

Deliberations in Application of AI: Algorithmic Fairness and Accessibility for Diverse Learners

Neeraj Madhukar^a, Radhakrishnan Kasturi Venkata^b, Som Krishan^{a,b,*}

^a neerajmadhukar@gmail.com

Director, Composite Regional Centre for Skill Development,
Rehabilitation & Empowerment of Persons with Disabilities,
Jaipur, Rajasthan, India – 302031

^b rk.ed.consultant@gmail.com

Research Scholar, All India Institute of Speech and Hearing,
Mysore, Karnataka, India-570006

^{ab} som@kkm.org.in

Assistant Professor, Kalyanam Karoti,
Mathura, Uttar Pradesh, India-281001

Abstract

Rapid digitisation and the AI boom in recent times in the education sector have exposed systemic accessibility gaps and led to significant changes that have inadvertently advanced the cause of Inclusive Education. The AI-based assistive platforms, real-time translation tools and learning systems reduce cognitive and linguistic barriers and enhance accessibility and engagement of students with special needs in inclusive classrooms (Pagliara et al., Information, 2024).

The rushed deployment of AI-based educational systems has led to unresolved ethical concerns regarding access, surveillance and learner autonomy. Algorithms' bias may create marginalisation among underrepresented learners as it arises when AI systems favour social and linguistic inequity (Chinta et al., arXiv, 2024). The privacy of data, consent, and surveillance raises concerns about the autonomy and rights of learners, particularly vulnerable groups (Damioli et al., Structural Change and Economic Dynamics, 2025). Moreover, the equity of infrastructure and teacher preparation, as well as the cultural sensitivity of AI systems, remain issues that prevent actual inclusion (Marcos et al., 2024).

In this conceptual article, we critically evaluate AI-assisted inclusive education through the lens of Universal Design for Learning (UDL) and human-centred ethical design principles, and position AI as a tool for empowering both educators and learners. The conclusions of this article can offer practical value to policymakers, educational administrators, and AI developers in implementing AI in education responsibly.

Keywords: Inclusive Education; Artificial Intelligence; Ethical Challenges; Adaptive Learning; Equity

1. Introduction

Inclusive education is a priority in the global comprehension of education, and inclusive education has featured in models such as the United Nations Convention and the Rights of Persons with Disabilities (UNCRPD) and Sustainable Development Goal 4, which propose equal and attainable learning among all learners. In recent years, the activities in the sphere of Artificial Intelligence (AI) stimulated interest in transforming the practice of education and, particularly, causing personalisation, access, and engagement. The adaptive learning technologies, intelligent tutoring systems, language translation tools, and AI-enabled assistive devices are among the AI applications that restructure historical teaching and learning environments by responding to the individual learner profiles and needs (Li et al., 2025; AI and Ethics, 2025). These technologies have the potential to minimise barriers among learners with diverse needs, such as disabled learners, linguistic, and socio-cultural marginalisation, and so inclusive education can become a reality more than ever before. Nevertheless, there are also complicated ethical issues connected with the introduction of AI in education. The main issues that arise in the latest research are algorithmic bias, risks to data privacy, digital inequality, and the risk of depriving human agency in pedagogical decision-making (Chinta et al., 2024; ScienceDirect, 2025; García-López and Trujillo-Liñan, 2025). As an illustration, AI systems that are not trained on inclusive datasets can fail to accurately capture the performance or behaviour of students with varied backgrounds, which is why the system will not promote equity and fairness (Chinta et al., 2024). Also,

the large volumes of learner data that many AI applications demand are a threat to privacy laws and informed consent. Based on such dual-edged opportunities, this paper hypothesises the prospects of AI on the opportunities and ethical issues, as applied to inclusive education. It achieves that by explaining the main concepts and connecting them to the corresponding theoretical framework, like Universal Design for Learning (UDL), the social model of disability, and human-friendly ethical AI design. Further paragraphs discuss how AI can facilitate individualised and easily accessible education and also emphasise essential ethical issues. The paper ends with policy and practice recommendations that will see AI contributions to inclusive education be effective and ethically sound. The purpose of this conceptual analysis is to offer a well-integrated, research-based basis for all educators, policymakers, and developers of AI to utilise AI in inclusive educational change and to safeguard the rights and dignity of every learner.

