban AI due to the riskiness and encourage AI due to its innovativeness. Government-supervised experimentation is more defensible. Should develop policies in place that outline approved usage or prohibited usage, data requirements,

accessibility requirements and procurement requirements with human review requirements.

Multidisciplinary teams to govern the use of AI can be created within a school or university involving special educators, general educators, tech/accessibility teachers, school or university leaders, learners and families. These teams can be used to review tools prior to implementing them and to keep an eye on the tools after they have been deployed.

Artificial Intelligence and disability should be integrated in a holistic way, should be taught together in teacher education as opposed to separate courses. Accessibility and special education cases should be incorporated in a course regarding the use of technology in education. The use of AI should be woven into a special education class through assessment, adaptive learning, AAC, and accessibility auditing and ethical uses of data. The critical teaching of AI evidence is needed at the level of research methods.

Policy should also encourage and promote open and interoperable systems. The data at the schools for personalized learning may be located within proprietary platforms, which might force schools to use vendors and students might face continuity issues if the platforms change. It is a question of educational equity, therefore, whether apps can be interoperable and data portable.

Leaders should allow for teacher experimentation and reflection at Classroom level. For AI, there should be evidence-based evaluation and peer observation, and collaborative planning in lesson implementation. This means teachers will need to be granted permission to cease using a tool if the teacher does not see its usefulness.

The IIP framework can be implemented in Universities where future educators, such as Special Educators, are trained by way of practicum assignment. Student teachers will be able to identify a barrier, develop an intervention using UDL, implement an adaptation using an AI tool, attempt to implement the intervention with a learner/simulated case study, and document,

and evaluate results. This changes the face of AI being pedagogical, rather than technology demonstration.

Procuring of local language materials and PD for teachers and use of digital tools should be funded by governments. If not actively addressed in AI strategies, disability will result in continued exclusion. However, disability inclusive AI policy may be supporting many learners because accessible design has a positive effect on the design for all users.

12. A Classroom Friendly Model

The intelligent individual pedagogy application in classroom is the next intelligent individual model of 10 steps.

Step 1: Write out learning goal. State Learner's Knowledge/Can Do. Avoid starting with technology.

Step 2: Make a decision as to what is in the way. Identify if the primary difficulty is due to access, representation, communication, executive function, interaction, prior knowledge or motivation and/or assessment.

Step 3: Question Learner. Knows learner preferences and is useful/intrusive when they ask for supports.

Step 4: Select least intrusive and effective supports. Adopt traditional accessibility features as appropriate. AI is all about adding value, not complexity.

Step 5 = Adaptation creation or establishment: These may involve providing of alternative text, audio, visual supports, task decomposition, adaptive practice and/or feedback.

Step 6 – Check access and fix any inaccuracies. Teacher verifies AI-generated content prior to the learner's action.

Step 7 –Help the learner get to our support. Independent use of technology doesn't happen all on its own. A lot of explicit teaching will be required many times.

Step 8: Keep an eye out for education over clicks. Discuss and determine whether the learner is

learning - meeting the learning outcome or using the online tool.

Step 9: Remove Support (if needed). Reduce prompts/scindariosis with developing competence.

Step 10 – reflect/revise. Teacher and learner talk about what has gone right and make a judgement and can agree the need for further help, or to revise or remove support.

This model can be applied in various AI systems such as generative AI, adaptive learning software, speech technologies, and intelligent tutoring systems. Additionally, it holds an answering document repository, pedagógico decisión making, for explanation to families and multidisciplinary teams.

13. Discussion

The transformative process from assistive technology to intelligent pedagogy is also "transformative process" from individual instruction. Conventional AT mostly is enquiring 'How can this learner gain access to the educational environment? Intelligent pedagogy asks the questions, "How can you be an intelligent reaction to a learner's environment whilst not denying him/her agency and an education goal?" Access alone, without effective teaching is not sufficient and personalisation without access is new exclusion.

As evidence reviewed in this study suggests, there are immense possibilities for AI, but also a dilemma of the capability of a technology and the validity it can provide an educational context. While AI can churn out lots of unique content, there's no point in having the numbers if you don't have the quality as well. Patterns are not causes; it can detect patterns among learners' data. Can make explanations but explanations made by it may be incorrect. However, personalised can be used to limit opportunity to some learners if every time they work on a system the least challenging or unambitious work is presented to these learners.

Human-centred augmentation is thus the best defence. The secret lies in using AI to augment

the capacity of teachers towards personalisation, while not taking their responsibility away. It is especially important for a learner with a disability to understand that R3C, besides academic achievement, is important in terms of educational outcomes i.e. Relations, Communication, Context and Dignity.

This is important and is where the IIP framework makes a contribution as it has the instructional purpose at the core. This is about structuring practice not around the AI but rather around a learning goal and learning barriers, instead. This is the opposite of what tech-adoption has traditionally done, and it's a decent argument for Vjecko. Instead of looking for a use of generative AI in schools, it's about thinking of a pedagogical problem and asking the question: Can generative AI be a safe evidence-informed improvement?

The framework also is a link between UDL and individual instruction. UDL designs are sometimes viewed as "the other way" – UDL designs flexibility for everyone, individualized instruction is for some learners. AI can serve to help bridge the gap. An environment that implements UDL can utilize multiple options by default, and intelligent systems can aid in selecting or creating supports which address the individual needs of the learner and/or teacher. What we have is individualized access NOT segregation, in a shared learning environment.

