

Understanding Artificial Intelligence in K-12 Education: What Governance Teams Should Know

By Karina Arroyo / September 2023

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Introduction

Student learning has changed dramatically in recent years due to technological advancements. One such advancement is artificial intelligence (AI), which includes a range of applications. The use of AI in automated computer systems has introduced new opportunities and challenges for educators and students.

To better address the impacts of AI, school district and county office of education board members need to know how educators, students and families are using AI, both inside and outside of the classroom. They should also be familiar with the implications of AI use and policies they will need to consider in their governance roles.

AI-powered services have the potential to provide educators with an opportunity to improve teaching and to help students learn. These services also have the potential to impact how staff conduct operations on behalf of the local educational agency (LEA). This brief will provide insight into key impacts, issues, and opportunities related to automated systems for board members to consider when adopting policies related to AI.

What is AI?

Most people already encounter AI every day without realizing it. From internet search engines and map apps that adjust routes in real time to digital assistants like Siri and Alexa that respond to questions, AI is increasingly prevalent in everyday tasks and activities.

AI is a broad term for technologies that use algorithms and massive amounts of data to mimic human intelligence. Today, the most common AI programs that impact the education system are offered through online applications in the form of homework tutoring systems, automated scheduling services, chatbots, or even search engines. It is important to note that the use of AI is often not apparent to someone using these applications because the technology is typically incorporated behind the scenes. Most people instead see AI explicitly in chatbots or other text-based tools that are increasingly attracting the most attention.

One of the most well-known AI programs is ChatGPT, which produces text in response to an input or command from the user. A July 2023 survey asked educators, parents/guardians, and students about their use of AI in school-related tasks.¹ The results show broad awareness and use of AI tools for schoolwork.

Seventy-three percent of teachers, 67 percent of students, and 71 percent of parents/guardians said that they are familiar with ChatGPT, with 61 percent of teachers reporting it has “legitimate educational uses.” Additionally, 40 percent of teachers said that they have used ChatGPT in their work at least once per week and 42 percent of students report using ChatGPT at least once for schoolwork.²

There is significant excitement regarding how ChatGPT and other AI programs may be able to improve teaching and learning. Of course, AI has also sparked concerns, particularly in relation to academic integrity. Therefore, understanding the extent to which AI impacts the education system will be imperative to setting appropriate parameters for effective AI use. For governance teams, this includes developing and updating local policies about how students and staff use AI in the context of their learning and work.

AI can impact learning, instruction, and administrative tasks

Educators and students may benefit from the time-saving functions that AI has to offer. Understanding some of the different ways AI could impact the classroom can benefit LEA board members as they develop AI guidance and policies.

Some time-saving functions provided by AI:

- ▶ AI-automated services can help educators use grade-level standards to create a draft pacing guide for instruction for a unit or term.
- ▶ Students and teachers can use AI to design a work plan by breaking larger projects into smaller tasks and building timelines for project milestones along the way.
- ▶ A teacher or student might use a form of AI known as computer vision to conduct a reverse image search to find relevant material or identify original sources. If a teacher finds a helpful graphic, inputting the image can possibly find the source and relevant images that can be added to a presentation. It can also be helpful to students when evaluating a resource for accuracy or reliability.
- ▶ More complex forms of AI include online tutoring applications. Intelligent tutoring systems can be designed to provide instruction tailored to an individual student's identified needs and provide timely, targeted feedback. For example, a program might guide a student through the steps of a standards-aligned math problem while addressing misunderstandings. The software might also evaluate student errors to create additional opportunities to practice topics that a student has not mastered.
- ▶ Students can use AI to summarize complex texts to use as study guides.
- ▶ Students can use AI to suggest writing revisions to improve clarity or adapt the text for a specific audience.
- ▶ School administrators can automate routine tasks to free up time to spend time in classrooms to provide support and feedback to teachers.
- ▶ AI applications also have the potential to recommend solutions or strategies based on existing data. For example, a teacher might use an application to consider alternative strategies that work well with students struggling to understand a concept, including strategies for making a particular lesson more accessible to students with specific disabilities. With the ability to recognize patterns, AI can design additional resources for students and help teachers learn more about their students' needs.

These applications should be used with care, however, because AI applications are sometimes unable to track important contextual clues that can drastically alter outcomes. Most recently, users have warned that AI has generated references for citations that are not linked to genuine sources. For this reason, governing board members should consider policies in specific situations.

Policy implications of AI use

Academic honesty

One of the more common concerns noted for the use of AI in education is the potential for cheating. While cheating is nothing new in school or academia, AI enables new ways to cheat. This consideration requires policies that, among other things, prohibit students from submitting assignments produced solely by AI as their own original work. Educators will also need to reconsider the structure of their assignments to determine whether they might inadvertently facilitate the inappropriate use of AI. They will need to educate students about the proper and improper ways to use AI, as well as the opportunities and consequences of doing so.