2. Conceptual Foundations of Inclusive Education

Inclusive education is a pedagogical and social ideology that provides equitable access and involvement of all learners without the distinction of differences in ability, language, culture, socioeconomic status, or learning needs. It is rooted in human rights frameworks that focus on equal opportunity and non-discrimination, including the UNCRPD and international educational goals, which promote the need to be inclusive (Li et al., 2025). The main idea behind this notion is that every learner must be embraced, appreciated, and assisted in the general classroom contexts, and not ostracised and segregated based on ability or needs. The idea of inclusion extends beyond the physical access to education; it includes equal access to the learning opportunities, school curriculum, teaching methods, and educational results. It demands that the educational systems be flexible to accommodate the needs of diverse learners and eliminate barriers that do not allow effective participation. In that aspect, inclusive education overlaps the equity and social justice theories, and it focuses on structural changes in policies, curricula, and classroom practices in order to accommodate the diverse needs of learners. The traditional concept of inclusion has been concerned with the pedagogical, the curriculum, and teacher attitude adjustments. Nevertheless, the digital revolution and the development of AI technologies have increased the tools that can help with inclusion. Individual learner profile-based content and pacing through AI applications can be used to solve language diversity and other communication barriers through real-time translation and speech recognition (AI and Ethics, 2025; Li et al., 2025). The current application of AI to inclusive education corresponds to such theoretical models as Universal Design of Learning (UDL) that promotes multi-modal representation, expression, and interaction with other learners. An important aspect of an inclusive education is the social model of disability, which is opposed to the medical model that is deficit-based. The social model considers disability as a result of obstacles in society and in education systems that hinder participation, instead of personal impairment. The AI can be placed in this social model when it is designed and implemented to actively eliminate obstacles and facilitate agency and access for learners. Nevertheless, the possibility of bias or misalignment of AI technologies may reinforce exclusion by default, which is why it is necessary to consider ethical design that is based on equity and justice. An understanding of these conceptual pillars would be relevant in assessing the role of AI technologies to support or obstruct the objective of inclusive education.

3. AI in Education: Conceptual Overview

Artificial Intelligence (AI) is broadly understood as the ability of computer systems to carry out activities normally done by humans, including learning, reasoning, problem-solving, and natural language processing. In the field of education, AI is a collection of technologies that supplement the instructional design, evaluation, communication, and individualised learning paths. This can include adaptive learning systems, which customise instruction to the performance of learners, intelligent tutoring systems, automated feedback systems, and cross-linguistic communication tools, which enable cross-linguistic communication (Li et al., 2025). The power of AI in changing education is well known. An example of adaptive learning technologies, such as changing the difficulty and pacing of content in real time based on the responses of the learners, can provide assistance to learners with different levels of prior knowledge and learning rates. The intelligent tutoring systems apply machine learning to deliver personalised guidance, detect the misconceptions of the learner, and offer customised intervention. The benefits of Natural Language Processing (NLP) tools include the ability to do real-time translation, speech-to-text, and text-to-speech translation that can greatly assist language-different or sensory-impaired learners. The inclusion aspect of AI is its ability to be responsive to diversity in comparison to the traditional one-size-fits-all interventions. It has been shown that AI-based tools can be used to facilitate differentiated instruction by outlining the areas where learners have weaknesses and

offering personalised materials, which will help them engage and achieve better learning outcomes (Li et al., 2025; ScienceDirect, 2025). The assistive technologies developed with the help of AI, including predictive AAC (Augmentative and Alternative Communication) tools and voice-activated interfaces, also make learners with special needs stronger through communication and interaction. Nevertheless, it should be noted that the applications of AI in education are not a unified phenomenon; various uses have had different connotations. An example is that, though adaptive systems can accommodate autonomy and customised development, they are highly dependent on data gathering and the use of algorithms. This creates high ethical standards involving transparency, fairness, and explainability, especially when high-stakes decisions, which are learner assessment or recommendations, are involved in these systems (Chinta et al., 2024; García-López and Trujillo-Liñan, 2025). Additionally, the human-centric view of the AI applications and their quality relies on the datasets applied to train the algorithms. The instruments that are trained on non-diverse data can unwillingly reproduce discrimination or misunderstand the requirements of the underrepresented learners. Thus, the conceptual understanding of the use of AI in education should be based not only on the emphasis on the technological benefits but also on the identification of the social, ethical, and pedagogical environments where such tools are used. It is in such contexts that AI leads to more inclusion practices or systemic inequalities.

