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# AI IMPLEMENTATION GUIDE

PLANNING FOR IMPACT @  
PGCPS



# Message from the Authors

This guide was developed as part of a collaboration between Harvard Graduate School of Education's Doctor of Education Leadership (EdLD) Program and Prince George's County Public Schools (PGCPS) Office of Information Technology.

Creating an implementation guide for the use of artificial intelligence (AI) tools in PGCPS required a collaborative approach to address the unique needs and concerns of various stakeholders including students, teachers, site leaders, district leaders, and families.

Given the district's emphasis on equity, ethical use, student privacy, and security, this guide aims to be both visionary and pragmatic, focusing on responsible and beneficial integration of AI into educational practices.



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It is our hope that this guide will serve as a valuable resource to frame the development of administrative procedure in the district, and as a reservoir of research to support future investments that will ensure PGCPS is a field-defining leader in this work.

# Disclaimer

These materials are preliminary and non-exhaustive and are being made available on a nonexclusive basis solely for information purposes in response to the need for considerations for implementing AI in pre-kindergarten to 12th grade (PK12) education. The materials reflect general insight and may present potential options for consideration based on currently available information, which is inherently uncertain and subject to change, but do not contain all of the information needed to determine a future course of action. The insights and concepts included in these materials have not been validated or independently verified. References to specific products or organizations are solely for illustration and do not constitute any endorsement or recommendation. These materials do not constitute, and should not be interpreted as policy, accounting, legal, medical, tax, or other regulated advice, or a recommendation on any specific course of action. These materials are not a guarantee of results and cannot be relied upon. Future results may differ materially from any statements of expectation, forecasts, or projections.

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# Executive Summary

Artificial intelligence is no longer a future possibility; it is currently reshaping the workforce. According to the World Economic Forum’s *The Future of Jobs Report 2023*, “AI and big data” made it into the top ten most sought after skills.

Students not equipped with AI skills today face a substantial disadvantage in the future job market. Despite the urgency of providing students access to AI state and districts have been slow to have been slow to release guidance or take proactive steps to integrate the use of AI into classrooms.

Integrating the use of AI into education presents a myriad of opportunities and challenges. This technology has the potential to transform teaching and learning and increase efficiency for administrators and teachers. The US Department of Education's Office of Educational Technology highlights five general domains of impact for the integration of AI in Teaching and Learning in its recently released report “AI and the Future of Teaching and Learning: Insights and Recommendations”: new forms of interaction, address variability in student learning, powerful adaptivity, enhanced feedback loop, and educator support.

At the same time, risks such as privacy, data security, and ethical implications, including upholding academic integrity must be mitigated. This document provides background information, guidance, and recommendations to ensure Prince George County Public Schools create the conditions for using AI that maximizes these opportunities while mitigating the threats. PGCPs can play an important role in demonstrating to districts across the nation how AI can be used to address learning disparities while also providing enhanced learning experiences.

This work begins by establishing a clear vision for integrating AI into teaching and learning anchored in the district’s Student Learner Profile. This guide provides AI considerations and requisite supports for the five domains (i.e. Global Citizen, Communicator, Critical Thinker, Creator & Innovator, and Goal-Directed Learner). Once the district has established a clear vision for the use of AI, policies, guiding principles, and practices that create conditions to encourage responsible use must be established. A key consideration is that policy should create the conditions for effective implementation of AI in schools across the district.

# Executive Summary

Rather than policy being seen as a tool for discouraging misuse, it should seek primarily to provide leaders and teachers with guidance for how AI should be used to reach the districts strategic goals and ensure that every student benefits from these investments in innovation. At the same time, it is critical that district leaders develop policies and procedures based on clearly articulated ethical guidelines. This document provides guidance on policy implications, ethical considerations, potential revisions to acceptable use policies, and list of guiding principles that aligns with its core values.

As is true of any change initiative, the district's implementation plan should be grounded in an understanding of its stakeholders perception and current use of AI. At a macro-level, it is known that 60% of educators believe generative AI is inevitable, are interested in professional development and coaching, and are waiting for guidance before adopting this tool. An Education Week survey found that only one-third of teachers report using AI-driven tools in their classrooms, one-third of teachers indicated they "have not used them and do not plan to start," and 22% reported they do not plan to start this year but will start in the future. Building proficiency with this tool will require applied learning, time, and space to experiment with new approaches, and opportunities to share practices with colleagues.

As the district embarks on this journey to adopt district-wide use of AI, it is essential to start by instilling a sense of urgency, in this circumstance this means helping teachers understand why it is essential their students understand how to use the tools. At the same time, helping educators understand the ways in which AI can help reduce their workload may also work as catalyst for change. The following recommendations are intended to guide the district's initial efforts to institutionalize the use of AI across the district.

# Executive Summary

## Summary of Recommendations

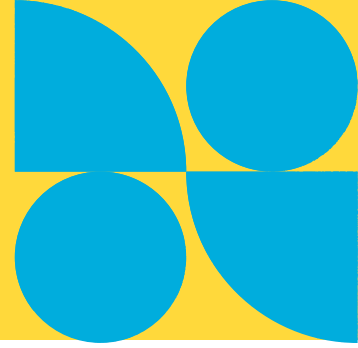
Create a change management plan that takes into consideration quick wins as well as long-term strategies for AI integration. The following actions should be included in the plan:

- Foster an environment of learning so that educators and leaders at all levels explore and experiment with AI.
- Provide capacity building for education and offer professional development (i.e. micro-credentialing programs).
- Create guiding principles for ethical and effective AI use.
- Develop an ethics review process.
- Update district's digital security and data protection measures.
- Ensure that schools are equipped with devices and infrastructure to support high levels of data streaming.
- Continuously improve system management and configuration to ensure that the district's policies, procedures, and practice parallel rapid technological advancements.

In embracing AI, PGCPs commits to a future where education is more personalized, efficient, and inclusive.

This journey requires continuous evaluation and adaptation to ensure that our use of AI technologies aligns with our core values of equity, transparency, and excellence in education. Together, we can create a dynamic learning environment that prepares all students to thrive in an increasingly digital world.

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# Introduction

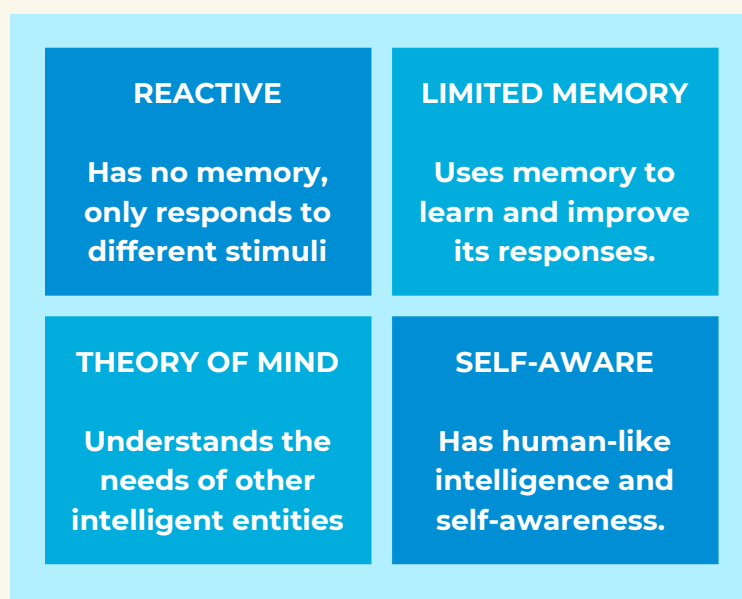
## Contextual background on AI in education.

Just like the printing press revolutionized access to books, AI has the potential to change the way students engage with the world of information around them. While the advent of AI tools that leverage a large language model (LLM) has brought a flurry of attention, researchers have been exploring intelligent computer-assisted instruction (ICAI) for the past few decades (Jones, 1985). In fact, a 2020 study found that the use of AI has already been widely “adopted and used in education, particularly by education institutions, in different forms” (Chen et al., 2024). In fact, it is important to note that the industry tends to bucket different types of AI into four categories (Naveen, 2024): 1) Reactive; 2) Limited Memory; 3) Theory of Mind; and 4) Self-Aware (IBM Data and AI Team, 2024).

As an article in Forbes explains, these categories segment AI based on “their likeness to the human mind, and their ability to “think” and perhaps even “feel” like humans. Prior to the advent of ChatGPT, many students likely already had exposure to reactive AI (i.e. tools that possess no memory, but rather produce a simple response based on input).

Regardless, LLM-based tools (like ChatGPT) and the proliferation of generative AI pose new risks to learning, such as threats to critical thinking and intellectual integrity. However, as Zainab Alalawi, Chandra Reka Ramachandiran, and Zailan Bin Abdul Salam argue, many of these risks can be circumvented through robust teacher training and support (Alalawi, 2024).

In fact, proponents of AI in education (AIEd) forecast that quickly evolving “anthropomorphized artificial educational agents” (i.e. instructional avatars) have the potential to “provide robust student differentiation, and even foster socio-emotional engagement” (Schiff, 2024).



(Joshi, 2019)



An additional concern raised by educators is the threat of instructional avatars replacing human teachers. However, neuroscience reveals that human relationships are key in learning. The pandemic highlighted that isolated online learning disrupted the ability for students to bond with teachers and classmates, therefore stunting learning (Fazal, 2021). While instructional avatars and AI tools are able to respond to stimuli based on coded reactions to input, it will still depend on teachers to develop bonds with students so that they feel safe and welcomed in their learning environments. As such, it will be important for teachers to learn how to leverage AI tools to prepare students for the future where human relationships will continue to play an essential role. Given this, throughout this document, the recommendations provided outline a human-centered approach to the integration of AI in public education, otherwise known as 'keeping humans in the loop.'

**While instructional avatars and AI tools are able to respond to stimuli based on coded reactions to input, it will still depend on teachers to develop bonds with students so that they feel safe and welcomed in their learning environments.**

### **Importance of AI for future readiness and equity in education**

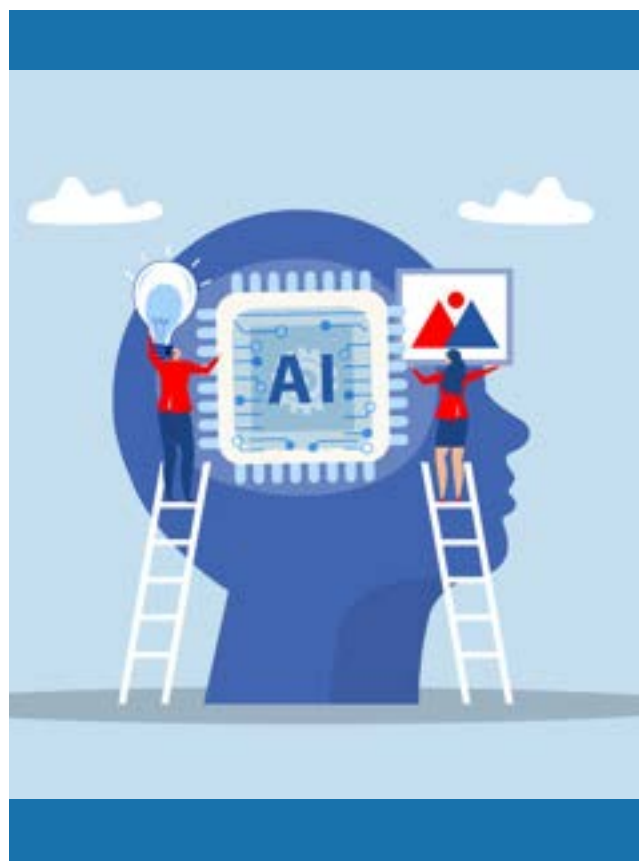
Moreover, industry leaders and researchers are rushing to examine the implications that AI will have on the career readiness of high school students. According to the World Economic Forum's The Future of Jobs Report 2023, the three most sought-after skills according to employers are critical thinking, analytical thinking, and technological literacy. Meanwhile, "AI and big data" also made it into the top ten. Fortunately, around the world, examples of successful machine learning programs are proliferating. For example, Julian Estévez, Gorka Garate, and Manuel Graña used "coding scaffoldings" to introduce students to a subset of the most common AI algorithms used in technology today (Estévez et al., 2024). Meanwhile, Harald Burgsteiner, Martin Kandlhofer, and Gerald Steinbauer developed a course that introduces high school students to the basics in machine learning (Burgsteiner et al., 2016).





While programs such as these highlight promise, there are issues of equity to consider. Machine learning aside, Latinx and Black Americans have the least exposure to AI tools than any other demographic group, meanwhile women and Asian Americans are most at risk for job automation (Kochar, 2023). The Aspen Institute projects that Latinx and Black Americans may similarly be affected (Purves, 2022). Additionally, when it comes to gender disparities, a study conducted in Beijing found that women exhibited higher rates of anxiety and lower levels of confidence in using AI tools in comparison to their male peers. However, the same study also determined that “AI anxiety was not significantly correlated with AI readiness” (Dai et al, 2020). In other words, with the right support, the varying levels of initial hesitation did not impede students’ ability to become competent in this domain – good news given the disparities already manifesting in regard to AI exposure and proficiency.

As a school district where half of students identify as Black or African American and more than a third are Latinx (PGCPS, n.d.a), PGCPS is well positioned to play a leading role in demonstrating how AI can be harnessed to eliminate achievement gaps and improve the effectiveness and efficiency of the teaching and learning experience. As outlined in the district’s vision for a “Robust Digital Ecosystem,” PGCPS is committed to “making sure every learner and educator has the tools they need to succeed” (PGCPS, n.d.b) By operationalizing the key messages and recommendations in this AI implementation guide, PGCPS can continue to uphold its mission of closing the digital divide for all students.



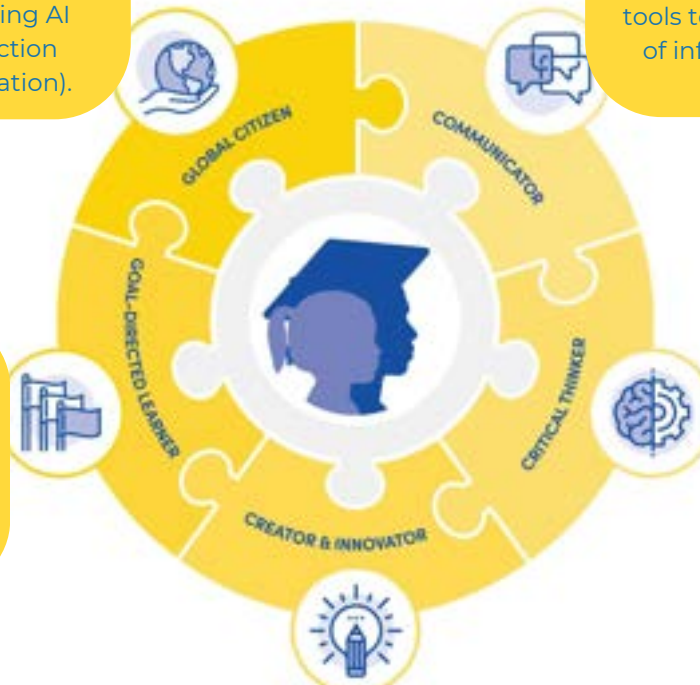
# Student Learner Profile

## Updates in Light of Artificial Intelligence

In 2021, PGCPS published the district's "Student Learner Profile" which is divided into five domains: Global Citizen, Communicator, Critical Thinker, Creator & Innovator, and Goal-Directed Learner. Since then, generative AI tools have quickly become ubiquitous. In the face of AI's emerging prevalence, this profile requires revisiting. The diagram below highlights important AI-related considerations as they correspond with the Student Learner Profile, as well as corresponding requisite supports.

