The Alliance for Learning Innovation's 2025 Policy Recommendations for Congress

Read recommendations for the Administration and State and Local Leaders

Introduction

In the United States, investments in education research and development (R&D) are needed to prepare young people for the jobs of the future and maintain an innovation edge globally. If students are not equipped with the knowledge and skills necessary to thrive in a changing workforce where new technologies are emerging, the U.S. risks being surpassed by competing nations. Without high quality education, and the R&D that underlies improvements in teaching and learning, the U.S. will lose its footing as a global leader.

Alarmingly, American students are lagging in STEM subjects. The most recent NAEP results reveal declining math scores, with fourth-graders down 3 points from 2019 to 2024 and eighth-graders down 8 points in that same time period. The 2023 TIMSS assessment revealed that U.S. fourth- and eighth-graders lagged behind their peers from eleven countries in science achievement. While China did not participate in TIMSS, its students ranked first in science on the most recent PISA assessment, substantially outperforming U.S. students, who placed 18th.

Similarly, American students' literacy proficiency is on the decline. The 2024 NAEP scores for fourth-graders and eighth-graders each dropped an average of 5 points from 2019. Concerningly, the 2024 results reveal that approximately one-third of eighth-grade students are at the "below basic" level in reading, which is the largest proportion in the history of the assessment.

Over the next decade, the tech workforce will grow twice as fast as the overall U.S. workforce, and American students need to be ready to excel in these roles. Yet, based on current degree completion rates, 58 percent of new semiconductor jobs are at risk of going unfilled; and 2.1 million manufacturing positions are projected to lack qualified talent by 2030. Employers are

increasingly seeking to fill roles that require AI-related skills, but American students' skills in computer literacy and computational thinking are declining.

The challenges faced in American education are steep but not insurmountable. By prioritizing research and development, the U.S. will surface and implement evidence-based approaches to raising student achievement, particularly in STEM. Better outcomes in teaching and learning will reverse current trends and help the U.S. retain its standing as an innovation leader on the world stage.

What is education R&D?

ALI defines R&D as applied research in real-world education environments focused on developing, testing, and evaluating innovative solutions — tools, products, features, or systems — to our nation's most pressing education problems.

The Alliance for Learning Innovation (ALI) is a bipartisan coalition calling for leaders at the federal, state, and local levels to invest in education R&D. Through advocacy and field-building, ALI supports evidence-based innovation that centers students and practitioners, advances achievement for all learners, strengthens talent pathways, and expands the workforce needed in a globally competitive world.

Since the ALI coalition launched in 2023, it has contributed to key advancements in education R&D, including:

- The introduction of bipartisan legislation in the U.S. Senate and House of Representatives to authorize a National Center for Advanced Development in Education (NCADE) and modernize Statewide Longitudinal Data Systems (SLDS);
- The creation of the Institute of Education Sciences's (IES) DARPA-inspired Accelerate, Transform, and Scale Initiative;
- The establishment of the Discovery Research PreK-12 Program Resource Center on Transformative Education Research and Translation at the National Science Foundation (NSF);
- The continuation of IES's School Pulse Panel beyond the pandemic to collect timely data on high-priority topics in K-12 education;
- The release of select NAEP data in 2023 for education research;
- The establishment of SEERNet, an IES-supported network of digital learning platforms to facilitate efficient education research;
- A $1M Digital Learning XPRIZE challenge, sponsored by IES, to develop new infrastructure for conducting experiments in a variety of learning contexts; and

- Critical funding for education R&D across the federal government, with IES, the Education Innovation and Research (EIR) grant program, and NSF STEM Education Directorate seeing increases.

ALI is proud of the momentum building not only in Washington, D.C. but across the country to strengthen the education R&D ecosystem. In a 2024 op-ed, Dr. Penny Schwinn and Dr. Carey Wright wrote, "As former state education commissioners in Tennessee and Mississippi, we know that education research, when consulted and applied in classrooms, can yield huge academic gains for students." They went on to assert that "education R&D should be the foundation for every decision that affects student learning."

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>
> *– Dr. Penny Schwinn and Dr. Carey Wright*

Knowing challenges persist in U.S. education, ALI has developed a set of policy recommendations for Congress, the Trump administration, and state and local education leaders. These recommendations come as we are seeing unprecedented changes in the federal education R&D enterprise, including significant shifts in contracts and grants within IES at the beginning of February 2025. This paper lays out recommendations for Congress.