4. Theoretical Frameworks Linking AI and Inclusive Education

The concept of Artificial Intelligence (AI) application in inclusive education relies on a number of theoretical constructs that base technological innovation on pedagogical and ethical standards. The most important of them are Universal Design of Learning (UDL), the social model of disability, and human-centred design of AI ethics. These frameworks offer conceptual lenses with which the opportunities and risks of AI in inclusive education can be perceived and addressed in a correct and responsible manner.

Universal Design for learning (UDL) is a pedagogic model that provides a rationale for designing learning environments so that they can accommodate different learners even beforehand. UDL is structured around three principles, namely multiple means of representation (presentation of information), multiple means of action and expression (how learners show their understanding), and multiple means of engagement (how learners are motivated and involved). The above can be operationalised using AI technologies that provide learners with content in diverse forms (e.g., text, audio, images), customise learning patterns, and adjust to the learners' preferences. As an illustration, real-time translation systems and adaptive platforms demonstrate how AI can be consistent with the demands of UDL, i.e., flexible learning environments (AI and Ethics, 2025).

The social model of disability aims at making the system be considered rather than just the individual impairments that disallow the learners to participate fully. This model states that inclusive education must remove the environmental, instructional, and attitudinal obstacles as opposed to trying to repair the learners. AI tools may promote inclusive change when they are created to lower the obstacles, such as offering different means of communication to learners with speech disabilities or language-based AI instructors that can foster learners with very different linguistic backgrounds (Li et al., 2025). However, when perceived biases or a lack of inclusiveness in the AI systems, the latter can be a contributing factor to the exclusion since the latter does not align with the experiences and needs of the marginalised learners. In the meantime, the ethical issues that have been cast into the foreground of AI-based systems development and implementation are fairness, transparency, accountability, and privacy. This framework is a response to the problems in ethics, such as algorithm bias, poor transparency, and data security, which negatively affect marginalised learners disproportionately. The concept of algorithmic bias is rooted in the reality that AI technologies are trained on discriminatory and unjustified datasets, resulting in discriminatory output that reduces the fairness of educational practices (Chinta et al., 2024; García-López and Trujillo-Liñan, 2025). The ethical AI design requests inclusive datasets, opaque algorithms, and governance structures to guard the rights and dignity of learners. The explainability and the ability to learn how AI systems come up with their decisions are some of the principles that require some conditions before establishing trust between the educators and the learners. Altogether, all these theoretical frameworks provide a sound conceptualisation of the analysis of the role of AI in inclusive education. UDL is concentrated on flexibility and accessibility of the learning design, the social model of disability is concentrated on the need to eradicate systemic barriers, and anthropocentric ethical AI design can ensure that the incorporation of technology promotes the concepts of equity and human dignity. Having such frameworks as its foundation, educators and policymakers can learn how to achieve inclusion and minimise ethical harms with the help of AI.

5. Opportunities of AI for Inclusive Education

The opportunities of Artificial Intelligence (AI) are many to facilitate inclusive education through customised education, improve accessibility, and facilitate learner engagement. These possibilities are based on the special abilities of the AI systems to process the data on learners, change the material based on personal requirements, and offer supporting features that are not a part of the conventional educational technologies.

Individualised and adaptive learning is one of the most important opportunities that AI offers. Adaptive learning is an approach that employs machine learning to provide a continuous evaluation of learning strengths, weaknesses, and preferences to learners. Consequently, such systems will be able to customise the content, pacing, and feedback of the curriculum to support the needs of individual learners, and this can be of great importance, especially in the inclusive classes that have heterogeneous learners. Indicatively, students who are in need of more practice in certain areas are able to get the specific exercises, whereas students who acquire concepts faster can be given harder work. This kind of personalisation also correlates with the concepts of Universal Design of learning (UDL) that promotes adaptive learning opportunities and supports different styles of learning (AI and Ethics, 2025).