Informed global citizens make use of AI to advocate for oneself and others (e.g. researching a locally relevant topic using AI tools and mobilizing action around accurate information).

Good communicators know how to leverage AI to amplify a message (e.g. using generating AI tools to enhance the presentation of information through visuals, data, and language).



Goal-directed learners can use AI to make better informed decisions about progression (e.g. maximizing AI tools to meet individual learning needs and provide scaffolding in self-directed learning).

Critical thinkers recognize the dangers that exist when using generative AI and know how to verify information (e.g. validating information produced by generative AI by verifying the sources).

Creators and innovators know how to leverage AI to accelerate and improve the creative process (e.g. leverage generative AI to produce high quality images and graphics to support a piece of original work).

### Students need access to AI tools that:

Offer credible information, improve communication, generate creative content, and analyze or present data

### Students need teachers who:

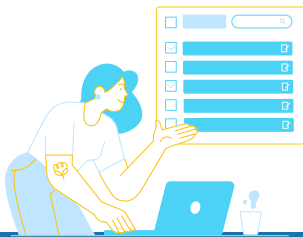
- Are trained in the latest AI tools
- Recognize when students are using AI tools as a crutch rather than an assistive tool
- Differentiate support for students when AI tools are being overutilized
- Coach students to sift through sources to determine credibility
- Help students to make sense and verify data provided through AI tools

### Students need administrators who:

- Stay abreast of latest developments in technology
- Identify professional development opportunities for teachers and staff
- Secure resources so that students and teachers have access to latest technology
- Uphold school- and district-wide policies to mitigate risks

# 7 Recommendations from the US DOE

The previously highlighted AI-considerations and requisite support structures are rooted in seven recommendations articulated by the US Department of Education (DOE) in its 2023 report titled “Artificial Intelligence and the Future of Teaching and Learning.” They call on leaders to build on existing ed tech foundations and best practices and to “reach beyond these... frameworks to address emerging opportunities and risks that are specific to novel capabilities and uses of AI in education” (Cardona et al., 2024).



**01.**

**Emphasize humans in the loop.**



Ensure human oversight and interaction remain paramount.

**02.**

**Align AI models to a shared vision for education.**



Ensure AI enhances rather than detracts from educational priorities.

**03.**

**Design using modern learning principles.**



Focus on inclusive, adaptive, and culturally responsive designs.

**04.**

**Prioritize strengthening trust.**



Build trust through clear, effective, and safe designs that align with educational values and priorities.

**05.**

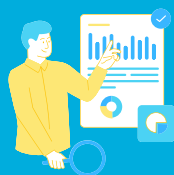
**Inform and involve educators.**



Leverage educators in the development, evaluation, and implementation of AI technologies.

**06.**

**Focus research and development on addressing context and enhancing trust and safety.**



**07.**

**Develop education-specific guidelines and guardrails.**



Focus on privacy, bias, and ethical use of data.

As districts consider how best to leverage AI to support student learning, differentiated profiles may be needed based on age level. Research indicated that younger children are already exposed to various technologies that incorporate AI, though they may be unaware of their existence (Vandenberg et al., 2023). As students progress in their education, it will be important for teachers to become familiar with brain development needs as they relate to AI. At different junctures in a child’s education, it will be critical for them to develop awareness of AI, the role it plays in their learning process, and how to think critically about its use.

# ENVIRONMENT

STAKEHOLDER ANALYSIS

OPPORTUNITIES &  
CHALLENGES

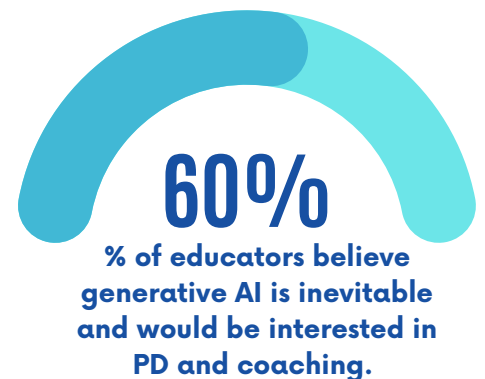
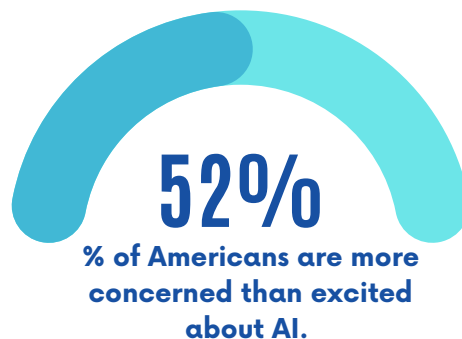
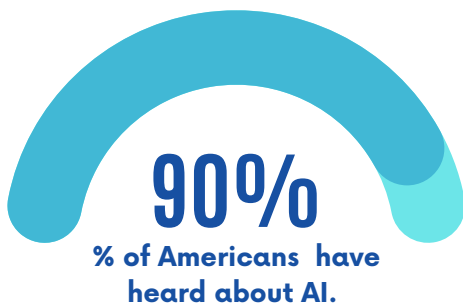
ETHICAL  
CONSIDERATIONS

**PART I**

# By the Numbers

## Stakeholder Perspectives on AI

Approximately 90% of Americans report having heard a little about AI, and one-third indicate they've heard a lot (Faverio et al., 2024). Despite widespread awareness, the general population still expresses fear and concern about the implications of AI, with fifty-two % of Americans reporting being more concerned than excited about AI in their daily life (Faverio et al., 2024). Recent graduates report being threatened by the rise of AI and questioned their preparedness to enter the workforce (Horn, 2024). Roughly one year after the launch of ChatGPT, almost 60 % of educators believe generative AI is inevitable and would be interested in professional development and coaching (Alexander, 2023).



### STATE AND DISTRICT GUIDANCE

Although the general consensus among educators is that AI is here to stay, states and districts have been slow to release policies and guidance. In October 2023, the Center for Reinventing Public Education (CRPE) reported that Oregon and California were the only states with formal guidance, with eleven other states planning to provide guidance (Dusseault & Less, 2023). In a recent survey conducted by EdWeek, **79% of educators indicated their districts lack formal policies on using AI tools** (Klein, 2024). This lack of guidance and support from leadership is creating reluctance from many educators to use AI in the classroom despite their interest.

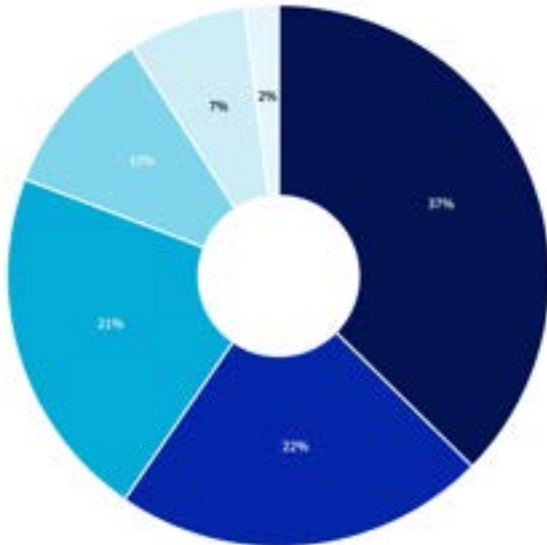




# By the Numbers Teacher AI Usage in the Classroom

## Which of the following best describes your current use of artificial intelligence-driven tools in your classroom?

- I have never used them and don't plan to start.
- I have not used them and do not plan to start this school year—but do plan to start in the future
- I use them a little
- I use them some
- I have not used them but plan to start this school year
- I use them a lot



NOTE: Totals may not add up to 100% due to rounding

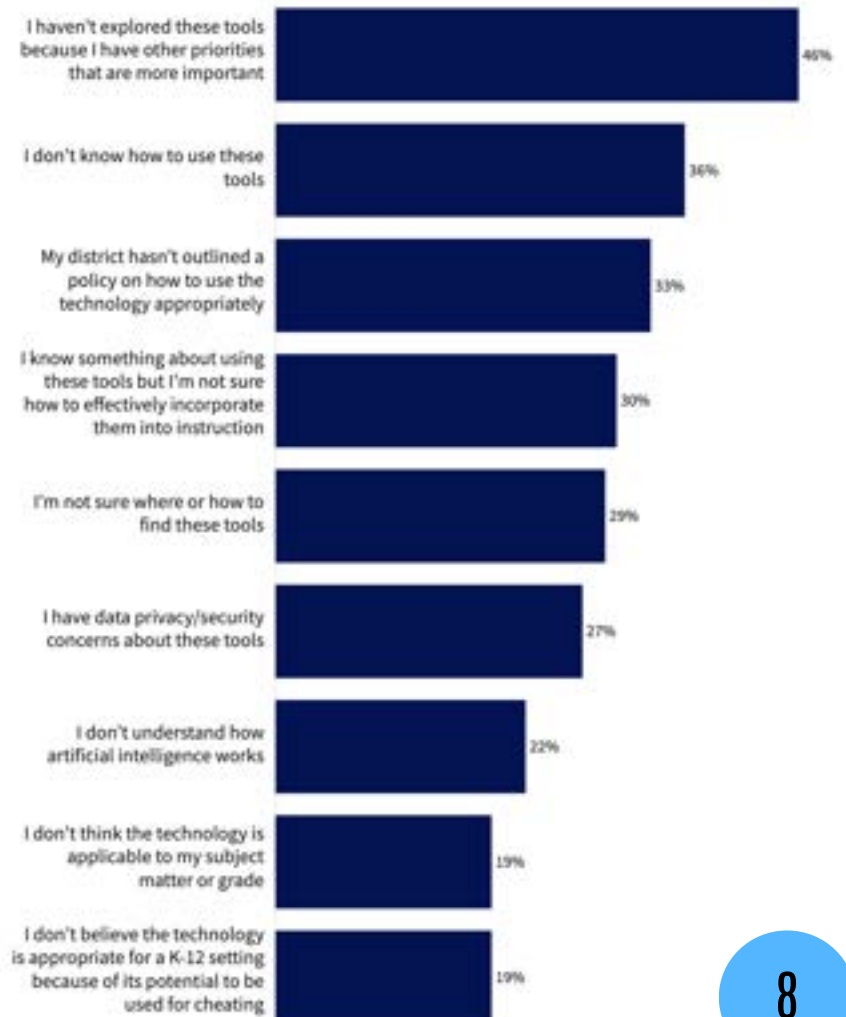
SOURCE: EdWeek Research Center survey, December 2023

## Time is of the essence.

Despite projections in 2020, before the release of ChatGPT, that 20% to 40% of current teacher hours are spent on activities that could be automated using existing technology allowing for more time to focus on the core of teaching and learning (Bryant et al., 2024), the number one reason teachers report not using AI is that teachers do not have time to learn more about and experiment with AI (Langreo, 2024a). In open-ended responses, educators indicated they lack the knowledge and support to implement AI. A Minnesota educator stated, “I was asking for a district policy for student use of AI last spring and was brushed off.”

A 2023 teacher survey conducted by the Walton Family Foundation found that 58% of PK12 teachers had favorable views of ChatGPT (2024). However, as of December 2023, a survey conducted by EdWeek found that only one-third of teachers report using AI-driven tools in their classrooms, one-third of teachers indicated they “have not used them and do not plan to start,” and 22% reported they do not plan to start this year but will start in the future (Langreo, 2024).

## You indicated you don't currently use artificial intelligence-driven instructional tools in your classroom. Why not? Select all that apply.



Although the general sentiment among educators is that AI has the potential to radically transform teaching and learning, teachers are waiting for guidance and support before adopting AI. This is partly due to concerns about academic integrity, student and teacher agency, ethics, equity, privacy, and security. Because of these concerns, it is essential to take a human-centered approach to AI, placing parents, educators, and students at the center of the educational experience or, in other words, “keep humans in the loop.”

Perceptions of AI among parents and students are generally positive, while the current usage is unclear. In the aforementioned survey conducted by the Walton Family Foundation, 61% of parents and 54% of students 12-17 reported favorable views of ChatGPT (2024). In a survey of parents conducted by the Digital Wellness Lab at Boston’s Children’s Hospital, over 80% of parents surveyed indicated they were familiar with generative AI. In this same survey, 54% of parents with kids ages 3-5 reported their kids had used generative

## By the Numbers

### Parent & Student Perspectives



#### VIEWS ON CHATGPT

In a survey conducted by the Walton Family Foundation, 61 % of parents and 54% of students 12-17 reported favorable views of ChatGPT (2024).



#### IMPACT ON STUDENTS

The overwhelming majority of parents perceive generative AI as having a positive impact on their child’s curiosity and desire to learn, imagination/creativity, critical thinking skills, education/schooling, and social skills.



#### PREVALENCE AMONG HIGH ACHIEVERS

Use among high school students is more prevalent among students who scored in the top quartile of the ACT - 53% indicated they had used AI, compared to 45% of students who scored in the middle, and 36% among those who scored in the bottom quartile (Klein, 2023).



# AI in Education

## Opportunities & Challenges

As Artificial Intelligence becomes increasingly embedded within educational systems, it is essential to have an understanding of both the transformative opportunities and the significant challenges it brings. These opportunities and challenges necessitate careful planning and strategic implementation (Devi et al, 2023).

### Opportunities for Enhancing Educational Practice

AI's applications in education span from personalized learning and administrative automation to supplementary learning support and the customization of teaching materials. These technologies offer the potential to significantly enhance teaching effectiveness, learning outcomes, and administrative efficiency.

#### Personalized Learning

AI's ability to analyze vast amounts of data can lead to more personalized learning experiences for students.

By identifying individual strengths and learning preferences,

AI can tailor educational content to meet the diverse needs of students, potentially increasing engagement and effectiveness.

#### Efficiency and Administrative Assistance

AI can automate routine tasks such as grading, scheduling, and student attendance, freeing up educators to focus more on teaching and less on administrative duties.

This shift can enhance job satisfaction and allow teachers to dedicate more time to student interaction and personalized instruction.

#### Enhanced Formative Assessment

AI tools can provide real-time feedback to students and teachers, enabling more dynamic formative assessments.

This immediate responsiveness can help adjust teaching strategies to better align with student needs and enhance the learning process.

# AI in Education

## Key Implementation Challenges

The deployment of AI in education is not without its challenges and concerns. Issues such as privacy, data security, and the ethical implications of AI use, including the potential for misinformation and academic dishonesty, come in at the top of the list. Ensuring that AI-generated content is accurate, unbiased, and adheres to educational standards requires vigilant oversight and quality assurance measures (Harry, 2023). The pre-existing “digital divide” remains a significant concern in light of the increasing prevalence of AI in daily learning routines, and the need to rethink educational policies on plagiarism and academic integrity is crucial but complex and unresolved.

### Challenge Areas to Focus On:

Technological & Human Balance	Privacy & Surveillance Concerns	Bias & Equity
<p>The delegation of tasks to AI must be carefully managed to maintain a meaningful human presence in the classroom.</p> <p>Deciding what and when to automate involves understanding the nuances of educational interactions that AI cannot fully replicate, such as moral and ethical decision-making and cultural sensitivity.</p>	<p>The implementation of AI in classrooms raises significant privacy issues.</p> <p>The data collected can be invaluable for personalized learning but also poses risks related to surveillance and data misuse.</p> <p>Ensuring that AI systems comply with privacy laws and ethical guidelines is crucial to maintaining trust and security.</p>	<p>AI systems are only as unbiased as the data used to train them. Historical data can embed existing prejudices that lead to biased decisions, potentially reinforcing educational inequities. Continuous monitoring and adjustments are necessary to ensure AI tools are equitable and inclusive.</p>

# Strategies for Effective AI Integration

To leverage opportunities and combat challenges, strategic steps should be taken to establish a solid foundation via teacher capacity building, stakeholder engagement, and the development of AI academic guidelines (Hong et al., 2023). Educating students and the community about responsible AI use and continuously assessing and updating AI policies and practices are crucial for the successful integration of AI in educational settings.

