

Navigating AI in Educator Preparation

Considerations for EPPs

AI's role in education is no longer limited to enhancing existing tools; it has the potential to transform how we approach creativity, problem-solving, and personalized learning. As AI becomes more openly accessible to educators, students, and families, we must be prepared to navigate and leverage these tools effectively. The integration of AI in education and teacher preparation requires a strategic framework that addresses the broader implications for teaching, learning, and professional development.

This resource provides the groundwork for EPPs seeking to establish or expand a framework for the integration of AI practices and resources within teacher preparation programs. As the title suggests, there are numerous considerations for EPPs as they go about this work, and this document surfaces and explores some of them, such as equipping educators, students, and families with the skills to navigate AI responsibly. It also aims to help ensure that AI is leveraged effectively, responsibly, and safely within the context of teacher preparation. In an era where AI can be both a tool and a potential risk, educators must not only understand how to use AI effectively but also how to critically assess its outputs and implications.

It is important to note that the current CAEP Standards do not explicitly reference or require an EPP's use of AI within preparation program design, implementation, or ongoing administration. Nothing herein should be read to suggest otherwise or to expand on or contract any aspect or component of the standards for accreditation. CAEP's Accreditation Policies and Procedures include a prohibition on any action by a CAEP volunteer that reflects that volunteer's bias or impartiality regarding any CAEP-member EPP. Training required of all volunteers addresses this critical protection such that an EPP's decision whether or not to incorporate AI into any program is given full and appropriate consideration within the context of an EPP's Self-Study Report (SSR) and supporting evidence.

Understanding AI in Education: What is AI and how does it currently show up in the education space?

(Sort of) Defining AI

Artificial intelligence (henceforth AI) refers broadly to the capability of computers or machines to perform tasks that typically require human intelligence: summarization, synthesis, critical analysis, reasoning, problem-solving, content production, and even learning. While current AI technology excels in specific, well-defined tasks—language processing, image recognition, data analysis, and many others—it [does not yet match](#) the full range of human cognitive abilities. As AI continues to evolve, there is [no universally agreed-upon definition](#). Definitions of AI remain

fluid and may vary depending upon the perspective of experts and users. The ongoing conversation around defining AI reflects the complex and multifaceted nature of this technology, shaped by its diverse applications across fields including P-12 education and teacher preparation.

AI Tools in Education: Transforming Learning Environments

The power of AI to [address existing challenges](#) in education, facilitate educational innovation, and increase student outcomes is evident in its current and potential future uses. AI is embedded in educational technology that educators and students use daily, offering solutions that enhance learning and streamline administrative tasks.

Here are a few of the myriad ways that AI is integrated into the design of educational technology: Popular student-facing tools including [Quizlet](#), [Kahoot](#), and [Duolingo](#) have capitalized on AI to deliver adaptive learning and assessment solutions, embedding AI into the everyday educational experience. These apps showcase how seamlessly AI is already integrated into educational environments, often operating behind the scenes to support differentiation, classroom management, and content generation.

AI-powered platforms include [Magic School](#), a versatile teaching and administrative assistant, and [Diffit](#), an adaptive reading tool. These platforms provide highly personalized learning experiences for diverse student needs. [SchoolAI](#) uses chatbots to foster student engagement, [QuestionWell](#) generates classroom content across a range of platforms, and [Curipod](#) supports interactive lesson planning and student collaboration.

In addition to AI-integrated applications, we are witnessing the emergence of advanced AI models including [ChatGPT](#), [Claude](#), and [Gemini](#) which demonstrate the ability to comprehend, analyze, and generate human-like conversational language. These tools represent a significant shift in educational innovation by offering students, educators, administrators, and teacher-preparation professionals the opportunity to enhance teaching and learning processes through AI-driven insights and capabilities. Advanced AI models go beyond the passive integration of AI within existing apps; they empower educators and students—front-end users—to engage directly with AI to create new content, conduct complex analyses, as well as to generate ideas, images, and multimedia in real time. This shift marks a new era wherein AI is not just a background feature of educational technology but a dynamic collaborator in teaching and learning.

The following table highlights 20 popular AI-integrated applications and tools that are transforming educational practices. These platforms leverage AI to enhance student engagement, support personalized learning, streamline administrative tasks, and improve assessment methods. From adaptive learning systems and collaborative tools to advanced conversational models, these AI-driven solutions showcase how seamlessly AI can be embedded into education to support both educators and learners.

Tool Name	Description	Website
Quizlet	An AI-powered study platform that offers personalized flashcards and adaptive quizzes to support efficient learning and retention.	Quizlet
Kahoot!	A game-based learning platform using AI to adapt quizzes and games to student performance levels, enhancing engagement and assessment.	Kahoot!
Duolingo	Language-learning app employing AI to offer adaptive lessons, tailored feedback, and personalized language challenges.	Duolingo
Magic School	A comprehensive AI-based teaching and administrative assistant that supports lesson planning, grading, and classroom management.	Magic School
Diffit	An adaptive reading tool that generates differentiated reading materials based on students' comprehension levels.	Diffit
School AI	A chatbot-based platform that encourages student engagement and participation through AI-driven conversations.	School AI
QuestionWell	Generates customizable classroom questions, quizzes, and assignments across a variety of subjects, leveraging AI algorithms.	QuestionWell
Curipod	A collaborative lesson-planning tool that uses AI to create interactive lessons and promote student-centered learning activities.	Curipod
ChatGPT	An advanced conversational AI model that can answer questions, draft content, and engage in complex discussions in a human-like manner.	ChatGPT
Claude	A conversational AI developed by Anthropic, designed to provide safe and reliable responses, and capable of extensive analysis and content generation.	Claude
Gemini	A state-of-the-art AI system by Google DeepMind focusing on generating conversational text and comprehending diverse queries with high accuracy.	Gemini
Edpuzzle	An interactive video-based learning tool that leverages AI to provide assessments within videos, adapting questions to student responses.	Edpuzzle

Gradescope	A grading and assessment platform that employs AI to automate grading, provide detailed analytics, and enhance assessment efficiency.	Gradescope
ScribeSense	Uses AI to scan and grade handwritten assignments, reducing administrative burdens and delivering feedback to students quickly.	ScribeSense
Perusall	An AI-driven collaborative reading platform that encourages active student engagement and highlights critical parts of digital texts.	Perusall
Mango Languages	A language-learning platform using AI to adapt language lessons, provide real-time feedback, and track learner progress.	Mango Languages
Canva for Education	AI-enhanced design tool that allows students and teachers to create visual presentations, infographics, and collaborative projects.	Canva for Education
Knewton Alta	An adaptive learning platform that uses AI to deliver personalized lessons in math and science, adjusting based on student performance.	Knewton Alta
Mentimeter	An interactive presentation tool that uses AI to collect and analyze audience responses, enhancing classroom engagement.	Mentimeter
Turnitin	An AI-based plagiarism detection and integrity tool that analyzes student work, ensuring academic integrity and providing constructive feedback.	Turnitin

AI’s role in education is no longer limited to enhancing existing tools; it has the potential to transform how we approach creativity, problem-solving, and personalized learning. As AI becomes more openly accessible to educators, students, and families, we must be prepared to navigate and leverage these tools effectively. The integration of AI in education and teacher preparation requires a strategic framework that addresses the broader implications for teaching, learning, and professional development.

