

Strategies for AI Education Infrastructure to Meet the Needs of Institutions

NSF LEVEL UP AI Workshop Recommendations



CRA

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Introduction

As part of the NSF LEVEL UP AI project, the Computing Research Association (CRA) and New Mexico State University convened educators, researchers, and professionals across the computing community to build consensus on strategies to increase capacity for undergraduate Artificial Intelligence (AI) education. The LEVEL UP AI Atlanta (December 2025) and Phoenix (January 2026) design workshops addressed key bottlenecks in AI education infrastructure, which had been identified in Spring 2025 roundtable discussions (Cowit et al., 2025). The *Strategies for AI Education Infrastructure to Meet the Needs of Institutions* in-person design workshops in Atlanta and Phoenix were attended by 17 participants from 17 institutions ([Link to Contributors](#)). Utilizing a backwards design methodology (Wiggins & McTighe, 2005), the two workshop sessions facilitated the creation of this recommendations document.

Once a general AI infrastructure is developed or available (e.g., the [National Artificial Intelligence Research Resource](#)), educational institutions will need to adapt the infrastructure to their own needs. This recommendations document outlines the needed infrastructure to facilitate transferring and implementing AI education within and across institutions.

Recommendations

Create Institutional and Departmental Level Decision-Making and Support Structures

- Update student codes of conduct and academic honesty policies to define the boundaries between AI guidance and prohibited "cognitive off-loading".
- Establish committees to map out stakeholders, vet third-party tools, and manage the technical expertise required for implementation.
 - Involve IT, Legal (General Counsel), teaching and learning centers, the academic affairs, ethics bodies, and faculty.
- Establish committees to navigate "anti-AI" sentiment and establish frameworks for AI literacy/fluency.

- Include students and faculty from diverse disciplines (from technical to socio-technical fields) to ensure tools meet varying pedagogical needs and cultural contexts.
 - Establish governance, maintenance, and documentation.
 - Ensure participatory design to meet the needs of the institution.
 - Build community buy-in and provide training.

Emphasize Resources that are Easy to Adopt and Adapt

- Develop practical, modular, and discipline-specific resources with variants for different types (sizes) of institutions and/or different levels of allowed AI use.
 - Create "how-to" guides and tutorials/training.
 - Create partnerships (e.g., MOUs) between institutions to facilitate the adoption process of AI education infrastructure
- Make it easy for faculty to integrate these resources with their Learning Management System (LMS) and contribute any modified resources.
- Have a mechanism/plan to keep the materials up to date.
- Develop resources that help students learn and faculty teach.
 - Example resource: How do you assess student learning when students are allowed to use AI?
 - Example resource: What type of practice problems help students learn while using AI?

Recognize faculty efforts to advance AI education infrastructure as core scholarly work — not as service on the side — including the development and adaptation of materials and institutional policy

- Provide financial support such as stipends and institutional credit.
- Give formal recognition towards promotion and tenure.
- Advance contributing faculty to mid-level administrative leadership roles.

Publish Research on What is Working

- Treat AI education initiatives as research by creating pilots, publishing, and disseminating results. Towards this:
 - Create a built-in analytics infrastructure that captures data on student use of AI tools, learning outcomes, and how a department or university handles AI systems. For instance, an analytics dashboard might allow instructors to identify concepts students struggle with, evaluate whether AI-assisted activities improve learning outcomes, or monitor adoption rates of AI tools across courses. At the departmental level, analytics could support decisions regarding AI policy, resource allocation, faculty training, and compliance with institutional guidelines.

- Include assessment measures that an institution(s) can use to evaluate the effectiveness of resources.
- Gather information to show that the system is trustworthy and reliable.

Navigate Costs and Sustainable Funding

- Supporting AI (especially compute and services) is costly, and providing sustainable funding is a major challenge. Major concerns include:
 - Some institutions do not have established cyberinfrastructure teams.
 - The long-term cost of AI tools.
- Considerations for potential solutions:
 - Consortia of institutions can share expertise and join together for shared procurements of equipment and services, reducing costs.
 - For AI compute support, a combination of on-premises, consortium, commercial cloud, and a hybrid (combination of some or all of these) should be considered carefully for both cost and capabilities.
 - Funding agencies can adopt policies to encourage partnerships, including public-private partnerships (the NAIRR Pilot provides one example).

Protect Student Privacy

- Enforce strict policies on local data storage, anonymization of student engagement data, and protection of Intellectual Property (IP) from being ingested by commercial LLMs.
- Navigate the tension of faculty interest in regulating student AI use with student privacy concerns.
- Navigate tradeoffs between cloud resources and on-premises or local resources, which offer tradeoffs between initial and ongoing costs as well as the control of private data.

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Wiggins, G. P., & McTighe, J. (2005). *Understanding by Design*. Association for Supervision and Curriculum Development.



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