



Beginner's Guide to AI in K-12





Is Your District Ready for AI?

Welcome to the dawn of a new era in education.

Artificial intelligence (AI) is no longer just a buzzword. It's becoming a tangible part of how we teach, learn, and lead in our schools. According to UNESCO, AI in education is expected to be a \$6 billion worldwide industry in 2024,¹ with growth estimates of \$19.9 billion by 2028.²

K-12 technology leaders are leading the charge in integrating these powerful capabilities into the heart of education. But an important question remains: Is your district ready for AI?

Incorporating new technologies into education isn't a new or novel idea.

Remember when calculators found their way into math classes or when laptops became as common as notebooks? Each innovation was met with excitement—and, yes, a bit of controversy. Today, AI stands at that threshold, ready to enhance teaching and learning experiences, not replace them.



Diving into AI requires a balance of innovation and responsibility. Many districts and educational organizations worldwide are grappling with whether to embrace AI, restrict it, or find a middle ground. With AI reshaping education, the pressure is on to keep up and set the right course.

This eBook was created to demystify AI in K-12 education. We'll explore the essential steps for integrating this technology into today's classrooms and workflows. From grasping the fundamentals of AI technology to ensuring it aligns with your district's strategic goals, we'll guide you through assessing your AI readiness, empowering your instructional teams, and understanding the critical aspects of data governance and privacy.

By the end of this eBook, you'll have the knowledge and tools to effectively and ethically implement AI, enhancing educational outcomes and encouraging an innovative learning environment.

What's the next step on your AI journey?



Learning the Basics of AI



Securing Strategic Alignment



Assessing Tech Capacity



Empowering Instructional Teams



Understanding Data Governance, Privacy, and Policy Implications



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Learning the Basics of AI

What is AI?

AI broadly refers to the ability of a machine or a program to emulate intelligent human behavior, like thinking and learning.

This includes performing complex tasks similarly to how humans approach problem-solving. Technologies like machine learning and natural language processing are subsets of AI.

Subsets of AI



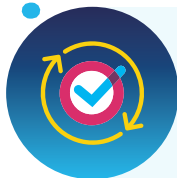
Machine Learning (ML):

ML develops algorithms that allow computers to learn from data and make predictions or decisions. It's fundamental in applications from email spam filtering and predictive analytics to product recommendations.



Natural Language Processing (NLP):

NLP enables computers to understand, interpret, and generate human language, playing a pivotal role in programs like chatbots, language translation, and sentiment analysis.



Generative AI:

Generative AI refers to tools modeled on large data sets that produce digital outputs like text, images, and videos. This can manifest in education as AI tutoring systems, virtual teaching assistants, or tools that quickly generate lesson plans or grade assignments.

The Benefits of AI

According to the 2024 Education Focus Report, **over 70% of district-level leaders** agree with seeing the potential of AI to enhance teaching and learning.³

AI provides a wide range of benefits in K-12 education, including improving student engagement, personalizing learning, automating administrative tasks, and supporting curriculum development.



Benefits for Students

- ✓ **Personalized Learning:**
AI tailors educational experiences to individual abilities and needs, addressing learning gaps and accelerating student growth.
- ✓ **Engagement and Progress:**
Enhances engagement and accelerates learning by providing personalized content and instant feedback.
- ✓ **Career Guidance:**
Directs students towards potential careers by aligning educational content with labor market demands.
- ✓ **Counseling Support:**
Offers support where traditional resources are limited, potentially increasing access to guidance and counseling.



Benefits for Teachers

- ✓ **Reduced Administrative Burden:** Automates tasks like grading and attendance, allowing teachers to focus on instruction.
- ✓ **Resource Optimization:** Provides intelligent suggestions for instructional materials based on curriculum and student progress.
- ✓ **Improved Instruction Quality:** Ensures teaching resources are well-suited to student needs, enhancing the educational experience.



Benefits for Administrators

- ✓ **Informed Decision-Making:** Offers deep insights into school operations, helping with effective management and planning.
- ✓ **Strategic Planning Support:** Assists in formulating data-driven strategies and tracking their impact through detailed analytics.
- ✓ **Collaboration and Communication:** Centralizes and streamlines communication channels and collaboration tools, ensuring the entire school community is engaged and in the loop.



Benefits for Parents

- ✓ **Centralized, Accessible Information:** Simplifies tracking their child's academic progress through a single platform.
- ✓ **Enhanced Communication:** Facilitates more active parental involvement by improving information flow between the school and home.