Challenges and Concerns with AI in Education

Despite its vast potential, AI technology presents several significant challenges. Current AI systems struggle with accuracy and reliability, often generating incorrect or misleading information, leading to potential misuse in educational and public contexts. A growing concern is the use of AI to create and disseminate disinformation, as seen in its ability to generate realistic but false text, audio, visual, and video content. The ability to develop false and misleading information has serious implications for education, particularly as it pertains to the

importance of developing students' critical thinking skills to evaluate information. Additionally, the rapid proliferation of AI-generated content raises alarms about cybersecurity and the [manipulation of public opinion](#) in contexts including elections.

These issues underscore the importance of equipping educators, students, and families with the skills to navigate AI responsibly. In an era where AI can be both a tool and a potential risk, educators must not only understand how to use AI effectively but also how to critically assess its outputs and implications. Therefore, this guide provides the groundwork for establishing a framework within teacher preparation programs that guides educators in safely and ethically integrating AI into their practice, while fostering critical awareness in their students. We also aim to help ensure that AI is leveraged effectively, responsibly, and safely within the context of teacher preparation.

Aligning AI Integration with Standards: What do the standards have to say about AI in education?

Aligning AI Integration with Standards and Legislation

As AI continues to gain prominence in education, educator preparation programs (henceforth EPPs) should understand how this evolving technology aligns with existing educational standards and legislative frameworks. This section provides a focused exploration of the role AI plays within the broader context of educational technology, emphasizing the need for its ethical, safe, and legal use in teacher preparation. By framing AI as an extension of educational technology with distinct capabilities—including generating human-like language and learning from vast datasets—we offer guidance on how to integrate AI practically and responsibly.

In this section, we will specifically examine several key standards from the [CAEP Standards for Initial-Licensure Preparation](#) as well as select [Advanced-Level CAEP Standards](#) to demonstrate how AI can be woven into the fabric of educator preparation. Rather than providing an exhaustive analysis of all possible AI-related considerations within these standards, this guide highlights critical points of connection that can help EPPs thoughtfully integrate AI into their programs. This analysis is complemented by a review of relevant [InTASC Standards](#), which provide a framework for professional practice in teaching, as well as a brief overview of the current regulatory and policy landscape for AI in education.

This guide does not serve as a policy or regulatory directive; rather, it seeks to support EPPs in facilitating internal discussions about AI, ensuring that current and future educators are prepared to engage with AI as judicious consumers and innovative practitioners of technology. As AI continues to evolve, so too must our approach to teacher preparation, with a commitment to ethical use, critical thinking, and adaptability in a rapidly changing technological landscape.

Component R1.3 Instructional Practice: Integrating AI Responsibly in Teaching and Learning

In alignment with Component R1.3, candidates should be prepared to judiciously integrate AI into their instructional practice, ensuring its use enhances student learning in equitable and responsible ways. As more than [63% of educators](#) reported using AI tools including ChatGPT by mid-2023, EPPs can address both the board possibilities and potential challenges posed by AI. EPPs should equip candidates with the knowledge to leverage AI for instructional planning, assessment, and differentiated learning while maintaining a clear focus on ethical considerations including data privacy, the accuracy of AI-generated content, and the potential dissemination of misinformation. Teacher candidates need structured and guided opportunities to assess AI's impact on learning and apply AI in ways that are aligned with state and national technology standards. In this way, EPPs foster learning environments for teacher candidates that promote the safe, effective, student-focused use of educational technology. This value for

the effective use of educational technology—including AI—reflects the broader focus of InTASC standards related to instructional practice, the use of varied instructional strategies, and the critical evaluation of educational tools.

Guidelines

- **Guiding Question:** How does the provider introduce AI tools to educators, ensuring that candidates understand their potential to enhance teaching and learning while also considering the responsible and ethical use of such technologies?
- **Quality Evidence:** Evidence demonstrates that candidates are knowledgeable about the applications of AI in education, can justify their use in instructional contexts, and can articulate how they implement AI tools in responsible and ethical ways that align with standards for student learning and safety.

Component R2.3 Clinical Experiences: Reflecting on AI in Instructional Practice

In alignment with Component R2.3, clinical experiences can incorporate ongoing opportunities for candidates to reflect on the use of AI in teaching and learning. These experiences may encourage candidates to thoughtfully experiment with AI in their instructional practice, ensuring they understand both its potential and its risks in a controlled, student-safe environment. Reflection on AI's effectiveness, impact on diverse learners, and ethical considerations should be integral to these experiences. By engaging in these discussions, candidates will be better prepared to navigate AI's role in education responsibly.

Guidelines

- **Guiding Question:** How are candidates and completers prompted to engage in ongoing reflection about the role of AI in their practice to assess its effectiveness, impact, and responsible use?
- **Quality Evidence:** Evidence demonstrates that candidates who utilize AI in clinical experiences can articulate their use of AI, justify its effectiveness, and communicate its impact to students, colleagues, and other stakeholders.

Component R3.2 Monitoring and Supporting Candidate Progression: Ongoing Engagement with AI Integration

In line with Component R3.2, EPPs can actively monitor candidates' progression in integrating AI and other educational technologies from admission through completion. Given AI's rapidly evolving capabilities, it is crucial to engage candidates in ongoing analysis of AI's emerging

features, functions, and ethical implications. Throughout the program, candidates should be encouraged to critically assess new developments in AI and reflect on how these changes influence their instructional practice. This process ensures that candidates are not only proficient in using current AI tools but also prepared to adapt to advancements, becoming responsible and thoughtful consumers of AI beyond the program.

