

Technology (TECH) Committee Meeting Summary
Wednesday, April 13, 2022

Welcome and Introductions

TECH Chair Dawn Gessel, Putnam County Schools (WV), and TECH Vice Chair Chandra Haislet, Maryland State Department of Education, introduced themselves, welcomed members to TECH, and facilitated introductions.

Artificial Intelligence and Machine Learning Overview

The meeting focused on the topics of artificial intelligence and machine learning (AI+ML):

- AI refers to computer systems able to perform tasks that normally require human intelligence, such as image classification and speech recognition.¹
- ML is a field within AI that focuses on the ability of computers to learn from provided data without being explicitly programmed for a particular task.²

Discussion

Uses in Education

- State education agencies (SEAs) are using AI+ML to
 - conduct large-scale assessment scoring to relieve human staff members from a considerable burden of scoring by hand;
 - build analytics into state data collection processes to assess data quality and detect anomalies before they contaminate the data pool;
 - develop early warning systems (EWSs) that rely on predictive analytics; and
 - tweak algorithms as needed to mitigate anomalies and fluctuations in data ranges.
- Local education agencies (LEAs) are using AI+ML to
 - track staff/faculty eligibility to retire and prepare for retirements;
 - stop phishing and spamware in email systems;
 - score and rate assessments; and
 - identify at-risk students via inputs from external sources into a learning management system (LMS).
- Some products used in schools and classrooms may use AI+ML for purposes such as initial student assessment and subsequent tracking.

Important Considerations

Ethical Implications

- Over-reliance on data, and seeing data as the whole picture rather than a part of the picture, can sometimes hinder effective decision-making.
- Effective EWSs rely on human inputs; teachers and school staff can guide the data work with their insights into and relationships with their students.

^{1,2} U.S. Department of Commerce, National Institute of Standards and Technology, National Cybersecurity Center of Excellence. (n.d.). *Artificial Intelligence: Adversarial Machine Learning*. Retrieved April 6, 2022, from <https://www.nccoe.nist.gov/ai/adversarial-machine-learning>.

- Data staff do not rely on technology exclusively. Human attention and good data stewardship eliminate redundancies, avoid spurious analyses and unnecessary actions, and protect the privacy of student data.
- Ethical data work considers the provenance, diversity, and legal status of all data, as well as the methods and parameters used to train machines for data work and the need to view data through as objective a lens as possible.

Data Privacy and Security

- SEAs are adopting state-level privacy policies in addition to following federal policies, such as the Family Educational Rights and Privacy Act (FERPA), to strengthen data security. To support privacy efforts, SEAs are subjecting third-party AI solutions to verification and quality control at every stage of the data cycle.
- ML solutions for rating and scoring must be trained to avoid biases; ensuring diversity among the humans who feed information into the ML solution can help avoid bias.

Policy Implications

- Training, including how to follow policies regarding the appropriate protection, security, and use of data, is key to ensuring the ethical use of AI+ML. Training programs would have to consider that users may already be working with AI daily, as many software products come with embedded AI.
- Training on diversity can minimize the negative effects of implicit bias in data collection. Some states are working with software that includes bias checkers, which other agencies might consider when purchasing technological solutions.

Best Practices and Future Use

- The relationship between AI+ML and classroom teachers will be important. Once concerns about AI instruction are removed, teachers may work with AI, for instance, to increase efficiency or better identify students in need of intervention. This use will require additional training for teachers as they increasingly use data to improve teaching and learning.
- The smart classroom, in which teachers work with AI to educate using online resources and equipment, could lead to an increase in student data collection and generate large volumes of telemetry-style data. However, it is unclear when education agencies will be able to use these large datasets effectively.
- Some agencies have adopted the approach that staff members at all levels should be able to use data and are developing digital tools with this in mind. In these cases, each member of the agency will need comprehensive digital training.

Resources and Support

- Technical staff need training to verify and clean data before input. Training for nontechnical staff, like teachers, should communicate that data are only representative and not prescriptive and need an integrated approach to interpretation.
- Any education agency staff member would benefit from the Forum's Data Ethics Course (https://nces.ed.gov/forum/dataethics_course.asp).
- Managing expectations is key; education is still catching up with other sectors that have more experience and innovation with AI+ML.

- The Forum helps connect states and agencies that are on the same journey with AI+ML, and members can learn from the experiences of other agencies.
- There is a need for an AI+ML roadmap to help agencies avoid pitfalls and to make the value of working with AI+ML clear to stakeholders and users.

Next Steps and Future Meeting Planning

Members expressed interest in further AI+ML discussions in the TECH committee and suggested the following topics for future meetings:

- LMS use
- *EDFacts* modernization
- Civil Rights Data Collection (CRDC)
- Online hiring
- Inter-agency sharing of technology projects and research
- Social-emotional data collection and use