## 01 — Educator Empowerment

Teachers should be at the forefront of AI integration, equipped with the skills and knowledge to utilize these tools effectively while maintaining control over their classrooms. Professional development and ongoing support are essential to help educators adapt to new technologies.

## 02 — Stakeholder Engagement

Including voices from all areas of the educational community—students, parents, teachers, and administrators—is vital in designing AI tools that address the actual needs of schools. Collaborative design processes can ensure that AI solutions are practical, inclusive, and effectively integrated.

## 03 — Ethical & Responsible Use

Establishing clear guidelines and ethical standards for the use of AI in education will help mitigate risks associated with privacy, bias, and autonomy. These standards should be continuously reviewed and updated in response to new developments and feedback from educational stakeholders.

## Conclusion

The integration of AI into education offers significant opportunities to enhance teaching and learning while presenting challenges that require careful planning and active management. By focusing on ethical implementation, preserving the human element in education, and continuously evaluating the impact of AI tools, educational systems can harness the potential of AI to foster more engaging and effective learning environments.

# Opportunities

## Examples from the Field

The examples below provide a more detailed view into the benefits AI can offer within the educational sector, illustrating the importance of thoughtful and equitable implementation strategies. These examples are for illustrative purposes only and are not based on specific district experiences..

### Interactive AI Tutors for Math

In a middle school in Texas, an AI-powered tutoring system is used to supplement classroom math instruction. The system adapts to each student's proficiency level, offering problems of varying difficulty and providing immediate feedback, which helps students progress at their own pace.

### Virtual Labs Powered by AI

Schools lacking resources for physical science labs can use AI-driven virtual lab simulations to allow students to conduct complex experiments online. This technology provides students with practical experience and experimentation opportunities without the need for expensive lab equipment.

### AI for Streamlining Grading

A high school in California employs AI software to grade student essays and short answers. This tool uses natural language processing to evaluate content quality and provide constructive feedback, significantly reducing the grading workload for teachers.

### AI-Driven Early Warning Systems

A district in Ohio uses an AI system that analyzes student data to identify those at risk of dropping out. The system alerts counselors and teachers who can then intervene with targeted support and resources to help at-risk students stay on track.

### AI Assistants for Special Needs Education

An elementary school in Florida uses an AI assistant designed to interact with students who have autism. The AI assistant uses games and interactive scenarios to teach social skills in a controlled, repeatable way, which is often challenging in a traditional classroom setting.

# Challenges

## Examples from the Field

The hypothetical examples below provide a more detailed view into how AI can pose real challenges within the educational sector, illustrating the importance of thoughtful and equitable implementation strategies.

### Bias in AI Educational Tools

In a diverse urban school, an AI-based admissions tool was found to disadvantage minority students due to biases inherent in the historical data used to train the AI. This led to a reevaluation of AI tools used in administrative decisions to ensure fairness and equity.

### Surveillance Concerns

A software used in a New Jersey school district to monitor student engagement during online classes raised privacy concerns among parents. The AI software analyzed students' facial expressions and body language, leading to debates about privacy invasion and the ethical use of surveillance technologies in education.

### Dependency on Technology

In a rural alternative high school, reliance on AI for personalized learning led to concerns about students' reduced ability to perform tasks without AI support. Educators noticed a decline in independent problem-solving skills, prompting a review of how and when AI tools should be employed in teaching.

### Digital Divide Impacting AI Access

Students in low-income areas of Detroit were found to have less access to AI educational tools and high-speed internet, exacerbating educational inequalities. The lack of access limited these students' ability to benefit from AI-driven personalized learning platforms.

### Complexity of Implementing AI Solutions

A school district in Oregon faced challenges training teachers to effectively use AI tools, which were initially perceived as too complex. This led to underutilization of potentially beneficial AI technologies, highlighting the need for comprehensive professional development in AI integration.

# Will AI Replace Teachers?

**The current consensus among educational experts and futurists suggests that while AI not replace teachers. It does, however, have the potential to significantly enhance their efficiency and effectiveness.** To enable educators to leverage AI, the district must foster a culture that encourages exploration and experimentation with AI technologies (ISTE, 2024). It is also crucial to develop AI literacy among educators, ensuring they are well-informed about AI's capabilities and limitations (Langreo, 2023), and are fully aware of the ethical considerations involved in its application (TeachAI, 2024). Some of the ways AI is unlikely to be able to replicate or replace teachers include:

**Building Deep Emotional Connections:** AI lacks the capability to form deep, genuine emotional bonds with students. Human teachers excel at interpreting subtle emotional cues and providing the empathy and understanding necessary to support students through personal and academic challenges.

**Adapting to Dynamic Classroom Environments:** While AI can manage structured tasks, it struggles with the unpredictable and dynamic nature of classroom environments. Teachers can spontaneously adjust lesson plans, manage disruptions, and provide immediate, context-sensitive responses that AI cannot replicate.

**Cultivating a Learning Community:** Teachers play a critical role in building and nurturing a sense of community among students. They encourage collaboration, foster respectful interactions, and model social behaviors—complex interpersonal dynamics that AI cannot authentically create or sustain.

**Exercising Professional Judgment:** Teachers use their professional judgment to make nuanced decisions about pedagogy, discipline, and student engagement. This judgment is informed by years of experience and personal interactions with students, something that AI, with its reliance on algorithms and patterns, cannot mimic.

**Inspiring and Motivating Students:** Human teachers inspire and motivate students by sharing personal stories, displaying passion for subjects, and recognizing and cultivating students' potential. This kind of inspirational influence is uniquely human and difficult for AI to replicate.

**Addressing Diverse Learning Needs:** Teachers are adept at modifying instruction to meet the diverse educational, emotional, and social needs of their students. AI can provide personalized learning paths but lacks the human intuition and adaptability necessary to fully address the complex needs of diverse student populations.

**Guiding Ethical and Moral Development:** Educators play an essential role in guiding students' ethical and moral development. They teach values such as fairness, respect, and responsibility through daily interactions and decision-making processes that AI systems are not equipped to handle.

**Fostering Trust and Security:** Trust is fundamental in educational settings, and teachers are central to establishing a safe and trustworthy environment. They earn students' confidence through consistent actions and ethical behavior, something AI cannot replicate. Trust built on human interaction and understanding forms the bedrock of effective teaching and learning.

# Guiding Principles for Ethical AI Implementation

It is critical that district leaders develop policies and procedures based on clearly articulated ethical guidelines. These principles establish implementation boundaries and ensure that the deployment of AI tools in the district aligns with its larger goals. By grounding AI initiatives in ethical guiding principles, or core values, PGCPs can better safeguard the interests of all stakeholders and foster an implementation in which innovation serves the greater good.

It is our recommendation that the AI task force (whatever coalition of individuals will serve as the decision-making body around this

topic) should review and revise the district's current iteration of its AI core values as a grounding activity of the group formation process in order to ensure shared clarity and investment. This inclusive process and resulting unified understanding will ensure that the selected principles serve as a core framing artifact for future action.

On the following pages is a collection of the most frequently seen recommendations and examples of guiding principles from a diverse array of schools, districts, researchers, and support organizations that implement classroom-based AI initiatives.



# Guiding Principles



## STUDENT PRIVACY AND DATA SECURITY



With the increased use of AI, large amounts of personal and sensitive data about students are collected and processed. Ethical policies ensure this data is handled responsibly, protecting students from potential breaches and misuse (Langreo, 2024d).

1

2

## TRANSPARENCY AND ACCOUNTABILITY

Ethical policies foster transparency about how AI tools are used in the educational process and who is accountable for the decisions made by these systems, ensuring trust among all stakeholders, including students, parents, teachers, and administrators.



## PROCESS INCLUSIVITY

3

Policies should be developed with the input of a diverse group of stakeholders, including students, teachers, parents, tech experts, ethicists, and community members, to ensure a wide range of perspectives and needs are considered.



## INFORMED CONSENT

4

Ethical guidelines emphasize the importance of obtaining informed consent from students and parents for data collection and use, ensuring that stakeholders are aware of how AI impacts the educational experience (Antoniak, 2023).





# Guiding Principles



5

## IMPLEMENTATION EQUITY

AI has the potential to either mitigate or exacerbate existing educational inequalities. Ethical principles guide the development and deployment of AI tools to ensure they are accessible to all students, regardless of their socioeconomic background, race, gender, or disabilities, and do not inadvertently reinforce biases.

6

## ALIGNMENT WITH EDUCATIONAL GOALS

Ethical principles should align with the broader educational goals of the district, such as promoting lifelong learning, critical thinking, and digital literacy, ensuring that AI serves as a tool to enhance education rather than detract from it (Cardona et al., 2023).



## CONTEXTUAL RELEVANCE

The unique needs, challenges, and goals of the district and its community should be considered, ensuring procedures are relevant and to the specific educational context and differentiated as needed.

7



## PROMOTING RESPONSIBLE USE

Ethical principles encourage the responsible use of AI, ensuring that technology enhances the learning experience without replacing the essential human elements of education, such as teacher-student interaction and peer collaboration.

8



# Guiding Principles



The European Commission Directorate-General for Education, Youth, Sport and Culture published their own set of four key ethical considerations that “underpin the ethical use of AI and data in teaching, learning, and assessment... human agency, fairness, humanity, and justified choice” (Publications Office of the European Union, 2022).

- **Human Agency** involves an individual's ability to make life choices responsibly, underpinning concepts like autonomy and self-determination.
- **Fairness** in social organization requires clear processes ensuring equitable access to opportunities and fair treatment, encompassing equity and non-discrimination.
- **Humanity** focuses on respecting people's identity, integrity, and dignity, essential for meaningful human connections and a human-centric approach to AI.
- **Justified Choice** in education uses knowledge and data to support transparent and collaborative decision-making, emphasizing explainability and participation (Publications Office of the European Union, n.d.).

Cornell University's Center for Teaching Innovation recommends leaders to consider **environmental impact** as well “as generative AI tools are trained with ever larger data sets, requiring more and more energy consumption,” we must continue to monitor the impact of our choices on the environment (Center for Teaching Innovation, 2023).

# Guiding Principles



Guiding principles are intended to frame the use of AI in a manner that aligns with the district’s vision and goals, upholds academic integrity, maintains the privacy and security of staff and students, and advances equity. **We recommend that the stakeholder group driving AI implementation develop a “user-friendly” version of these principles** to serve as a communication tool for educator, family, and student use of AI within the district. Below, we have provided a few examples:

- AI technologies in education should address the needs of learners, educators and families.
- AI technologies used in education should account for educational equity, inclusion, and civil rights as key elements of successful learning environments.
- AI technologies used in education must protect student privacy and data.
- AI technologies used in education should strive for transparency to enable the school community to effectively understand and engage with the AI tools.

*Adapted from SIIA: Industry Principles for AI in Education (2023)*

- We use AI to help all of our students achieve their educational goals.
- We reaffirm adherence to existing policies and regulations to protect student privacy and ensure accessibility.
- We promote AI literacy among staff and students.
- We will continuously explore the opportunities and address the risks.
- We center our parents, educators, and students as critical consumers.
- We use AI to advance equity.
- We use AI in a manner that upholds the highest standard of academic integrity.
- We commit continuous learning and improvement.

*Adapted from Teach AI School Guidance Toolkit (2023)*

# POLICY

DISTRICT CONSIDERATIONS

INFRASTRUCTURE &  
TECHNOLOGY REQUIREMENTS

RISK MANAGEMENT

STATE AND NOTATIONAL  
POLICY

**PART II**

# Navigating the Future

## Policy Considerations for Ethical AI in Schools

The rise of generative AI and its accelerating impact on the workforce necessitates a reevaluation of educational policies to ensure they align with the evolving technological landscape. The current educational framework and associated policy guidance struggle to adapt swiftly enough to these changes, often leaving students underprepared for the demands of a technology-driven future and leaving teachers ill-equipped to provide instruction that will support them.

A key takeaway here is that policy should first and foremost create the conditions for effective implementation of AI in schools across the district. Rather than policy being seen as a tool for discouraging misuse, it should seek primarily to provide leaders and teachers with guidance for how AI should be used to reach the district's strategic goals and ensure that every student benefits from these investments in innovation. Ultimately, the goal is to cultivate a learning environment that not only prepares students for the future but also empowers them to actively shape it, leveraging AI as a catalyst for innovation, creativity, and inclusive excellence.

This section outlines some of the policy implications of incorporating AI into PK12 instruction at PGCPs. It highlights the need for policies that foster technological proficiency, promote equitable access to AI education, and support educators in navigating this new terrain.



# ACCESS TO AI: AN EQUITY ISSUE

## THE PROBLEM

Rapid technological change has been and continues to be disruptive. Technological innovation and developments in how we engage with technology happen too fast for the education system to keep up effectively. Because of this, large public educational systems struggle to provide widespread access to the skills and competencies that prepare students for technology-driven work later in life. The result? Many students are "left behind" before even reaching the workforce.

## IMPLICATIONS FOR DISTRICT POLICY & PROCEDURE

### **Policies for driving student achievement through the use of generative AI should create the conditions for:**

Having students build proficiency with AI implicitly and intuitively by providing them with opportunities to understand and practice with it that are varied, authentic, and embedded in core instructional content

Using AI-driven learning experiences to provide students with opportunities develop the underlying general cognitive abilities and habits of thinking necessary to gain proficiency with the use of AI tools

Providing equitable opportunities to engage with explicit instruction about AI and machine learning, the opportunities and challenges it presents, the history and future of technological innovation, and foundational principles of computer science and artificial intelligence.

# TEACHING WITH AI: NEW SKILLS NEEDED

## THE PROBLEM

Technology has caused a rising skill differential in the 21st century which is projected to accelerate due to the introduction of generative AI in the workplace. This rapid rate of technological innovation means most PK12 education professionals do not have the knowledge, skills, or confidence to plan or facilitate rich AI-driven learning experiences for our scholars.

## IMPLICATIONS FOR DISTRICT POLICY & PROCEDURE

**Policy must** create the infrastructure for AI to be seen as

- an amplifier of effective instructional practices and
- an additional fundamental literacy for effective teaching in 2024.

**Policy must not** constrain the opportunities for creativity and autonomy that AI-driven instruction can present.

**Policy must** ensure the allocation of appropriate resources and time to support the development of teachers' AI repertoire through explicit training driven by a clear vision and criteria for success. These include policies that mandate professional learning, feedback, and evaluation specific to the use of generative AI.

# RESEARCH GAPS & MARKET SATURATION

## THE PROBLEM

Because technology is changing at a rate much faster than the speed of change in education systems, there is a lack of substantial longitudinal research on the efficacy of many programs, apps, curricular resources, and approaches to technology-driven instruction in PK12 education. The marketplace is rapidly becoming saturated with platforms, apps, partner organizations, and programs that all promise to be the key to unlocking student achievement. Many of those same programs will be obsolete in a matter of a few years. We cannot accurately predict how we will engage with technology in society and the workplace even ten years from now. These challenges make setting policy and determining financial investments around a particular strategy for the implementation of AI in PGCPs inherently risky.