Also, the deficit based personalization (culture) needs to be changed to the strength based personalization (culture). AI systems should be able to identify the things learners can achieve and what strategies are helpful to achieve success, not just prediction of failure. But, the communication style, interests and favourite ways of expressing his/her knowledge of a learner can be useful inputs. This is in line with the Learner Agency in the UDL 3.0.

Contestability of AI might be the most problematic. Learners/ Teachers should be able to opt out of an AI recommendation. Families must be given the opportunity to ask for explanations of the rationale for choosing a specific support. Need to increase access to

institutions' audit of system. Vendors need to be willing to share relevant information related to accessibility and data practices. Automated control is personalization without contestation.

A last implication is that of intelligence. Prediction/optimization = not intelligence in education. What is important is to take the uncertainty, context and human values into account in a really intelligent pedagogical system. A dialogue session with the learner is, at times, the most suitable adjustment to meet the pattern of data. It can sometimes be necessary to change the environment since the problem always lies in the child and never with the child. At times, the cleverest thing to do is to discontinue using the AI system.

Therefore the transition that is offered is not from AT to self-learning, but from AT to smart pedagogy. The aim is to establish a more responsive learning environment that can be enhanced by technology and enable teachers to make more informed decisions and give greater agency to learners.

14. Limitations

The analysis has a critical integrative synthesis character, and is not a new meta-analysis nor a registered systematic review. It has been developed through recent systematic reviews and meta-analyses as well as policy documents and selected empirical literature identified through a targeted search of literature and accessibility standards. It is therefore not possible to consider it to be a full survey of the wider literature. The field of AI is evolving quickly and specific tools might quickly fall out of use while the pedagogical principals outlined here can still be put in practice.

There are many different types of evidence. There are variations in definitions of disability, and outcomes, technology type and context for intervention, and length of intervention. Some research focuses on therapeutic and/or social change outside of school. These include small numbers of subjects, and brief therapies. While the majority of these findings are positive, many

have limitations in their methodology and so the causal claims are made with care.

The article also emphasizes the fact that it is about an educational model not about an AI product. This is intentional as product-based suggestions are bound to soon become "old news". Future empirical research should attempt to implement the IIP framework with other disabilities, at other levels of education, other languages and other settings of resources.

Finally, notions of ethics and accessibility vary from place to place. Implementation of the principles set out in this document should be consistent with and harmonised with the above-mentioned local law, institutional policy, disability rights regulations and data-protection legislation.

15. Conclusion

Although AI can be a game-changer towards one to one AI teaching and learning by learners with disabilities, the revolution will not occur by adoption of smarter educational technologies only. The greatest opportunity is the embedding of all of the advantages of AT and UDL, of individualized planning, and of adaptive learning methods and human teachers' pedagogical judgment.

But there are signs of hope in recent data. Studies on learning disabilities have shown that there are positive effects of adaptive and AI-assisted interventions; Meta analytic research has found meaningful average effects of AI interventions for students with disabilities. At the same time methodological comments and publication bias will need to be overlooked, problems with access will need to be ignored, and ethical principles will have to be glossed over. But the field needs to go from inside out enthusiasm to small steps of implementation and thoughtful evaluation.

AI-adjuvated teaching would be based on the intelligent individualized pedagogy framework with learner agency, accessibility, dynamic personalization, multimodal scaffolding, human-AI codetermination, evidence-based adaptations, and ethical considerations in the center. The core message is AI must serve education for the

learner, rather than down low learners for the technology, or the assumptions on an algorithm.

As AI is not replacing teachers, it therefore does not appear to be likely to alter the future of special and inclusive education. A more critical question might be: Can AI also potentially help teachers to more rapidly than usual identify learning barriers, and more easily access the resources and support they need to respond to

learners, more accurately or comprehensively assess their progress, and more effectively help them take ownership of their learning? AI can go beyond a "just provide access" approach and can be a useful element of AT with human centred design and strong evidence and involvement of disabled learners. Can make up a part of an intelligent pedagogical ecosystem in a way that personalized instructions are more customized, agentic and inclusive.

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Appendix A. Evidence-to-Pedagogy Mapping

Evidence / source	Main contribution	Implication for individualized instruction	Caution
Zhang et al. (2026)	Medium overall effect of AI interventions; stronger average academic effects	AI can be instructionally useful when aligned with explicit learning goals	Heterogeneity and publication bias
Pagialunga & Melogno (2025)	Positive outcomes across 11 learning-disability studies	Adaptive and AI-supported practice can strengthen targeted instruction	No study had low risk of bias
Voultsiou & Moussiades (2025)	139-study synthesis across AI, VR and LLMs	Personalization and multimodal technologies are expanding rapidly	Accessibility, resources and teacher preparedness remain barriers
CAST UDL 3.0 (2024)	Learner agency, multiple representation and expression pathways	AI can operationalize flexible access and response options	AI must not determine learner choice invisibly
UNESCO (2024)	Teacher AI competency framework	Teacher professional learning must include AI pedagogy and ethics	Technical prompting alone is insufficient
U.S. Department of Education (2024)	AT should be considered within individualized planning	AI should augment, not replace, assistive technology services and professional judgment	Policy context is jurisdiction-specific
W3C WCAG 2.2 (2024)	Testable accessibility requirements	AI interfaces and generated digital materials must be accessible	WCAG does not cover every disability-related need