Guidelines

- **Guiding Question:** How are EPPs fostering an interactive process that monitors and supports candidates' ongoing reflection and adaptation to the evolving landscape of AI in education?
- **Quality Evidence:** Evidence demonstrates that candidates engage in continuous reflection and discussion about AI advancements throughout their progression, showing a clear understanding of how to judiciously integrate new AI features and tools into their teaching practice.

Component R3.3 Competency at Completion: AI as a Tool for Supporting Diverse Learners

In alignment with Component R3.3, AI tools have emerged as a powerful technological support for differentiation, personalized learning, and data-driven insights, making it a valuable resource for teaching students with diverse learning needs. EPPs can ensure that candidates possess the academic competency to effectively integrate AI into their practice, enhancing student learning while maintaining a focus on equity. Furthermore, educators should be prepared to uphold academic integrity in their own use of AI, both during their preparation and in their professional careers. This responsibility extends to teaching students how to use AI safely, ethically, and effectively, ensuring that future learners are equipped with the skills to navigate AI-driven environments responsibly.

Guidelines

- **Guiding Question:** How do the EPP's instruments and methods specifically elicit responses related to AI integration within the criteria outlined in R1, considering the significant influence of AI on differentiation, instructional practice, and professional responsibilities?
- **Quality Evidence:** Evidence demonstrates that candidates reach the required level of proficiency by successfully integrating AI as part of their instructional practice to support diverse learners, while also maintaining a strong ethical framework around the use of AI in education.

Advanced-Level Standards: Preparing Candidates for Thoughtful AI Integration

For candidates pursuing advanced preparation, the integration of AI technology takes on an increasingly specialized and nuanced role. Advanced candidates are expected to demonstrate proficiency in applying AI within their instructional practice as well as in critically assessing ethical implications, considerations for data literacy, and the future potential of AI in their specific fields. As EPPs prepare advanced candidates, EPPs should equip them to navigate the evolving landscape of AI within instructional practice and professional development. Below are guiding questions that EPPs might consider when reflecting on their alignment with the advanced-level CAEP standards, helping them incorporate AI effectively into their programs.

- **RA1.1 Candidate Knowledge, Skills, and Professional Dispositions:** How are advanced candidates encouraged to critically assess and apply AI within their area of specialization, ensuring it enhances learning and development opportunities for all P-12 students?
- **RA3.4 Competency at Completion:** How does the EPP guide advanced candidates in responsibly integrating AI across all facets of instruction, including content knowledge, data literacy, research-driven decision-making, and collaborative practices in their area of certification?
- **R6.3 Faculty Resources:** In what ways does the EPP support professional development for faculty to ensure they remain current with AI advancements? What specific resources and training opportunities are available to help faculty understand AI's present and future impact on education?
- **R6.4 Infrastructure:** How does the EPP integrate AI into its existing curriculum and resources, and where can AI enhance these programs? In what ways are faculty supported in the ethical, safe, and responsible use of AI across instructional and administrative practices?

Connecting AI Integration to InTASC Standards

As outlined in CAEP Component R1.3 Instructional Practice, candidates in EPPs are expected to align their instructional practices with [InTASC Standards](#) 6, 7, and 8 which emphasize assessment, planning, and instructional strategies that integrate technology to enhance P-12 learning. This guide aims to demonstrate that AI is like other forms of educational technology, and therefore should not be treated as a separate or isolated tool; rather AI should be embedded throughout the educator-preparation process. By weaving AI into the broader fabric of instructional practice, we create a balanced and comprehensive approach that empowers educators to be proficient users of educational technology.

AI in its capacity as a human-like assistive technology holds the potential to support every stage of the teaching and learning process. The more systematically and thoughtfully we integrate AI within the logical progression of instruction—whether in planning, assessment, or personalized

learning—the better we can equip educators to use AI responsibly. It is not enough to address AI as a single topic within teacher preparation; it must be part of a holistic strategy that prepares teachers to be stewards of technology, capable of using it ethically, effectively, and safely.

As the [InTASC Standards](#) themselves suggest, educators must move from a limited range of strategies to, “...one with greater depth and breadth, including infusing technology in instruction and providing access to resources from around the world” (p. 13). By fostering the use of AI in thoughtful and reflective ways, we support teachers in becoming adaptive, creative practitioners who leverage technology to meet students’ diverse needs.

Moreover, AI can act as a collaborative partner in teaching and learning, helping P-12 students become both independent and collaborative. AI and educational technology in general provide access to resources, information, and community from around the world, thereby encouraging deeper student engagement. AI’s role in technology-enriched learning environments further enhances student agency as students are empowered to follow their interests, set goals for their learning, and even measure their progress as active participants in the learning process. Through this lens, AI not only enhances instructional practices but also fosters student independence, creativity, and ownership of their learning journey.

Let’s explore specific InTASC Standards and their implications for AI integration in educator preparation by presenting real-world scenarios. For each standard, a scenario will illustrate how AI can be applied in practice, followed by a reflective prompt designed to encourage deeper consideration of both the standard and the role of AI. This approach helps EPPs critically consider how AI can support effective teaching and learning while aligning with the professional expectations set by the InTASC Standards.

Progression for Standards 1 & 2: Learner Development & Learning Differences	
<i>“The teacher adapts instruction and uses modified materials, resources, tools, and technology to address exceptional learner needs, including those associated with disabilities and giftedness. (2a; 2b; 2f; 2g; 2l; 4f; 8n; 8r; 9d).”</i>	
<p>Scenario: An educator is tasked with supporting a diverse group of learners, including students with disabilities and those identified as gifted. Using AI-powered tools, the educator creates personalized learning experiences that adjust the level of complexity based on individual student needs. For example, AI helps differentiate reading materials, adapt assignments, and provide</p>	<p>Reflective Prompt: How is your educator preparation program equipping candidates to critically evaluate and responsibly use AI tools for differentiating instruction and addressing the diverse learning needs of students, including those with disabilities and giftedness? In what ways are candidates encouraged to become effective stewards of AI, ensuring that its use promotes equity,</p>

<p>real-time feedback tailored to each student's learning profile. The educator monitors student progress using AI-generated data to adjust instruction and ensure all learners are appropriately challenged and supported.</p>	<p>inclusivity, and personalized learning aligned with learner development and learning differences?</p>
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Progression for Standard 3: Learning Environments

“Develop expertise in applying technology to support learning:”

