Executive Summary:
The State of K-12 AI Education in Your State Workshop
January 28-29, 2021

Leaders in K-12 computer science education from 27 states and 3 districts/territories met at a January 28-29 virtual workshop to develop plans for introducing artificial intelligence into their curricula. The workshop was organized by the AI4K12 Initiative (AI4K12.org). Workshop participants included officials from state education departments, school district representatives, practicing K-12 teachers, university researchers, and staff from educational nonprofit organizations.

AI4K12.org Background
The AI4K12 Initiative ([AI4K12.org](AI4K12.org)) is a joint project of the Association for the Advancement of Artificial Intelligence (AAAI) and the Computer Science Teachers Association (CSTA), with funding from the National Science Foundation under award number DRL-1846073. Professor David Touretzky of Carnegie Mellon University, Professor Christina Gardner-McCune of the University of Florida, and Deborah Seehorn, representing CSTA, lead the Initiative. The AI4K12 initiative began in 2018 to address a gap in CSTA K-12 standards that are being implemented in states across the country. These standards are not currently sufficient for students to understand the nature and consequences of how AI is impacting the world around them and/or the new career paths being created that did not exist when the standards were first adopted. China, the UK, and the EU are already implementing AI education plans. AI is not just a CS topic, it has significant societal impacts and is an economic driver. Similar to computer science education, providing equitable access to AI education is a moral imperative.

The AI4K12 Initiative is developing national guidelines for teaching AI in K-12, and has published a list of "Five Big Ideas in AI" that has been widely adopted by K-12 educators. An infographic poster explaining the five big ideas is available at AI4K12.org and has been translated into 14+ languages. The organizers have also compiled a curated resource directory for K-12 teachers who would like to introduce AI education into their curricula. The initiative is committed to developing a strong network of educators, researchers and resource developers to build capacity over time.

Workshop Objectives and Structure
The purpose of the workshop was to guide state delegations to develop a shared vision of *why it* is important to incorporate AI education into their state's computer science and broadening participation in computing plans. Each state delegation formulated an action plan to achieve the goals they set for their state.

During the workshop state delegations participated in collaborative visioning, self-assessment, and goal setting through a state-level adaptation of the SCRIPT strategic planning tool developed by CSforALL, an organization committed to expanding K-12 CS education. The workshop sessions were co-facilitated by AI4K12's Gardner-McCune and CSforALL's Executive Director, Leigh Ann DeLyser. The Expanding Computing Education

Pathways (ECEP) Alliance, which focuses on broadening participation in computing at the state level, also contributed to the workshop by consulting on the adaptation of their state team development model and State Summit Toolkit. An overview of the workshop and resources can be found on the AI4K12.org website.

Participating State Delegations
The planning team initially invited states who were already active in the AI4K12 Initiative or members of the ECEP Alliance to form delegations to attend the workshop. These delegations included officials from state education departments, school district representatives, practicing K-12 teachers, university researchers, etc. The following states and territories were represented by a delegation:

California	Indiana	Ohio
Florida *	Maryland *	Pennsylvania
Georgia *	Massachusetts	South Carolina
Illinois	North Carolina *	Texas *

* These states provided a presentation regarding their state plan for AI education. In addition, the MKE Tech Coalition (Milwaukee, WI) provided a presentation on a regional initiative to democratize AI education, demonstrating how teams could move forward if a state delegation had not yet been assembled.

Additional Participants
In addition to state delegations, a general call for participation was made to all state departments of education so that they could begin to engage in this work. Representatives attended from the following additional states, territories and countries.

Alabama	Mississippi	Utah
Colorado	Nevada	Virginia
Connecticut	New Mexico	Washington
Delaware	New York	Washington, DC
Hawaii	Oklahoma	Wisconsin
Kentucky	Puerto Rico	United Kingdom
Michigan	US Virgin Islands	

Selected researchers, educational non-profits, and members of the AI4K12 Advisory Board also were invited to attend/participate, as were representatives from ECEP and the National Science Foundation.

