



MONITORING REPORT

September 4, 2024

Policy: **2.3**

Policy Category: **Ends**

Period Monitored: **2023 - 2024 School Year**

*This is the monitoring report on the Board of Education's Ends Policy 2.3.
This report is presented in accordance with the Board's monitoring schedule.
I certify that the information is true and complete.*

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BOARD END & POLICY WORDING:

Board Ends 2.3 states, "District employees will use student data, both formal and informal, to drive decision making."

INTERPRETATION:

We interpret the following language:

2.3 District employees will use student data, both formal and informal, to drive decision making.

To mean:

- District employees will have access to appropriate data that allows them to (1) Make everyday decisions to best meet the individual needs of students in their classroom; (2) Identify school wide or district wide trends; (3) Address challenges and scale best practices in support of a culture of instructional excellence and extraordinary student experiences.

As measured by:

- A robust data infrastructure (data lake/warehouse, data dashboard(s), data governance, people resources)
- A district data literacy plan that promotes understanding and use of data district wide

CONTEXT & BACKGROUND:

[Link to Key Definitions](#)

The Board received the last Board End 2.3 monitoring report via presentation in September 2023. This beginning of the 2024-25 school year monitoring report provides the following updates:

- Status of Data Literacy efforts aligned to Jeffco Thrives 2025 Culture of Data initiatives
- Updates on the district's data modernization efforts, including data platforms, operations and governance

Data literacy has become a critical component in all facets of professional and personal life. Indeed, understanding this kind of information has been called the most critical skill for the workforce in 2030 and the “second language of business” (source: thedataliteracyproject.org). This heightened focus on data literacy has affirmed the role of educational institutions that have been working toward data-informed, research-based instructional practices for decades.

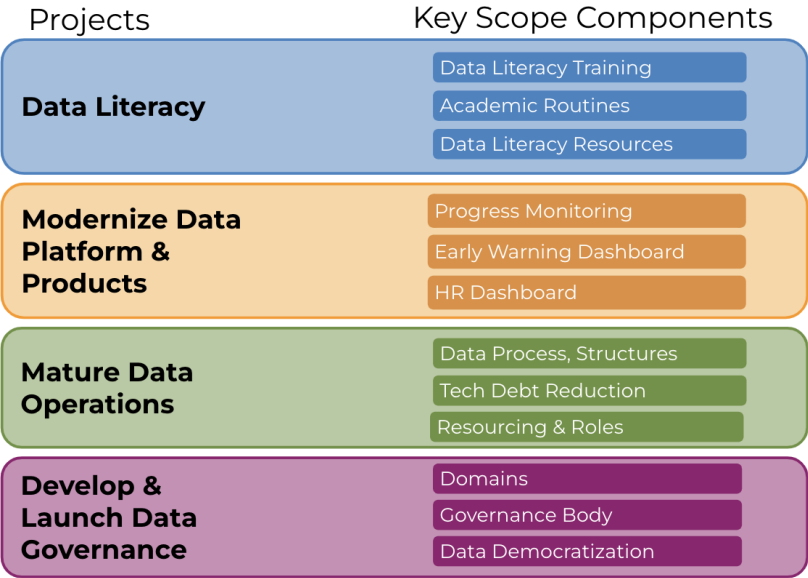
At the July 2023 Leadership Launch, Jeffco's superintendent and deputy superintendent set the tone for the district's data literacy work. They emphasized that data should be used to inform, support collaboration around goals and professional practices and affirm our work. Data should be used to refine us, not define us. While we utilize data to improve outcomes for our students, it is not appropriate to utilize data for punitive purposes. A consistent message was provided

at the July 2024 Leadership Launch, reaffirming that the district continues to focus and build on the data literacy foundation built during the 2023-2024 school year.

Culturally responsive data interpretation is another important consideration for the district’s data culture approach. Using all kinds of data (formal and informal academic, perception, demographic, etc.) allows educators to better understand student interests and needs to increase engagement in learning. Further, the way teachers and administrators frame data conversations can shift mindsets from labeling students to supporting student needs.