- *“Use interactive technologies to expand learner options for mastering content/skills”*
- *“Develop technology options for learners to manage data and direct their own learning”*
- *“Use technology to scaffold content understanding and skill development”*

<p>Scenario: An educator integrates AI-powered interactive technologies to create a dynamic learning environment where students can explore content at their own pace. AI tools are used to offer scaffolded support, such as providing hints and breaking down complex concepts into manageable steps. Students also use AI-driven data dashboards to track their own progress and set personalized learning goals. The AI platform provides adaptive feedback, helping students take ownership of their learning while deepening their understanding of content and skills.</p>	<p>Reflective Prompt: How is your educator preparation program preparing candidates to effectively incorporate AI and other interactive technologies to expand learner options, promote self-directed learning, and scaffold content understanding? In what ways are candidates being guided to thoughtfully manage the ethical use of AI, ensuring that it enhances learning environments while fostering student agency and skill development?</p>
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Progression for Standard 5: Application of Content

“Expand knowledge and skill in promoting learner independence: Engage in collaborative research on ways to support learner creativity through independent and collaborative inquiry projects (e.g., arts-based learning, integration of technology). Build professional and community connections to increase options for real-world application: Use technology to research the potential real-world applications of content in and across disciplines.”

<p>Scenario: An educator designs a project where students use AI tools to engage in independent and collaborative inquiry. The students use AI to research real-world applications of their content across multiple disciplines, exploring creative solutions to complex problems. For example, AI assists students in generating ideas for arts-based learning projects and provides collaborative</p>	<p>Reflective Prompt: How is your educator preparation program encouraging candidates to integrate AI in ways that foster both learner independence and creativity? How are candidates prepared to collaborate with students and communities to explore real-world applications of content, using AI as a tool for research, inquiry, and interdisciplinary learning?</p>
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<p>platforms where students can share research and develop interdisciplinary projects. The educator facilitates this process, encouraging students to use AI to explore connections between academic content and real-world scenarios, promoting both creativity and practical application.</p>	
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Standard 6: Assessment

“6(i) The teacher continually seeks appropriate ways to employ technology to support assessment practice both to engage learners more fully and to assess and address learner needs.”

<p>Scenario: An educator uses AI-powered assessment tools to enhance both formative and summative assessments. AI helps the teacher generate real-time feedback based on student responses, identifying areas where learners need additional support or challenge. The AI platform also engages students through interactive assessments, such as quizzes that adapt to their performance levels or simulations that allow learners to demonstrate understanding in a dynamic way. The educator uses the data from these AI-driven assessments to adjust instruction and provide targeted interventions that address each student's unique learning needs.</p>	<p>Reflective Prompt: How is your educator preparation program equipping candidates to responsibly integrate AI in their assessment practices? In what ways are candidates learning to use AI tools to engage learners while effectively assessing and addressing individual learning needs, ensuring that the technology supports ethical and data-driven decision-making?</p>
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Progression for Standard 7: Planning for Instruction

- *The teacher integrates technology resources into instructional plans. (7k; 7m; 8o; 8r)*
- *The teacher plans how s/he will use technology to engage learners in meeting learning objectives. (7b; 7h; 7k; 8o; 8r)*
- *The teacher incorporates technology in a variety of innovative ways in planning (e.g., managing learner records, expanding options for learner choice, and documenting performance). (8o; 8r)*
- *Expand knowledge and skill in creating challenging learning experiences: Access structured input (e.g., workshops, in-person or online courses, webinars, social media) in the discipline area(s) to build skill in creating challenging learning experiences through the use of technology.*

- *Strengthen analysis and reflection on the impact of planning: Use technology (e.g., clickers, graphs, digital portfolios) to maintain records of learner choice related to ways to customize and personalize learner goals and experiences*
- *Build Professional Community to Share Resources: Use technology to share, analyze, and reflect on resources that can support learners in attaining high goals*

Scenario: An educator integrates AI tools into instructional planning to create more engaging and personalized learning experiences. The AI system helps the teacher manage learner records, analyze student data, and track progress toward individualized goals. The educator also uses AI to offer students various learning paths based on their interests and needs, expanding learner choice while aligning with learning objectives. In planning, the teacher participates in online communities to share resources and gain insights from AI-driven analysis tools that support the development of challenging learning experiences for students. AI plays a central role in not only documenting student performance but also reflecting on the effectiveness of the instructional plans.

Reflective Prompt: How does your educator preparation program ensure candidates are equipped to integrate AI into their instructional planning processes? How are candidates encouraged to use AI tools to engage learners, customize learning experiences, and participate in professional communities that promote reflection and resource sharing?

Standard 8: Instructional Strategies

- *8(g) The teacher engages learners in using a range of learning skills and technology tools to access, interpret, evaluate, and apply information.*
- *8(o) The teacher understands how content and skill development can be supported by media and technology and knows how to evaluate these resources for quality, accuracy, and effectiveness.*
- *The teacher helps learners use a variety of sources and tools, including technology, to access information related to an instructional objective. S/he helps students learn to evaluate the trustworthiness of sources and to organize the information in a way that would be clear to an authentic audience. (8g; 8j; 8n; 8o; 8r)*
- *And...The teacher engages learners in using learning skills (e.g., critical and creative thinking skills, study skills, managing goals and time) and technology tools to access, interpret and apply knowledge that promotes learners' understanding of the learning objective(s). (8j; 8o; 8r)*

- *Strengthen analysis and reflection on use of strategies to support higher order thinking: Use action research to examine how learners are using technology to access, interpret, and apply content knowledge*
- *Expand knowledge and skills to engage learners in collaborative inquiry: Use technology to connect and collaborate with educators in other communities and countries on authentic problems and issues*

Scenario: An educator uses AI-powered tools to help students access and evaluate a wide range of sources for a research project. Students use AI to gather data, interpret results, and organize findings into presentations designed for an authentic audience. The teacher guides learners in critically evaluating the accuracy of AI-generated content, helping them understand how AI can both aid and challenge their research process. By fostering collaborative inquiry, the teacher connects students with peers in different regions, using technology to work together on real-world issues and develop higher-order thinking skills.

Reflective Prompt: How does your educator preparation program prepare candidates to engage students in using AI and other technology tools to access, evaluate, and apply information critically? How are candidates supported in teaching students to assess the trustworthiness of AI-generated content while promoting higher-order thinking and collaboration using AI in instructional strategies?