ALI's 2025 policy recommendations call on policymakers at all levels of government to act urgently to improve student outcomes to help the U.S. retain its standing as a global innovation leader.

While these recommendations are discussed in-depth below, policymakers must prioritize:

- Effectively leveraging education R&D to support ***career-connected learning and career pathways***, especially in STEM fields.
- Investing in education R&D at the intersection of ***artificial intelligence*** (AI) and education to promote the safe and effective use of AI in teaching and learning.

Given that education R&D is foundational to developing new approaches to learning – like career-connected and AI-enhanced learning – and building a nimble, responsive education system, policymakers must also strengthen and modernize ***education R&D infrastructure***. Infrastructure

investments will make research and development better, faster, and more economical – and ultimately produce new insights on what works, for whom, and under what conditions.

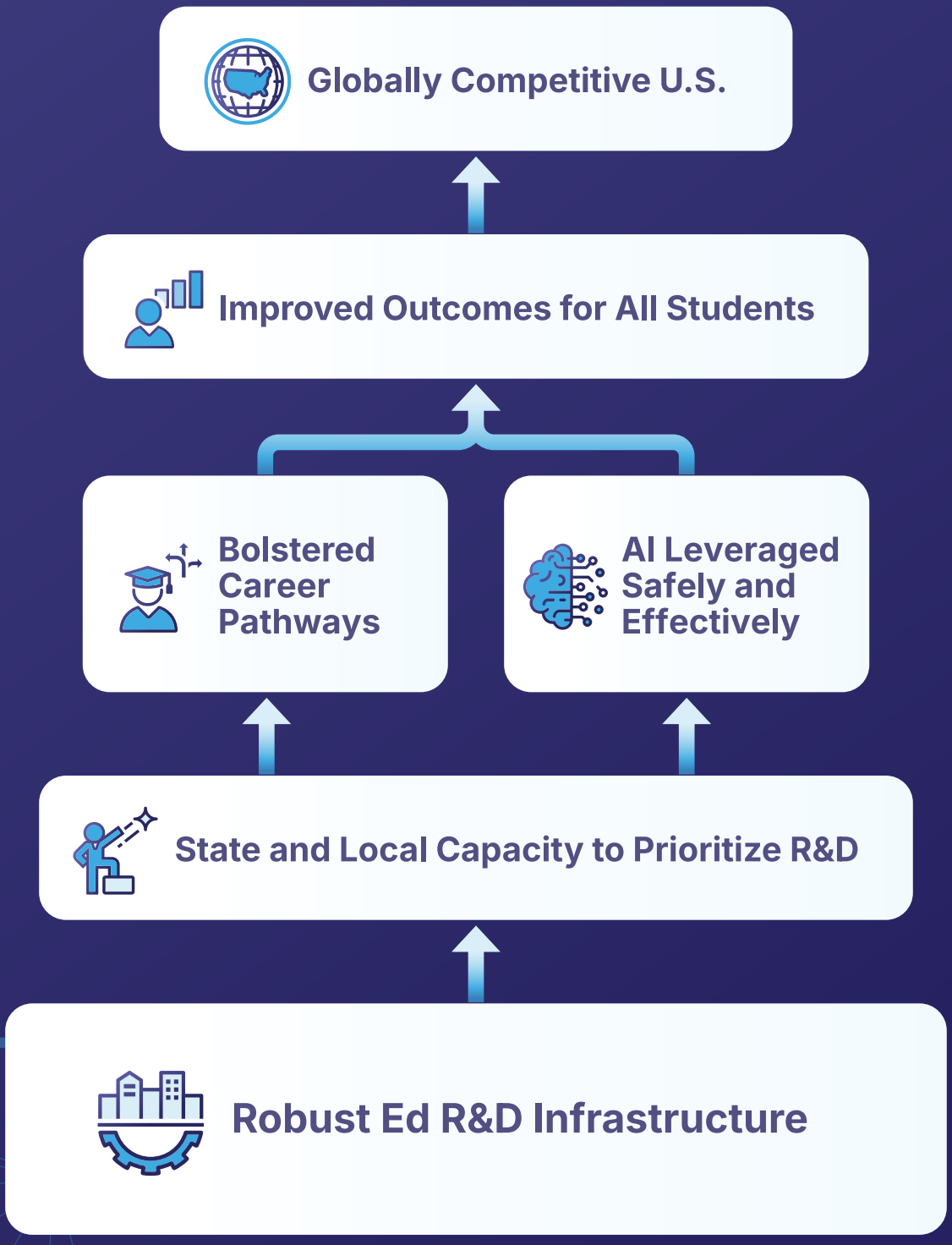
Strengthening R&D infrastructure entails:

- Building R&D capacity through the development of education R&D talent, partnerships, networks, and community engagement;
- Maintaining and strengthening existing R&D infrastructure;
- Transparently sharing with the public information about the return on investment (ROI) of taxpayer-funded education R&D projects; and
- Encouraging collaboration across government agencies to deploy taxpayer dollars efficiently and effectively.

To truly achieve transformational outcomes for students, policymakers must equip ***state and local education leaders*** to apply the results of R&D in classrooms.

What is R&D infrastructure?

ALI defines "R&D infrastructure" broadly, comprising both tangible and intangible components. The former includes, among other things, modern, interoperable, privacy-protecting, user-centered data systems; collaborative partnerships among practitioners, researchers, and developers; and dedicated resources such as recurring line items in budgets and dedicated professionals. Intangible components include human capacity in the form of knowledge, skills, and mindsets; committed leadership; and aligned policies and incentives.


Globally Competitive U.S.
Improved Outcomes for All Students
Bolstered Career Pathways
AI Leveraged Safely and Effectively
State and Local Capacity to Prioritize R&D
Robust Ed R&D Infrastructure

Recommendations for Congress

To prepare young people for emerging changes in the workforce and strengthen America's global competitiveness, Congress should leverage education R&D to promote career-connected learning, STEM mastery, and AI-powered enhancements in teaching and learning. This means improving existing R&D infrastructure and encouraging transparency, collaboration, and capacity-building across the education R&D ecosystem.

In 2025, it is imperative that Congress tap into the possibilities of career-connected learning and AI through education R&D investments. ALI has already made progress by advocating for the bipartisan introduction of the New Essential Education Discoveries (NEED) Act in the 118th Congress. Congressional leaders should reintroduce this bill in 2025 and get it passed to establish NCADE.

Since we cannot predict the challenges and opportunities of tomorrow, Congress should support an R&D infrastructure and system that is nimble and adaptive to urgent issues as they arise.

Bolster Career Pathways to Prepare the Future Workforce

Investing in education R&D isn't just about improving schools; it's about safeguarding our country's future. Poor student achievement, especially in STEM subjects, makes the U.S. less competitive and puts our national security at risk. A research-driven approach ensures kids in America are prepared for a globally competitive job market and become the next generation of innovators and leaders.

To do this, Congress should:

1. ***Reauthorize the Workforce Innovation and Opportunity Act (WIOA) to support apprenticeships and pre-apprenticeships.*** This includes the expansion of funding to support programs that prepare individuals with the necessary skills to enter registered apprenticeship programs, often including pre-apprenticeship components like basic skills training, work readiness, and industry-specific foundational knowledge. This will help Americans gain a pathway into a skilled trade through on-the-job training and related instruction.

2. ***Carry out the bipartisan commitment made to STEM education and workforce development in the CHIPS and Science Act.*** Congress should continue to fund the newly authorized Centers for Transformative Education Research and Translation. These centers will foster collaboration among NSF, the U.S. Department of Education (USED), and state and local districts to scale up promising innovations in PK-12 STEM education.

Additional funding should support the NSF's CHIPS-authorized grants to prepare rural educators for high-quality STEM instruction. Funding should also be directed toward the Directorate of Technology, Innovation, and Partnerships (TIP) to create new partnerships that open opportunities for Americans to thrive in STEM careers.

3. ***Adequately fund federal agencies' efforts to accelerate college-readiness and strengthen career pathways.*** The Office of Career and Technical Education (CTE) at USED has made significant strides in developing CTE programming that prepares students for the workforce. More funding is needed, however, for evaluating and modernizing this programming across the country to ensure the best evidence-based methods are put into practice to prepare students for the changing workforce. Investments in innovative workforce development models, including those supported by the U.S. Department of Commerce and U.S. Department of Labor, are also needed, especially as they relate to career pathways. Support for the U.S. Department of Defense's DoDSTEM program will cultivate much-needed talent for careers in national security.