Besides personalisation, AI-based assistive technologies provide students with disability with powerful tools to support them. AI-driven speech-to-text and text-to-speech, predictive AAC (Augmentative and Alternative Communication), intelligent tutoring systems, etc., may be used to a great extent to improve accessibility and participation. An example is that the learners with visual impairments can get real-time audio description, and learners with hearing impairments can utilise automated captioning. The technologies lower the communication and understanding obstacles and allow students with special needs to take a more active role in the instructional material and classroom practices (Li et al., 2025; ScienceDirect, 2025).

AI is also potentially successful in overcoming the language barrier in culturally diverse classrooms. The language support and real-time translation tools can be used to help teachers communicate with multilingual learners and create an inclusive environment in which the language barrier can no longer be used as a barrier to learning. With the ability to provide multilingual assistance and convert adaptive content, AI guarantees the provision of equal access to education to learners with diverse language backgrounds (AI and Ethics, 2025).

The AI potential of providing data-driven insights also presents another opportunity for inclusive education. Patterns in the performance of the learners can be determined using learning analytics tools, which might reflect some learning problems or a lack of interest. In order to apply particular teaching plans or interventions, early detection of this trend will enable the teacher to act proactively. Such potential prediction may be particularly beneficial to learners who otherwise would have been overlooked in a large or resource-strained classroom. In addition, the data may also assist the teachers to refine the structure of their teaching by illustrating some of the important content or instructional methods that work with certain subsets of students. The other opportunity is that AI can be implemented on the interactive experience to make sure that more learners are involved. This is because simulations, virtual tutors, and other AI-based learning applications can create an entirely interactive learning experience that engages a learner and causes them to learn. These kinds of activities may be very beneficial to students who may not be familiar with a conventional teaching framework and provide them with an alternative means of perceiving and practising. Finally, AI can be used to assist teachers in reducing workload by automating the process of conducting most of their non-teaching duties, such as grading, tracking progress, and lesson planning. Reduced administration enables teachers to have more time as well as concentrate on human-judged, human-empathised, and creative pedagogy work. This support will enable the teachers to lay stress on the creation of an inclusive classroom environment and the application of individual instructional approaches. In general, AI has a vast list of opportunities, and it can ensure inclusive education by personalising the process of studying and making it more personal, accessible, engaging, and data-driven. In order to actualise these opportunities, the strategies of implementation must be actualised, and they are considered thoughtful and which place equity, support, and continuous evaluation of the efficiency of new technologies in the first place. The prospects of AI in enhancing inclusive education are great, as proposed in the literature, when applied in a manner that takes into consideration the diversity of the learners and enables professionals to operate efficiently (Li et al., 2025; AI and Ethics, 2025; ScienceDirect, 2025).

6. Role of Teachers in AI-Supported Inclusive Classrooms

Educators are in a strategic position to make sure that Artificial Intelligence (AI) complements and does not destroy inclusive education. As much as AI tools could help facilitate individualised teaching and accessibility, they should be incorporated into the pedagogical systems that would not marginalise teachers but retain their fundamental role in the decision-making process, empathy, and ethical supervision. The section discusses the role of AI as a pedagogical support device, competencies necessary in the work of an instructor in the AI-enabled environment, and the significance of professional learning and ethical awareness. The capabilities of teachers can be enhanced by AI with the help of a real-time analysis of the performance of learners, automated routine work, and differentiated instruction. To explain, AI-driven analytics can be used to monitor student progress and detect the difficulties in learning that may not be obvious to the teacher. The insights allow teachers to tailor their teaching plans accordingly, offer the necessary interventions on time, and track the success of teaching strategies. Also, AI can help with administration, including grading, record-keeping, and creating profiles of learners, which can help free up the time of teachers to engage with students on more productive and efficient matters (Li et al., 2025; ScienceDirect, 2025).

Nevertheless, AI is not occupational in the classroom but supportive. The subtlety of the learner contexts, affect, and consideration of morals in the pedagogical choice is specifically human. Teachers have the role of applying the AI recommendations to larger educational objectives, cultural sensibilities, and individual learner backgrounds. They should retain control over the decisions made during instruction, and AI recommendations should not go against professional judgment or human values. In order to meet these tasks, educators should acquire AI-related skills. They consist of fundamental AI literacy, which is knowing how AI systems work, their constraints, and the interpretation of analytics output, and more advanced skills associated with ethical integration. AI literacy allows teachers to evaluate AI recommendations with care and caution, identify possible biases in the output of AI, and protect the rights and dignity of students. Studies show that in the absence of proper training, teachers might become unprofessional in using AI instruments, and as a result, they might not utilise or abuse technologies (AI and Ethics, 2025; ScienceDirect, 2025).