Standard 9: Professional Learning and Ethical Practice

- *9(f) The teacher advocates, models, and teaches safe, legal, and ethical use of information and technology including appropriate documentation of sources and respect for others in the use of social media.*
- *The teacher accesses information and uses technology in safe, legal and ethical ways. (9f; 9j; 9o; 9o)*
- *The teacher follows established rules and policies to ensure learners access information and technology in safe, legal and ethical ways. (9f)*
- *The teacher anticipates how information and technology might be used in unethical or illegal ways and takes steps to prevent the misuse of information and technology. (8o; 8r; 9f; 9o)*
- *The teacher advocates for the safe, legal and ethical use of information and technology throughout the school community. (8r; 9f; 9o)*
- *Strengthen analysis and reflection on ethical dilemmas: Engage colleagues, mentors, and specialists in identifying ethical issues related to technology in teaching and learning and address potential challenges*

Scenario: An educator incorporates AI tools into classroom activities while teaching

Reflective Prompt: How is your educator preparation program equipping candidates to

<p>students about the importance of safe, legal, and ethical technology use. The educator models how to document AI-generated sources appropriately, emphasizes the need for respecting privacy, and teaches students how to navigate social media responsibly. Additionally, the educator leads discussions both among students and in her Professional Learning Community on how AI could potentially be misused, such as spreading misinformation, and guides students and colleagues in recognizing and preventing unethical uses of technology. The teacher also collaborates with colleagues and school leadership to advocate for that promote the ethical use of AI in the classroom.</p>	<p>model and advocate for the safe, legal, and ethical use of AI and other technologies in the classroom? How are candidates being prepared to anticipate and address ethical dilemmas related to AI use, ensuring they can teach students to engage with technology responsibly and ethically?</p>
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Progression for Standard 10: Leadership and Collaboration

- *The teacher uses technology and other forms of communication to develop collaborative relationships with learners, families, colleagues and the local community. (8h; 10d; 10g)*
- *Build Skills in Working Collaboratively: Use technology to build collaborative skills locally and globally*
- *Build skills in identifying how innovation in one area can impact other areas: Form a technology think tank with colleagues to explore uses of new technologies for instructional purposes*

<p>Scenario: An educator leverages AI and other digital tools to foster collaboration with students, families, colleagues, and the local community. The teacher uses AI to facilitate communication between students and experts in various fields, helping students engage in real-world problem-solving. Additionally, the educator forms a "technology think tank" with colleagues, exploring innovative ways to integrate AI into instructional practices and discussing the broader impact of emerging technologies on learning. This collaboration encourages the educator to take on a leadership role in using AI to enhance teaching and learning locally and globally.</p>	<p>Reflective Prompt: How does your educator preparation program encourage candidates to use AI and technology to build collaborative relationships with students, families, colleagues, and the community? How are candidates prepared to lead discussions on AI innovations and their potential impact on instructional practices, fostering a culture of collaboration and continuous improvement?</p>
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Aligning AI Integration with Legislation: What does relevant legislation have to say about AI in education?

Overview of AI Legislation and Policy in the United States

At the time of writing of this guide, the landscape of AI legislation and regulation in the U.S. is rapidly evolving. As AI is integrated into various sectors, EPPs should understand and consider current legislation and regulatory frameworks surrounding the use of AI.

There are key differences between legislation and regulation. Legislation establishes the legal frameworks governing AI, while regulations enforce these laws through specific actions and guidelines. As noted by the [2024 Artificial Intelligence Index Report from Stanford University](#), "Since the specifics of legislation often manifest through regulatory actions, understanding the AI regulatory landscape is essential in order to develop a deeper understanding of AI policymaking" (p. 393). The following is a useful summary of key trends and developments in AI legislation and regulation from this report:

Key Developments in AI Legislation and Regulation:

- The number of AI regulations in the U.S. has sharply increased and continues to grow.
- President Biden's [Executive Order on AI](#) sets new benchmarks for AI safety, security, privacy protection, and civil rights while fostering competition and innovation.
- AI legislation in the U.S. focuses on—
 - training legislators in AI literacy
 - establishing a [National AI Commission](#) to oversee AI developments
 - implementing security risk evaluative measures for AI systems
 - supporting research on AI technologies and their applications
 - protecting AI's role in elections to safeguard democratic processes
- A notable regulatory action was the [Copyright Office and Library of Congress' Copyright Registration Guidance](#) on works containing AI-generated material, which clarified registration practices for such works.

State Legislation on AI in Education

In 2024, there was a notable surge in legislative activity addressing AI across the United States and its territories. According to the [National Conference of State Legislatures \(NCSL\)](#), in the 2024 legislative session, at least 45 states, Puerto Rico, the Virgin Islands, and Washington, D.C. introduced AI-focused bills; additionally, 31 states, Puerto Rico, and the Virgin Islands enacted laws or adopted resolutions. This legislative momentum highlights the growing recognition of AI's implications across multiple sectors, particularly in education. As AI increasingly permeates educational environments, states are shaping policies to address its integration and the attendant ethical and safety considerations.

Examples of AI-related legislation pertinent to education include the following:

- **Tennessee** – *Enacted* – Tennessee enacted legislation requiring public higher education institutions, local education boards, and public charter schools to establish rules and policies for the use of AI by students, teachers, faculty, and staff in instruction.
- **California, Bill A 2652** – *Pending* – California’s bill mandates the superintendent of public instruction to convene a working group by January 1, 2025, to assess current and future applications of AI in education and develop best practices for its responsible use.
- **Connecticut, H 5524** – *Enacted* – Connecticut enacted legislation allocating funds to the Department of Education for grants aimed at piloting an AI education tool program, including providing professional development for educators.
- **Illinois, H 299** – *Pending* – Illinois’ pending bill amends the Courses of Study Article to include digital replicas in the definition of cyber-bullying, specifically addressing depictions created or distributed electronically without the individual’s consent.
- **Florida, H 1361** – *Enacted* – Florida enacted a bill to award grants to school districts for implementing AI to support students and teachers, with provisions for New Worlds Scholarship Accounts and coordinated screening systems.
- **Virginia, S 487** – *Enacted* – Virginia’s enacted legislation tasks the Joint Commission on Technology and Science (JCOTS) with analyzing the use of AI by public bodies and establishing a Commission on AI, with findings due by December 1, 2024.
- **State-Level AI Task Forces** – *Enacted/Pending in Various States* – Colorado, Illinois, Indiana, Massachusetts, North Carolina, Oregon, Washington, and West Virginia among other states have introduced or enacted bills to establish AI task forces.