Invest in R&D to Harness AI Safely and Effectively in Schools

Strategic investments in R&D at the intersection of AI and education will help teachers tap into the potential of AI while mitigating its risks and protecting student privacy. This means studying how the use of AI-powered tools affects student learning, identifying and addressing problems like built-in bias, and developing innovations that harness AI to assist teachers with routine paperwork and make learning more personalized, engaging, and accessible for students.

Additionally, increasing the federal investment in AI research will help the U.S. keep pace with or surpass China in AI research productivity, the current global leader in AI research.

To realize the full potential of AI in learning environments, ALI recommends that Congress:

4. ***Ensure robust federal investments in AI and education R&D.*** Specifically, maintain the National AI Institutes program at NSF and the Accelerate, Transform, & Scale Initiative (ATS) at IES. NSF and IES co-funded the AI Institute for Exceptional Education, which capitalizes on the latest AI research to serve children with speech and language pathology needs, as well as the AI Institute for Inclusive Intelligent Technologies for Education, exploring the intersection of AI and skills, like persistence and collaboration, that underlie academic success. Communities must continue to benefit from AI Institutes that meet the moment and deliver solutions for today's teaching and learning challenges. Congress should also continue to fund the ATS Initiative at IES to support more U-GAIN R&D Centers, which provide rapid and responsive research around generative AI in schools and classrooms.

5. ***Pass the bipartisan CREATE AI Act and Future of Innovation Act.*** The CREATE AI Act would authorize the National Artificial Intelligence Research Resource (NAIRR) and democratize the development and use of AI. The NAIRR would provide free or low-cost access to datasets and computing resources and bolster American innovation in many fields, including education. The Future of Innovation Act would advance AI research by forging partnerships among government, business, civil society, and academia. This legislation would create testbeds with national laboratories to spur groundbreaking AI innovations, including in education, that will strengthen the U.S. economy and national security.

6. ***Maintain sufficient resources for the Discovery Research PreK-12 Program Resource Center on Transformative Education Research and Translation (DRK-12 RC) program at NSF.*** The DRK-12 RC program is intended to select partners to enhance the overall influence and reach of the DRK-12 Program's research and development investments. The DRK-12 RC program could be utilized to work with multi-sector constituencies to accelerate the identification and scaling of evidence-based practices for AI, computer science, data science, and other emerging technologies.

7. ***Encourage collaboration between NSF and USED when crafting legislation related to AI and education.*** Legislation at the intersection of AI and education has been considered by congressional science committees, not the education committees. To ensure that the federal government is drawing on its full range of expertise in teaching and learning, bills that shape AI and education policy should encourage collaboration with NSF and USED to coordinate their implementation.

Strengthen Education R&D Infrastructure

R&D infrastructure is the engine that drives data collection, research, analysis, and the development of new or better tools and approaches. It enables the identification of what works, for whom, and in which conditions – whether it relates to career-connected learning, AI-powered innovations, or other education opportunities communities decide to prioritize. This type of information is needed to help inform decision-making at the state and local levels and to hold the education system accountable to parents and taxpayers.

Congress should strengthen existing infrastructure to drive interdisciplinary and community-driven R&D and accelerate knowledge mobilization. ALI recommends that Congress improve education R&D infrastructure in the following ways:

8. ***Establish a National Center for Advanced Development in Education (NCADE).*** Modeled after the successful Defense Advanced Research Projects Agency (DARPA), this new Center would:

    - Fund **informed-risk, high-reward research projects** that have the potential to make transformative breakthroughs in career-connected learning, AI, and STEM literacy among other educational opportunities.
    - Facilitate **interdisciplinary collaboration**, bringing together experts from a diversity of sectors to collaboratively solve complex problems in education. Leading these teams of collaborators are program managers, who have autonomy to actively design and manage their portfolios, unlike grant program officers.

- Use **flexible funding mechanisms** to rapidly deploy dollars to innovators and researchers tackling complex, urgent issues in education. For example, when using contracts (as opposed to grants), NCADE can ask for specific deliverables and hold awardees accountable to those deliverables.

