DEPARTMENT OF EDUCATION

Artificial Intelligence in Education

> *"What is our collective vision of a desirable and achievable educational system that leverages automation to advance learning while protecting and centering human agency?"*
> *(United States Department of Education, 2023)*

I. Guiding Principles for AI in Education

Artificial intelligence (AI) is transforming education, but with great power comes greater responsibility. Here, we list some guiding principles for responsible AI use in education. These guiding principles are based on the U.S. Department of Education's (ED) Office of Educational Technology report, Artificial Intelligence and the Future of Teaching and Learning: Insights and Recommendations (2023), and the National Center on Education and the Economy's Framework for AI-Powered Learning Environments (2024).

Vision and Values	The use of AI should serve the mission, vision, and values of the organization. Having an agreed upon vision and set of values for education helps an organization prepare for future technology innovations and disruptions.
Center People	People, not machines, should be at the center of decision-making, and educators, students and families should retain their agency as the primary decision-makers. Social interaction will always be an essential part of learning. New technology innovations and disruptions make the role of teachers even more important, especially in relation to guiding students' development of critical thinking, collaboration, and application of knowledge.
Advance Equity	Technology innovations should advance equitable access and opportunity. This is exemplified in the concept of digital equity, defined by the National Digital Inclusion Alliance as "a condition in which all individuals and communities have the information technology capacity needed for full participation in our society, democracy and economy." Equity in AI involves ensuring fair access to technology and acknowledging the potential presence of biased data within AI systems.
Ensure Safety, Ethics, and Effectiveness	Data privacy, security and content appropriateness should be primary considerations when adopting new technology. Consider existing policies related to these issues and how the use of AI fits into existing frameworks.
Continuous Improvement	Decision-makers need to understand how AI models work so they can anticipate limitations, problems, and risks. Leaders should create a culture of continual evaluation and innovation to be ready to respond to future technology innovations and disruptions.

II. Learning with AI

AI provides significant opportunities along with serious challenges for education. ED's Office of Educational Technology report offers a guiding question: "What is our collective vision of a desirable and achievable educational system that leverages automation to advance learning while protecting and centering human agency?" (2023). It is important for teachers to consider this question, along with the questions listed below, when selecting an AI tool or website to use with students.:

- Is the application age appropriate?
- What value does the tool bring to teaching and learning?
- What are the unintended consequences and/or the impacts on the learning environment?

The table below highlights some of the ways AI can be used and some of the challenges that need to be considered with implementation. This is not an exhaustive list, and the specific opportunities and challenges will vary depending on the context and goals of each school and district. Please note that some of these opportunities and challenges may have more impact than others.

Opportunities	Challenges
Personalized Learning: AI can tailor learning experiences to individual student needs, pace, strengths, culture, and interests, promoting deeper understanding and engagement.	**Bias and Discrimination:** AI technologies, including those used in education, can perpetuate, and even amplify existing biases if not carefully designed and implemented. Thoughtfully crafting AI prompts can help improve results.
Improve Accessibility: AI can translate lessons, generate audio descriptions and provide other supports for students with disabilities.	**Access and Equity:** Access to AI tools may vary across families and schools, potentially widening the digital divide and creating new inequities.
Adaptive Instruction: AI-powered assessments can identify student learning gaps and adjust instruction in real-time, offering targeted support and enrichment. Human educators can enhance their impact on student learning by using AI tutoring tools to tailor instruction to individual student needs.	**Role of Teachers:** Concerns exist about the evolving roles of teachers and the technology skills they'll need to acquire, highlighting the need for upskilling and redefining the role of human interaction in AI-enhanced classrooms.
Automated Tasks: AI can handle administrative tasks like grading, scheduling and data analysis, freeing up teacher time for more personalized interactions.	**Teacher Training and Support:** Educators need training and support to effectively integrate AI tools into their practices and maximize their benefits.
Immersive Learning: AI can create virtual reality experiences and simulations, bringing abstract concepts to life and enhancing engagement.	**Overreliance on Technology:** Excessive dependence on AI could reduce critical thinking, creativity and social interaction in the classroom.

Opportunities	Challenges
Early Intervention: AI can analyze student data to identify learning difficulties early on, enabling swift intervention and support.	**Data Privacy and Security:** Ethical concerns surround student data collection, storage, and use, requiring robust privacy policies and safeguards. (See Minn. Stat.13.32 [2023] Educational Data)
Career Exploration: AI can help students learn about future careers, assess their skills and connect them with relevant opportunities.	**Limited Transparency:** Understanding how AI systems work and make decisions can be vague and not well understood, raising concerns about accountability and control.
Creative Innovation: AI can be used to create new applications, programs, creative works and other tools. Individuals can be equipped to design and innovate with AI.	**Lack of Standardized Regulations:** Clear guidelines and regulations are needed to ensure ethical and responsible development and use of AI in education.