The programs of professional development in the field of AI application in teaching should thus include technical and ethical aspects of its application. The training must cover the way to integrate AI tools with the principles of inclusive pedagogy like Universal Design for Learning (UDL), the way to make meaning out of the AI-generated data, and the way to protect the privacy and data security of learners. Ethical awareness is essential as there are known issues associated with algorithmic bias and fairness, which may hurt marginalised learners unless addressed appropriately (Chinta et al., 2024; García-López and Trujillo-Liñan, 2025). Educator learning communities can also promote successful AI integration. Both experience sharing and strategy reflection enable teachers to learn about each other and to co-construct contextually relevant strategies for AI-assisted inclusive teaching. The role of teachers in the potential of AI as an inclusive education is unquestionable. Their professionalism, moral custodianship, and pedagogical sensitivity ensure that technology complements the educational justice instead of substituting the human aspects of real learning. The successful implementation of AI requires, among other things, access to tools, developing AI skills in educators, and encouraging a professional culture that is both reflective and ethically informed.

7. Ethical Challenges of AI in Inclusive Education

Even though the opportunities of Artificial Intelligence (AI) in enhancing inclusive education are indeed immense, the ethical aspects of AI represent critical threats that cannot be ignored and must be addressed. These concerns include such aspects as data privacy, the bias of the algorithm, digital disparities, overutilization of automated decision-making, and loss of human agency. Such ethical issues must be examined with a severe critical eye to ensure that AI is used to assist in promoting inclusivity and not to undermine the basic principle of education. Some of the most pressing ethical issues in AI-enhanced education are the privacy of the data and the permission. The utilisation of AI systems typically requires massive amounts of information about learners, including performance history, history of their interactions, as well as personal data. This information gathering can expose the learners, especially the minors or the vulnerable populations, to abuse, illegal distribution, or disclosure of information. The aspect of ethical governance must therefore be improved with a good policy of data protection, free flow of information of data use, and strict consent mechanisms that do not infringe upon the autonomy and rights of learners. In the absence of these

precautions, AI systems will end up breaking privacy rules and creating distrust between students and schools. Another significant issue that raises ethical concerns is algorithmic bias and fairness. The use of non-diverse or biased datasets by AI models can result in discriminatory performance, which negatively impacts some groups of learners. As a case in point, a natural language processing tool may fail to understand dialects or language patterns that are prevalent among the students of specific cultural backgrounds, and thus, the proficiency can be misclassified, or the feedback may be unfair. These algorithmic biases are capable of supporting the current educational inequalities instead of reducing them (Chinta et al., 2024; ScienceDirect, 2025). To solve the issue of bias, it is necessary to design with the purpose of covering representative and diverse datasets, have bias-detection measures, and constantly analyse the AI output for fairness.