Challenges and Considerations



Building AI Literacy

Both educators and students need to be well-informed about AI's capabilities and limitations. Developing AI literacy is essential for using these tools effectively and responsibly.



Data Privacy and Security

AI systems may heavily rely on student data, raising critical concerns about privacy and security. Schools are responsible for ensuring data is handled securely and ethically to maintain trust and protect students' information.



Equitable Access to AI Technologies

The disparity in technological access across different schools can lead to unequal educational opportunities. Addressing this digital divide is crucial for ensuring all students benefit equitably from AI technologies.



Bias and Discrimination

AI systems can sometimes perpetuate societal biases, leading to unfair treatment of certain student groups. It is vital to continuously monitor and refine AI algorithms and their output to prevent and mitigate bias.



Autonomy and Surveillance

AI's capability to monitor and predict student behavior can lead to concerns about autonomy and surveillance. Educators must balance using AI tools with respect for student privacy and independence.

While the integration of AI in education offers numerous benefits, it also poses significant **ethical challenges and limitations** that need careful consideration.



Moving Forward with Ethical AI Use

Educators and administrators can engage with AI tools through a thoughtful, critical, and ethical lens to navigate these challenges. This involves:

Educating
the school
community
about AI's
potential and
limitations

Ensuring
transparency
in how AI
tools are used
and data is
handled

Promoting
inclusivity and
fairness in AI
applications

By addressing these aspects, schools and districts can reap the benefits of AI while minimizing the risks.

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Securing Strategic Alignment

When integrating AI into education, it is crucial to ensure these technologies work in harmony with your district's core objectives. Securing strategic alignment helps prevent wasted resources, missed opportunities, and potential risks. In the best-case scenario, everyone involved—from IT staff to educators and administrators—agrees on AI's purpose and implementation strategy.



5 Steps to Achieve Strategic Alignment

To ensure that AI initiatives align effectively with your educational goals, here are five critical steps to follow:

1

Start with the Why

Before launching any AI project, clearly define its purpose. What specific educational challenge does it address? How will solving this issue support your district's overarching goals? Understanding the "why" ensures the AI initiative has a clear direction and relevance.

2

Involve Key Stakeholders

AI integration in schools is a collaborative effort. Involving a wide range of stakeholders, including IT leaders, teachers, administrators, and students, can help ensure that the implemented AI solutions meet the diverse needs and goals of the entire school community. Engage these key stakeholders throughout the AI implementation process in workshops, feedback sessions, and pilot programs.

Regular communication keeps the entire school community informed and involved, ensuring that everyone supports AI projects and understands their benefits. This transparency helps maintain trust and encourages a collaborative approach to improving student outcomes.

3

Regularly Review and Adjust

AI is dynamic and evolves continually. Strategies and tools that were cutting-edge a few months ago may soon become outdated. Regular reviews of your AI strategies will help keep them relevant and well-aligned with current educational priorities and technological advancements.

Define clear metrics for measuring the success of AI initiatives about the goals outlined in the first step. This will help evaluate the impact and ensure the initiatives contribute positively to the intended outcomes.

4

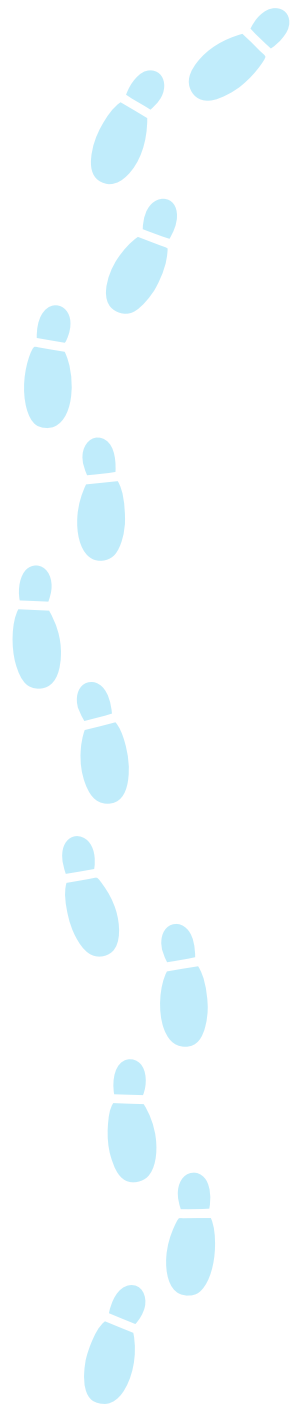
Educate and Train

It is vital for all staff to understand the organization's strategic goals and how AI initiatives contribute to these goals. Investing in training and taking time to get everyone up to speed minimizes the risk of misalignment and promotes a cohesive implementation process.