9. ***Build upon and modernize existing R&D infrastructure.*** Current education R&D infrastructure, including the Regional Educational Labs (RELs) and Comprehensive Centers (CCs), provide critical and timely support to states and districts on pressing education challenges requested by states and districts, including how to implement evidence-based career-connected and work-based learning strategies. Driven by a state or district's expressed priorities, the RELs can generate research, evidence, and tools for states to implement to improve student outcomes; and CCs can help states and districts identify, carry out, and sustain effective evidence-based practices.

What are some examples of existing R&D infrastructure?

Current elements of the education R&D ecosystem include the National Education Research and Development Centers (R&D Centers), the Regional Educational Laboratories (RELs), Comprehensive Centers (CCs), Statewide Family Engagement Centers, National AI Research Institutes, and Office of Special Education Programs (OSEP) technical assistance centers. Additionally, it includes federal funding opportunities, such as the Accelerate, Transform, and Scale (ATS) Initiative; Education Innovation and Research (EIR) grants; special education research grants; and IES's and NSF's Small Business Innovation Research (SBIR) grants.

Equip State and Local Education Leaders to Prioritize R&D

While the delivery of education belongs to state and local governments, Congress should make investments in R&D that equip state and local leaders to drive innovation and improvement in classrooms. Education leaders at the state and local levels must have the capacity and resources needed to prepare the next generation for the future. ALI recommends that Congress pursue the following policy changes and investments to empower state and local education leaders:

10. ***Modernize the SLDS program.*** This federal program helps states build longitudinal data systems to track student progress through K-12 and into the workforce. Since the start of the program in 2005, several states have built robust systems that connect student data across systems and programs. These systems have facilitated groundbreaking research, and provided educators and policymakers with insights into long-term education outcomes. Additional funding is needed to modernize system architecture and infrastructure; link pre-K through-workforce data systems across states and across other social service programs; protect student privacy; and help generate accurate data to help policymakers understand and address achievement and opportunity gaps to inform R&D and investment opportunities.

11. ***Codify and improve the School Pulse Panel.*** Accurate, timely data and the capacity to draw insights from diverse sets of data are crucial for understanding student needs and challenges. During the pandemic, the School Pulse Panel hosted by IES's National Center for Education Statistics (NCES) tracked student enrollment, school closures, and learning loss. In the 2023–24 school year, the panel expanded to include a monthly survey of school principals on issues such as learning recovery, absenteeism, technology use, and tutoring. To sustain this valuable source of timely information, Congress should authorize the School Pulse Panel.

12. ***Improve systems to ensure research and evidence make their way into classrooms.*** If R&D is to truly drive better outcomes in teaching and learning, Congress should improve knowledge mobilization – getting research findings into the hands of educational leaders and practitioners. A recent National Academies of Sciences, Engineering, and Medicine's report notes "Research on knowledge mobilization suggests that only 17 percent of school and district leaders report accessing research from the What Works Clearinghouse "often" (13 percent) or "all the time" (4 percent)." One way to increase knowledge mobilization is by requiring IES, ED, and NSF to report on an annual basis findings and lessons learned from its education R&D activities and make this information available to other agencies, Congress, and the public.

Conclusion

Investments in education R&D to accelerate career-connected learning, STEM literacy, and AI-enhanced learning will help students thrive in school and prepare for the jobs of the future. Every level of government, from Congress and the Trump administration to local school districts, has a role to play in maintaining America's innovation edge.

No matter the challenges or opportunities the U.S. faces in education, efforts to uncover what works, for whom, and in what conditions, will always be an effective strategy for surfacing evidence-based solutions.

Increasingly, policy leaders are seeing the value of R&D in education. By making education R&D a priority, they have made strides to develop new R&D infrastructure and grow the R&D talent pipeline.

Yet, from modernized SLDSs to an ARPA for education, more robust infrastructure and increased coherence across the broader R&D ecosystem are needed to support an education R&D engine that leads to improved outcomes for students across the country. Much more can be done to equip state and local leaders to build R&D capacity – and ensure that more research findings and evaluations translate into better outcomes for kids. This is how American students will develop the skills and knowledge required to flourish in an ever-changing, globally competitive world.

Together, leaders in Congress, the Trump administration, SEAs, and LEAs can strengthen the nation's education R&D ecosystem and support the evidence-based tools and approaches that all students deserve.

Alliance For Learning Innovation

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