In a commentary on the importance of updating district policies about student use of AI, authors H. Alix Gallagher and Benjamin Cottingham suggest that districts should be proactive in providing instruction about *when* and *how* AI use is appropriate. They note, “[T]here is no practical way to block all AI websites in schools and no way to limit student access to AI after school. The plethora of models and their increasing quality will also likely continue to thwart efforts to detect when AI has been used to cheat. So, districts must shift tactics from banning AI to channeling its power.”³

Rather than prohibiting the use of AI entirely, policies should focus on guiding students through appropriate AI practices for academic support. To that end, CSBA in September 2023 updated the following sample policy: Board Policy 5121.9 – Academic Honesty.

Data privacy

Another concern related to AI use is data privacy and security for students, educators, and school leaders.⁴ For instance, when a user gives a command to the AI, that command may contain confidential student information or other private personal information. In responding to the command, the AI then incorporates the command and the response into its database — but without necessarily flagging the information as confidential or private or otherwise protecting it.

When using computer applications and platforms, education leaders “must consider whether the information about students shared with or stored in an AI-enabled system is subject to federal or state privacy laws such as FERPA [or the [California Student Online Personal Information Protection Act](#)]. Further, educators must consider whether interactions between students and AI systems create records that must be protected by law, such as when a chatbot or automated tutor generates written guidance to a student.”⁵

Local policies should strengthen and align with current education efforts and comply with federal and state privacy laws. They should state a renewed consideration of student privacy issues, given the evolution of AI's use and functionality. District information technology specialists should also review terms of service for any application and platform to assess privacy protections. CSBA anticipates releasing new or updated sample policies regarding AI and data privacy.

Questions for board members to consider:

District and county board members should consider the following questions when developing a strategy or policy to address AI:

- 1) When is our next policy review/adoption scheduled, and which policies related to AI should we review first?
- 2) Do we have policies that address the use of AI to protect academic integrity?
- 3) What confidential student information is provided to or accessed by AI programs our students or staff might use for their LEA-related tasks? What steps are we taking to protect this data?
- 4) What guidance have we provided staff about the use of AI when developing curricular materials?
- 5) How are we supporting educators in adapting instruction and assessment to address student access to AI technology?
- 6) What steps can we take to ensure assignments facilitate student use of AI as a resource rather than a replacement for their original work?
- 7) What are some ways that we can support media literacy to help students evaluate content developed by AI, including data bias and misinformation?
- 8) Who in the LEA is qualified to educate us on AI?
- 9) How could we use AI to prepare students in career technical education programs?
- 10) What are we communicating to students and families about the use of AI when completing assignments or assessments?
- 11) How will we continue to educate ourselves on the use of AI as technology evolves?

Equity

The U.S. Department of Education refers to digital equity as “the condition in which individuals and communities have the information technology capacity that is needed for full participation in the society and economy of the United States.” All algorithms are created by people using specific data, and thus can reflect the biases of the programmers and the underlying database. In a *Harvard Business Review* article, authors Manyika, Silberg, and Presten note that:

Bias can creep into algorithms in several ways. AI systems learn to make decisions based on training data, which can include biased human decisions or reflect historical or social inequities, even if sensitive variables such as gender, race, or sexual orientation are removed. . . . Another source of bias is flawed data sampling, in which groups are over- or underrepresented in the training data.⁶

As a result, algorithmic bias has the potential to discriminate and reinforce societal inequities and biases.⁷ For example, AI programs used to detect essays and other work as generated through AI found that seven popular programs were more likely to incorrectly flag essays written by English learners as AI generated.⁸ This might lead to students wrongly facing disciplinary actions for academic dishonesty. Other education experts have warned that predictive algorithms used to identify students at risk for behavioral concerns might disproportionately flag some students using data based on historically biased disciplinary systems.⁹

For this reason, decisions related to students’ AI use should be made with equity in mind, and policies should address potential risks of discrimination. Indeed, the newly released sample Board Policy 5131.9 – Academic Honesty touches on this topic. CSBA anticipates releasing new or updated sample policies regarding AI and equity.

Transparency

Promoting transparency in policy implementation requires offering materials or training that equips teachers and students with the background necessary to understand the opportunities, limitations, and potential risks of AI models. This could take the form of workshops or classes offered to educators and students that detail appropriate use of AI. Relevant resources that provide guidance for board members and a comprehensive overview of AI systems can be found at the end of this brief.



Relevant resources

The following is a list of resources that provide guidance when considering AI policy implementations.

