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Submitter Information

Organization: Arizona Institute for Education and the Economy

General Comment

Date: May 29, 2025

To: The White House Office of Science and Technology Policy (OSTP)
From: Drs. Chad Gestson and LeeAnn Lindsey, Arizona Institute for Education and the Economy, on behalf of state education technology leaders collective
Re: Input for the 2025 National Artificial Intelligence Research and Development Strategic Plan – Prioritizing Education as a Foundational Pillar

This response is submitted to contribute to the development of the 2025 National Artificial Intelligence (AI) Research and Development (R&D) Strategic Plan. The insights are drawn from the collective perspectives of actively engaged state-level education leaders, specialists, and policymakers. Our central thesis is that education must not be a mere application area or afterthought in the National AI R&D Plan; rather, it must be a foundational pillar, integral to the plan's design, priorities, and successful implementation. The nation's ability to responsibly develop, deploy, and thrive in an AI-driven future is inextricably linked to an education system prepared to cultivate AI literacy, ethical understanding, and adaptive skills for all citizens.

The attached file contains the collective thoughts from multiple state-level education professionals leading AI work in their respective states.

Respectfully,

Chad E. Gestson, Ed.D.
Founder and Executive Director
Professor of Practice

LeeAnn Lindsey, Ed.D.
Director, EdTech and Innovation
Co-Chair, AZ AI Alliance

Attachments

image

Response 2025 AI RandD Strategic Plan



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1. The Imperative: AI's Transformative Impact and Education's Critical Role

The consensus among education leaders is that AI is a profoundly transformative technology, poised to reshape every facet of society, including the economy, workforce, and daily life. Its impact on education will be disruptive, offering unprecedented opportunities for personalized learning and enhanced teaching, while also presenting significant challenges.

The 2025 National AI R&D Plan must recognize that:

- **AI progress is an exponential technology:** The pace of AI development necessitates a proactive and agile approach within education, balancing speed and security.
- **AI literacy is a new cornerstone of civic and economic participation:** Just as reading and digital literacy became essential, AI literacy is fundamental for all students.
- **Educational institutions are the primary conduit for widespread AI preparedness:** Schools, colleges, and universities are uniquely positioned to equip



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current and future generations with the knowledge and skills to navigate an AI-infused world and to ensure that all students, regardless of their zip code or socioeconomic status are equipped with the skills and competencies to thrive in an AI-rich world, and are equipped to make ethical use of this powerful technology to make the world a better place.

- **Educators should lead transformation through AI:** It is not merely advisable, but imperative, that educators lead the charge. Educators should guide the very conception, development, and deployment of AI technologies destined for educational settings. Their profound understanding is the essential bedrock upon which any effective, ethical, and truly transformative educational AI must be built.

2. Core Beliefs and Values to Guide AI R&D in Education

The development and integration of AI, particularly within educational contexts, must be guided by a strong ethical framework and a commitment to human-centric values. The National AI R&D Plan should champion research and development that aligns with the following principles derived from extensive discussions among educational leaders:

- **AI as Empowerment, Not Replacement:** AI should develop and be deployed as a tool to augment human capabilities, support educators, and empower learners, not replace human interaction, critical judgment, or the essential role of teachers.
- **Human Agency and Oversight:** Maintaining a "human in the loop" is paramount for oversight. R&D should prioritize AI systems that are transparent, explainable, and subject to human oversight, particularly in decision-making processes affecting students and educators.
- **Equity and Access as Foundational:** AI initiatives must be designed to close, not widen, existing equity gaps. This includes ensuring equitable access to AI tools and AI-enhanced learning opportunities for all students, regardless of socioeconomic status, geographic location, race, or ability. R&D must actively address and mitigate biases in AI algorithms and data sets.
- **Ethical and Responsible Implementation:** A commitment to data privacy, security, transparency, and fairness must underpin all AI applications in education. Students must learn about the ethical dimensions of AI, including its potential for social and data misuse and its societal impact.
- **Collaboration and Shared Responsibility:** Addressing the complexities of AI in education requires collaboration between government, researchers, industry, educators, students, and communities.



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- **Learning Science:** The science of cognitive and learning development should be at the forefront of the technological development of classroom tools.