## IMPLICATIONS FOR DISTRICT POLICY & PROCEDURE

Building an effective policy strategy for AI-driven instruction for scholars is a complex challenge that requires a comprehensive set of policies, cross-functional collaboration, and an "ecosystem" approach. Much of the policy development process should occur after PGCPs defines the scope and sequence of their implementation strategy. Successful policy design will require the district to have made meaningful progress toward completing each of the following domains of work::

CORE ROADMAP DEVELOPMENT	PILOTING	COLLABORATION
<p>A group of diverse stakeholders forms a network-wide coalition on AI implementation strategy, developing a long-term organizational plan that determines a clear scope and sequence for investment in infrastructure. This core roadmap should be seen as the foundational document in identifying and procuring:</p> <ul style="list-style-type: none"><li>• External partnerships</li><li>• High potential resources and programs to explore/pilot</li><li>• An integrated developmentally appropriate PK12 continuum approach that provides a meaningful and strategic scope and sequence of learning experiences and use cases for the integration of AI</li></ul> <p>Once completed, this group should proceed with determining fundraising and investment timelines, and defining appropriate budget allocations for software, staffing, and curricular needs.</p>	<p>A meaningful incubation period to pilot and vet potential approaches, program models, and curricular resources.</p>	<p>A clear cross-department collaboration strategy among central office leads with the systems and processes necessary for Operations, IT, Academics, School Management, Fundraising/ Development to cohesively plan for and respond to implementation related needs.</p>

Policy must be broad and nimble enough to adapt to the changing landscape of generative AI, and constantly updated to respond to new challenges and conditions that will materialize as technology evolves.



# Collaboration & Oversight

*The following strategies are recommended in developing mechanisms for collaboration and oversight around AI implementation policy and ethics.*

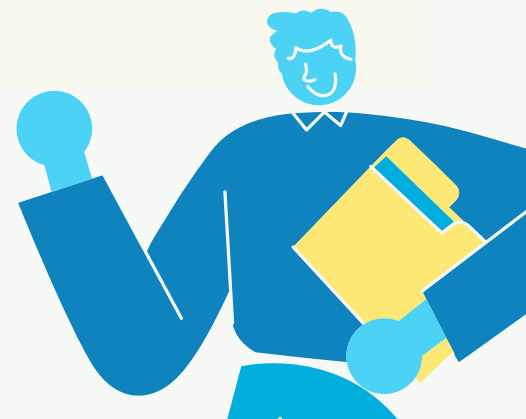
Effective collaboration and oversight mechanisms are essential for the successful integration of AI in education. This involves establishing clear communication channels and collaboration frameworks among all stakeholders, including school administrators, teachers, students, parents, and external partners. Regular connection points can facilitate ongoing dialogue and exchange of ideas. Moreover, implementing a robust oversight process will ensure that AI applications are continuously monitored and evaluated against established ethical standards and educational goals. This process should involve regular audits, impact assessments, and feedback mechanisms to adapt and refine AI strategies over time (Williamson et al., 2024).

## AI Ethics Board

Establishing an AI Ethics Board is crucial for ensuring that the implementation and use of AI technologies within PGCPs align with ethical standards and educational objectives. The board should comprise a diverse group of stakeholders, including educators, administrators, students, parents, ethicists, and AI experts. This body will be responsible for setting ethical guidelines, reviewing AI projects and initiatives, and addressing any ethical dilemmas that arise. It will also promote transparency and accountability in AI applications within the educational system.

Establishing partnerships with academic institutions, tech companies, and research organizations specializing in AI can significantly enhance the district's capacity to implement ethical and effective AI solutions. These collaborations can provide access to cutting-edge research, technical expertise, and best practices in AI ethics and education.

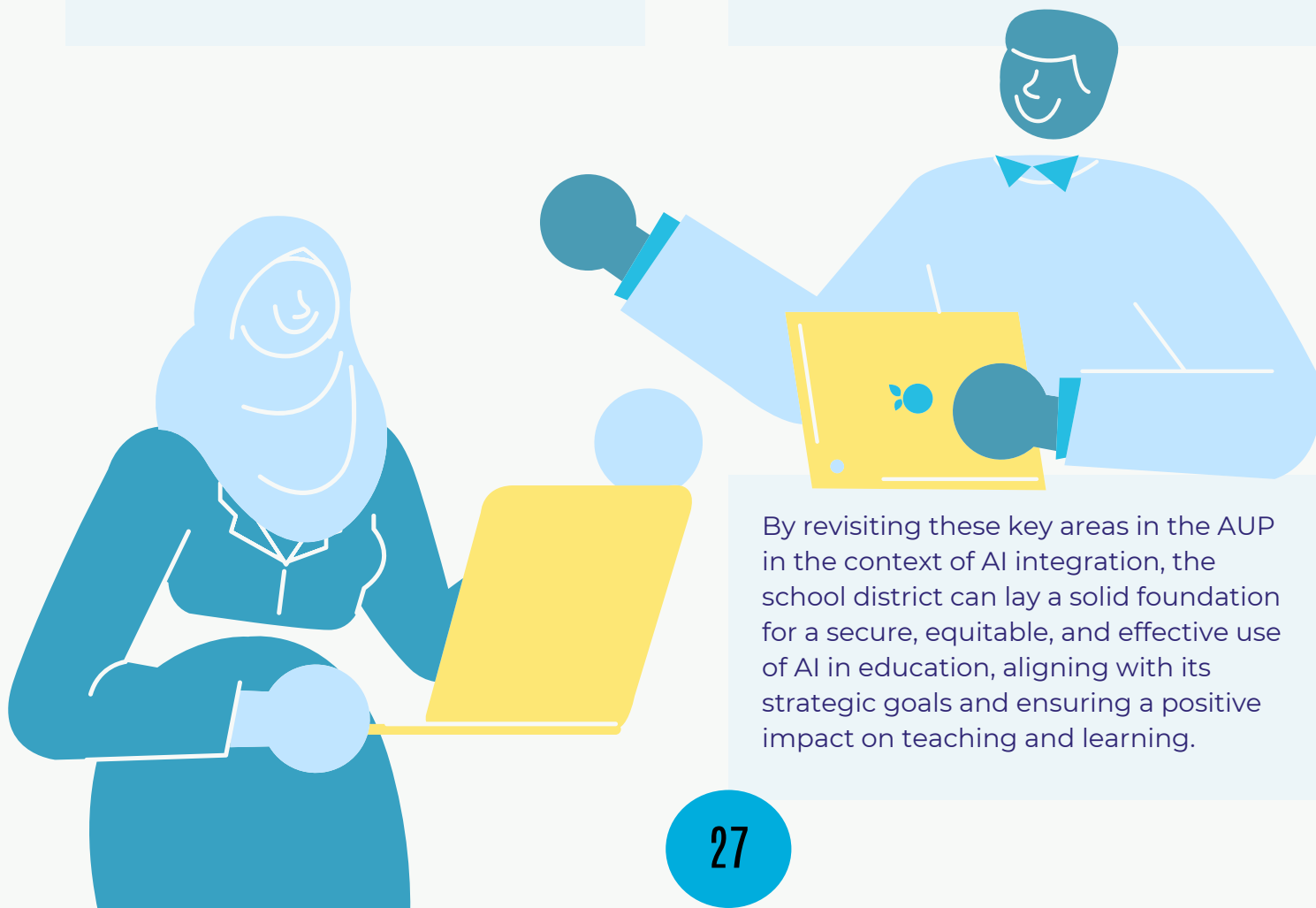
## Partnerships With Experts



# Acceptable Use Policies

Besides technical guidelines to ensure child safety, developing an Acceptable Use Policy (AUP) that sets clear expectations for student behavior is a critical step toward fostering a positive digital culture both in school and at home (ISTE, n.d.). Following the Protecting Children in the 21st Century Act, which came after the Children's Internet Protection Act (CIPA), schools are mandated to teach students about proper digital conduct, including how to interact with others on the internet and awareness of and responses to cyberbullying.

As a school district integrates AI tools into its educational framework, it becomes imperative to reassess and potentially revise its AUP to ensure they adequately address new challenges and opportunities presented by these technologies. On the following pages is four important areas of consideration for revising the AUP in light of AI integration, focusing on the areas of protection measures, data governance, incident response, and equitable connectivity.



By revisiting these key areas in the AUP in the context of AI integration, the school district can lay a solid foundation for a secure, equitable, and effective use of AI in education, aligning with its strategic goals and ensuring a positive impact on teaching and learning.

# Data Governance Structures

**DGSs specify who has access to data, how data is used, and how long it is retained, from the central office level to the individual device level.**

## 01

### AI-Specific Data Access Rules

Establish a detailed data governance model that takes into account the unique aspects of AI, such as algorithmic transparency and the need for large datasets. This model should clarify who can access AI-generated data and insights, under what circumstances, and the protocols for anonymizing sensitive data.

## 02

### Lifecycle Management of AI Data

Outline procedures for the management of AI data throughout its lifecycle, from collection to deletion. This includes specifying retention periods for different types of data and ensuring that data used to train AI models is periodically reviewed and updated to maintain accuracy and relevance.



# Incident Response Protocols

## 01 AI-Specific Incident Response

The district should develop an incident response plan that addresses potential AI-specific vulnerabilities, such as biased outputs, unexpected behavior of AI systems, or data leaks through AI interfaces. This plan should include steps for quickly identifying and isolating affected AI systems, assessing the impact of incidents, and communicating with stakeholders. Some AI-specific sensitive use triggers to consider include the following:

**Consequential impact on legal position or life opportunities:** Will the use or misuse of an AI system affect an individual's: legal status, legal rights, access to credit, education, employment, healthcare, housing, insurance, and social welfare benefits, services, or opportunities, or the terms on which they are provided?

**Risk of physical or psychological injury:** Could the use or misuse of the AI system result in significant physical or psychological injury to an individual?

**Threat to human rights:** Could the use or misuse of the AI system restrict, infringe upon, or undermine the ability to realize an individual's human rights? Because human rights are interdependent and interrelated, AI can affect nearly every internationally recognized human right (Microsoft, 2022).

## 02

### Training & Simulations

Include provisions for training staff and students in recognizing and responding to AI-related security incidents, complemented by regular simulation exercises to test and refine the response strategy.

**Incident response protocols provide guidance for data breaches, including notification procedures and steps to mitigate damage.**

# Protection Measures

## 01

### Enhanced Cybersecurity Protocols

Update the AUP to incorporate advanced cybersecurity measures tailored to AI applications, including end-to-end encryption, secure AI data pipelines, and regular security audits of AI systems.

## 02

### Regulation of Data Sharing with Third Parties

Clearly define the protocols for sharing data with third-party AI applications and partners, ensuring they meet stringent data protection standards. This includes conducting thorough security assessments of third-party tools before integration and closely monitoring data access and usage.

**Protection measures outline the specific cybersecurity measures that will be put in place to protect sensitive student and staff data.**



# Equitable Connectivity

**Equitable connectivity policies ensure that AI tools are accessible to all students, including those with disabilities and those from diverse socioeconomic backgrounds.**

## 01

### Accessibility & Inclusivity of AI Tools

Amend the AUP to ensure that AI tools are accessible to all students, including provisions for students with disabilities and those from varied socioeconomic backgrounds. This includes auditing AI tools for accessibility compliance and ensuring that content is culturally inclusive and bias-free.

## 02

### Infrastructure for AI Accessibility

Commit to providing the necessary infrastructure for equitable access to AI tools, such as high-speed internet access in all district schools and up-to-date devices capable of running AI applications.



# Adaptive Instructional Systems

## Architectural Components

As school districts consider leveraging AI to improve instructional outcomes, the greatest area for possible exploitation of the technology is through the use of Adaptive Instructional Systems (AIS). In real time, AIS can differentiate support for students based on input gathered as pupils engage with AI (such as automated tutors or educational games). When considering how best to prepare for AIS, experts Avron Barr and Robby

Robson advise that districts should consider the following architectural components (2019).



### Learner Background & Metadata

In order for AI to fully maximize its responsiveness to the needs of students, AISs require access to ample learner data. The richer the data, the more responsive the system can be. Of course, providing AIS with student data presents security risks (see “Security and Privacy Framework” for more details). Additionally, “intelligent tutors and recommender systems” will also require configuration using learner “metadata” (i.e. an individual student’s learning preferences). As such, it will be critical for districts to employ tools that make use of existing data, while also populating tools with learner profiles using this metadata. Similarly, software engineer Samridhi Jha posits that four important types of data must be managed and securely shared across applications: the learner’s background and objectives; a profile of the learner’s current state of mastery; live data recording the learner’s current activities; and metadata describing the available learning activities (2019).



### Activity Stream Data

To support “AI-enhanced learning activities,” schools must be equipped with equipment that supports high levels of data streaming, especially in instances with a full classroom of students making use of such tools simultaneously.

### Component Registration & Configuration Management

It will also be important for districts to consider how best to manage system configuration and management. Meaning, schools will likely use various tools across various platforms, which will require account registration, maintenance, and in some cases linkages between accounts and profiles. As such, districts will need to consider whether to localize such activities at the school level, or to manage everything centrally.

# Capacity Building for Adaptive Instructional Systems

In addition to architectural considerations, it is important to take into consideration capacity building among staff, especially teachers who will be asked to deploy AIS to enhance their instruction. To do so, the district may want to consider investing in micro-credentialing programs that train teachers in how to leverage AI tools. For example, PlayLab AI offers a short course through which participants can earn a certificate through Relay Graduate School of Education. For more recommendations for staff support, please see “Professional Development and Capacity Building.”



## Data Protection Measures

As mentioned previously, the use of AI tools such as intelligent tutors and other forms of AIS require massive amounts of student data in order to be fully responsive. In light of this, districts must take into consideration the risk of data breaches and ransomware attacks as well as issues pertaining to reliance on third party software platforms that may not be able to mitigate challenges, including possible denial of service or threats posed by unsecured APIs used by AIS. To mitigate these challenges, districts should take the following precautions as recommended by Pakmehr et al. (2023):

- Rigorously evaluate the credentials of service providers.
- Ensure the district regularly revisits default system configurations so that they are up-to-date.
- Routinely revise who has access to certain controls.
- Institute user protection protocols (such as regular two-step verification processes).
- Identify school-level or district-level monitors to check for suspicious activity.
- Invest in software and platforms that automatically check for suspicious activity.
- Only invest in AI platforms that have built-in protections against hijacking.
- Devise emergency protocols.
- Implement data protection practices (such as the anonymization of student data) so that if a breach occurs, personal information is not made public. (Villegas-Ch & García-Ortiz, 2023).





# Risk Management

In the absence of clearly articulated and implemented security and privacy policies and guidelines, districts could risk being out of compliance with legislation and regulations. This can lead to legal challenges and damage to the district's reputation. Insufficient vetting and monitoring processes can expose schools to risks such as unauthorized access and data breaches, thereby jeopardizing the privacy and safety of students and staff. Additionally, a lack of standardized policies may result in varied approaches to adopting, deploying, and utilizing AI technologies, potentially impeding the provision of uniform and equitable learning opportunities across different schools (Michigan Virtual University, n.d.). As such, it is critically important to take steps to protect the district, its stakeholders, and their data.



## Ensuring Compliance

All relevant overarching data privacy and security regulations and policies that currently exist within PGCPs should apply to the use of technology that incorporates AI.

The district should “implement reasonable security measures to secure AI technologies against unauthorized access and misuse” (TeachAI, n.d.).

All AI systems deployed within schools should be regularly “evaluated for compliance with relevant laws and regulations, including those related to data protection, privacy, and students’ online safety. (For example, providers will make it clear when a user is interacting with an AI versus a human.)” (TeachAI, n.d.). There are five primary risk profiles that must be prioritized when assessing or revising a security and privacy framework to attend to AI specific complexities which are outlined in the figure on the following page. (ILO Group, 2021). The remainder of this section will focus on privacy and security risks.