These legislative efforts underscore the importance of a thoughtful and proactive approach to AI's role in shaping future educators and students alike. For tracking ongoing AI-related legislation, a valuable resource is the [National Conference of State Legislatures \(NCSL\)](#), which maintains a repository of AI legislation across the country. This repository provides an overview of AI legislative actions, helping educators and policymakers stay informed about the legal frameworks shaping AI use at the state level.

Framework for Effective AI Integration: How can EPPs, schools, and individual educators build a framework to safely and mindfully begin integrating AI in education?

Introduction

Incorporating AI into education generally, and educator preparation specifically, offers the potential to transform teaching and learning by enhancing teacher effectiveness, ensuring the safe and ethical use of technology, and reinforcing the importance of human interaction and oversight. AI can empower educators by automating routine tasks, fostering creativity, enhancing collaboration, and supporting instructional planning, thereby allowing teachers to focus on high-

impact instructional practices and personalized learning. However, the integration of AI must prioritize data privacy, ensure the accuracy of information through regular verification, and critically assess data sources.

Above all, AI should complement—rather than replace—teacher-student interactions. Educators must maintain oversight of AI use to address potentially harmful biases, implement safeguards, and uphold educational standards among other responsibilities surrounding the use of any powerful technological tools. These foundational principles set the stage for the collaborative framework necessary to guide the effective integration of AI into educator preparation.

The Necessity of a Framework for AI Integration in Education

As AI increasingly shapes the landscape of education, schools, districts, and EPPs must assess their preparedness for the significant shifts in teaching and learning that this powerful technology entails. While AI has the potential to enhance human creativity and productivity, it also presents risks including fostering over-reliance, generating misinformation, and compromising privacy.

To foster safe, ethical, and effective learning environments, schools and districts should establish a framework for AI integration in teaching and learning. EPPs have a role in reflecting on how AI is leveraged in teacher preparation, while also equipping future educators to effectively use AI and educational technologies to enhance instructional practices. This framework should not merely consist of rigid rules or directives; rather, it must reflect a commitment to existing educational values and ethical principles as already established in existing standards and policies. Given rapid and often unpredictable advancements in AI, this framework must encourage continuous reflection, adaptation, and collaboration.

The following section offers key considerations for EPPs as they formulate guidelines for the responsible use of AI in education. It also emphasizes the need for teacher candidates to become discerning and thoughtful users of this transformative technology.

The Role of Human Connection in AI Integration

A fundamental guideline for EPPs in integrating AI is the emphasis on human connection. The development of an effective AI framework must be rooted in a collaborative process that involves diverse stakeholders and prioritizes shared dialogue. This inclusive approach helps ensure that multiple human perspectives—administrators, faculty, staff, mentors, candidates, and alumni—inform the guidelines for AI use throughout teacher preparation based on the current needs, experiences, and contexts of educators in the field. In other words, keep [humans in the loop](#) when considering AI in education.

From the admissions processes to the integration of AI in coursework and clinical practice, EPPs should foster an environment of continuous improvement and open dialogue among

stakeholders. In this way, EPPs can establish clear expectations for how AI can support—not replace—pedagogical practices. A collaborative framework for AI integration aligns directly with the mission of preparing teachers who can judiciously, thoughtfully, and ethically navigate evolving technologies while maintaining the primacy of human-centered learning experiences.

One approach to facilitating this collaboration is the formation of a dedicated *working group, task force, or advisory board* focused on AI in education. This group should meet regularly to develop initial guidelines and continuously review and adjust them in response to advances in AI technology and implications for teacher preparation. By fostering ongoing collaborative engagement, EPPs ensure that their AI framework remains responsive and aligned with the core goal of preparing competent and ethical educators.

Components of an Effective AI Integration Framework

As EPPs integrate AI into their programs, LMSs, and curricula, leaders must establish policies on data management and security to protect the privacy and integrity of sensitive information. Two areas of consideration for any AI framework are data management and AI security.

Data Management & PII

AI frameworks should prioritize the protection of Personally Identifiable Information (PII) belonging to both teacher candidates and the students with whom they work. EPPs already implement comprehensive data management policies that address the secure handling of PII across all platforms; however, policies should include considerations for circumstances surrounding AI and its use within data systems. These policies should extend across all domains of technology to ensure that [sensitive data is protected](#) and include specific provisions regarding the use of AI systems. Effective data management and security policies should form a foundational part of the program’s framework to foster ethical and secure teaching practices.

Coursework on AI in education can introduce candidates to best practices for safeguarding PII, with key considerations for anonymizing student data and work samples, removing identifiers including identification numbers, and ensuring the exclusion of student images or videos to prevent misuse. In teacher preparation, these considerations must be interwoven throughout curricula at relevant points—when developing lesson plans, analyzing student data, preparing written communications, or any other instances in which AI may be integrated. This ensures that teacher candidates understand the need to protect PII as they implement safeguards in the classroom.

AI Security: Protecting Systems and Addressing Evolving Threats

In addition to protecting data, EPPs must also address broader security concerns related to AI systems themselves. According to the [2024 Stanford AI Index](#), AI security involves three primary components:

1. **Protect AI tool components against external threats.** This includes protecting internal AI tools which may host private student data against data breaches.
2. **Minimize harm from misuse of AI systems.** This includes oversight, collaborative review, and ongoing training about the uses and misuses of AI.
3. **Address risks of using AI.** Users must receive training and guidance on challenges associated with reliability of AI outputs, including false or inaccurate information.

Given the complexity of the risks associated with the use of AI in education, EPPs must prepare their faculty and staff to be informed and judicious users of AI. External training programs, well-defined guidelines, and institutional policies are all ways to empower faculty to identify and manage potential security threats. By ensuring that educators understand how to use AI safely, EPPs can protect the integrity of their programs and the privacy of their students.

Moreover, teacher candidates must be made aware of potential security threats and engage in critical discussions about AI's risks and safeguards. This dialogue helps candidates develop a deeper understanding of the implications of AI in educational settings, thereby preparing them to anticipate and address security challenges in their own practice. AI security, like other technological considerations, is not static; new threats emerge as AI systems evolve, making it imperative for EPPs to foster ongoing discussions and updates around security concerns.