Jeffco Public Schools’ strategic plan, Jeffco Thrives 2025, recognizes the essential role of a strong data culture. In Jeffco, while we have had a strong, well respected research and data team, we have also had difficulty providing schools and educators the state-of-the art tools to manage data and inform professional practice. Our educators and leaders have had to pull multiple data sources to build an overall picture of student performance and student need, rather than easily accessing it in one spot. To that end, a key project for the 2023-24 school year launched a data culture portfolio encompassing four projects or workstreams.

Figure 1: Jeffco Data Culture Portfolio



These four projects, under the umbrella of the Jeffco data culture portfolio, work together to deliver the resources, supports and training required to meet this strategic initiative. While some of these projects began implementation during the 2022-23 school year, and all four of these projects delivered substantial outcomes during the 2023-24

school year, data culture work will require ongoing effort and continuous focus over multiple years.

As the amount and types of accessible data increase in district dashboards, aligned user training and support will be needed. As educators recognize how additional reports can enhance their data-driven instructional practices, this iterative feedback loop informs next stages of development for the project practices.

DATA LITERACY

Continuous improvement processes have a long history in Jeffco Public Schools. Some of the processes that currently exist in the district to support this work include:

- Unified Improvement Plans (UIPs)
- Staff evaluation including Individual Educator Goals (IEGs)
- Professional Learning Communities (PLCs) and DDI (data-driven instruction) teams
- Multi-tiered System of Supports (MTSS)
- Monitoring student progress
- Informing improvements to instructional programming

In the past, these efforts have not been coordinated under a focused approach, nor have they shared district wide tools like the new district dashboards. With more aligned support, the data literacy initiative will connect all of these continuous improvement processes with shared definitions, resources and training.

For the initiative, the district has defined data literacy as:

Collecting, analyzing, and interpreting all types of data—assessment, school climate, behavioral, snapshot, longitudinal, moment-to-moment – to help determine instructional steps and, more importantly, to improve student learning.

A strong data culture requires that instructional stakeholders understand how to interpret and apply information (e.g., student outcomes, demographics, perception/survey, school processes/structures, etc.). To that end, the district needs to build capacity in data literacy skills and knowledge and monitor the implementation of that practice.

Anticipated benefits for the implementation of this work include:

- School leaders will be able to apply new learnings and data literacy expertise when needed to complete key tasks at that point in time [e.g., generate a comprehensive start of school data story to communicate to all stakeholders, develop their Unified Improvement Plan with measurable goals and progress monitoring benchmarks, support teacher development of Individual Educator Goals (IEGs), etc.].

- Central and school leaders will have access to timely and accurate data reporting and understand how to interpret and apply those reports/dashboards to support district wide progress and improvements.
- School teams will regularly collaborate in data-driven conversations to determine effective instructional strategies based on student needs identified in data.
- Central services staff will create descriptions of data literacy competencies by role (e.g., school leader, educator, etc.) and align professional learning and resources to cover these core understandings.
- All district leaders will be expected to deepen the district's data culture in their work through systemic expectations around appropriate data use, goal setting, and progress monitoring in a continuous improvement cycle to increase student achievement.

During the 2023-24 school year, the district developed and communicated Data Literacy Competencies for our district and school-based leaders. As detailed in Figure 2 below, the data literacy expectations for instructional leaders include four broad areas: Gathering data, understanding data, using data, and communicating data.

The district held two-day Data Camp learning sessions for principals and central instructional leaders based on these competencies to deepen their data competency skills. Led by the Deputy Superintendent, these trainings provided a deep dive for leaders to use the new district dashboard tools in a facilitated process aligned to strategic plan outcomes.

For the 2024-25 school year, a similar description of Data Literacy Competencies for teachers will be provided to cascade the district's data culture expectations to all educators. Data Camps also will be held for expanded leadership teams, including assistant principals, instructional coaches, and central instructional support staff.

