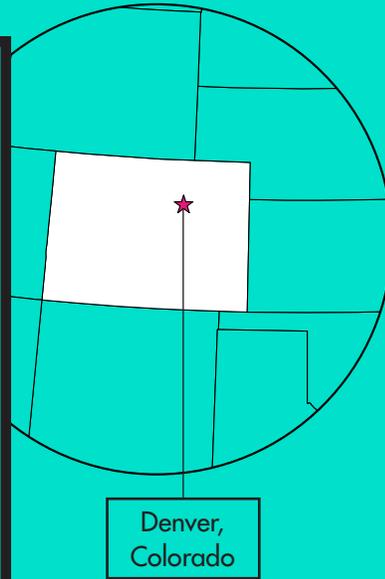


# DENVER PUBLIC SCHOOLS

A Getting Smart Data Interoperability Case Study



## DENVER PUBLIC SCHOOLS AT A GLANCE

Students served:  
91,429

District schools:  
199 schools total, of which  
93 are elementary schools,  
and 18 are K-8 schools.

Free and reduced lunch population:  
67.3%

Twitter: @DPSNewsNow  
Website: dpsk12.org



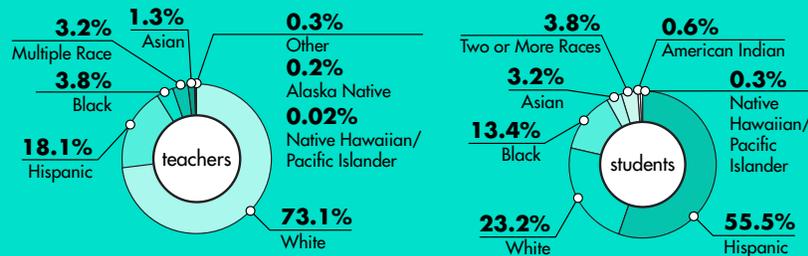
**PROJECT UNICORN**

Project Unicorn is an effort to improve data interoperability within K-12 education. We aim to create a community of innovators who make the broader case for secure interoperability by determining shared priorities, educating

school systems and vendors about its importance and benefits, creating a demand-side push for interoperability through partnerships, and educating buyers to consider the total cost of ownership through informed comparison of vendors. Project Unicorn does not endorse a specific product or data standard; instead, it is an educational advocacy initiative dedicated to the secure, controlled interchange of data.

### Data Interoperability Defined

Interoperability is a powerful tool to transform teaching and learning and empower parents and students with their own data. At the core of interoperability is a focus on better informing instruction and driving toward student-centered learning experiences.



With a student enrollment edging ever closer to six figures, [Denver Public Schools](#) (DPS) is Colorado's largest school district. More than 4,300 teachers instruct students in elementary, middle and high schools, along with a mix of non-traditional and charter schools run by three main charter management organizations: Strive, KIPP, and Denver Sciences Schools of Technology.

DPS represents a dynamically multicultural environment. A significant portion of its student population—36.8%—are English Language Learners, and the district reports that a number of languages are spoken, including Spanish, Vietnamese, Arabic, Somali, Amharic, French, Nepali and Russian.

As one of the nation's largest and most diverse districts, DPS faces numerous challenges. It must meet the needs of a student population whose linguistic, ethnic and socioeconomic backgrounds vary widely—no small feat for a small network of schools, let alone the largest in the state. Meanwhile, a centralized management team must support and oversee the efforts of a distributed staff, whose instructional methods range from more conventional classroom environments to the earliest stages of adoption of a competency-based education model.

Completion remains an issue. As the district's graduation rate hovers around 65%, there are efforts underway to increase the figure to approach the overall US rate of 83%. Closing the gap represents both an academic and a technological concern.

## Enabling Flexibility at Scale

Josh Allen, Director of IT for the district, serves as an architect and strategist for all systems on both the academic and operational sides. Understanding and being able to accommodate the needs of various schools calls for an approach beyond the typical IT role, which is often more rigid in nature with a standardized slant.

*“We are highly flexible; of our 190 schools, assessment and curriculum can be selected by school leaders for the specific populations they’re educating,” Allen said. “Denver empowers schools to operate within their own preferences, down to the device level and selection of applications. We’ve formalized this process with our board.”*

DPS's Technology department manages the Student Information System for all schools in order to maintain compliance with the Department of Education; however, Allen acknowledges the Department of Technology must work closely with schools for their technology and application selections.

Assessment is a similar and interrelated story. Tim Leddy, Senior Product Manager, serves as project manager for the district's various academic systems. He manages a team of product managers who define DPS's technology requirements, following the development of prototypes or design documents, teacher interviews and/or focus groups.

## Evaluating and Supporting an Array of Technologies

District-wide assessment platform [Illuminate DnA](#) will serve as DPS's data assessment management platform. A majority of schools will employ it in the coming academic year, with some using Achievement Network (“A-Net”), which also incorporates coaching features.

Leddy cites the flexibility of Illuminate as an advantage for DPS faculty. “Our teachers can log in after a lesson for a quick assessment, but the platform also enables end-of-course assessments, interim assessments and just about anything in between.”

As of the beginning of the 2016–17 academic year, 61 of the 142 district-managed schools had rolled out Illuminate DnA, along with a number of assessment platforms. (The adoption was the result of a successful five-school pilot last year.) Leddy emphasizes that while most schools have chosen to adopt Illuminate or A-Net, they are also able to opt out and select their own platforms.

As of this interview, Leddy's team was in the midst of a district-wide launch of [Schoolology](#), a learning management system (LMS) that tracks standards mastery. The system also offers students the capability to share and compare work, which Leddy anticipates will be employed by the district's 5,200 teachers in the future. He notes that Schoolology was initially used as a professional development platform, so teachers first interacted with the LMS's online modules as students—offering valuable insights that would later inform their instruction.