5

Seek External Expertise

Sometimes, an external perspective can be invaluable. Consulting with experts in AI and edtech can bring fresh insights, enhancing the strategic alignment and effectiveness of your AI projects. These experts can provide guidance tailored to your schools.



Key Principles for Ethical AI Adoption

Establishing ethical and effective use of AI is fundamental to strategic alignment. When adopting AI, several key principles can guide your approach to ensure ethical and effective integration:



Transparency

Be open about how and why certain AI tools are chosen. Clear communication builds trust and facilitates collaboration, steering everyone towards common objectives.

Ethics

Since AI systems reflect their creators, they can sometimes perpetuate human biases. Implementing and reviewing AI programs is crucial, ensuring any biases are recognized and addressed.

Effectiveness

Aim to utilize AI to maximize benefits for students, teachers, parents, administrators, and staff, enhancing educational outcomes and operational efficiency.

Data Safety

Protecting student and school data is essential for maintaining trust and compliance.

Continuous Monitoring

Regularly assess how AI impacts your community.

Adhering to these steps and principles, K-12 leaders can ensure that their AI initiatives are strategically aligned with their educational goals and ethically and effectively implemented.

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Assessing Tech Capacity

Before integrating AI into educational environments, it's important to evaluate whether the existing technology infrastructure can support the new demands AI will place on it. This assessment includes reviewing several key aspects, including data storage capabilities, processing power, network infrastructure, and the technical expertise available. Understanding and enhancing this capacity ensures that AI tools function optimally and bring about meaningful improvements in teaching and learning.

To ensure your organization is prepared for AI integration, consider these key areas:



Evaluating Data Readiness

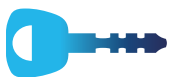
The foundation of any successful AI implementation lies in the quality and organization of data. Districts can start by evaluating whether their data sets are comprehensive, accurate, and accessible. Clean and well-managed data are essential for AI effectiveness, as these systems rely on data to make predictions, personalize learning experiences, and generate insights. Implementing consistent data management practices, like storing data in a secure data-as-a-service platform, will help maintain the integrity and utility of data used by AI systems.



Inspecting Technical Infrastructure

AI requires robust technical infrastructure, including sufficient processing power and storage capabilities. Districts will benefit from assessing their current hardware and software to determine if upgrades are necessary to meet the demands of AI.

Following the Federal Communications Commission's (FCC) recommendation, schools should have a minimum of 1 Mbps per student. About 74% of school districts currently meet or exceed this standard, which highlights an opportunity for some districts to enhance their network capabilities.⁴



Assessing Training Needs

Deploying AI successfully also depends on the skills and competencies of the staff. Districts can start by determining if their staff have the necessary knowledge to manage and use AI tools effectively and then implement targeted training programs and data literacy initiatives if gaps exist. Promoting an environment of continuous learning and upskilling is crucial as AI technology evolves rapidly.



Reviewing Security Measures

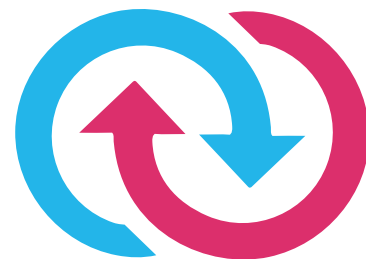
With the integration of AI, it's also important to consider the potential security risks associated with handling and storing increased volumes of sensitive data. Establishing robust security protocols to protect this data is key. By ensuring strong protections are in place, schools can safeguard sensitive information from potential breaches.

Integrating AI with Current Operational Processes

Once the technical and staff capacities are assessed, schools can examine how AI can be woven into existing operational processes. This process involves analyzing current workflows to identify potential enhancements AI could bring.

Districts may need to modify or completely overhaul certain processes or programs to reap the maximum benefits of AI integration. This step is vital in ensuring that AI tools are not just added on top of existing practices but integrated in ways that genuinely enhance educational outcomes and operational efficiency.

Assessing and enhancing tech capacity is critical to successful AI integration in your schools. By carefully evaluating data readiness, technical infrastructure, staff capabilities, and security measures, schools can prepare themselves to leverage AI technologies effectively.



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Empowering Instructional Teams

AI is transforming how we teach and learn. Most educators recognize the importance of data-driven instruction, with 86% believing that using data is an important part of being an effective teacher,⁵ and 81% noting benefits for their students.⁶ However, limited time, overwhelming data, and difficult data access can get in the way of using AI effectively.