Figure 2: Jeffco Data Literacy Competencies for Leaders

| Data Literate Instructional Leader Knowledge and Skills | | | |
|---|--|---|---|
| Gather Data <i>(Create/Collect/Prepare)</i> | Understand Data <i>(Analyze/ Interpret)</i> | Use Data <i>(Apply/Act)</i> | Communicate Data <i>(Explain/Discuss/Engage)</i> |
| To make good use of available data, one must first know one's data landscape and how to navigate it | Identify the game-changing data for one's role, including what is informative and what is actionable | Identify and enact a sound course of action based on reliable inferences and interpretations | Establish effective two-way communication about data with all stakeholders in a targeted, engaging, appropriate, and ethical manner |
| <ul style="list-style-type: none"> • Access data to search, compile, identify, and locate information from a range of trusted sources • Collect new data accurately and efficiently when needed | <ul style="list-style-type: none"> • Understand which data are most appropriate for the task at hand • Assess patterns and trends across diverse data • Leverage technology tools to maximize the efficiency and effectiveness of analysis • Analyze data within a relevant context • Make sound inferences from data | <ul style="list-style-type: none"> • Convert data interpretation into action by leveraging best practices in shared leadership • Weigh the merit and consequences of possible actions/ decision • Account for/ incorporate multiple perspectives and diverse opinions • Monitor the progress of actions and goals/targets; make ongoing adjustments that advance continuous improvement efforts | <ul style="list-style-type: none"> • Ground data conversations in building trust, deepening relationships, and supporting student success • Match appropriate and ethical communication methods to stakeholder needs • Share multiple types of data in engaging, appropriate, and accessible ways • Help families become more effective consumers and users of data to support learning |
| Data Literate Leader Mindsets | | | |
| <ul style="list-style-type: none"> → Leverage a growth and asset-based approach to data interpretation and collaborative decision-making → Actively challenge assumptions, mitigate fallacies and bias, understand the implications and consequences of insights, and examine additional perspectives → Ensure data privacy foundational practices are utilized during all phases of the data life cycle <i>(Gather/Understand/Use/Communicate)</i> → Cultivate a culture of continuous improvement with all stakeholders | | | |

DATA PLATFORMS, OPERATIONS, AND GOVERNANCE

About District Data & Associated Systems of Record

The district's application landscape includes the following:

- Four primary or core applications including: Peoplesoft ERP Financials & HR, Infinite Campus Student Information System, Enroll Jeffco for Choice Enrollment in Salesforce, and Enrich Student Success Services management.
- Eight large, secondary operational function applications including: PrimeroEdge food service management, Transfinder transportation planning, SmartFind Express guest teacher management, Central Squared Security Dispatch Management, Jeffco Help service management and a custom application for facilities management.
- Approximately 12 primary assessment and curriculum applications including: ACT, TSGOLD, MAP, SAT, Pearson, Amplify, Acadience, College Board, Riverside, HMH, DLM, and Illuminate.
- Two primary learning management systems including Schoology and SeeSaw.
- Finally, there are approximately 30 additional applications, tools and data sources – including state assessments (CMAS) –that are used to support district operations.

Jeffco's legacy data warehouse solutions have historically only supported file-based data that can be extracted from applications used across the district to create reporting output. This type of file-based utilization is becoming increasingly outdated given the modern data landscape and associated technology products available and, most importantly, it limits the district's potential to maximize one of its most valuable assets – data.

The district's separated legacy warehouses and data repositories holding duplicated data include the following:

- Achievement warehouse holding assessment and academic performance data
- On-premise warehouse and Operational Data Store (ODS) holding academic performance (from the student information system only), limited employee and financial enterprise data, and limited Enroll Jeffco data
- Support of Infinite Campus custom reporting and functions
- Shared file stores for survey data, historical state reporting and many additional file stores core to supporting basic operations
- Duplicative storage and backup functions of on-premise hardware and associated support personnel

Why Implement a Modern Data Ecosystem

There are three primary forces driving the implementation of a modern data environment:

1. **End user experience:** enable our schools and staff to effectively access information critical to serving students
2. **Data management & governance:** Reduce duplicated and potentially conflicting data sources and reporting
3. **Scalability of solution to district needs:** Improve our ability to adapt to, manage and maintain our evolving data needs, scaling to match budget changes, end user demands and technological advances