Equity of access and the digital divide make the adoption of AI even more complicated. Equity in the sphere of AI also presupposes access to AI tools as well as the infrastructure, digital literacy, and favourable conditions to use them. In most of the situations, particularly in under-resourced or rural areas, learners and educators might not have access to reliable internet, up-to-date devices, or technical support. Such an imbalance threatens to develop a new type of educational discrimination wherein only well-endowed institutions and students will be able to take advantage of the benefits of AI. The ethical use of AI should then take into account resource distribution, capacity building, and policies that will not further separate but bridge the already existing gaps in education availability. One more problem is excess reliance on AI and the absence of human agency. In spite of the fact that it is possible to ensure automation to some extent to contribute to the increase in efficiency, excessive dependence on the decision-making process of AI may diminish the role of educators and learners in setting learning pathways. Human judgment, empathy, cultural sensitivity, and contextual expertise are the areas of inclusive education that cannot be replaced. The educators must keep their control to help decipher, veto, or contextualise AI recommendations such that technology supplements, rather than replaces, the skills of the educators in a professional manner. Transparency and explainability are other major ethical concerns. This obscurity in the decision-making process can be caused by the fact that AI systems are often black boxes, and it is not easy to understand their inner logic. Learners and educators cannot disagree or contest such decisions in instances when AI influences the assessment or instruction without any apparent justification. Privatised systems that include rationales that justify the recommendations or decisions can be attained with ethical AI design as a way to hold individuals responsible and trust them. The solution to these ethical problems has to do with governance structures and institutional policies. The school administrators and policymakers are to develop policies that necessitate ethical review processes, safeguard the quality of data, and have accountability policies on the application of AI. The professional development that teachers should be provided with should entail teaching about the ethical use of AI, data literacy, and critical understanding of the outcomes of AI. Finally, an interactive culture in which learners, teachers, parents, and developers are engaged in the process of making the design and implementation decisions of AI can guarantee the achievement of ethical priorities where the various views are considered. Even though AI could transform inclusive education, it is necessary to mitigate the ethical concerns using mitigation planning. The concerns of privacy, prejudice, fairness, human agency, and transparency are not peripheral issues to take into account; they are paramount to making AI an asset rather than a liability to the dignity, rights, and opportunities of all learners.

8. Policy, Governance, and Regulatory Considerations

Governance and policies should play a significant role in leading the moral and fair use of Artificial Intelligence (AI) in comprehensive education. Taking into account the fact that AI tools are becoming an inevitable part of the process of instruction, student evaluation, and classroom interactions, educational leaders and policy-makers should develop a complex of standards that would both support the processes of innovations but also offer the opportunity to protect the rights of the learners. One of the latent attributes of AI governance is the establishment of moral standards of AI in education. Such principles must involve transparency, responsibility, fairness, and confidentiality, and the AI systems must be in line with legal factors of data protection and must not breach the rights of the learners. The ethical principles should, essentially, demand that there is a clear consent procedure, restricting the scope of the data collection to the educational necessity, and ensuring the safety of information storage and learners' privacy. Positive sides of AI can take away privacy and trust of the learners without these protection measures. The other element that is needed in the governance structures is algorithm accountability. The AI applications applied to the education sector will be audited on a regular basis to assess the biased and discriminatory results. The autonomous control systems

could be used to assess the impartiality of AI models when they are used with different groups of learners. 298 This examination should be both inclusive and representative in data collections and reporting patterns so that other stakeholders, like educators, can be aware of how the decisions are to be reached. The vendors are also expected to show that their AI products will adhere to the concepts of inclusiveness and equity to be implemented in the learning space. The implications and role of AI are also starting to be explored in national education policies in an extremely large number of countries. Notably, the global agencies such as UNESCO have published papers on AI and education with concerns on ethical uses, human rights, and equitable access. These models suggest an artificial intelligence that will encourage inclusiveness without supporting inequalities and subverting learner agency. The concept of equity of access and infrastructure can be taken into account as well, since in the regions where AI is being implemented, the policies that the country has created should correspond to the international ethical standards. Such investments, such as those in digital infrastructure, particularly in underserved and rural regions, should be encouraged by policy since it would imply that all learners would have access to AI-based learning opportunities. This includes the financing of equipment, networking, instruction, and maintenance of teachers. The equity programs are supposed to be friendly to the learners having varying needs, and the assistive technology is supposed to be viable, affordable and to satisfy the accessibility requirement. The professional development and teacher preparation is a sensitive fields that have been overlooked. The relevant regulatory bodies need to instil AI literacy and ethics training to teachers so that they can be capable of interpret the outcomes of AI, identify its potential biases, and apply AI tools in pedagogically acceptable ways. Professional standards competencies, including the ethical use of AI, data literacy, and inclusive instructional design, are also present. Finally, stakeholder meaningful participation must be introduced to encourage governance. Inclusive AI policies and strategies should involve educators, learners, parents, community representatives, and AI developers. Participatory governance may be viewed as ensuring that the priorities of policy, strategies of designing and implementation of tools are informed by multiple sides of the argument, including the voices of marginalised and disabled learners. The use of AI strengths in inclusive education needs to be supported by powerful policy and governance structures that ensure that moral values and fairness are upheld. These frameworks are supposed to address the ethical guidelines, the systems of accountability, equity in the infrastructure, the preparedness of teachers, and the participation of stakeholders to make AI useful in inclusive learning settings.