- ▶ UCLA published a [guide for ChatGPT](#) and AI use in the classroom. It provides more examples of how students may use applications such as ChatGPT and offers ideas to adjust course materials to mitigate misuse. For a more in-depth look into ChatGPT, UNESCO published a [quick start guide](#).
- ▶ Educating students on the use of AI and potential career opportunities in the field can help support academic and professional growth. The George Lucas Educational Foundation wrote an article on [resources for introducing students to AI](#).
- ▶ For more information regarding ethical AI use, the Center for Integrative Research and Learning Science published a [list of helpful resources](#) that detail the issues related to equity and accountability.
- ▶ [This article](#) from CSBA's *California Schools* magazine details how Riverside County's Val Verde Unified and Orange County's Anaheim Union High School District are using AI in their educational programs, including AUHSD's AI pathway.
- ▶ Policy Analysis for California Education (PACE), in collaboration with TeachAI, published the introduction of a three-phase approach that governing teams might follow to prepare teachers and students for AI use. The first step is creating policies that address AI risks, followed by implementing learning opportunities to prepare educators, and establishing improvements and transformative guides that focus on AI inequities. The commentary can be found [here](#).
- ▶ CSBA's GAMUT Policy services will continue to update the sample policies in light of AI developments. The first set of updates is included in the September 2023 release.

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Glossary¹⁰

- ▶ **Artificial Intelligence (AI):** A development of computer systems that uses algorithms, data, and hardware to perform tasks like speech/image recognition, translation, decision making, and detects patterns. Depending on the task, this could require different features within the AI field.
- ▶ **Algorithm:** The rules (or calculations) by which AI systems make decisions or perform a task.
- ▶ **Chatbot:** A software application that generates human-like responses to questions entered manually by a user.
- ▶ **Chat-based generative pre-trained transformer (ChatGPT):** A popular chatbot that works with natural language processing systems. It can generate responses to questions and is pre-trained with available text on the web to mimic humanlike conversations.
- ▶ **Computer Vision:** Uses machine learning techniques to train computers to recognize objects, people, movement in image or video form.
- ▶ **Hardware:** Physical component of a computer. A monitor, keyboard, or speaker.
- ▶ **Knowledge Based Systems (KBS):** Program that uses knowledge base reasoning to solve problem.
- ▶ **Machine Learning (ML):** A field with a wide range of approaches to develop algorithms that allows a program to determine rules and patterns in data without human intervention. In most cases, humans are unable to understand the creation of those rules, therefore there is potential for humans to be harmed based on the decision made.
- ▶ **Natural Language Processing (NLP):** A field that focuses on computer understanding and comprehension of language. It requires at least half a million words, and it can scan, summarize, correct text, and more.
- ▶ **Software:** Program that directs your hardware to carry out a task.

Endnotes

- 1 Impact Research. (2023, July 18). "Americans See Need to Better Prepare Students for National Security Careers of the Future." Impact Research. Retrieved from 8ce82b94a8c4fdc3ea6d-b1d233e3bc3cb-10858bea65ff05e18f2.ssl.cf2.rackcdn.com/56/25/73b3642e45b1bf45a080467effdb/impact-wff-survey-key-findings-july-2023-final-1.pdf
- 2 See endnote 1.
- 3 Gallagher, H. A., & Cottingham., B. W. (2023, June 16). *The urgent need to update district policies on student use of artificial intelligence in education*. Policy Analysis in California Education. <https://edpolicy-inca.org/newsroom/urgent-need-update-district-policies-student-use-artificial-intelligence-education>.
- 4 Lopatto, E. (2023). "Big Tech is already warning us about AI privacy problems." The Verge. Retrieved from <https://www.theverge.com/2023/5/19/23730037/openai-ban-apple-banks-privacy>.
- 5 U.S. Department of Education, Office of Educational Technology, Artificial Intelligence and Future of Teaching and Learning: Insights and Recommendations, Washington, DC, 2023. <https://tech.ed.gov/>
- 6 Manyika, J., Silberg, J., & Presten, B. (2019, October 25). *What do we do about the biases in AI?* Harvard Business Review. <https://hbr.org/2019/10/what-do-we-do-about-the-biases-in-ai>
- 7 Scherer, M., Shetty, R., Crawford, A., & Brown, L. (2022). "Ableism and Disability Discrimination in New Surveillance Technologies: How new surveillance technologies in education, policing health care, and the workplace disproportionately harm disabled people." Center for Democracy & Technology. Retrieved from <https://cdt.org/insights/ableism-and-disability-discrimination-in-new-surveillance-technologies-how-new-surveillance-technologies-in-education-policing-health-care-and-the-workplace-disproportionately-harm-disabled-people/>.
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- 9 Herold, B. (2022, April 12). Why schools need to talk about racial bias in AI-powered technologies. Education Week. <https://www.edweek.org/leadership/why-schools-need-to-talk-about-racial-bias-in-ai-powered-technologies/2022/04>
- 10 Glossary adapted from Fusco, J. & Ruiz, P. (2023). Glossary of Artificial Intelligence Terms for Educators. Center for Integrative Research in Computing and Learning Sciences. Retrieved from <https://circls.org/educatorcircls/ai-glossary>.