

AOE Testimony: Logistical Considerations and Recommendations Regarding Data Collection, Management, and Reporting of Curricular Level Data

Testimony To: Senate Committee on Education

Respectfully Submitted by: Wendy I. Geller, Ph.D., Division Director, Data Analysis & Management

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Introduction to Existing Data Collection and Reporting

Thank you for inviting me to come speak with you today. For the record, my name is Dr. Wendy Geller, and I am the Division Director of the Data Management & Analysis Division (DMAD) at the Vermont Agency of Education.

To start, I thought we could orient together by walking through the ways that we currently collect and report data publicly as folks may not be aware of what's already in place and where they can readily go to find it.

I'm conscious that we have limited time today and you have a number of topics and testimony on your schedule, so I'd like to offer to come back and provide additional information on other dates if you'd like to know more so as not to take too much of the time allocated today.

Data Collection, Federal Data Standards, and Required Reporting

The AOE currently collects course enrollment data annually from SU/SDs through the [DC04 Year End Official Data Collection](#) via the edFusion platform. This collection is due after the school year has closed and encompasses data such as the [course](#), [course section](#), [student's section enrollment](#), [staff assigned to that section](#) of the course, as well as [students' results](#) from their performance in that course throughout the previous year.

Course level data are reported using federally defined [School Codes for the Exchange of Data \(SCED\) course codes](#).

Specifically:

School Courses for the Exchange of Data (SCED) is a voluntary, common classification system for prior-to-secondary and secondary school courses. It can be used to compare course information, maintain longitudinal data about student coursework, and efficiently exchange course-taking records. SCED is based on a five-digit Course Code that provides a basic structure for classifying course content. Additional SCED elements and attributes provide descriptive information about each course.

SCED is updated and maintained by a working group of federal, state and local education agency representatives who receive suggestions and assistance from a wide network of subject matter experts at the national, state, and local levels. As a result, SCED is designed to be flexible enough that education agencies can modify it to meet their needs. ([Institute for Education Sciences, National Center for Education Statistics](#))

Vermont adopted the use of SCED codes and standards because students experience many transitions throughout their educational trajectory. **It's important for students, families, and school systems to have portable coursetaking information that is easily interpreted. Further, shared data standards enable comparisons to be made when examining various educational contexts.**

Adopting federal data standards also reduces burden when required to report data to federal partners as part of compliance and quality monitoring, which goes hand in hand with Vermont's receipt of federal education dollars for our most vulnerable student and educator populations under the federal Titles. **I cannot stress enough that moving away from these nationally developed standards would be extremely ill-advised.**

Interactive Public Reporting Platforms

Currently, the AOE reports course taking and flexible pathways data via two primary platforms, the [Vermont Education Dashboard \(VED\)](#) and the [Annual Snapshot](#).

Vermont's Current Data Infrastructure Landscape

As detailed in the [whitepaper on lessons learned from the K-12 SLDS project](#) (Geller and Viani 2020), there are roughly seven (7) different student information systems (SIS) operated across Vermont's SU/SDs and to varying degrees of cohesion within and across organizations. Some may have [Learning Management Systems](#) (LMS), some may not. LMS contain the kind of granular, curricular or content-level data the bill, as currently drafted, appears to seek.

Specifically:

Vermont's complex education system and federated governance model have naturally produced high levels of variability across the state in terms of the maturity and robustness of data infrastructure, culture, and practices. This is true at the state level as well, and presents challenges to sustainably staffing, resourcing, and generally managing the work if simplified, shared approaches, processes, and toolsets aren't identified and implemented quickly and uniformly.¹

While technology can help with some of the work toward becoming an effectively data-oriented organization, as in most things, it's the human resources that make the biggest difference. (Geller and Viani 2020: 10)

¹ Center for Digital Government, "Data: The New Currency."

This degree of complexity is **difficult and expensive to adjust at a statewide level**. Further, there is high variability statewide in terms of [technical debt](#) load that SU/SDs are carrying. **Technical debt makes change hard and resource-intensive** in terms of time, human resources, and fiscal investments required to be successful in implementing that change:

Technical debt encompasses the skills, tool sets, and infrastructure deficits that compound when more limited, expedient, and otherwise disjointed or outdated approaches are used instead of longer term, more current, and thoughtful solutions. This is not unique to AOE, to government in general, nor even to the private sector if data and technical infrastructure have not consistently been a top priority for an organization.²

Technical debt, like credit card debt, when allowed to accrue to a high level, becomes expensive and painful to pay down. This shared condition at the state and local level presents additional stumbling blocks for statewide efforts such as the SLDS. This is why the AOE is reorganizing its approach to data and technical infrastructure along with Agency of Digital Services (ADS) partners. (Geller and Viani 2020: 1)

Fundamentally, “a high level of technical debt exists at both the AOE and in most of the districts across the state. These conditions make it extremely challenging to adapt to change and highly burdensome to execute on required work at the state and the local level (Geller and Viani 2020: 14).”

To help support the committee in its consideration of the content of this drafted bill, in the section below, I have provided some cost estimates for making the kind of technical and human adjustments that implementation of new, regularly scheduled data collection and reporting requirements if this bill would expect such new work from Vermont’s education system.