1. End user experience: In December of 2022 we engaged with an external partner, Education Analytics (EA) to understand the user experience as we began planning for a modern data environment. EA facilitated focus interviews and user group feedback sessions to build the baseline. Notable comments from the January 2023 assessment report include:

- Difficulty in getting a complete picture of a student. Staff described how they had to access various platforms to fully understand students' needs.
- Similarly, challenges tracking down the data they need, often needing to go to multiple systems and the functionality of reporting tools was something they wanted to see improved.
- Participants expressed concern about the quality and ease of use across the different systems.
- End users had an inconsistent experience reading Jeffco reports as they often contained data points sourced from multiple places without identifying the single source of truth.

2. Data management and governance: A data governance framework is critical within K-12 and Jeffco for several reasons: .

1. **Data Privacy and Protection:** Effective data governance ensures that student data is handled securely. A governance framework will set policies for data access, sharing, and storage, which help to protect sensitive information from unauthorized access.
2. **Compliance with Regulations:** K-12 school Districts must comply with various data privacy laws, such as FERPA (Family Educational Rights and Privacy Act). Data governance frameworks help schools adhere to these regulations by defining clear roles and responsibilities for data management.
3. **Quality and Accuracy:** Data governance ensures that the data collected and used by schools is accurate and reliable. High-quality data is less likely to be misused or lead to security vulnerabilities.
4. **Risk Management:** By implementing data governance, K-12 Districts can

identify and mitigate potential security risks. This includes setting up protocols for data incident response and secure data transfer, which are essential for preventing and responding to cyber threats.

5. Community Trust: Establishing a robust data governance program builds trust among parents, teachers, staff, and students. This competency demonstrates a commitment to protecting student privacy and maintaining the integrity of data within Jeffco.

3. Scalability of solution to district needs: A modern data ecosystem brings the opportunity to automate many facets of data management and governance. Automation allows the district to shift its staff to support use and application of data.

About a Modern Data Lake/Warehouse

In order to utilize a modern data lake/warehouse, the district will adopt a common data standard. Compliance with this standard allows states and districts to facilitate the appropriate usage of student information aligned with their transitions from PreK to K-12 and from K-12 to postsecondary systems and into the workforce. Adoption and maintenance of the standard also facilitates the transfer of authorized transcript information across state lines when students relocate. The data map, aligned with common data standards will be followed as the modern data lake/warehouse is implemented in due time.

COMPLIANCE STATEMENT:

This monitoring report provides information regarding our policies and procedures related to the Board Ends statement: *District employees will use student data, both formal and informational, to drive decision making.* This monitoring report intends to provide a baseline understanding of the steps the district is taking to comply with this Board Ends statement and to measure against the baseline throughout the course of the Jeffco Thrives strategic plan.

On Track: Enhance Data Literacy

The district successfully completed the first phase of the Data Literacy project during the 2023-24 school year. In addition to developing and launching the Data Competencies for leaders expectations (see Figure 2 above), all principals and central executive leaders participated in a two-day intensive Data Camp training. In the 2024-25 school year, Data Literacy will deliver additional Data Camp experiences for key roles and cohorts. This approach adopted by the Data Literacy project includes delivering timely, applied learning for central and school-based leaders to receive resources, training and support aligned to their workflow calendars (e.g, beginning of year data story, August development of Unified Improvement Plans, etc.). This plan provides ongoing and cascaded support for use of a variety of data, dashboards, and reports to ensure school-based and district wide progress monitoring toward Jeffco Thrives 2025 goals. Central services in support of student outcomes is one of the district's major initiatives this year. The data literacy project addresses that directive.