Enhancing Teaching and Learning with AI

AI's potential in education extends beyond automating tasks—it can augment educators' roles, enabling them to focus more on direct student interaction and less on administrative duties.

For instance, AI can automate grading and generate new content based on the student's performance, like practice problems or writing prompts, freeing up time for teachers to engage more deeply with their students. This shift enhances the learning experience and allows teachers to focus on building meaningful connections with students, which is vital for effective teaching.

Teachers can build confidence in using AI by starting with time-consuming tasks like grading or creating personalized activities. Then, invite them to explore how AI can enhance their lessons, engage students actively, and provide real-world applications. The best AI tools make it easy for teachers to develop personalized learning paths aligned with academic standards and support deep learning.



It's important to remember that AI complements a teacher's expertise. While AI can improve lessons and facilitate personalized learning for every student at scale, the teacher's role in understanding and addressing student needs is still significant and vital.

Professional Development and Empowerment through AI Literacy

Before educators can effectively use AI tools in teaching, they need a foundational understanding of AI, including knowledge of ML and large language models (LLMs). LLMs are advanced AI systems trained on vast amounts of text data to understand and generate human language, like ChatGPT. This foundational knowledge ensures that educators are not only users of AI but also informed advocates of its use in the classroom.

Facilitate environments where educators can experiment with AI tools, learn from these interactions, and apply their knowledge in practical educational contexts. Encouraging exploratory learning helps demystify AI and makes it more accessible to educators. This exploration involves playing with AI tools to understand the principles of how AI-powered machines learn and applying this AI literacy to real-world scenarios.

Initiatives that boost teachers' confidence and familiarity with AI can go a long way in increasing AI utilization. Schools can start by engaging teachers in discussions about their concerns and the potential benefits of AI, followed by opportunities to explore AI tools hands-on.

The most comprehensive professional development programs offer hands-on training that covers the use of AI and critical examinations of these tools through the lenses of equity, cultural responsiveness, and ethics. Feedback from AI explorations can help tailor professional development to better meet educators' needs and align AI tools with educational goals.



Build AI foundations



Encourage exploration



Boost confidence



Tailor development

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Understanding Data Governance, Privacy, and Policy Implications

When it comes to AI in schools, the importance of managing data responsibly cannot be overstressed. Transparent and effective data governance is a regulatory requirement and a cornerstone of trust and security in educational environments.

The primary goal of data governance in education is to craft policies that improve teaching and learning while complying with legal standards. Establishing a robust data governance framework involves defining how data is collected, stored, processed, and shared. Ensuring compliance with privacy laws like the Children’s Online Privacy Protection Act (COPPA) and the Family Educational Rights and Privacy Act (FERPA) is essential. These laws protect students’ privacy and build trust among the entire school community by ensuring that the data used in educational settings is handled responsibly.

Implementing AI in schools requires ongoing training and support for everyone involved, from teachers to administrators.

It’s crucial that each staff member understands their role in maintaining data privacy and security. For instance, while teachers may not need to know the specifics of FERPA audits, they should know what student information they can access or disclose. Tailored training ensures all staff are equipped to handle the data responsibly, according to their specific roles.



Addressing Cybersecurity and Privacy Concerns

Because many AI technologies initially designed for commercial use are being adapted for educational purposes, there may be unique challenges in compliance with educational privacy regulations. Before adopting any AI system, K-12 leaders will need to consider its compatibility with educational environments, focusing on cybersecurity, privacy, bias, and the impact on student perceptions of surveillance and fairness. Address questions about data sources, potential biases in AI algorithms, and the implications of using this technology in a classroom setting.

As AI technologies become more integrated into school systems, the importance of cybersecurity measures increases. Schools need strong security protocols to protect sensitive information from potential breaches.

Engaging Families in Data Governance

Parents and caregivers want to know and understand how their children's data is used and why it's important. The potential for AI systems to collect detailed data about students—from their voice to their browsing habits—can raise concerns about privacy and the long-term profiling of students. Schools can strive for transparency by clearly communicating their data collection and usage policies. This effort helps gain parental and caregiver support and reinforces the school's commitment to protecting student information.

Robust data governance, proactive communication with families, ongoing staff training, and stringent security measures will help districts craft a future-ready AI strategy. As AI continues to evolve, staying informed and adaptable is necessary for students, educators, and administrators to utilize these technologies responsibly and effectively.