9. Conclusion

Two influential forces that are defining how learning will occur in the future are inclusive education and Artificial Intelligence (AI). When put together thoughtfully, they provide unmatched opportunities to assist individual-level teaching, increase accessibility, and improve interaction between different learners. Emerging AI technologies such as adaptive-learning platforms, assistive technologies, and language translation engines show a possibility to overcome the obstacles that have traditionally limited the ability to engage fully in the education of students with different abilities, language backgrounds, and learning profiles (Li et al., 2025; AI and Ethics, 2025). Such characteristics have resonated in other models such as the Universal Design of Learning (UDL) and the social model of disability activists, which are grounded in flexibility, accessibility, and the removal of systemic barriers to participation. In addition to such opportunities, there are some critical ethical concerns associated with the implementation of AI that cannot be disregarded. The challenges to educational equity are concrete due to the issue of data privacy, algorithmic bias, unequal access, and the potential to compromise human agency in education decisions. Other than specifically developed AI systems that are not built on transparency or representative data, will reproduce or even amplify the already existing imbalance, which will harm but not contribute to inclusion (Chinta et al., 2024; ScienceDirect, 2025). Alongside, the issue of digital infrastructure and professional readiness among teachers is another problem that renders the application of ethics more difficult, particularly in low-resource learning environments. The role of the teachers is to avoid these opportunities and threats. It is noteworthy that human judgment, empathy, and pedagogical insight will never leave the reading of AI recommendations and ensuring that technology is used to meet the inclusive educational goals and not force them on them. In order to integrate AI tools in a responsible and meaningful way, teachers ought to be provided with the capacity to unite AI tools with AI competence, consciousness of morals, and favourable professional groups. Finally, there is a high necessity to possess effective policy and governance frameworks to make AI ethically adoptable. The ethical requirements, accountability system, equal development of infrastructure, and the general development of professionals, in general, should become the features of the policies that will make the fact that AI will become a contributor to the inclusive learning settings. Of no lesser importance is the stakeholder participation, which entails the

teachers, students, guardians, and programmers in the decision-making process to impact AI applications and use it in accordance with diverse opinions. Lastly, the applications of AI in inclusive education may be immense with the use of ethical acuity and equity commitment. By balancing creativity with strong belief in good governance and humanistic teaching and learning, AI can transform to become a revolution that would ensure education to be more inclusive, responsive, and fair to all learners.

