Center for Digital Learning and Innovation

Policy Brief



THE OHIO STATE UNIVERSITY COLLEGE OF EDUCATION AND HUMAN ECOLOGY



Navigating Artificial Intelligence in K-12 Education: What School Districts Should Know

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IN THIS BRIEF:

- Definitions of key terms on artificial intelligence in education
- Overview of policy implications of educational AI use
- A discussion of potential AI impacts on education for teachers
- A guide to assembling a programmed approach for addressing educational AI
- Relevant resources

Introduction

With the ability of artificial intelligence (AI) to automate tasks, provide personalized learning experiences, and analyze large quantities of data to provide real-time feedback, school districts should adopt policies that help teachers and students engage with AI in productive ways. The rapid development of AI powered learning technologies creates a need for school districts to offer teachers professional development on learning about AI and how it can be used to enhance education.

To provide teachers with relevant training and expertise on AI , school districts need to know how students, teachers, and the wider community are using AI. Understanding these uses will inform policy decisions around access, data privacy and security, and learning benefits. AI cannot be kept out of the classroom because of the variety of tools offered to the public at free or inexpensive rates and the increasingly ubiquitous use of AI in all aspects of society. With almost any device able to access AI, banning it becomes an impractical policy decision. Instead of spending time and energy policing AI, school districts can channel AI to work for them. This starts with upskilling teachers with AI knowledge and skills, making teachers knowledgeable about the learning experiences they can create with AI and the implications of using AI. This brief will provide insights into key impacts, implications, and relevant resources concerning AI for school districts to consider when crafting policies related to teacher trainings on AI.

How is AI impacting instruction and learning?

Generative AI, introduced in the 1960s, has recently had two breakthroughs with large language models and a type of machine learning called transformers that have enabled generative AI to transform daily life¹. Generative AI, which will be referred to as just "AI" in this brief hereafter, uses algorithms that allow users to enter a request in plain language (i.e., without having to use code like python) into a prompt box. The AI algorithm then returns new content in response to the prompt. Many AI technologies are already embedded in daily life such as chatbots, search engines, navigation apps, facial recognition, autonomous vehicles, language translation, and personalized social media content.

The leap of Al into education, also known as Al-powered Educational Technology (Al-EdTech), has already been made and continues to expand in its functionality and prevalence. One such tool that has made a large impact is ChatGPT. <u>ChatGPT</u> is a language model that uses natural language processing to create plain text conversation with the user based on the user's input into a prompt. A survey by the Walton Family Foundation in July 2023 reported that 63 percent of teachers of the 1,000 surveyed already use ChatGPT in their job and only 17 percent held an unfavorable opinion of the tool². Among students, 42 percent of students reported using ChatGPT for school purposes. These percentages are predicted to increase as AI technologies become more developed.

Research has already shown AI can improve learning outcomes and students' experiences of learning³. For example, a meta-analysis by Wu & Yu (2023) on the effect of AI chatbots concluded that AI chatbots had a large effect on learning outcomes⁴. Similarly, intelligent tutoring systems, which are computer systems that provide immediate and personalized instruction to learners, have been found to be highly effective for student learning due to their capabilities of providing real-time data analytics⁵. Al-EdTech can deliver personalized learning through tailored content, pacing, and feedback. Adaptive learning systems can adjust difficulty levels based on students' performances. Datadriven insights from AI-EdTech helps teachers identify trends and inform decision-making like when early intervention may be warranted.

While there are benefits from using AI with learning, AI also has potential to improve teachers' daily work experiences. For instance, research by McKinsey & Company suggest teachers spend around 20 to 40 percent of their time on tasks that could be automated⁶. With the potential of AI to automate grading and routine tasks, teachers may be able to use a greater amount of their time for planning higher quality lessons and more meaningful interactions with students.

Policy implications with using AI-EdTech

Academic integrity

Since the arrival of ChatGPT, there has been a concern of whether students would use this tool to cheat. The conversation of AI in education swirled around banning such technologies outright or integrating them into instruction and learning. Al tools like ChatGPT can produce products like essays and other textual responses to prompts in mere seconds at the tap of the keyboard. Teacher concerns about AI jeopardizing critical thinking, academic integrity, and developing students' writing skills are warranted in this changing landscape where there is an increasingly ubiquitous presence of AI in daily life. A survey by the Center for Democracy & Technology from the 2022-2023 school year indicated that half of teachers reported a student had received negative consequences for using or being accused of using AI on a school assignment⁷. While the act of cheating is not new, Al pushes the possibilities of new ways to cheat.

Policies are needed that outline the inappropriate use of AI for school assignments and tasks. The degree to which AI is allowed must be considered too. For instance, at what point is AI-assisted schoolwork plagiarism? Is it using AI at any point in the assignment? Is it plagiarism to use ChatGPT to brainstorm a topic for an essay? Knowing the boundaries on using AI-enabled tools for assignments is important to uphold academic integrity as well as to avoid false accusations of student cheating.