Implementation Cost Estimates

Adjusting the numerous student information systems, implementations, and methods of record (data) keeping throughout Vermont will come with financial and human resources costs.

To give a rough ballpark estimate, I have reviewed the SIS vendor contracts that were used during the K-12 edFusion implementation to make the system changes required at that time. Those adjustments were more expansive than the curricular or syllabus-level collection that would be required to ingest the granular, content level data that are being proposed via this bill, so I have reduced the total cost of those contracts by roughly 50%, and they remain around \$220,000.

This *does not include* estimates for the procurement and implementation of Learning Management Systems where SU/SDs may not have such a system in place. These investments and implementations would be at additional cost if regularly required reporting would be an outcome of this bill.

² Center for Digital Government, “Data: The New Currency.”

Further, there are the costs associated with how such adjustments to record keeping and reporting practices on the ground in SU/SDs will require staff/educator time to learn and implement. For example, the National Forum on Education Statistics (2014) *Forum Guide to School Courses for the Exchange of Data (SCED) Classification System* provides an apt case study for the kinds of work it takes to adjust data systems and practices among districts on the ground:

Aligning Available Credit and Course Sequence – A Kansas Example

When districts map their course data, it is important that they consider how their local student information system manages courses. When data stewards at the Kansas SEA analyzed data sent from districts, they were confused by the course outcome data from a number of districts. Students were being reported as completing several credits of the same course, often earning different grades for each completion. For example, a district that had listed Algebra I as a 1.0 credit course with sequence 1 of 1 sent 2 records for each of the freshmen. Analyzing the data as submitted resulted in each of the freshmen earning 2.0 credits of Algebra I during the year. After discussing this with school and district staff, the state data steward realized that the school's student information system reported grades by semester, and so the school had submitted two grades for each of the freshman students, one for each semester of Algebra I. The data steward was able to solve the problem by recommending that the district map two courses to Algebra I, each with 0.50 Available Carnegie Unit Credits, and specifying sequences of 1 of 2 and 2 of 2, respectively. Then, when the district sends the students' course outcomes to the state, the outcomes will be recorded for the proper course with the proper credit. ([National Center on Education Statistics, 2014](#))

This kind of careful "data detective work," if you will, is not a small request to make of SU/SDs in general and in particular, at this time in the pandemic.

If we assume that all SU/SDs have a functional LMS throughout their organization (this is not the case in reality), I would estimate a minimum of 25-50 hours of time for configuration, documentation, and training for colleague users (e.g., educators) to ensure standardized implementation of the means to capture the granular level of data the current drafted bill appears to seek for reporting.

If we use a conservative estimate of 35 hours of work per SU/SD, with an estimated 52 SU/SDs statewide (being conscious of discussions related to mergers and dissolutions that may be taking place), that is a total of roughly 1,820 FTE hours. If we use the [Federal OPM standard divisor for work hours per year](#) of 2,087, that required investment equates to 87% of one FTE's time for a full work year.

If we estimate that one FTE costs approximately \$100/hour when fully accounting for salary, pension, benefits, etc., that represents a cost of roughly \$208,700.

Thus, the rough estimate of adjustment to SISs statewide and the staff time required to make the LMS changes to collect new data for reporting via their SIS (which does not factor in any

integration costs or procurement and implementation costs for SU/SDs without an LMS), to report as the bill is currently drafted is somewhere around the ballpark of \$430,000.

Further, from a logistical standpoint, AOE DMAD typically advises field partners about any updates or adjustments to regularly scheduled reporting requirements, at a minimum, a year in advance of implementation.

This timeline is important for allowing field partners adequate space to work with their vendors on system adjustments, as well as internally on business process alteration (such as what was described above in the Kansas example), and for AOE DMAD training and support opportunities to be provided to field partners in advance of the change taking place. This means the due date for the report as outlined in the draft bill is currently unworkable for Vermont's education system on the ground and at the state level.

Ultimately, adjusting, unifying, and aligning data systems across Vermont for regularly required reporting represents a significant workload for local district personnel as well as state-level staff. Costs associated with this work are fiscal, human, and time based. They are not trivial and would need identified, long term funding for sustainability if regularly scheduled reporting requirements were to come from this bill.

My colleague, Jess DeCarolis, Director of Student Pathways Division provides recommendations in her testimony which will speak to a more effective, efficient, and wholistic address of the areas this drafted bill highlights.

Thank you for your time.

Resources and Works Cited

National Forum on Education Statistics. (2014). [Forum Guide to School Courses for the Exchange of Data \(SCED\) Classification System. \(NFES 2014-802\)](#). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Institute of Education Sciences, National Center for Education Statistics: School Courses for the Exchange of Data (SCED)

<https://nces.ed.gov/forum/sced.asp>

AOE Data Collection and Reporting Knowledge Base: DC04 Year End Official

<https://datacollection.education.vermont.gov/Collections/SLDS-Vertical-Reporting/DC4/#dc4-year-end-official-collection>

AOE Data Collection and Reporting Knowledge Base: Course Codes

<https://datacollection.education.vermont.gov/Codesets/COURSECODE/>

AOE Vermont Education Dashboard (VED)

<https://education.vermont.gov/data-and-reporting/vermont-education-dashboard>

AOE Annual Snapshot

<https://schoolsnapshot.vermont.gov/>