# 5 Primary Risk Profiles

## Potential Risks of Inaccurate Communication

This category highlights the risks associated with potential AI communication errors when conveying information to stakeholders. It encompasses concerns over misinterpretation or misinformation due to AI's limitations in accurately processing and relaying complex information.

## Potential Bias and Privacy Risk

This category addresses concerns about how AI applications handle student data and privacy. It includes risks related to misuse of personal information, and potential biases in AI algorithms that could lead to unfair treatment of students based on race, gender, or other characteristics.

## Potential Technological and Operational Risks

This encompasses the risks associated with the technical reliability and operational integration of AI systems in schools. It includes issues like system failures and compatibility with existing infrastructure.

## Potential Educational and Pedagogical Risks

This category focuses on how AI applications might affect the learning process and educational outcomes. Risks could include over-reliance on technology and inadequacy in addressing diverse learning needs.

## Potential Legal and Compliance Risks

This involves risks related to the legal aspects of using AI in an educational setting. It includes compliance with educational laws and regulations.

(ILO Group, 2021)

# Data Privacy & Security

The conversation of data privacy revolves primarily around bulk and individual inputs. Bulk inputs – any data sets that might be associated with an entire classroom, school, or district—come into play when teachers or the district decide to use AI for any large-scale data analysis” (Jennings, 2024).

One AI-specific concern to take into consideration as it relates to bulk input security is “how uniquely adept the technology is at deanonymization (the ability to re-identify supposedly non-identifiable data by cross-referencing multiple sources)” (Jennings, 2024). Another is how AI tools may unintentionally provide biased outputs due to the nature of the training data, its trainers, and how the system is set up. One place where this has the potential to show up for districts is with applicant sorting/tracking systems. For example, “Amazon stopped using a hiring algorithm after finding it favored applicants based on words like ‘executed’ or ‘captured,’ which were more commonly found on men’s resumes” (IBM Data and AI Team, 2023).

Individual inputs encompass data that might be provided during student or adult interactions with ChatGPT, chatbots, and other similar models (Jennings, 2024). Individuals should exercise caution when using programs like ChatGPT as there is no guarantee of privacy for the information they input. The data entered can potentially be used in the model's future responses, reviewed by humans, or accessed by external parties, as inputs become part of the training data for these systems. Staff and students should be prohibited from entering confidential or personally identifiable information into unauthorized AI tools, such as those without approved data privacy agreements (Code.org et al., 2023). Sharing confidential or personal data with an AI system could violate privacy without proper disclosure and consent.

# State Policy Outlook

If passed, legislation in Maryland house and senate related to AI that has the potential to impact PGCPS (i.e. [HB1297](#) / [SB0979](#) cross-filed as the “Education – Artificial Intelligence – Guidelines and Pilot Program”) will take effect on July 1, 2024. It is a local government mandate, defined as “a directive in a bill requiring a local government unit to perform a task or assume a responsibility that has a discernible fiscal impact on the local government unit” (Maryland General Assembly, 2024).

Understanding these key highlights of the bill will help leaders prepare to leverage the opportunities they present for enhancing education with AI and ensure compliance:



## State-Mandated AI Guidelines

The legislation requires the development and updating of AI guidelines, standards, and best practices for county boards of education, including PGCPS, ensuring a standardized approach to AI integration in education.

01



## Pilot Program Support



The bill outlines the creation of a pilot program to support the Artificial Intelligence Subcabinet of the Governor’s Executive Council, offering opportunities for PGCPS to participate in state-led AI educational initiatives.

02



## Professional Development Emphasis

There's a strong focus on professional development regarding AI policies and procedures, signaling the need for PGCPS to invest in training educators to competently use AI tools in teaching and learning.

03



## Inventory and Oversight Requirements



Each county board is mandated to conduct annual inventories of AI systems used within the district and appoint an employee to oversee the ethical use of AI, indicating a need for systematic tracking and management of AI technologies in PGCPS.

04





## Integration into Career Readiness Standards

The legislation aims to incorporate AI into college and career readiness standards, highlighting the importance of preparing students for a future workforce that increasingly relies on AI.

05



## Data Privacy and Impact Assessments



The bill emphasizes conducting impact assessments for AI systems, underscoring the importance of evaluating these systems for potential risks, especially regarding data privacy and ethical use.

06



## Public Availability of Information

There's a requirement to make inventories of AI systems publicly available on the county board's website, promoting transparency and accountability in the use of AI in education.

07



## Collaboration with State Departments

Districts are encouraged to coordinate with the State DOE and the Department of Information Technology (DIT), fostering cross-agency collaboration to implement AI best practices effectively.

08

# HB1297 / SB0979 Timeline

**On February 9, 2024 in the House**

Vote - House - Committee - Ways and Means

Text - First - Education - Artificial Intelligence - Guidelines and Pilot Program

Hearing February 28, 2024 at 1:00pm First Reading Ways and Means

Text - Third - Education - Artificial Intelligence - Study and Regulations

Second Reading Passed with Amendments

Favorable with Amendments Report by Ways and Means

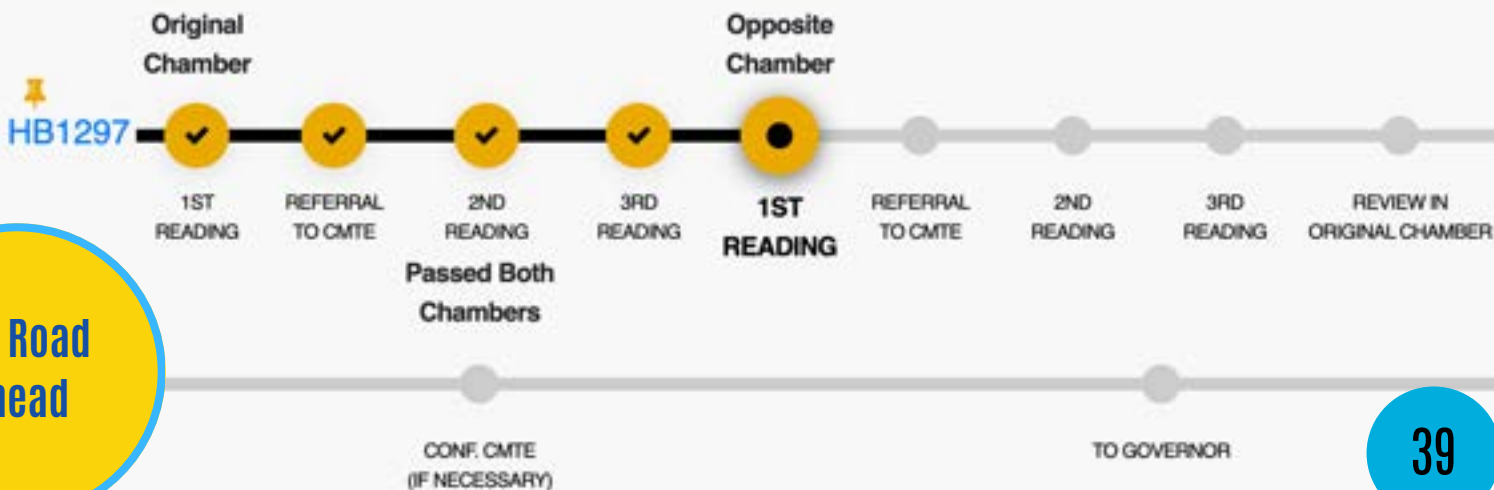
**On March 16, 2024 in the House**

**On March 18t, 2024 in the House**

Third Reading Passed (134-5)

**On March 18, 2024 in the Senate**

Referred to Education, Energy, and the Environment



**The Road Ahead**

# HB1279 SWOT Analysis

HOUSE BILL 1297 presents a mix of strengths and opportunities that PGCPS can leverage to enhance its educational offerings through AI, while also posing challenges and threats that require careful strategic planning and resource management to address effectively.

## STRENGTHS

- **Guideline Alignment:** The bill mandates the State DOE, in collaboration with DIT, to develop AI guidelines, standards, and best practices, which could provide a clear roadmap for the district's AI initiatives, ensuring alignment with state-wide educational goals.
- **Support for Pilot Programs:** The development of a pilot program as part of the bill could offer the district opportunities to be at the forefront of AI educational innovation, potentially attracting additional resources and spotlighting the district's leadership in integrating AI in education.
- **Professional Development:** The emphasis on best practices for professional development in AI policies and procedures could enhance the district's capacity to equip educators with the necessary skills and knowledge to effectively integrate AI tools into teaching and learning processes.

## WEAKNESSES

- **Resource Allocation:** Implementing the new guidelines and participating in pilot programs may require significant resources, including time, funding, and staff, which could strain the district's budget and operational capacity.
- **Adaptation Challenges:** The district may face challenges in rapidly adapting its current systems and practices to align with the new state-mandated AI guidelines and standards, potentially leading to implementation delays.
- **Data Privacy Concerns:** The legislation's focus on systems employing AI necessitates rigorous data governance and impact assessments, which could highlight existing gaps in the district's data privacy and security measures, necessitating substantial enhancements.

## OPPORTUNITIES

- **Innovation in Education:** The bill presents an opportunity for the district to innovate in curriculum design and delivery by integrating AI tools, potentially improving student engagement and personalized learning experiences.
- **Collaboration and Partnerships:** The requirement for county boards to work with the State DOE and DIT opens doors for collaboration, knowledge exchange, and potential partnerships with tech companies and other educational institutions.
- **Enhanced College and Career Readiness:** By integrating AI into college and career readiness standards, the district can better prepare students for the future workforce, aligning educational outcomes with evolving industry demands.

## THREATS

- **Compliance Risks:** Failure to comply with the new guidelines and standards could expose the district to legal and reputational risks. *Threat Assessment: Low*
- **Digital Divide:** Ensuring equitable access to AI tools and resources as mandated may highlight and exacerbate existing inequalities within the district, posing a challenge to achieving truly inclusive education. *Threat Assessment: Medium*
- **Rapid Technological Changes:** The fast pace of AI development could make it difficult for the district to keep up with the latest tools and practices, risking the obsolescence of newly implemented technologies and methodologies. *Threat Assessment: High*

# National Policy Outlook

## ON THE HORIZON

“There is... legislation in Congress that would create more federal oversight and require some companies to report how their technology could impact consumers. But lawmakers, particularly in the Senate, are still mapping out the path for AI governance.

The **Algorithmic Accountability Act**, though not an education-specific bill, would affect ed tech companies and non-education-specific vendors contracted by schools.

The bill would give the FTC more governance over some tech companies by requiring them to assess their AI systems for a range of factors like bias and effectiveness” (Wilkes, 2024).



# Childrens Internet Protection Act (CIPA)

Designing the policy ecosystem for the safe and effective use of AI in schools “requires both technical policies and establishing appropriate behavior expectations for students” (ISTE, n.d.)

There are a number of technical protections that schools should have in place to protect students from harm. In the U.S., CIPA requires any school that accepts federal funding to help cover the cost of internet access to establish specific technical protections before allowing access to the school network (CIPA, 2019). According to guidance from the Federal Communications Commission (FCC), such protections should address:



## TECHNICAL PROTECTIONS

- Restricting access by minors to content that could be inappropriate or harmful on the internet.
- The safety and security of minors when using email, chat rooms, and other forms of electronic communications.
- Unauthorized access, including hacking and other unlawful activities, by minors online.
- Unauthorized disclosure, use, and dissemination of personal information regarding minors.
- The school’s monitoring of minors’ online activities.



# International Policy Developments

**The European Union has passed the AI Act, effective from May 2024, with a compliance window of up to three years for companies / organizations.**

- The Act bans high-risk AI uses in sectors like healthcare and education, along with AI that manipulates behavior or infers sensitive information.
- Exceptions are made for law enforcement in serious crime scenarios, despite criticism from civil rights groups.
- The Act mandates clear disclosure when users are interacting with AI, including deepfakes and chatbots, to combat misinformation.
- A new European AI Office will handle compliance and enforcement, allowing EU citizens to file complaints about AI harms.
- AI companies in high-risk sectors must adhere to strict data governance and human oversight guidelines, with comprehensive documentation requirements for AI model development (Heikkilä, 2024).
- The U.N. General Assembly is also currently considering a draft for its first resolution on artificial intelligence. The measure was spearheaded by the U.S. (Lederer, 2024).

# CAPACITY

PROFESSIONAL  
DEVELOPMENT

CURRICULUM &  
INSTRUCTIONAL  
DESIGN

**PART III**

# Professional Development & Capacity Building

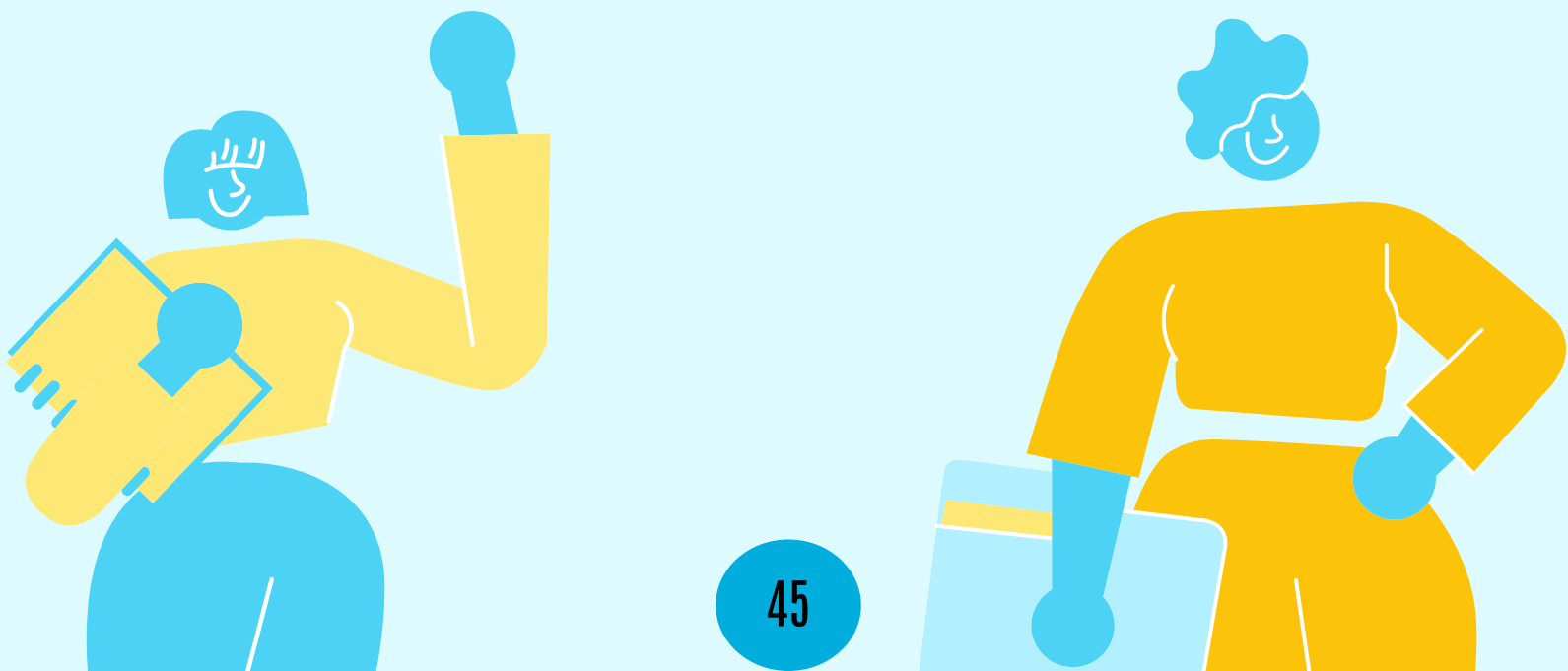
Integrating AI into classroom instruction will require a majority of system and site-level PK12 leaders to navigate various types of resistance and adaptive challenges. These challenges involve influencing teacher behavior and building capacity to adapt to new technologies.