3. Key R&D Priorities for an Education-Centric National AI Plan

To position education as a foundational pillar, the 2025 National AI R&D Strategic Plan should prioritize federal investment in the following research and development areas:

- **AI Literacy Frameworks, Curricula, and Pedagogy:**
 - Research and develop comprehensive, adaptable AI literacy frameworks for PK-20 education, encompassing not just technical skills but also ethical reasoning, critical thinking about AI-generated content, and understanding AI's societal impact.
 - Fund the creation and validation of developmentally appropriate AI curricula and instructional materials that can be integrated across content-area disciplines including core areas, the arts, and STEM education.
 - Investigate effective pedagogical approaches for teaching AI literacy to diverse learners including students with disabilities, multilingual learners, and gifted/talented.
- **AI for Personalized, Adaptive, and Inclusive Learning:**
 - Support R&D into AI-powered tools that genuinely personalize learning pathways, adapt to individual student needs in real-time, and provide intelligent tutoring and scaffolding.
 - Prioritize research on AI systems that enhance accessibility and support for students with disabilities and multilingual learners.
 - Ensure such tools are designed to augment, not replace, the crucial role of skilled educators in fostering deep learning and socio-emotional development.
- **Ethical, Explainable, Fair, and Secure AI in Educational Settings:**
 - Fund research dedicated to identifying and mitigating bias in AI algorithms and datasets used in education.
 - Develop standards and tools for ensuring the transparency, explainability, and auditability of AI systems deployed in schools.
 - Strengthen R&D in data privacy and security technologies specifically tailored for the unique sensitivities of student data in AI applications.
- **Transforming Assessment and Feedback with AI:**
 - Investigate how AI can support the development of authentic, performance-based assessments that measure complex skills like critical thinking, creativity, and collaboration.



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- Modernize assessment systems that are still based on industrial models of education, which focus on rote memorization, independent work, and skills that already are or will soon be outdated, to be adaptive and responsive to learners.
- Fund ongoing, job-embedded professional development in student-centered pedagogy, such as AI-enabled project-based learning, design thinking, and learning portfolios which build durable skills students will need in the new economy.
- Research AI-driven tools that provide timely, actionable, and formative feedback to students and educators, reducing reliance on high-stakes, summative testing.
- Explore AI's potential to streamline educator workload related to assessment and grading, freeing up time for direct instruction and student interaction.
- **Teacher Preparation and Professional Development and Systemic Adaptation:**
 - Fund research on effective, scalable models for pre-service and in-service educator professional development in AI literacy, AI-assisted pedagogy, and the ethical integration of AI tools.
 - Support studies on how educational systems (schools, districts, states) can effectively adapt policies, infrastructure, and practices to leverage AI's benefits and mitigate associated risks.
 - Investigate how AI can support administrative efficiency in educational operations, enabling leaders to make more data-informed decisions.
- **Future-Ready Skills and Workforce Alignment:**
 - Conduct ongoing research into the evolving skills and competencies required by an AI-driven economy.
 - Support initiatives that bridge PK-12, higher education, and industry to ensure educational pathways effectively prepare students for future careers and civic engagement in a world shaped by AI.

4. Novel Mechanisms for Research Partnerships

The challenges and opportunities presented by AI in education necessitate robust, multi-sector partnerships. The National AI R&D Plan should encourage and fund mechanisms that:

- Foster collaboration between AI researchers in academia and industry with PK-12 educators and educational institutions to ensure R&D is grounded in real-world needs and classroom realities.



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- Support "living labs" or testbeds within diverse educational settings to pilot, evaluate, and refine AI tools and approaches in an ethical and responsible manner.
- Facilitate the sharing of best practices, anonymized data with stringent privacy protections, and open-source resources across states and institutions to accelerate innovation and equitable deployment.
- Incentivize public-private partnerships that prioritize pedagogical soundness, ethical considerations, and equity over purely commercial interests in the development of educational AI. Include multi-sector representatives, such as educators, technologists, policymakers, ethicists, and students/families.

Conclusion: Education as the Bedrock of National AI Readiness

We firmly believe that the 2025 National AI R&D Strategic Plan has a critical opportunity to shape a future where AI serves humanity effectively and equitably. This can only be achieved if education is treated as a foundational element of our national AI strategy. Investing in AI literacy for all, researching ethical and effective AI applications in learning, and preparing our educators and students for an AI-suffused world is not merely an educational priority—it is a national imperative for economic competitiveness, societal well-being, and democratic resilience.

We urge the OSTP to ensure that the forthcoming National AI R&D Strategic Plan reflects a deep and actionable commitment to making education a central pillar of America's Artificial Intelligence future.

Respectfully,

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Founder and Executive Director
Professor of Practice

LeeAnn Lindsey, Ed.D.
Director, EdTech and Innovation
Co-Chair, AZ AI Alliance