Leadership Learning Walks were implemented in the 2023-24 school year and will continue going forward. They are a rounding exercise in each articulation area with school leaders, the Superintendent, Deputy Superintendent, Chief of Schools, Chief Academic Officer and Community Superintendents – which reinforce data literacy efforts. Leadership Learning Walks include a presentation of the school's data and a review of the school's improvement planning goals and action steps. They aligned with Jeffco's vision of instructional excellence by:

1. Calibrating school and district leadership
2. Creating a culture of trust and belonging between school leadership and district leadership
3. Enhancing collective leader efficacy
4. Providing schools with instructional feedback
5. Identifying district wide instructional trends
6. Promoting continuous improvement toward shared district goals

Furthermore, community superintendents and principals will continue to leverage the new dashboards produced by the Data Modernization project, which aggregate data from multiple sources into a single interface, making it easier to analyze and interpret information. These innovation dashboards have enabled School Leadership teams to make more informed decisions about instruction, resource allocation, and intervention strategies when engaging with and leading principals. Leaders work together to identify trends over time, such as test scores, attendance rates, and disciplinary incidents, and by examining these trends, leaders can identify which schools, grades, or specific student groups may need more focused attention. Equally as important, these dashboards allow Community Superintendents and principals to monitor progress in real-time allowing for quick adjustments to strategies or interventions before small issues become larger problems.

On Track: Develop and Launch Data Governance

The district has successfully completed the first phase of development and launched a data governance program. Six primary deliverables were a part of this phase including:

- Engaging an external expert and partner to assess district's current state of data maturity and literacy
- Determination of the most suitable data governance framework
- Development of a roadmap for our data governance strategy
- Creation of an implementation plan
- Creation of data journey mappings and user personas to enhance the district's understanding of its data usage and stakeholders
- Implementation of an operationalized data governance team structure for the student data domain

Challenges: Modernize Data Products

The district has completed many milestones of the Modernize Data Products project, which has yielded additional deliverables requiring focused attention:

Completed:

During the 2023-24 school year, 15 new enterprise dashboards and data products were designed, developed, tested and launched. Collectively, these dashboards provide decision makers with a more complete view of district data from multiple data sources, allowing leaders to make well-informed decisions like never before. Individually, these dashboards support data-driven decision making around domains including student safety, dropout prevention, truancy reduction, classroom planning, student enrollment, and many other areas. The district flagship dashboard, the Progress Monitoring Dashboard, has received high praise from school leaders across the district, with usage metrics demonstrating their integration into the regular operations of Jeffco schools.

Additional deliverables requiring focused attention:

During the 2023-24 school year, the Data Modernization effort intentionally focused upon serving school leaders. In the 2024-25 school year, Data Modernization will expand scope to deliver executive reporting. Specifically, we deliver dashboards tailored to meet the unique needs of Jefco's senior leadership team, including Cabinet members. Finally, we will deliver a Data Mart, which data owners and

stewards can use to perform ad hoc analysis and make district-wide decisions in a more data-driven manner.

Challenges: Mature Data Operations

The district has completed many milestones of the Mature Data Operation project, which has yielded additional deliverables requiring focused attention in the upcoming school year:

Completed:

During the 2023-24 school year, Jeffco established an Enterprise Data Team which delivered our first true enterprise data lake/warehouse. This substantial accomplishment involved establishing process and structure maturity, completing data discovery of student and assessment data, adopting a data standard, establishing a cloud architecture, migrating select data from numerous key systems, and establishing data security. The successful delivery of the Snowflake data lake/warehouse in the 2023-24 school year creates a strong foundation upon which to build Jeffco's data culture.

Additional deliverables requiring focused attention:

In the 2024-25 school year, the Mature Data Operations project will focus on expanding the scope and capabilities of the enterprise data lake/warehouse in terms of increasing the breadth of operational domains included in the enterprise data ecosystem as well as the depth of existing covered operational domains. This increased breadth and depth will enable district decision makers in more areas to have access to powerful analytical capabilities that will improve the quality of decision-making in areas that affect student well-being and operational performance like transportation, food service, and more. Additionally this expanded capability and coverage by the analytical ecosystem will create cost saving efficiencies in back end and administrative segments such as state and federal reporting needs.