Continuous Dialogue and Evolving Understanding

As AI technologies continue to advance, the landscape of security risks will inevitably change. This dynamic nature requires that EPPs establish initial security frameworks which they continuously revisit and revise in response to new developments. Regular opportunities for faculty, staff, and candidates to engage in dialogue about emerging security threats and the latest efforts to mitigate these risks are critical. By maintaining a space for ongoing reflection and conversation, EPPs can ensure that their approach to AI security remains agile as they prepare educators to navigate these challenges effectively.

Connecting back to the importance of human connection emphasized earlier in this guide, EPPs are at a critical moment where they must recognize the evolving role of AI and prioritize technical safeguards all while adopting a collaborative, community-based approach to addressing emerging challenges. AI integration can, in this way, remain aligned with the core mission of preparing educators to think critically, act ethically, and prioritize the safety of their students as they bring AI into their practice.

Addressing Bias and Diversity Challenges in AI

One of the critical challenges in integrating AI into education is the inherent bias present in AI systems. These biases often stem from the datasets used to train AI models, which may lack diverse representation. As highlighted in the [2024 Stanford AI Index](#), "...a considerable number of prominent AI companies and the datasets utilized for model training originate from Western

nations, thereby reflecting Western perspectives. The lack of diversity can perpetuate or even exacerbate societal inequalities and biases” (p. 413). This lack of inclusivity in AI development raises concerns about fairness and equity, especially in education, where biases have profound effects on both instruction and student outcomes.

To combat issues of bias, EPPs can take proactive steps to integrate ethical AI and technology literacy into their curricula. Educators who understand the origins and implications of biases in AI tools are better equipped to learn and implement strategies for mitigating these biases. This begins with helping educators acknowledge their own biases, a crucial step in ensuring that they can critically engage with AI systems, so that they might recognize biased outputs and take corrective action.

Strategies for Mitigating Bias in AI Tools:

1. **Ethical AI Literacy:** EPPs should embed coursework and training focused on ethical usage of educational technology including AI, interwoven through program curricula. Educators must learn to identify and address biases within AI tools by understanding the social and cultural contexts that influence algorithmic design. Building this literacy empowers educators to question and critically evaluate AI-generated content.
2. **Reviewing AI Outputs for Bias:** Teachers should regularly assess the outputs of AI tools, looking for signs of bias that may influence learning materials, assessments, or recommendations. This requires a framework for continuous auditing, ensuring that AI systems are used ethically and effectively across different learning environments.
3. **Stakeholder Involvement in Improvement:** Regular audits of AI tools should involve diverse stakeholder groups including faculty, staff, and community members who can offer varied perspectives on the impact of AI. Engaging these stakeholders in the improvement process helps ensure that AI systems serve all students equitably.
4. **Collaborative Assessment of AI-Generated Content:** Educators should work together to critically assess AI-generated content for accuracy, bias, and academic integrity. By fostering collaborative review processes, EPPs can ensure that AI systems contribute positively to learning without reinforcing harmful stereotypes or misinformation.

These strategies enable EPPs to prepare educators to recognize and counteract biases embedded in AI systems. This critical awareness and ongoing scrutiny are essential for ensuring that AI tools support equitable and inclusive learning environments. By embedding these practices, EPPs foster educational systems that are just, ethical, and reflective of diverse perspectives.

Case Studies: Real-World Implications of AI Use in Educator Preparation

As AI continues to shape educator preparation and classroom practice, it is important to explore how it can be integrated thoughtfully and ethically. In developing comprehensive AI-integration frameworks that address data privacy, bias, accuracy, and human oversight, EPPs might consider relevant scenarios these frameworks might address.

The following case studies provide insights into the real-world implications of AI in education, helping EPPs create effective frameworks that equip both faculty and teacher candidates to navigate AI's complexities. Below each case study is a “key consideration” which may be helpful in identifying takeaways and best practices for EPPs.

Example 1: Synthesizing Instructor Feedback Using AI

An instructor in an EPP course uses AI to synthesize feedback notes on a video assignment submitted by a candidate. After taking detailed notes on the candidate's classroom performance, the instructor asks a language processing model to generate a high-level summary of key growth areas. To protect the candidate's privacy, she removes all identifiable information including the candidate's name and student details.

However, the instructor could take additional steps to ensure the data is fully anonymized. Beyond removing names, the instructor might also consider any contextualized information that could identify the candidate or students including images or videos, classroom demographics, or location. These extra layers of protection are crucial for safeguarding **Personally Identifiable Information (PII)**, particularly as AI processes can inadvertently reconstruct identities from seemingly anonymized data. This case highlights the need for **data management policies** within AI frameworks to protect PII and ensure compliance with ethical standards.

Key Consideration: EPPs should ensure that their AI frameworks include explicit guidelines for anonymizing data, and that instructors are trained to critically assess how they use AI to process candidate and student information to maintain privacy and security.

Example 2: Analyzing Student Test Scores with AI

A teacher candidate inputs a dataset of standardized test scores aligned with specific instructional standards into an AI tool, asking it to identify trends that could inform her instructional planning. The AI processes the data and incorrectly flags one standard as the lowest performing, leading the candidate to plan a lesson targeting this area. However, the AI failed to accurately analyze the data—two other standards were the lowest performers.

This scenario underscores the risks associated with **AI reliability** and the potential for AI systems to produce inaccurate results, or "hallucinations." If educators do not critically evaluate AI outputs, instructional decisions based on faulty data can negatively impact student learning. This case highlights the importance of **AI literacy** in teacher preparation, with candidates being trained to verify AI-generated results and maintain oversight to ensure that AI complements rather than undermines effective teaching practices.

Key Consideration: EPPs must train candidates to regularly audit AI outputs, verifying their accuracy before making instructional decisions. This reinforces the importance of human oversight in ensuring that AI serves as a tool for enhancing, not diminishing, pedagogical effectiveness.

Example 3: Designing History Lessons with AI

A candidate uses AI to help plan a history lesson on trench warfare during World War II. The AI generates a timeline of key events, a vocabulary list for students requiring additional support, and discussion questions to promote critical thinking. After submitting the lesson plan to her faculty member, the candidate discovers that several key events were listed in the wrong chronological order and certain dates were inaccurate. The faculty member catches these mistakes; but the candidate had initially missed them.

This example highlights the importance of critically assessing AI-generated content for **accuracy and academic integrity**. Inaccuracies in historical data or lesson materials can lead to the dissemination of incorrect information, undermining educational standards. EPPs must emphasize **collaborative assessment** of AI-generated materials, ensuring that both candidates and faculty rigorously evaluate content before it is used in the classroom.