This section explores the common hurdles that system and site-level PK12 leaders encounter—from technological intimidation to concerns about pedagogical autonomy. It offers concrete examples and outlines strategic responses aimed at building teacher capacity and fostering a supportive environment for the effective use of AI technologies.

By addressing these challenges directly, this section equips leaders with the necessary tools to transform hesitation into engagement, ensuring that AI tools enhance educational outcomes. Through targeted professional development and capacity-building initiatives, we aim to empower educators to navigate and overcome these barriers, facilitating a more innovative and inclusive educational environment.

Integrating AI into classroom instruction often requires system and site-level PK12 leaders to navigate various types of resistance and adaptive challenges. These challenges involve influencing teacher behavior and building capacity to adapt to new technologies. The following pages highlight some specific types of resistance and adaptive challenges leaders may face, along with concrete examples to illustrate each.

By understanding and strategically responding to these types of resistance, system and site-level leaders can more effectively build teacher capacity and drive the integration of AI into classroom instruction.



1

# Hesitance with Technological Change

## Challenge

**Teachers may feel intimidated by AI technology, fearing it could complicate their teaching methods or replace their roles.**

## Example

A middle school teacher might resist using an AI-driven personalized learning platform, believing it undermines their expertise in assessing student needs and preferences, thinking the technology is too complex to integrate into their existing lesson plans.

## Adaptive Response

Leaders can organize hands-on workshops that demonstrate the ease of integrating AI tools into existing curricula and showcase how AI can support rather than replace the teacher's role, emphasizing AI as a tool to enhance the teacher's capabilities and classroom effectiveness.



# Lack of Technological Proficiency

## Challenge

**Some teachers may lack the necessary skills to effectively use AI tools, leading to frustration and disengagement.**

## Example

During a district-wide rollout of an AI-based assessment tool, several teachers struggle to interpret the data outputs, leading to its underutilization.

## Adaptive Response

Implement a tiered professional development program that begins with basic digital literacy and advances to more specific AI functionalities, coupled with ongoing support and mentoring to build confidence and competence.



3

# Perceived Threats to Autonomy

## Challenge

**Teachers may view AI integration as a threat to their professional autonomy, feeling that it imposes standardized methods that restrict their creativity and personalized teaching styles.**

## Example

An experienced literature teacher resists AI suggestions for text analysis, feeling that the technology's interpretations might stifle creative discussions and diverse interpretations among students.

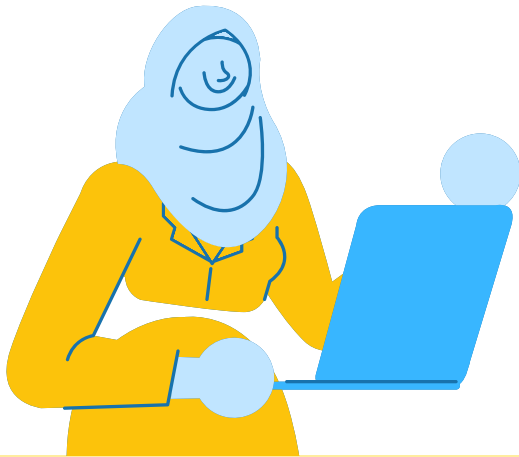
## Adaptive Response

Leaders need to facilitate discussions that allow teachers to voice their concerns and see AI as a complementary tool that enhances rather than dictates educational content. Demonstrating AI as a support tool that provides data-driven insights, not final decisions, can help maintain teacher autonomy.



4

# Equity Concerns



## Challenge

**Teachers in under-resourced schools may fear that AI tools exacerbate existing inequalities if not all students have equal access to technology.**

## Example

Teachers at a high-poverty school worry that not all students can benefit from homework that uses AI-based applications due to lack of internet access at home.

## Adaptive Response

Leaders must advocate for equitable resource distribution, such as providing devices and mobile internet access, and design AI integration strategies that consider all students' home and school environments.



# Misalignment with Pedagogical Beliefs

## Challenge

Teachers' foundational educational philosophies may not align with the pedagogical implications of AI technology.



## Example

A teacher who values experiential learning may resist using an AI program that promotes more screen time, arguing it detracts from hands-on learning experiences.

## Adaptive Response

Leaders should engage teachers in pedagogical discussions to align AI tools with various teaching philosophies, showing how AI can enhance experiential learning by providing simulations or augmenting reality experiences that are difficult to manage in the classroom.

# Workload Concerns

## Challenge

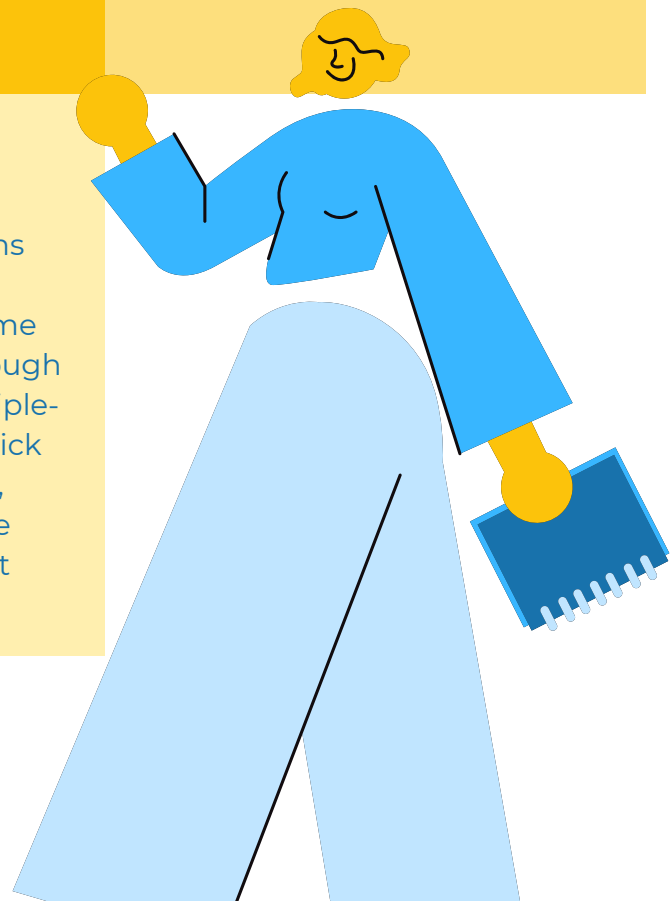
**Teachers already facing high workloads may see the integration of AI as an additional burden rather than a tool to streamline tasks.**

## Example

Teachers during end-of-semester assessments resist learning a new AI grading tool, concerned it will add to their workload rather than ease it.

## Adaptive Response

Provide clear demonstrations and real-life case studies showing how AI can save time in the long run, such as through automated grading of multiple-choice tests or providing quick feedback on student essays, thus allowing teachers more time for one-on-one student interaction.



# Snapshot Teachers Learning About AI

The following data can help inform decisions about professional development learning sequences and the design of curricular resources in the light of evolving teacher instructional practices and workplace demands.

## 01

Effective integration of AI into daily routines and classes requires that teachers first engage with the technology as learners and then as practitioners. Building proficiency in AI will necessitate practical application, ample time and space for experimentation with new methods, and opportunities for educators to share their practices and experiences. According to an Education Week Research Center survey from the summer of 2023, teachers highlighted the following types of professional development as particularly beneficial at this time (Langreo, 2024c):

### Teacher perceptions of relevant skills:

- How to teach students how to use AI responsibly and effectively in academic settings | **62%**
- A basic introduction to AI | **57%**
- Ways to detect improper AI use by students | **54%**
- How to prepare students for AI use in the workforce | **42%**
- Ways to use AI to save time on administrative task/paperwork | **40%**
- Instruction on incorporating AI into learning across the curriculum | **39%**
- Instruction on incorporating AI into teaching specific subjects | **36%**

## 02

As stated throughout this guide, AI has the potential to save teachers time by support with administrative tasks, improving the quality of teaching, and increasing student engagement. In late 2023, the United Kingdom Department of Education launched a Call for Evidence on the use of generative AI in education to learn about how educators are deploying generative AI. The key use case identified in the report included:

### Key use cases:

- Creating educational resources
- Lesson and curriculum planning
- “Live” use in lessons
- Assessment, grading, and feedback
- Administrative tasks
- GenAI skills training and AI literacy

# Professional Development Roadmap

## Managing Change

As PGCPs moves forward with the widespread adoption of AI, it will be crucial to instill a sense of investment and urgency among educators. This involves:

- clearly articulating the importance of students mastering these technological tools and
- highlighting how AI can streamline educators' workloads, thereby acting as a catalyst for change.

Successful capacity-building initiatives begin with forming a "coalition of the willing" — a group of enthusiastic teachers who are ready to embrace change and lead the way with AI integration.

These first adopters should be nurtured to serve as pioneers and advocates, demonstrating the impact of implementation and guiding their peers through the transition.

## ★ PD IMPLEMENTATION ARC

1

### Phase 1

Establish foundational knowledge in AI, focused on understanding generative AI, its potential uses, and ethical considerations in the educational setting, including age-appropriate use among students.

### Phase 2

Build awareness and confidence in using a AI tools through hands-on application.

2

### Phase 3

Build teachers' practical skills in the use of AI for creating content, lesson planning, and assessments.

3

### Phase 4

Promote the advanced use of AI in the classroom, focusing on real-time integration and administrative efficiency.

4

As educators in the district start integrating AI, it's vital to establish and continuously reinforce a clear strategic vision for AI use within the district. This vision will guide the implementation process and help maintain alignment and focus.

The district must proactively remove obstacles to change, ensuring smooth adoption across schools. It is also the district's responsibility to track, share, and celebrate early successes. Highlighting these early wins not only motivates continued effort but also demonstrates the tangible benefits of AI integration, encouraging broader buy-in across the district.

## Celebrating Success

# Online AI Training Options For Teachers

The list below is **illustrative of just a few examples** of the types of professional development content related to educators and AI that is currently available on the market. **It is not intended to be exhaustive. The authors of this report make no claims about the quality or efficacy of any of the experiences outlined herein and inclusion is not considered endorsement.** See the guidance on the next page for additional information and recommendations related to vetting and selecting Professional development partners.

Organization(s)	Description	Format and Cost
Playlab ai, ARRAY Education, and the RELAY Graduate School of Ed	<a href="#">Playlab AI PLC - An AI journey for Passionate Educators</a> Several well known organizations have partnered to offer two virtual learning series in Summer 2024. Participants who complete the series will earn the AI Tool Design and Prompt Engineering Micro-Credential from Relay GSE.	Synchronous virtual sessions available throughout the summer
CODE.org, ETS, ISTE, Khan Academy	<a href="#">AI 101 for Teachers</a> This is a free, foundational online learning series for any teacher and educator interested in the groundbreaking world of AI and its transformative potential in education.	Free Online Modular Videos
Graduate School of Education, University of Pennsylvania	<a href="#">An Introduction to Teaching with Artificial Intelligence</a> The Introduction to Teaching with AI program convenes PK12 and higher-education educators who are eager to explore how AI can enhance their learning environments. Teachers will also engage in a series of live virtual workshops where you will design learning activities and experiences that you intend to implement in your own classroom.	Synchronous virtual workshops and asynchronous content  \$1500 w/ group discounts available
The Association of College and University Educators (ACUE)	<a href="#">Writing Effective AI Prompts</a> This Quick Study course is designed for instructors who are starting to explore AI or who are interested in learning more about the most effective methods for prompting AI. Instructors will experience and have opportunities to practice the iterative process of creating AI prompts to deliver outputs that meet their specific needs. This Quick Study course is one of four in the AI Series.	Online self-paced, 1-2 hours  \$179
IBM Australia x Macquarie University - Coursera Macquarie School of Education at Macquarie University and IBM Australia have collaborated to create this course which is aligned to AITSL 'Proficient Level'	<a href="#">Artificial Intelligence Education for Teachers</a> This course will bridge the gap between commonly held beliefs about AI, and what it really is. This course will appeal to teachers who want to increase their general understanding of AI, including why it is important for learners, and/or to those who want to embed AI into their teaching practice and their students' learning. There is also a unique opportunity to implement a Capstone Project for students alongside this professional learning course.	Online Self-Paced 15 hours 3 weeks at 5 hours a week

# Vetting & Selecting Professional Development Vendors

Courses vary significantly in terms of quality and alignment. Currently, very few accreditations or standards exist to evaluate the quality of AI-focused professional development, leading to variability in satisfaction and outcomes. It is recommended that districts seeking external partnerships with professional learning providers complete thorough due diligence prior to entering any contracts. Some recommendations for vetting AI development opportunities can be found below. These steps will help ensure that the AI training educators receive is not only high in quality but also tailored to meet the specific needs and challenges of your educational environment.

**1. Evaluate Curriculum Content:** Review the materials and learning plan thoroughly to assess whether it aligns with your district's educational goals and the specific needs of your educators. Look for courses that cover both the technical aspects of AI and its application in educational settings.

**2. Request Case Studies and References:** Ask for case studies or examples of previous implementations of the professional development program. Contact other institutions that have used the services to gauge their satisfaction and the impact of the training on their educators.

**3. Assess Instructor Expertise:** Investigate the qualifications and background of the instructors. It is important that they not only have expertise in AI but also understand the unique challenges and contexts of educational settings.

**4. Determine Support and Resources:** Look into the support and additional resources provided during and after the course. Effective professional development should include ongoing support and resources that help educators integrate AI tools into their teaching.

**5. Analyze User Feedback and Reviews:** Ask to examine feedback and reviews from previous course participants. This can provide insights into the practical benefits of the course and any potential issues with the content or delivery methods.

**7. Consider Customization Options:** Check if the vendor offers customization options that can tailor the course content to better suit the needs of your district and educators. Personalized content can enhance the learning experience and applicability of the training.



# Using AI to Enhance Curriculum Delivery & Student Engagement

Curriculum and  
Instructional Design

There are many ways that AI tools have the potential to enhance learning experiences in the classroom and improve the quality and depth of instruction. The US DOE's Office of Educational Technology highlights five general domains of impact for the integration AI in Teaching and Learning in its recently released report "[AI and the Future of Teaching and Learning: Insights and Recommendations](#)"

01

New Forms of  
Interaction

02

Address  
Variability in  
Student  
Learning

03

Powerful  
Adaptivity

04

Enhanced  
Feedback  
Loops

05

Educator  
Support



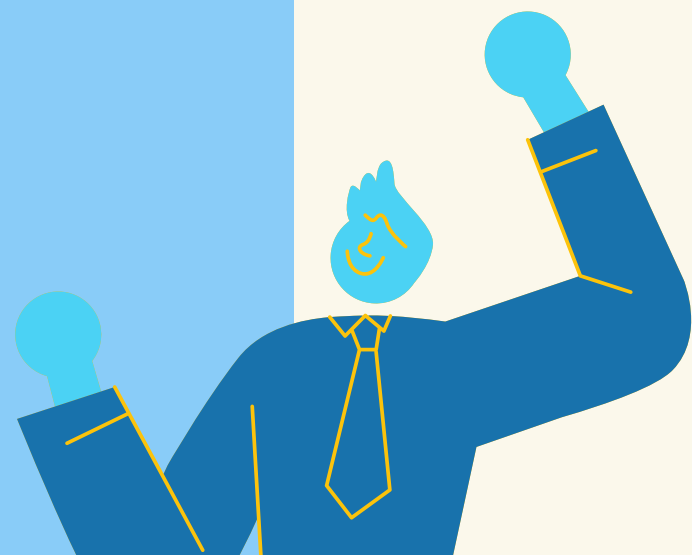


# Domains of Impact

**AI enables new forms of interaction.** Students and teachers can speak, gesture, sketch, and use other natural human modes of communication to interact with a computational resource and each other. AI can generate human-like responses, as well. These new forms of action may provide supports to students with disabilities.