APPENDIX:

APPENDIX A:

Modernize Data Platform & Products: Additional evidence of successful implementation of these deliverables is demonstrated by clearly meeting the needs our school and central office leaders identified during facilitated discovery sessions with Jeffco's technology partner, Education Analytics (EA). These leaders defined the following critical data points which are documented in the January 2023 assessment conducted by EA.

| | |
|--|--|
| <input checked="" type="checkbox"/> Name <input checked="" type="checkbox"/> Demographics (Race/Ethnicity, Gender) <input checked="" type="checkbox"/> Discipline History <input checked="" type="checkbox"/> Special Education Status <input checked="" type="checkbox"/> Attendance: truancy & chronic absenteeism <input checked="" type="checkbox"/> Gifted Status <input checked="" type="checkbox"/> MTSS Level (<i>does not exist in source system</i>) <input checked="" type="checkbox"/> Grades | <input checked="" type="checkbox"/> Assessment Results - scheduled for August 2023 <input checked="" type="checkbox"/> Program/Intervention involvement - where data is available <input checked="" type="checkbox"/> School <input checked="" type="checkbox"/> Grade <input checked="" type="checkbox"/> Age <input checked="" type="checkbox"/> ELL <input type="checkbox"/> SEL data <input checked="" type="checkbox"/> Parent Contact information |
|--|--|

Data points identified with a ✓ were delivered in the progress monitoring dashboard. Leaders also wanted dashboards that provided aggregations at the district, school, and classroom levels but were still drillable to the student level. Similarly, this requirement was delivered.

APPENDIX B:

Groups consulted and engaged with relevance to this monitoring report-

- [Jeffco Technology and Data Privacy Advisory Committee](#), which has and will continue to serve in a compliance and governance role
- Data Modernization Steering Committee
- [Education Analytics](#), current partner to modernize data infrastructure and create an analytics system built upon the Ed-Fi data standard. The scope of our engagement includes discovery, recommendations, and planning for visualization/ dashboard development at Jeffco
- [Ed-Fi Standard](#)
- The district Academic Leadership Team and school-based leaders provided input on the Data Competency for Leaders draft before finalizing the document for district-wide implementation.

APPENDIX C:

Key Definitions-

1. **Competencies** are a broad set of knowledge, skills, and mindsets – being competent combines the acquisition of a skill with the mindset and behaviors to successfully execute it.

2. **Data Governance:** “The exercise of authority, control and shared decision making (planning, monitoring and enforcement) over the management of data assets.” [DAMA](#) .
3. **Data literacy** involves collecting, analyzing, and interpreting all types of data—assessment, school climate, behavioral, snapshot, longitudinal, moment-to-moment to help determine instructional steps and, more importantly, to improve student learning.
4. **Data Lake/Warehouse:** A typical organization will require both a data warehouse and a data lake as they may serve different needs and use cases. At Jeffco and within this monitoring report, we are using the terms in a combined fashion to encompass the technical environment while being factually accurate. A data warehouse is a database optimized to analyze relational data coming from transactional systems and line of business applications. A data lake stores relational data from line of business applications, and non-relational data from mobile apps, IoT devices, and social media. A data lake stores data in its raw form, often unstructured/ non-relational. The infrastructure built at Jeffco contains both a data lake and a data warehouse and we are combining these terms for the sake of readability.
5. **District’s Application Landscape:** The applications/systems the district currently has in operations.
6. **Ed-Fi Data Standard:** “The Ed-Fi Data Standard is a set of rules that allow (previously disconnected) educational data systems to connect. Any educational technology that's powered by Ed-Fi—whether a student information system, a rostering tool, assessment software, etc. —can connect with any other.” [Ed-Fi Alliance](#)
7. **Mature Data Operations:** Establishing the processes, roles, and data warehouse structures to scale the Data Services offering for the district. This includes reducing technical debt and transferring legacy solutions to the new cloud based solutions.
8. **Technical Debt:** “Technical debt is accrued work that is “owed” to an IT system, and it is a normal and unavoidable side effect of software engineering / development. Teams “borrow” against quality by making sacrifices, taking short cuts, or using workarounds to meet delivery deadlines.” [Gartner](#)