Key Consideration: EPPs should build processes into their AI frameworks that require candidates to critically review and verify AI-generated content for accuracy. Faculty oversight and peer review can act as additional safeguards to maintain academic integrity.

Example 4: Using AI for Differentiated Lesson Planning

A teacher candidate uses AI to analyze formative assessment data to develop differentiated lesson plans. He anonymizes student names but includes specific details about students' language needs, Individualized Education Programs (IEPs), and required accommodations. While the candidate removed the names, the detailed information could still be traced back to individual students, posing a risk to student privacy.

To further protect PII, the candidate could group students by common learning needs rather than inputting specific details for everyone. The AI tool could then generate strategies for differentiating instruction for groups, reducing the risk of re-identification while still supporting

personalized teaching approaches. This scenario underscores the need for candidates to understand how to handle sensitive data securely while using AI.

Key Consideration: EPPs should emphasize the importance of anonymizing data in more nuanced ways, teaching candidates to generalize information where possible to avoid exposing sensitive student details. AI frameworks should include policies that guide candidates on securely handling data, particularly when using AI tools for instructional planning.

Example 5: AI in Student Feedback and Professional Development

A faculty member uses AI to analyze performance data from teacher candidates in a clinical setting, helping to generate trends and feedback for professional development. The AI identifies patterns of improvement across several candidates but overlooks some contextual factors—such as differences in teaching environments—that may account for variations in performance. The faculty member reviews the AI-generated feedback and identifies these gaps, adjusting the recommendations to align with the candidates’ specific classroom contexts.

This case highlights the need for **continuous oversight and context-specific analysis** when using AI to evaluate teacher performance. While AI can assist in identifying broad trends, human educators must apply their professional judgment to ensure that the feedback is meaningful and tailored to individual candidate needs. It also emphasizes the need for **collaborative stakeholder engagement** in developing AI tools that reflect the diverse educational environments where candidates work.

Key Consideration: EPPs should ensure that AI tools supplement, not replace, human analysis. Faculty and candidates must work collaboratively to ensure that AI-generated feedback is contextualized, accurate, and reflective of real-world teaching environments.

These case studies highlight the diverse ways AI can be utilized in educator preparation and the classroom, underscoring the importance of thoughtful and ethical integration. By considering these real-world implications during the development of AI frameworks, EPPs can ensure that AI enhances, rather than detracts from, effective teaching and learning.

Conclusion: Building a Comprehensive AI Framework

The integration of AI into educator preparation presents an opportunity to empower teachers with new tools and insights, fostering creativity, supporting differentiation, and streamlining administrative tasks. However, to fully harness AI's potential, EPPs must prioritize responsible and ethical use. This includes safeguarding data privacy, addressing biases, critically evaluating the accuracy of AI-generated content, and maintaining the primacy of human interaction and oversight. By approaching AI as a complement to human interaction—rather than a substitute—teacher candidates can leverage technology while preserving the essential role of educators in building meaningful, human-centered learning experiences.

Moreover, aligning AI integration efforts with established standards and policies is essential. By grounding AI initiatives in frameworks including the CAEP Standards and InTASC Standards, EPPs can ensure that their approaches remain anchored in best practices for instructional planning, assessment, and professional development. This alignment also provides a pathway for educators to confidently and ethically navigate AI's evolving landscape.

As AI continues to advance, EPPs should adopt a mindset of continuous reflection, adaptation, and improvement. This resource serves as a foundation for developing thoughtful strategies; but the work of integrating AI effectively in education is ongoing and reliant upon the real-world experiences and needs of teachers and students. By fostering collaboration, maintaining ethical vigilance, and prioritizing professional growth, EPPs can equip future educators to be innovative, reflective, and responsible stewards of AI in the classroom.

Additional Resources

1. Britannica. (n.d.). *Artificial intelligence: Methods and goals in AI*. In *Encyclopedia Britannica*. <https://www.britannica.com/technology/artificial-intelligence/Methods-and-goals-in-AI>
2. Congress.gov. (2023). *H.R. 4223—118th Congress (2023-2024): Algorithmic Accountability Act of 2023*. <https://www.congress.gov/bill/118th-congress/house-bill/4223>
3. Heaven, W. (2024, July 10). *What is artificial intelligence? The definitive guide*. MIT Technology Review. <https://www.technologyreview.com/2024/07/10/1094475/what-is-artificial-intelligence-ai-definitive-guide/>
4. International Society for Technology in Education. (n.d.). *Artificial intelligence in education*. <https://iste.org/ai>
5. National Conference of State Legislatures. (2024). *Artificial intelligence 2024 legislation*. <https://www.ncsl.org/technology-and-communication/artificial-intelligence-2024-legislation>
6. National Science Foundation. (n.d.). *AI in education: AI for education*. <https://new.nsf.gov/science-matters/ai-education-ai-education>
7. Penn State University. (2024). *Ask an expert: AI and disinformation in the 2024 presidential election*. <https://www.psu.edu/news/research/story/ask-expert-ai-and-disinformation-2024-presidential-election/>
8. Stanford University. (2024). *HAI AI Index report 2024*. Human-Centered Artificial Intelligence Institute. https://aiindex.stanford.edu/wp-content/uploads/2024/05/HAI_AI-Index-Report-2024.pdf
9. The White House. (2022). *Blueprint for an AI Bill of Rights: Making automated systems work for the American people*. <https://www.whitehouse.gov/wp-content/uploads/2022/10/Blueprint-for-an-AI-Bill-of-Rights.pdf>
10. The White House. (2023, October 30). *Fact sheet: President Biden issues executive order on safe, secure, and trustworthy artificial intelligence*. <https://www.whitehouse.gov/briefing-room/statements-releases/2023/10/30/fact-sheet-president-biden-issues-executive-order-on-safe-secure-and-trustworthy-artificial-intelligence/>
11. United Nations Educational, Scientific, and Cultural Organization. (n.d.). *Artificial intelligence in digital education*. UNESCO. <https://www.unesco.org/en/digital-education/artificial-intelligence>
12. U.S. Copyright Office. (n.d.). *Artificial intelligence and copyright*. <https://www.copyright.gov/ai/>
13. U.S. Department of Education, Office of Educational Technology, Artificial Intelligence and Future of Teaching and Learning: Insights and Recommendations, Washington, DC, 2023. <https://www.ed.gov/sites/ed/files/documents/ai-report/ai-report.pdf>