Teachers should reconsider assignments and tasks that might be easily completed with AI tools. Figuring out what writing assignments, for instance, might look like in the era of AI will take ingenuity and planning by teachers. Policies that focus on integrating AI that guide students through appropriate uses of AI tools for school assignments can capitalize on the benefits AI has to offer. Yet, policies must complementarily address AI guidance for teachers so that teachers are equipped with steps of how to address AI boundaries for school assignments and present a united front in their school district. Lastly, teachers need policies that inform and align current data privacy and security efforts at the district, state, and national levels.

Data privacy and security

Al tools like ChatGPT collect and process data that have been entered by users. It is not completely known what information ChatGPT collects and retains to further train itself. The privacy policy from <u>ChatGPT</u> states that any information fed into it can be accessed by the company. In this instance, Al policies should guide teachers to instruct students to avoid entering any personal identifiable information.

Additionally, teachers need policies that align with federal privacy laws like FERPA as well as state and local laws. Because the U.S. lacks a national comprehensive data privacy regulation like <u>Europe's GDPR</u> and only 11 of the 50 states presently have consumer data privacy laws⁸, school districts are tasked with crafting policies that account for present regulations and anticipate future ones like the <u>Ohio Personal Privacy Act</u>.

Risk of biased information

Al tools improve themselves from inputs by the user. As such, the tool will accumulate any biases, misinformation, and disinformation that are already within the users. While disclaimers by the tools state they may not always produce accurate information, these disclaimers may not be adhered to, especially by young minds used to growing up in a digital age. It is important for policies to guide teachers to inform their students about making decisions and judgments about the content produced for them from an Al tool.

A guide to upskill teachers' Al knowledge and skills

There is limited research on how to use AI in K-12 teaching and how to introduce it into the curriculum⁹. Several resources can be used to guide school districts in the creation of formulating AI policies for teachers (see **Relevant Resources** on page 4). Yet, there are several main points that school districts can follow to aid in the creation of AI policies that support teachers with instruction and student learning.

The graphic below outlines main points for school districts to consider as they work to develop AI policies for teachers. The first step, forming an AI committee, involves representation throughout the district and establishing building "influencers" who are the go-to person for questions and resources. The graphic describes succeeding steps that then aid in the creation of AI policies for educational use. The diagram is meant to be adaptable to local contexts while still covering major steps that will help inform AI policies for teachers.



RELEVANT RESOURCES

Several blueprints and "AI Bill of Rights" are available for school districts to appraise and use as sources of inspiration for crafting their own guidelines that work for each school district's constituents. The following list includes example guidelines and frameworks school districts can use to craft polices suitable to their context.

- The Blueprint for an Al Bill of Rights
- > AI Bill of Rights for Education
- > Al at Google: Our principles
- Day of AI
- The AI Education Project
- ➤ Teach AI
- Al 101 for Teachers
- Teaching with AI

The Ohio State University's Center for Digital Learning and Innovation will continue to update relevant resources reflecting AI developments in education. Updates and news alerts can be found on the <u>CDLI website</u>.

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⁵ Laird, E., Dwyer, M., & Grant-Chapman, H. (2023). EdTech threats to student privacy and equity in the age of Al. Center for Democracy and Technology. Retrieved from <u>https://cdt.org/wp-content/uploads/2023/09/091923-CDT-Off-Task-web.pdf</u>

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⁷ Office of Educational Technology. (2023). Artificial intelligence and future of teaching and learning: Insights and recommendations. U.S. Department of Education, Washington, DC. Retrieved from https://tech.ed.gov/files/2023/05/ai-future-of-teaching-andlearning-report.pdf

⁸ Walton Family Foundation. (2023, July 18). Teachers and parents report positive impact of ChatGPT on teaching and learning. Retrieved from impact research

⁹ Wu, R. & Yu., Z. (2023). Do AI chatbots improve students learning outcomes? Evidence from a meta-analysis. British Journal of Educational Technology, 00(0).Retrieved from https://doi.org/10.1111/bjet.13334

GLOSSARY

- Adaptive learning system: This is the delivery of customized learning experiences. It aims to address the needs of individuals through realtime feedback and differentiated learning pathways.
- Algorithm: This is a sequence of instructions used to solve problems or perform calculations.
- Data-driven insights: This is a method of using data and analytics to make instructional decisions based on the analysis of the data.
- Generative AI: This refers to models or algorithms that create new content from existing data.
- Intelligent tutoring system: These are computerbased educational systems that use AI to provide real-time feedback and personalized instruction to learners.
- Machine learning: This is a subfield of AI that develops algorithms. It aims to imitate human behaviors so that these "intelligent behaviors" can then be used to make suggestions about what action to take. Machine learning is what powers chatbots and language translation apps.
- Natural language processing (NLP): This is a subfield of AI in which machines can process and understand human language. NLP is used in a variety of applications such as translation and spell check. Yet, there are limitations such as its inability to interpret sarcasm and ambiguous statements.
- Real-time data analytics (RTDA): This is the use of data that is delivered immediately after collection. It allows users to see and understand data as it arrives, permitting users to act upon this information instantly.
- Technology-enabled personalized learning: A type of learner centered teaching method that matches learning materials to a learner profile based on the learner's interests, performance, and learning background.