Key Outcomes
A total of 15 states have created a state plan for K-12 AI education. Several states are already updating their computing education standards to include AI, creating new AI courses and career and technical education (CTE) frameworks, and providing opportunities for teachers to become AI-fluent. The workshop sparked new initiatives in several other states to start working on their K-12 AI education plans or strengthen their K-12 AI leadership team. However, some states are focusing on fully developing their computing education programs and are just beginning to think about AI.

Examples of Action Steps Identified

- Assemble a team if one does not already exist. Commit to meet regularly.
- Work through the State workshop resources to create an AI Implementation Plan.
- Define AI education as a supplement to the implementation of CSTA and ISTE computing standards in grades K-12.
- Explore the best place to implement the guidelines after completing a crosswalk of CS standards across disciplines and grade bands.
- Embed Artificial Intelligence into existing after school and/or summer programming.
- Work with educators to make it as easy as possible to embed AI topics in curricula so that they are not considered "something else to fit into the school day".
- Define AI pathways as part of Career and Technical Education. Consider badging and/or certification aligned to the completion of an AI-focused Program of Study.
- Convene a community and/or schedule an in-service meeting of educators to frame the importance of AI education and introduce them to the resources available.
- Consider a viewing of the video "Coded Bias" to spark a discussion of societal impacts of AI.
- Collaborate with higher education partners to offer outreach programming and professional development opportunities to learn about AI.
- Engage with state professional organizations for district and school administrators. Connect AI education (as well as CS education if that has not yet been established) to the vision of a 'technologically literate' college and career-ready high school graduate.
- Engage industry partners to validate core competencies and provide applied learning opportunities.
- Apply for grant opportunities.
- Share progress and learnings with others!

Key Insights

The following key insights will guide the work going forward:

- There is a shared belief that AI education is important for students of all ages, albeit for different reasons. All participants identified DEI (Diversity, Equity, and Inclusion) as a key driver for their work in this area. For some states workforce development is driving the implementation of K-12 AI Education.
- Assembling a diverse team of stakeholders to take this journey yields better results.
- The revised CSforALL SCRIPT framework is an effective tool for helping state delegations identify their shared *why* for this work, assess their state's readiness for implementation, establish realistic goals, and develop a plan to take the best next step toward those goals.
- Each state delegation is in a different place and is approaching the work differently; all state teams found value in learning from one another.
- Those who are not part of a state team found value in learning about artificial intelligence and listening to how each state got started and where they are going next.

Next Steps

AI4K12.org will continue to support states interested in incorporating AI into their K-12 curriculum. To that end, the organizers have committed to the following next steps:

● **Publicly host workshop resources to support new and existing state delegations on the AI4K12.org website** https://ai4k12.org/news/the-state-of-k-12-ai-education-in-your-state-a-planning-workshop/
● **Build Community through quarterly webinars for state delegations** to share their progress with each other and with other parties interested in their work. Small group activities have been structured to enable this network to grow in a meaningful way. These webinars were scheduled for the following dates and times. Recordings are available upon request:
    o March 2, 2021 (1 month update)
    o April 27, 2021 (3 month update)
    o July 22, 2021(6 month update)
    o October 26th, 2021 (9 month update) [Upcoming]
● **Build a community via Twitter Chat events** to engage the larger network in a discussion about this movement and learn from one another. These will be held every 2nd Wednesday of the month at 8 p.m. ET throughout 2021 using the hashtag #AI4K12.
● **Plan collaborative events with CSforALL and ECEP to continue advancing state and national K-12 AI education.**

For More Information:
● Visit the AI4K12 Initiative website at AI4K12.org
● Join the AI4K12 mailing list at https://aaai.org/Organization/mailing-lists.php
● Follow the community on twitter: #AI4K12 (official posts are from @AI4K12)
● Please email info@ai4k12.org with questions on how to engage

Thank you for your interest in building capacity for AI education. Our students depend on YOU!

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