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Funding AI initiatives in education requires a strategic approach that considers district priorities, federal and state grant opportunities, return on investment, and ongoing evaluation of effectiveness. When considering how to fund AI, it's important for districts to begin with the specific goals they aim to achieve, not the AI-enhanced strategies that may get them there.

While some states and districts may provide funding, exploring other sources is necessary. For example, the Every Student Succeeds Act (ESSA) could offer districts opportunities to fund professional learning and technology purchases.



Leveraging Longstanding Federal Grant Programs

School districts can tap into and braid various federal funds aligned with their educational goals to support AI implementation.

For instance, Title I funds, designed to provide supplemental support to narrow achievement gaps, can be utilized to implement AI-enhanced learning platforms and data dashboards to drive decision-making around tiered supports. Similarly, Title II funds, aimed at improving educator effectiveness, can be leveraged to integrate AI tools into curriculum development, lesson planning, collaboration, and individualized staff development. Title IV funding, which supports student well-being and well-rounded educational opportunities, can be used for college and career readiness platforms, family engagement tools, and solutions for analyzing student well-being needs, all underpinned by AI. Other programs like IDEA, Perkins, Title III, McKinney-Vento, and other unique state grants can fund strategic investments in the right AI-supported tools.

Establishing Return on Investment

AI-supported technology can yield substantial returns on state and local fund investments. Broad use cases, such as predictive analytics for identifying student needs, AI-driven assessment tools, and automation of administrative tasks, offer opportunities for significant time and cost savings.

AI-powered data visualization can enable early intervention strategies, reducing the need for costly remediation programs and improving overall student outcomes. Similarly, administrative tasks such as scheduling, data management, and reporting can be streamlined through AI automation, resulting in valuable time savings for educators and administrators.

Monitoring and Evaluating Impact

As with any district initiative, once AI innovations are implemented, ongoing monitoring and evaluation are essential to assess their effectiveness, identify areas for improvement, and adjust funding priorities accordingly. Utilizing data analytics and feedback mechanisms enables districts to track the impact of AI interventions on key performance indicators and refine their strategies over time.



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For most districts, the first step to implementing AI is building a safe and secure foundation to consolidate all district data. By consolidating everything in a secure data lake, you can advance your district's AI capabilities by bringing AI directly to your data—instead of the other way around.

With [PowerSchool Connected Intelligence K-12](#), districts of any size, regardless of their in-house technical capabilities, gain the foundational layer for AI. With this platform, you can power future AI implementations, including building large-scale solutions, creating new district-specific features and training models, and deploying AI tools across your organization.

With a comprehensive program to protect the security and integrity of our applications—including robust cloud security, security by design, third-party penetration testing, and a responsible disclosure program—all validated by independent third-party auditors, PowerSchool is committed to protecting our customers' data.

6 Guiding Principles of PowerSchool’s AI Use

Choosing the right partner can ensure seamless and ethical integration of AI tools in your educational environment. At PowerSchool, we understand how critical it is to carefully integrate AI into educational tools. Six principles guide PowerSchool’s AI methodology to ensure we maintain a mindful and responsible approach to this technology.



Human-centered

By its very nature, education will always have a significant human element. Technology augments what people do—it does not replace them. We design AI-ML solutions accordingly to enhance and assist educational practices at every level.



Built with fairness and bias elimination

We build observability to detect and identify bias in data and algorithms to reduce and eliminate bias from our applications. We will not reinforce unfair bias against users’ characteristics such as race, ethnicity, gender, nationality, income, sexual orientation, ability, and political or religious beliefs.



Stringent data governance, privacy, and security

We follow strict processes and controls, including protecting student data privacy, security against adversarial attacks, and masking Personally Identifiable Information (PII) data throughout model development and the deployment life cycle. We will use established, well-defined test plans and strict quality assurance (QA) processes before releasing AI models to production.



4

Transparency and user control

We will allow each school system to use application controls and permissions to decide who can access which data and when users can use a particular AI-ML element. We will ensure that algorithms, inputs, and output are transparent, fair, explainable, and interpretable.

5

Digital equity and accessibility

We will ensure that our applications are designed and implemented to avoid discrimination and promote equal access and opportunities for all students, regardless of their background or characteristics.

6

Ethical use

We will ensure educational institutions can harness the potential of AI ethically and responsibly, fostering a safe, inclusive, and effective learning environment for all students.



Find out where your K-12 organization is on the AI readiness journey.

[TAKE THE READINESS SELF-ASSESSMENT](#)

Take the AI Readiness Self-Assessment

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