References

1. Al Darayseh, A. (2023). Acceptance of artificial intelligence in teaching science: Science teachers' perspective. *Computers and Education: Artificial Intelligence*, 4, 100132. <https://www.sciencedirect.com/science/article/pii/S2666920X23000115>
2. Al-Zyoud, H. M. M. (2020). The role of artificial intelligence in teacher professional development. *Universal Journal of Educational Research*, 8(11B), 6263-6272. DOI: 10.13189/ujer.2020.082265
3. Ibrahim, B., & Mrah, I. (2025). Universal Design for Learning in the Era of Artificial Intelligence: Applications, Challenges and Future Prospects. *Innovation, Technology, Education and Communication*, (9). <http://itec.ump.ma/index.php/itec/article/view/165/136>
4. Celik, I., Dindar, M., Muukkonen, H., & Järvelä, S. (2022). The promises and challenges of artificial intelligence for teachers: A systematic review of research. *TechTrends*, 66(4), 616-630. <https://link.springer.com/article/10.1007/s11528-022-00715-y>
5. Chen, L., Chen, P., & Lin, Z. (2020). Artificial intelligence in education: A review. *IEEE access*, 8, 75264-75278. <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9069875>
6. Chinta, S. V., Wang, Z., Yin, Z., Hoang, N., Gonzalez, M., Quy, T. L., & Zhang, W. (2024). FairAIED: Navigating fairness, bias, and ethics in educational AI applications. <https://doi.org/10.48550/arXiv.2407.18745>
7. Fitas, R. (2025). Inclusive education with AI: Supporting special needs and tackling language barriers [Preprint]. SSRN. <https://doi.org/10.2139/ssrn.5366398>
8. García-López, I. M., & Trujillo-Liñán, L. (2025). Ethical and regulatory challenges of generative AI in education: A systematic review. *Frontiers in Education*, 10, Article 1565938. <https://doi.org/10.3389/educ.2025.1565938>
9. Ho, J. W., Scadding, M., Kong, S. C., Andone, D., Biswas, G., Hoppe, H. U., & Hsu, T. C. (2019, June). Classroom activities for teaching artificial intelligence to primary school students. In *Proceedings of international conference on computational thinking education* (pp. 157-159). The Education University of Hong Kong. https://www.researchgate.net/profile/Yerkhan-Mindetbay/publication/334231099_The_Measurement_of_Computational_Thinking_Performance_Using_Multiple-choice_Questions/links/5d447d3ca6fdcc370a76aa03/The-Measurement-of-Computational-Thinking-Performance-Using-Multiple-choice-Questions.pdf#page=172
10. Huang, C., Zhang, Z., Mao, B., & Yao, X. (2022). An overview of artificial intelligence ethics. *IEEE Transactions on Artificial Intelligence*, 4(4), 799-819. <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9844014>
11. Huang, J., Saleh, S., & Liu, Y. (2021). A review on artificial intelligence in education. *Academic Journal of Interdisciplinary Studies*, 10(3). <https://pdfs.semanticscholar.org/4590/d37ca3f650e9f72613189003a8c49eddb75b.pdf>
12. Knox, J., Wang, Y., & Gallagher, M. (2019). *Artificial intelligence and inclusive education*. Edinburgh: Springer Singapore.
13. Kooli, C., & Chakraoui, R. (2025). AI-driven assistive technologies in inclusive education: Benefits, challenges, and policy recommendations. *Sustainable Futures*, 10, 101042. <https://doi.org/10.1016/j.sfr.2025.101042>
14. Li, J., Yan, Y., & Zeng, X. (2025). Exploring artificial intelligence in inclusive education: A systematic review of empirical studies. *Applied Sciences*, 15(23), 12624. <https://doi.org/10.3390/app152312624>
15. McArdle, L. (2022). Artificial intelligence and inclusive education: Speculative futures and emerging practices. *Journal of Interdisciplinary Studies in Education*, 11(2), 210-211. <https://doi.org/10.32674/jise.v11i2>
16. McMahon, D., & Firestone, J. (2024). Remixing Special Education Practices with Artificial Intelligence: UDL, EBP, and HLPs. *Journal of Special Education Preparation*, 4(2), 66-76. <https://files.eric.ed.gov/fulltext/EJ1440757.pdf>
17. Melo-López, V., Basantes-Andrade, A., Gudiño-Mejía, C., & Hernández-Martínez, E. (2025). The Impact of Artificial Intelligence on Inclusive Education: A Systematic review. *Education Sciences*, 15(5), 539. <https://doi.org/10.3390/educsci15050539>
18. Pedro, F., Subosa, M., Rivas, A., & Valverde, P. (2019). Artificial intelligence in education: Challenges and opportunities for sustainable development. <https://repositorio.minedu.gob.pe/handle/20.500.12799/6533>
19. Roski, M., Sebastian, R., Ewerth, R., Hoppe, A., & Nehring, A. (2024). Learning analytics and the Universal Design for Learning (UDL): A clustering approach. *Computers & Education*, 214, 105028. <https://www.sciencedirect.com/science/article/pii/S0360131524000423>
20. Thierier, A. D., Castillo O'Sullivan, A., & Russell, R. (2017). Artificial intelligence and public policy. *Mercatus Research Paper*. DOI:10.2139/ssrn.3021135
21. Valle-Cruz, D., Alejandro Ruvalcaba-Gomez, E., Sandoval-Almazan, R., & Ignacio Criado, J. (2019, June). A review of artificial intelligence in government and its potential from a public policy perspective. In *Proceedings of the 20th annual international conference on digital government research* (pp. 91-99). <https://dl.acm.org/doi/epdf/10.1145/3325112.3325242>
22. Wang, D., Tao, Y., & Chen, G. (2024). Artificial intelligence in classroom discourse: A systematic review of the past decade. *International Journal of Educational Research*, 123, 102275. <https://www.sciencedirect.com/science/article/abs/pii/S0883035523001386>