Building AI for Education Starts With Public Data Infrastructure

K-12 has lived through many "next big things" in EdTech. While some have delivered value, leaders are rightly skeptical that a new wave of AI will change that.

MADISON, WI, UNITED STATES, December 19, 2025 / EINPresswire.com/ -- As artificial intelligence gains momentum across K–12 education, a new thought leadership piece from [Education Analytics](#) (EA) argues that the limiting factor for responsible AI in public education is no longer model capability, but the quality and governance of the data beneath it.

Dan Jarratt, vice president of data science at Education Analytics, outlines why interoperable, standards-based public data infrastructure is critical to evaluating and governing AI in K–12 education.

In a new blog, "Building AI for Education Starts With Public Data Infrastructure," Dan Jarratt, vice president of data science at Education Analytics, outlines why interoperable, standards-based data systems are a prerequisite for AI tools that are effective, auditable, and equitable for students.

"AI's pace and promise are undeniable," Jarratt writes. "But in public education, progress depends on something more basic: open, interoperable data infrastructure that public agencies can govern and sustain."

A clear ordering of work for education systems exploring AI emerges: Interoperability before intelligence. Governance before generation. Context before computation.

That framing reflects a core challenge in public education. Student data are locally governed, shaped by policy, and change over time as rules, assessments, and graduation requirements evolve. AI systems that ignore those realities are difficult to evaluate, difficult to scale, and prone

to misalignment with local needs.

Public education data sit in a persistent tension. Schools and districts need data that reflect local policies, programs, and community priorities. At the same time, states and researchers need comparability across sites to evaluate interventions, understand equity patterns, and report on progress.

Education Analytics is a nonprofit organization that partners with education agencies to build interoperable data systems and support evidence-based decision-making.

Today, the field often falls short on both fronts. Vendor-specific data structures define students, courses, and assessments differently across systems, making alignment expensive and requiring ongoing rework. At the same time, jurisdiction-specific definitions mean that even when data columns appear to match, the underlying logic may not.

> "AI is only as good as the data beneath it. Without interoperable, governed data systems, even powerful models are difficult to evaluate, hard to scale equitably, and misaligned with local needs."
>
> *Dan Jarratt*

From an AI perspective, this matters. The same label—such as "chronically absent" or "career-ready"—can represent very different realities just miles apart. Without an interoperable data layer that encodes both structure and meaning, AI tools are forced to guess.

There are three risks that emerge when AI systems rely on decontextualized education data.

First, misclassification and unfair labeling. For example, an AI-driven early warning system may flag students inconsistently if it ignores local attendance thresholds. Similarly, a teacher's evaluation data may appear "below average" if contextual factors such as student needs or course assignments are missing, reinforcing bias rather than surfacing support needs.

Second, broken chains of meaning. Education data are a connected system of rosters, programs, accommodations, calendars, and policies. When AI tools analyze test scores without accommodations data, or discipline events without local codebooks, inferences about growth or behavior can be wrong.

Third, loss of public trust and democratic oversight. When educators and families cannot trace AI recommendations back to understandable data and rules, confidence erodes. Without transparency, boards and communities struggle to oversee how public data are used.

The education field has already built critical pieces of the foundation AI requires. Frameworks such as Ed-Fi and the Common Education Data Standards (CEDS) provide shared semantics for core education concepts across systems.

At Education Analytics, these standards are treated as a grammar for education data. Ed-Fi structures operational data such as enrollment, courses, and assessments. CEDS supports broader comparability across sectors, from early childhood to workforce. Open frameworks like Enable Data Union (EDU) then organize those data into analytics-ready environments where definitions, timelines, and business rules are explicit and versioned.

Standards alone are not enough. Governance preserves meaning over time by documenting definitions, interventions, permissions, and policy changes. Multi-state collaboratives such as the Ed-Tech Collaboratory and statewide exchanges like the Texas Education Exchange demonstrate how agencies can jointly steward standards, business rules, and AI use policies.

In summary: Context lives in definitions, policies, and time. Standards encode shared meaning. Governance preserves its use.

Rather than exporting education data into opaque vendor environments, EA advocates a different model: bring AI to governed data.

In this approach, student data remain under public control. Operational layers are standardized using Ed-Fi. Analytics models are open and documented. Agencies define a controlled "data surface" specifying which data and context AI tools may use for a given purpose.

This model makes evaluation possible. Agencies can test multiple AI tools against the same data, apply equity checks grounded in local definitions, and log access to meet privacy and governance expectations.

With interoperable infrastructure in place, AI can meaningfully support governance and oversight, continuous evidence-building, and public trust. Boards can see how metrics are constructed. Researchers can evaluate interventions using consistent pipelines. Communities can inspect methods and safeguards.

"As a nonprofit, EA's role is to help agencies build and steward this public infrastructure," Jarratt concludes. "AI will influence education. Whether that influence is helpful or harmful depends on the systems underneath it."

To read the full blog, visit https://www.edanalytics.org/blog/building-ai-for-education-starts-with-public-data-infrastructure.

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