**AI can help educators address variability in student learning.** With AI, designers can anticipate and address the long tail of variations in how students can successfully learn—whereas traditional curricular resources were designed to teach to the middle or most common learning pathways. For example, AI-enabled educational technology may be deployed to adapt to each student’s English language abilities with greater support for the range of skills and needs among English learners.

**AI supports powerful forms of adaptivity.** Conventional technologies adapt based upon the correctness of student answers. AI enables adapting to a student’s learning process as it unfolds step-by-step, not simply providing feedback on right or wrong answers. Specific adaptations may enable students to continue strong progress in a curriculum by working with their strengths and working around obstacles.

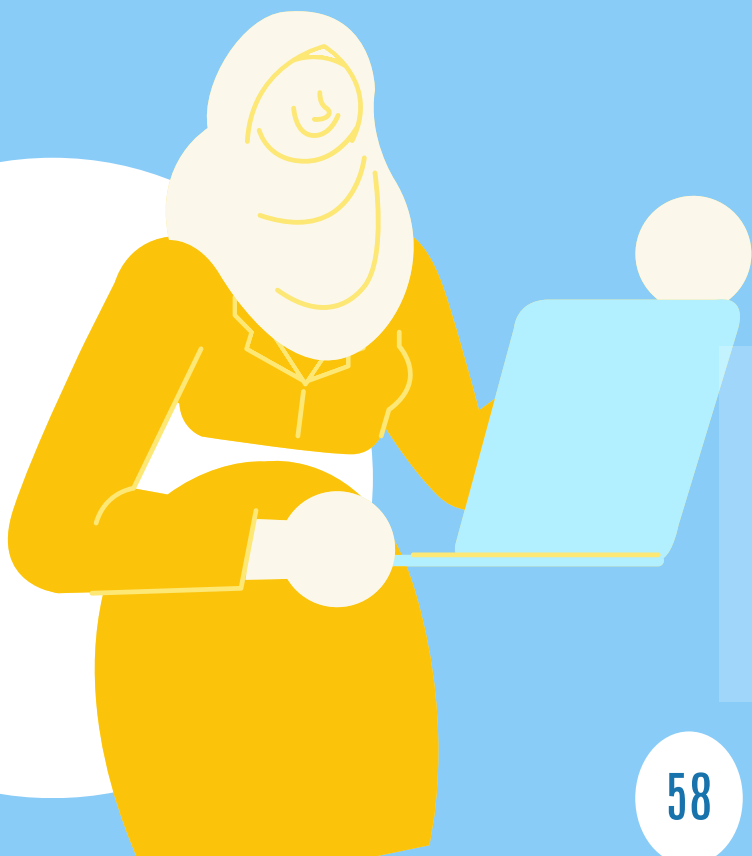




# Domains of Impact

**AI can enhance feedback loops.** AI can increase the quality and quantity of feedback provided to students and teachers, as well as suggesting resources to advance their teaching and learning.

**AI can support educators.** Educators can be involved in designing AI-enabled tools to make their jobs better and to enable them to better engage and support their students (Artificial Intelligence - Office of Educational Technology, 2023).



## AI Use Cases

The pages that follow provide what aims to be a comprehensive list of current use cases for AI integration into PK12 teaching and learning and examples of how they might look in classrooms:

# AI Use Cases

## 01 Personalized Learning

AI technologies can enhance the way educators tailor educational content to meet the diverse needs, interests, and skill levels of each student. With AI-driven personalization, instruction can be specifically aligned with individual learning goals, competencies, and intended career trajectories (ELM Learning, 2024).

## 02 Adaptive Learning + Assessments

Adaptive learning tailors education to each student's needs, adjusting content difficulty based on their performance (O'Connell, 2016). This AI-driven approach enhances engagement, improves retention, shortens learning times, and provides detailed analytics on student progress. It creates flexible, real-time learning paths that evolve with the student's interactions, not through fixed routes but by analyzing their responses, time spent, and task difficulty (Khandelwal, 2022).

An AI-driven Intelligent Tutoring System (ITS) offers customized support and feedback to learners, aiding them in grasping particular skills. In challenging subjects, such systems can start with basic concepts, presenting examples in a breakdown format as needed. ITSs simulate a human tutoring experience, promoting independent learning at strategic moments, and delivering varied forms of individualized feedback (Wong, 2023). While tools like ChatGPT are considered intelligent, ITSs differ by being more adaptively integrated into each learner's journey and tailored to their specific learning preferences (Daccord, 2023).

## 03 Intelligent Tutoring Systems

# AI Use Cases

## 04

### Predictive Analytics

Predictive analytics involves the use of AI algorithms to analyze learner interactions with course content to detect areas of struggle, allowing for targeted instructional support. Performance prediction models identify at-risk students, personalize learning paths, and enhance course design. Recent studies show learning analytics are an effective tool to boost engagement, collaborative learning, and student satisfaction (Ouyang et al., 2023).

## 05

### Learning Analytics

AI tools in eLearning allow educators to monitor student progress, highlight improvement areas, and adapt course content accordingly. Course creators can analyze student data on a large scale with these platforms, spotting trends to fine-tune learning experiences (Karandish, 2021). Such insights help in tailoring content to student needs, including tracking their progress and engagement.

## 06 Natural Language Processing

AI and Natural Language Processing (NLP) technologies enhance educational tools by enabling conversational interfaces, like chatbots and virtual assistants, to interact with learners in a natural, conversational way. Often referred to as conversational AI, NLP focuses on the interaction between computers and humans using natural language. This branch of AI is integral to creating more interactive and engaging learning experiences (IBM, n.d.) In the future, NLP is expected to be more deeply integrated into educational content, allowing learners to actively engage with the material through dialogue-driven activities. This shift aims to transform learning from passive content consumption to an interactive process guided by AI, where additional learning opportunities are integrated within or even beyond the conventional course structure.

# AI Use Cases

07

## Dyslexia Detection

Modern technologies offer a significant advantage in the early detection of dyslexia in children facing challenges with reading and writing. Children with dyslexia often display attention issues and atypical eye movements, diverging from the standard reading pattern. By integrating sensors into display devices to monitor eye movements and analyzing this data against extensive big data repositories, this method swiftly evaluates attention discrepancies. This technique shortens the detection timeline, ensuring prompt access to necessary support, in contrast with the prolonged periods associated with traditional observation methods.

08

## Language Learning

AI improves language learning by giving immediate feedback on aspects like pronunciation, grammar, and vocabulary, enhancing students' skills with immediate corrections. It creates engaging, real-world conversational scenarios, personalizing the learning experience to suit individual styles, and making language learning more interactive, practical, and accessible for all proficiency levels.

09

## Gamification + Interactivity

AI is being leveraged to develop customized game-based learning environments, enhancing student motivation and involvement. The concept of gamification uses external rewards to motivate students to finish courses, earn rewards, and reach new levels of expertise (Ivan, 2021). AI allows for the creation of gamified elements that are activated by certain cues, focusing on specific educational content. This approach to incorporating game elements in education is expected to become a widely adopted technique among instructional designers.

# AI Use Cases

AI technologies can automate the generation of engaging content such as quizzes, activities, and interactive simulations (Margaret, 2024). Generative AI engines can suggest and sometimes even construct entire learning pathways and experiences with a minimal number of text inputs related to desired learning outcomes. This can streamline the course development process – traditionally a time-intensive task – by enabling faster, more flexible content creation without compromising quality. Features such as automatic translation and localization further exemplify AI's role in enhancing and expediting the eLearning content development process (briskLOGIC, 2022).

10

Curriculum  
Planning &  
Design

AI can enhance teaching efficiency by automating time-intensive tasks like grading and answering queries, allowing educators to devote more time to actual teaching. Teachers spend a significant portion of their time on lesson planning and administrative tasks rather than teaching. By automating certain course management functions with AI, teachers can reallocate their focus to more impactful teaching areas, potentially improving student learning outcomes.

11

Resource  
Allocation

AI is transforming online exam proctoring by enhancing security and fairness. It utilizes advanced surveillance and authentication methods, reducing the workload for educators and allowing them to concentrate on the quality of assessments.

For students, AI proctoring provides a secure and equal testing environment, upholding the integrity of the evaluation process. This maintains the credibility of exams and improves educational outcomes by creating a culture of trust and academic honesty.

12

Proctoring

# AI Use Cases

13

## Chatbots and Virtual Assistants

AI-driven chatbots and virtual assistants play an important role in enhancing student learning by offering immediate assistance. They help with homework, respond to questions, and provide feedback, making them accessible outside traditional classroom hours to meet students' needs anytime. This tailored support promotes self-learning and motivates students to actively interact with their studies.

14

## Task Automation

AI enhances virtual learning environments by automating various educational tasks. It extends its capabilities beyond personalized instruction to manage assignments, grade exams, organize research papers, handle reporting, and create presentations and notes. This integration allows teachers to optimize their workflows, boosting daily efficiency. By handling routine educational tasks, AI fosters a learning atmosphere that prioritizes knowledge acquisition and streamlines the educational process.

# Strategies for Maintaining Foundational Skills

To address concerns that PGCPS educators may have about AI impacting students' competencies in writing, researching, and analysis, the following strategies can be considered:

- **Complementary AI Integration:** Position AI tools not as replacements but as supplements to traditional learning methods, ensuring that students continue to practice and develop their foundational skills alongside AI-enhanced learning.
- **Human Oversight:** Maintain a “human-in-the-loop” system where educators oversee AI-generated feedback and suggestions, ensuring that students receive humanized guidance and support in their learning process (Merod, 2023).
- **Balanced Curriculum Design:** Develop a curriculum that balances AI-assisted activities with traditional tasks requiring manual research, writing, and analysis, thus preserving and enhancing these critical skills.
- **Critical Thinking Emphasis:** Embed activities that require critical evaluation of AI-generated content, encouraging students to question and analyze information critically, thus strengthening their analytical skills.

# Considerations for Vetting & Selecting AI Programs & Tools

There are two important points to keep in mind as districts determine which AI tools to allow in the classroom and how:

## 01

### **Don't assume you need to overhaul your vetting process for ed-tech tools.**

Existing processes for vetting new digital tools in the PK12 environment remain applicable to AI technologies. PGCPS should assess AI tools based on their data privacy, alignment with educational goals, and evidence of effectiveness, just as with any other digital resource. Common Sense (an organization that reviews digital apps) has begun evaluating AI tools, focusing on engagement, pedagogical fit, and user support. They offer a framework that educators can apply when considering AI tools for classroom use.

## 02 **Pay close attention to privacy policies and terms of use.**

Vetting teams need to carefully scrutinize the privacy policies and terms of use of new generative AI tools. These documents outline the data collected and its usage, which is crucial to avoid the input of sensitive information. They also help individuals understand the potential for inaccurate or biased responses that result from the AI's training datasets.

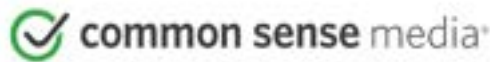


# RESOURCE:

## Tools to Support Ethical AI Procurement

# 1

### COMMON SENSE MEDIA AI RATINGS SYSTEM



“The framework for Common Sense Media's AI ratings and reviews was created with input from some of the world's leading experts in the field of artificial intelligence, with the goal of creating a 'nutrition' label for each AI product.”

<https://www.commonsensemedia.org/aiframework>



# 2

This framework by the Center for Integrative Research in Computing and Learning Sciences is “specifically designed to include community members in the process of making informed evaluation and procurement decisions and outlines the important criteria to consider during three stages of emerging technology implementation: (1) initial evaluation, (2) adoption, and (3) post-adoption.”

<https://circls.org/adoption-framework>

# 3

### THE ETHICAL FRAMEWORK FOR AI IN EDUCATION

The Institute for  
Ethical AI in  
Education

“The Ethical Framework for AI In Education is grounded in a shared vision of ethical AI in education and will help to enable all learners to benefit optimally from AI in education, whilst also being protected against the risks this technology presents. The Framework is aimed at those making procurement and application decisions relevant to AI in education.” The institute is funded by organizations like Pearson, McGraw Hill, and Microsoft.

<https://www.buckingham.ac.uk/wp-content/uploads/2021/03/The-Institute-for-Ethical-AI-in-Education-The-Ethical-Framework-for-AI-in-Education.pdf>

# RESOURCE:

## Tools to Support Ethical AI Procurement



### ETIA EDUCATION TECHNOLOGY INDUSTRY'S PRINCIPLES FOR THE FUTURE OF AI IN EDUCATION

4

The Education Technology Industry's Principles for the Future of AI in Education builds on experiences with and successes in using these technologies to advance educational objectives. Their principles provide a framework for how we can look to the future of implementing AI technologies in a purpose-driven, transparent, and equitable manner.

<https://edtechprinciples.com/>

5

### EDSAFE AI SAFE BENCHMARKS



This framework “engages stakeholders to align to [equitable outcomes] and improved working experiences for dedicated and innovative educators. [Its] intent is to clarify the urgency and specific areas of need to prevent failures in data management...”

<https://www.edsafeai.org/safe>



### 1EDTECH TRUSTED APPS GENERATIVE AI DATA RUBRIC

6

“Through the TrustEd Apps Program, 1EdTech regularly vets the policies of hundreds of edtech companies of all types using an open standard privacy rubric designed and utilized by 1EdTech members. TrustEd Apps gives institutions and suppliers a helping hand to reduce the time and worry spent determining whether a particular edtech tool meets today's expectations in data privacy.”

<https://www.1edtech.org/program/trustedapps>

# IMPLEMENTATION

ENGAGEMENT &  
COMMUNICATION  
PLANNING

IMPLEMENTATION  
STRATEGY

**PART IV**

# COMMUNITY ENGAGEMENT

## Communicating about AI

The development of a robust Engagement and Communication Plan is paramount for any successful implementation strategy (Garrety et al., 2004). This plan should be designed to foster understanding, support, and enthusiasm among all stakeholders (students, families, and the broader community) about AI's role in education. Districts should strive to (1) transparently communicate the uses, benefits, and safeguards of AI technology and (2) ensure that every stakeholder is informed about, involved with, and inspired by the potential that Generative AI holds for redefining the educational experience. Below are some strategies to consider integrating into your community engagement strategy.

**Educational Workshops and Seminars:** Host regular workshops for students, parents, and community members that explain the basics of AI, its benefits, and its potential risks. Use hands-on activities to demonstrate how AI works and how it can be used in educational settings.

**Transparent Communication:** Maintain open lines of communication through newsletters, websites, and community meetings to keep all stakeholders informed about how AI is being integrated into the school curriculum and operations. Address concerns and questions promptly to build trust.

**Student Showcases:** Organize events where students can present projects and activities that involve AI applications. This not only demonstrates practical uses of AI but also helps demystify the technology for the broader community.

**Partnerships with Tech Companies:** Collaborate with technology companies and local universities to bring in experts who can speak about AI developments and future trends. This can help bridge the gap between theoretical knowledge and real-world applications.

**Community Feedback Initiatives:** Create forums or surveys where students, families, and community members can provide feedback on AI initiatives. Use this feedback to adjust programs and increase community involvement and satisfaction.