III. Creating Guidance

Begin with What Already Exists

As with any emerging technology, AI is changing rapidly, and the answers won't be available right away. Begin with existing guidance, procedures, and policies to address immediate challenges. Consider the impact of the use of AI, particularly in:

- Data privacy
- Assessment
- Academic integrity

Work with all invested groups to develop further guidance for the use of AI anchored in the mission, vision, and values of the organization.

Wait to purchase AI tools until after specific needs are identified and a framework guiding uses of the technology is established.

Prioritize Learning

Centering people is a key recommendation. Schools can do this by providing differentiated professional learning opportunities for not only teachers, but all staff.

Emphasize the role of humans in making the most of this technology.

Address risks and develop guidelines for the use of AI.

Encourage Innovation and Knowledge Sharing

As educators, staff, and students explore and develop new ways of using AI applications, create opportunities for these ideas to be shared, refined, and built upon by others.

Promote AI literacy (how AI works and how it impacts the world around us) for all learners.

Encourage discussion about the benefits and risks of AI. Outright bans can shut down opportunities for learning and growth.

When challenges arise, leverage their potential as learning opportunities.

IV. AI in Education Resources

General Resources

- AI Guidance for Schools Toolkit (Teach AI) – This toolkit was designed to help education systems create guidance and inform policy. It includes sample school guidance and presentations that can be customized for various groups.
- Artificial Intelligence and the Future of Teaching and Learning: Insights and Recommendations (U.S. Department of Education, Office of Educational Technology) – This report covers a wide range of topics including what AI is, what students should learn about AI, how AI can be used in teaching, and strategies for policy development.
- Bringing AI to School: Tips for School Leaders (International Society for Technology in Education) – This resource for school leaders provides important background about AI, guiding questions, and strategies to successfully bring AI into schools.
- Review of Guidance from Seven States on AI in Education (Digital Promise) – This resource includes a review of AI guidance documents from California, North Carolina, Ohio, Virginia, Washington state, and West Virginia. The review summarizes common themes, identifies opportunities and risks, and offers recommendations about how districts should incorporate AI into education.
- aiEDU Toolkits – These toolkits are resources for educators to use with students in seventh grade and up. They can also be used general introductions to AI.
- Framework for AI-Powered Learning Environments (National Center for Education and the Economy) – This resource includes an overview of trends, underlying assumptions, and guiding principles for integrating AI into education. The resource also includes a framework with short-term (18–20 months) and long-term strategies (years 2026–2030) on integrating AI into education that address students, teachers, schools, districts, and education systems.
- Shaping the Future of Learning: The Role of AI in Education 4.0 (World Economic Forum) – This report highlights the potential for AI to create equitable learning opportunities from a global perspective. It includes analysis of the likely impacts of AI on teacher time by role.

Minnesota Resources

- St. Cloud Area School District 742 Guiding Practices for Generative AI – These guiding principles discuss the benefits and risks of AI; guidelines for students, teachers, and employees; and academic honesty and AI.
- Bloomington Public Schools: AI in BPS – Guiding Principles; slide deck – This guidance includes information about the ethical use of AI by the district, school, teacher, and student.

Other States

- AI Guidance for West Virginia Schools (West Virginia) – This guidance provides support for the use of AI across various roles in West Virginia PK–12 schools, catering to the needs of superintendents, district staff, educators and support staff. The guidance focuses on effectively and safely integrating AI into classroom instruction, school administration and district operations.
- AI Toolkit (Ohio) – This toolkit for Ohio schools includes resources to advance AI literacy and create AI policy, recommendations for teachers to turn policy into practical application, resources for parents, and links to guidelines.
- Artificial Intelligence Guidance Brief (Kentucky) – This resource is a model of guiding principles for Kentucky students and staff in the appropriate and responsible use of AI (specifically generative AI).

- Developing Policy and Protocols for the Use of Generative AI in K–12 Classrooms (Oregon) – This planning and reflection tool is a resource for school and district leaders to create clear, equitable and meaningful AI policy.
- Human-Centered Artificial Intelligence in Schools (Washington state) – Washington state created this resource to provide students, educators and school district administrators with the resources and tools they need to understand how to use these technologies effectively, ethically, and safely. It includes AI definitions, sample guidance and policy information (including academic integrity).
- Generative AI Implementation Recommendations and Considerations for PK–13 Public Schools (North Carolina) – These informational resources are intended to direct responsible implementation of AI tools and guide AI literacy for North Carolina public schools. The guidelines are organized around North Carolina's Digital Learning Plan.

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