From an IT perspective, Allen added, data access and interoperability standards were considered from the very beginning of the district's RFP process for a new LMS. They used [IMS Global standards](#), as integrating past data into Schoolology was an important criterion prior to moving forward.

Allen said the district has been testing out various forms of data-driven instruction, with varying degrees of success. “Some of our schools and faculty take to it well, but there's high variability,” Leddy agreed.

The district's gradebook is part of their Student Information System, Infinite Campus, which Leddy's team will try to integrate with Schoolology over the summer—and will be among the first districts to have done that. They aim to get students and parents up and running within Schoolology during that timeframe as well.

**“Naturally, robust reporting and analysis features play a key role in data-driven instruction. So when a tool isn't as user-friendly as it could be, it behooves us to work with companies' teams to incorporate our teachers' feedback into product updates.”**

—Tim Leddy, Senior Product Manager, Denver Public Schools

## Managing a Complex Assessment Environment

Kristen Maxey-Moore, Director of Assessment, leads DPS's Assessment, Research and Evaluation (ARE) Department, and is responsible for setting district-wide strategy related to the evaluation of students' academic performance.

In order to have a common data set for adjusting instruction, she explains, the district administers a minimum of three common formative assessments (one per trimester). DPS assessments include:

- + Station as the district-supported READ Act assessment in K–5 schools
- + Scholastic Reading Inventory (SRI), used in grades six and up
- + iReady, STAR, and Dynamic Indicators of Basic Early Literacy Skills (DIBELS), used by schools that have opted out of the first two options

Faculty from roughly five dozen DPS schools have chosen to work with assessment specialists from the district's ARE department, who engage with them on issues ranging from platform support to professional development.

Although the district doesn't currently employ writing or mindset/SEL assessments, they do have prebuilt interim/supplemental assessments aligned with the pacing guide and assessment standards for mathematics that can be used as the three common formative assessments. DPS also evaluates the progress of students who are reading below grade level on a monthly basis with iStation and iReady.

A few of the district's career-oriented "pathways" schools use adaptive assessments such as MAP, which estimate growth; however, the majority use benchmark assessments that aren't adaptive in nature.

Maxey-Moore acknowledges that while training is valued, it has not been a focus for the district. "We get it in when we can, such as with the rollout of Schoology and coordinating protocols with our Data Driven Instruction (DDI) support team," she said. Scaling such efforts across a vast network of schools will require dedicated resources in terms of staff allocation, technical support and time, all of which are often constrained in K–12 environments.

Regarding grading policies, the theme of variability continues. Maxey-Moore admits that the district's policies are a bit "all over the place." "We are looking into Standards Based Grading, and we are moving to Competency Based learning starting with ninth graders next year."

As some district schools move into a CBE environment, state-issued graduation requirements, including a capstone project to demonstrate competencies and mastery, will come into play—and will require changes to the gradebook.

"Traditionally, our report cards are designed around courses, assignments and grades; it doesn't span the student's career easily," Leddy noted. "Schoology has an e-portfolio we're going to make use of, but standards and grades aren't incorporated into it."

Currently, parents can view students' performance by accessing a parent portal—a homegrown system developed by Allen and Leddy's teams that provides a view of the gradebook within Infinite Campus. Users' access levels conform to the extent that each school or teacher chooses to populate particular data.

As a DPS parent himself, Allen uses these tools to view and track his daughter's progress. "All of us tech folks and teachers want to have a single dashboard view. Now we have to start posing questions to companies that focus on our needs, such as 'How do we get this data from you on a nightly basis?' Students' own data are considered intellectual property by some companies."

Harkening back to DPS's culture of flexibility, Allen acknowledges that this adds another layer of complexity. "Our school assessment leaders and teachers have to extract information manually into Excel, doing this in their spare time outside of work."

## Governance and the Road to Interoperability

DPS has created a charter governing committee on interoperability so that time-sensitive, fully-sortable data inputs can be stored in its data warehouse, regardless of the platform or application initially used to record the data.

"One difficulty we have is not having one standardized method of bringing data into our data warehouse," Allen said. "When schools make individual choices, the district simply doesn't have a single universal contract with regard to data ingestion."

It's an uncomfortable place to be, he admits, for a district that, due to its sheer size, stands to benefit greatly from improved interoperability.

"We've been partnering with a cohort of school leaders across the country on standards development, working with IMS Global, Ed-Fi, and InnovateEDU, among others, to determine how we can best interface with providers so that schools get the benefit of looking at data for adaptive assessments and time-dimensioned student progress."

While startup edtech firms are typically nimbler in their approaches to data storing, sharing and interoperability, Allen said, working with the “Goliaths” among educational publishers, like Pearson or Houghton Mifflin, requires a fair amount of effort on the school’s behalf in order to source data.

“Along with other districts across the nation, we at DPS need to be able to easily import information critical to supporting our students’ progress,” Allen said. “That may involve telling providers that ‘as soon as we get this done in the evening, we also need to be able to extract it into our data warehouse,’ and have that actually transpire in real time.”

*“Having summative data across all applications would be amazingly helpful to our teachers, students and parents,” Allen said. “However, there’s no current incentive for companies to talk to one another.”*

This case study is from a Getting Smart series on interoperability. It is part of a larger collaboration called Project Unicorn, led by [InnovateEDU](#) in partnership with [Getting Smart](#), [EdSurge](#), the [Michael & Susan Dell Foundation](#) and [CommonSense Media](#). These stories are made publicly available with support from InnovateEDU.



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