**Family Involvement Programs:** Develop programs that allow families to engage with AI technology together, such as family coding nights or AI-themed competitions. This fosters a better understanding of AI and encourages supportive family environments.

**Cultural and Ethical Discussions:** Facilitate discussions about the ethical implications of AI technology. This helps students and community members consider how AI should be used responsibly and understand the societal impacts.

**AI Literacy Curriculum:** Integrate AI literacy into the school curriculum to ensure that all students have a foundational understanding of AI. This can include critical thinking about AI's role and impact on society.

**Advocacy and Leadership Opportunities:** Encourage students and community members to become AI advocates or leaders in their communities. Provide training and resources for them to lead their own workshops or initiatives.

**Inclusive Design Teams:** Include students, parents, and community members in the planning and implementation phases of AI integration. This ensures that diverse perspectives are considered and that the programs meet the needs of all stakeholders.

# COMMUNICATION & ENGAGEMENT RESOURCES

The following resources help educators and leaders engage with their stakeholders about AI implementation updates, gather opinions, communicate information, and share resources.

## **AI Homepage Resources:**

- Use CMS platforms like WordPress, Joomla, or Drupal for easy website management, offering templates and accessibility features.
- Implement Google Analytics for tracking visitor behavior and refining engagement strategies.
- Ensure website accessibility with tools like WAVE or AXE.
- Foster community discussions with forum software such as phpBB or Discourse.

## **Short Video Creation Resources:**

- Edit videos with software like Adobe Premiere Pro or user-friendly options like Canva.
- Create animations with Adobe After Effects or Blender.
- Access high-quality stock footage and images from Unsplash, Pixabay, or Shutterstock.
- Incorporate royalty-free music from sources like YouTube Audio Library or Free Music Archive.

## **Social Media Campaign Resources:**

- Manage posts and track engagement with tools like Hootsuite, Buffer, or Sprout Social.
- Design social media graphics and infographics using Canva or Adobe Spark.
- Identify trending hashtags with Hashtagify.me or Keyhole.co.
- Monitor AI project mentions on social media with Mention, Brand24, or Awario.

## **General Resources for Engagement and Learning:**

- Host webinars and workshops using platforms like Zoom, Google Meet, or WebEx.
- Develop educational content on online learning platforms such as Coursera, Udemy, or edX.
- Gather community feedback with SurveyMonkey, Google Forms, or Typeform.

*Adapted from Lee et al. (2015)*

# COMMUNITY ENGAGEMENT

## Sample District Communication

We are committed to a measured approach in embracing AI technologies, focusing on the productive use of AI in the classroom and workplace while prioritizing the safety and privacy of our students and staff. Our core values for the implementation of AI include:

- **Safety:** We are dedicated to upholding the highest standards of data privacy and security. By vetting AI applications rigorously, we ensure that the tools used by our educators and students safeguard their personal information and comply with privacy regulations.
- **Equity:** We strive to provide equitable and transformational learning experiences through AI, making advanced technologies accessible to all staff and students. This commitment extends to identifying and addressing biases inherent in AI systems, ensuring that our digital learning environments are inclusive and fair.
- **Innovation:** Our district seeks to lead in the ethical use of AI in education. We form partnerships and consult with experts to develop ethical and innovative AI solutions tailored to the unique needs of our community. Our proactive approach allows us to leverage AI for educational excellence, navigating the challenges and opportunities it presents with expertise and foresight.
- **Intentionality:** In selecting AI tools for educational use, we are guided by a commitment to enhance and support learning outcomes intentionally. This means choosing AI applications that not only streamline administrative tasks but also significantly enrich the learning experience and engagement of our students.

To this end, Prince George's County Public Schools has already introduced specific AI tools, such as ChatGPT for staff use, recognizing their potential to create personalized learning experiences, streamline administrative duties, and boost student engagement. Our plan includes designing professional learning opportunities for staff to build foundational knowledge of AI and reviewing digital tools embedded with AI for student use in the classroom. This strategic approach ensures that educators are well-prepared to employ AI tools safely and effectively, fostering a learning environment that is adaptive, innovative, and aligned with our educational goals.

# RESOURCE: AI Adoption Roadmap for Education Institutions

## 1 DEVELOP A BASE

At this stage, it is important that all stakeholders are in the loop about the district's efforts to integrate AI into instruction as well as operations. Introductory meetings and cross-functional spaces for collaboration can help to establish a foundation.

## ENGAGE STUDENTS & FAMILIES

Create opportunities for both students and their guardians to be aware of how the district intends to leverage new technologies while ensuring data protection and security.

## 2 SUPPORT TEAM

Ensure that teachers and school leaders have the resources, skills, and knowledge to apply new technologies. Provide guidance in how practices should be updated.

## 3

## 4 MONITOR EFFORTS

Ensure that there are clear mechanisms in place to review guidelines, update information as technologies evolve, and ensure that the voices of stakeholders are heard as new technologies are introduced.

For full guidance, please visit:  
<https://www.aiforeducation.io/ai-resources/ai-adoption-roadmap-for-education-institutions>.

*Adapted from AI Adoption Roadmap for Education Institutions: The 4 Phases (AI for Education, n.d.)*

# Implementation Strategy

The integration of AI into educational settings represents a transformative shift in how teaching and learning processes are conceived and delivered. For PGCPs, the adoption of AI tools offers a promising avenue to enhance educational outcomes, personalize learning experiences, and streamline administrative tasks. The strategic implementation of AI technologies, when aligned with the district's educational goals and priorities, can significantly contribute to creating an innovative, efficient, and inclusive learning environment. This plan outlines a comprehensive strategy for the phased rollout of AI tools within the district, ensuring that the adoption is thoughtful, effective, and responsive to the needs of all stakeholders involved. Drawing from recent academic research and best practices in the field, the plan aims to navigate the challenges and leverage the opportunities presented by AI in education (Nawaz et al., 2022).





# Phased Roll Out Strategy

## IMPLEMENTATION TIPS FOR AI ADOPTION

### Best Practices

- Start with a needs assessment to identify gaps that AI can address, ensuring alignment with educational goals and priorities.
- Engage stakeholders (teachers, students, parents, and IT staff) early to understand their needs and concerns.
- Prioritize transparency about AI's role, capabilities, and limitations to build trust and acceptance.

### Phase 1

- **Planning and Preparation (1-3 months):** Conduct needs assessment, select AI tools (like Khanmigo, Teachable Machine, Adobe Firefly, Brisk AI), and develop training materials.

### Phase 2

- **Pilot Implementation (3-9 months):** Implement in select classrooms/schools. Provide intensive support and training for teachers.

### Phase 3

- **Evaluation and Adjustment (2-3 months):** Collect and analyze data. Make necessary adjustments based on feedback.

### Phase 4

- **Phase 4: Full Rollout (6-12 months):** Gradual expansion to more schools, incorporating lessons learned from the pilot phase.

## Rollout Milestones

### Recommendations

Choose AI tools that complement existing educational practices and support district priorities.

Ensure robust IT infrastructure and technical support.

Provide ongoing professional development for teachers to integrate AI into their teaching effectively.

# Pilot Programs

## EVALUATION + METRICS FOR SUCCESS

- Implement pilot programs in a diverse set of classrooms to assess effectiveness across different contexts.
- Evaluate success based on:
  - Student engagement and learning outcomes;
  - Teacher satisfaction and ease of use; and
  - Improvement in targeted educational goals (e.g., personalized learning, efficiency in grading).
- Use a combination of quantitative data (test scores, usage metrics) and qualitative feedback (surveys, interviews) for a comprehensive understanding.

## Best Practices

The proposed AI implementation strategy for PGCPS is designed to be a roadmap towards a more engaged, personalized, and efficient educational landscape. By adhering to best practices, establishing clear timelines, and basing decisions on carefully collected feedback and evaluation metrics, the district is poised to harness the potential of AI to meet its diverse educational needs (Shaik et al., 2023). Pilot programs serve as an important litmus test for the scalability and effectiveness of AI tools across different contexts within the district, ensuring that the rollout is both strategic and aligned with overarching educational objectives. Continuous improvement mechanisms will guarantee that the integration of AI remains a dynamic and responsive process, adapting to emerging needs and technological advancements. Ultimately, the successful implementation of this strategy will mark a significant step forward in realizing the district's commitment to innovation in education, setting a benchmark for how AI can be leveraged to enrich teaching and learning experiences for all.

# CONTINUOUS IMPROVEMENT

MONITORING  
EVALUATION  
& EVOLUTION

**PART V**

# MONITORING, EVALUATION, & CONTINUOUS IMPROVEMENT

The integration of AI requires a strategic approach to monitoring, evaluation, and continuous improvement to ensure the ethical and effective use of AI technologies. The guidance below provides a framework for ensuring structures, systems, and policies are in place for effective implementation of AI in the district.

## **Core Tenants of Monitoring, Evaluation, and Continuous Improvement**

### **Defining Objectives and Indicators:**

Establish clear, SMART objectives for AI integration, focusing on enhancing learning outcomes and ensuring equity. Key indicators should measure student performance, engagement, accessibility, and inclusivity.

### **Implementation and Data Collection:**

Collect data on academic performance, engagement, and AI tool usage to gain insights into the impact of AI on learning and equity.

### **Analysis and Evaluation:**

Employ quantitative and qualitative methods to assess AI's impact, ensuring a thorough understanding of its effects on different student demographics.

### **Data-Driven Decision-Making:**

Utilize real-time monitoring and feedback mechanisms to refine AI integration, fostering an agile and responsive approach to technology implementation in education.

# Guidance on Impact Assessments

“**Artificial Intelligence Impact Assessments (AIAs)** [are] a family of tools that provide structured processes to imagine the possible impacts of a proposed AI system. [They] have become an increasingly popular proposal to govern AI systems. Recent efforts from government or private-sector organizations have proposed many diverse instantiations of AIAs, which take a variety of forms ranging from open-ended questionnaires to graded score-cards” (Johnson & Heidari, 2023).

AIAs offer a structured process to foresee the potential impacts of AI systems. These assessments are crucial for governing AI applications within the educational sector and are supported by initiatives like the EU AI Act (AI Act, 2024).

- **Regular Evaluations:** Implement systematic evaluations of AI tools to assess their educational impact, focusing on data privacy and ethical considerations.
- **Stakeholder Feedback:** Engage a wide range of stakeholders, including educators, students, and parents, to gather diverse perspectives on AI's integration and its effects on the educational community.
- **Adapting Policies:** Remain adaptable in policy-making, updating guidelines as new insights are gained from evaluations and feedback, ensuring AI strategies align with the district's educational goals and values.

## Key Resource:

[edtech evolved AI Impact Assessment  
Template for K12 Schools](#)



# Monitoring Ethical & Effective AI Use

## **Formation of an AI Review Committee**

Establish a committee comprising educators, administrators, and AI experts to oversee AI integration, focusing on both technological and ethical aspects.

## **Continuous Monitoring and Learning**

Stay updated on AI developments and ethical standards, ensuring the committee is well-informed to make recommendations for policy updates.

## **Regular Review Schedule**

Set a regular timeline for reviewing AI policies and practices, with provisions for ad hoc reviews in response to significant technological or ethical developments.

## **Stakeholder Engagement**

Implement feedback mechanisms to include various stakeholders in the review process, ensuring diverse perspectives are considered.

## **Policy and Practice Updates**

Develop clear recommendations for policy updates based on findings, with a detailed plan for implementation and communication to all stakeholders.

## **Documentation and Transparency**

Maintain transparency by documenting and publicly reporting the review process and outcomes, fostering a culture of continuous improvement.



# Conclusion

## RECAP

This guide serves as a comprehensive toolkit and roadmap for integrating AI in educational settings. It emphasizes the need for:

- **Equity and Inclusiveness:** Ensuring all students have access to AI tools, mitigating the risk of deepening existing divides.
- **Ethical Considerations:** Developing policies that prioritize student privacy, data security, and responsible AI usage.
- **Stakeholder Collaboration:** Engaging students, families, educators, and community members in understanding and shaping AI initiatives.
- **Capacity Building:** Enhancing the infrastructure and professional development to support effective AI integration.



## STRATEGIC VISION

PGCPS aims to be a leader in responsible and innovative AI integration, using AI to:

- **Enhance Educational Outcomes:** Utilize AI to personalize learning, automate administrative tasks, and provide robust analytics for better decision-making.
- **Prepare Students for the Future:** Equip students with AI literacy and skills essential for the evolving job market.
- **Support Educators:** Offer continuous professional development to ensure educators are confident and competent in utilizing AI tools.



# Conclusion



## CALL TO ACTION

**We conclude this report with an enthusiastic call for a collective effort among all PGCPS stakeholders to:**

**Collaborate on AI Policy Development:**

Work together to establish guidelines that reflect the district's values and educational goals.

**Participate in Pilot Programs:** Engage in pilot initiatives to test and refine AI integration strategies.

**Promote Transparency and Communication:** Ensure open dialogues about AI's role and impact in education, addressing any concerns and showcasing benefits.

## RECOMMENDED NEXT STEPS

**Develop a Phased Rollout Plan:** Start with small-scale implementations to test AI solutions before district-wide adoption.

**Establish a Monitoring Framework:** Continuously assess the impact of AI on student learning and adjust strategies as needed.

**Build Partnerships:** Collaborate with technology providers, higher education institutions, and other districts to share knowledge and resources.





# GLOSSARY OF TERMS

- **Frequently Used Acronyms:**

- Department of Education (DOE)
- Doctorate in Education Leadership (EdLD)
- Harvard Graduate School of Education (HGSE)
- Pre-Kindergarten to 12th Grade (PK12)
- Prince George’s County Public Schools (PGCPS)

- **Technological Concepts:**

- **Acceptable Use Policy (AUP):** A policy detailing the ways in which technology will be used within an organization.
- **Adaptive Instructional Systems (AIS):** AI that adapts learning experiences for students based on patterns in the input provided.
- **AI in Education (AIEd):** A general term typically used to refer to the application of AI in PK12 educational settings.
- **AI-Enhanced Learning:** Instruction that leverages AI tools to enhance the learning experience.
- **Algorithmic Accountability Act:** A proposed piece of legislation that would regulate how algorithms are monitored in the US, including those used by governmental agencies.
- **Artificial Intelligence (AI):** Simulation of human-like intelligence as demonstrated by machines.
- **Bulk Inputs:** Datasets containing information to inform analysis and decision-making.
- **Children’s Internet Protection Act (CIPA):** A law passed in 2000 by the US Congress to safeguard minors from the abuse of the internet such as potentially harmful content.
- **Digital Divide:** Traditionally a term used to refer to the lack of access to technology and the internet as experienced by disadvantaged groups.
- **Federal Communications Commission (FCC):** The US government agency that regulates forms of media, such as television, radio, and the internet.
- **Generative AI:** A branch of machine learning that develops new content such as visuals, code, or text.
- **Intelligent Computer-Assisted Instruction (ICAI):** AI that personalizes learning based on input provided by students.
- **Intelligent Tutoring System (ITS):** A subcategory within ICAI focused on individualizing learning content for students based on their personal needs.
- **Keep Humans in the Loop:** A principle that emphasizes a human-centered approach to AI implementation by ensuring that voices of users are heard in the process.
- **Large Language Model (LLM):** A form of AI that is responsive to prompts and questions based on a massive amount of text-based data.
- **Natural Language Processing (NLP):** A focus area within AI that trains machines to better interpret and generate human-like language.

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# Acknowledgements

*Our team would like to acknowledge the valuable contributions of individuals who provided leadership and support for the completion of this work:*

**Millard House**, CEO, PGCPS

**Quincy Boyd**, Chief of Staff, PGCPS

**Frank Barnes**, Director, HGSE Ed.L.D. Program

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