Background

Led by the vision of the Council of Chief State School Officers and nine participating states, and funded by the Bill & Melinda Gates Foundation and Carnegie Corp. of New York, the Shared Learning Collaborative (SLC) is an alliance that aims to accelerate the progress of our public schools toward personalized learning for all students. The collaborative is designing a shared technology infrastructure that will help facilitate the implementation of the Common Core State Standards and help states and districts provide teachers with the instructional data and tools they need through shared online services.

Instructional data will be linked to high-quality and diverse sets of instructional resources from many providers, so that each student gets what he or she needs most at that moment in time. And, because the Common Core State Standards create more consistency across states than ever achieved in the past, we have an opportunity to create an infrastructure that works better and costs less per state than what can be accomplished by each state working individually.

In addition to making instructional data more manageable and useful, this open-license technology, provisionally called the Shared Learning Infrastructure (SLI), will also support a large market for vendors of learning materials and application developers to deliver content and tools that meet the Common Core State Standards and are interoperable with each other and the most popular student information systems.

The SLC is committed to the Common Education Data Standards (CEDS) and will implement CEDS 2.0[1] in the SLI. The SLI has adopted the Ed-Fi[2] data specification, which is tracking CEDS and will incorporate CEDS 2.0 when the standard is released in January 2012. Ed-Fi is a valuable companion specification because it adds a common serialization format to the data dictionary and data model supplied by CEDS. Adopting CEDS also facilitates the compatibility layer for the Schools Interoperability Framework (SIF)[3] since both Ed-Fi and SIF incorporate CEDS. Compatibility layers will also be developed for the most popular student information systems.

Highlights

- The Shared Learning Collaborative (SLC) is committed to CEDS 2.0 and will implement it in the Shared Learning Infrastructure (SLI).
- The SLI will utilize Ed-Fi, a data specification based on the Common Education Data Standard (CEDS).

[1] See http://nces.ed.gov/programs/ceds/about.asp
[2] See http://www.ed-fi.org/
[3] See http://www.sifinfo.org

- The Ed-Fi data specification is an XML format for storage and exchange of student data. As such, it offers a serialization format for CEDS that is shared across applications. This includes a core schema, data exchange framework (interchange schema) and application framework (extension schema) to enable full implementation of CEDS elements.

- Ed-Fi includes K–12 classroom-level elements not yet in CEDS. These elements are needed by the personalized learning applications that the SLI is designed to support.

- The developers of Ed-Fi, supported by the Michael & Susan Dell Foundation, are working with the CEDS stakeholder group[4] on an ongoing basis to keep the Ed-Fi specification aligned with the CEDS standard as it evolves.

- The SLI will also leverage and interoperate with other data standards and systems.

- Users of the SLI, whether they use CEDS, Schools Interoperability Framework (SIF) or other data standards and systems, will have a way to import their classroom-level data into the system.

Questions & Answers

Q: Why did the SLC choose Ed-Fi instead of CEDS?

A: This isn't an either-or decision. The SLC has chosen both. CEDS offers a data dictionary and data model. Ed-Fi defines an XML schema for the CEDS elements and adds additional classroom-level elements needed by the types of applications that will be supported by the SLI.

Q: How will the SLI use Ed-Fi?

A: The SLI will leverage the Ed-Fi in three ways:

- The SLI data store will use the Ed-Fi data specification.

- Users of the SLI will be able to use Ed-Fi's XML data exchanges as one method for importing their classroom-level data into the system.

- The SLI dashboards, which will provide "out-of-the-box" access to student data housed in the SLI, will be based on the design of the Ed-Fi educator dashboards.

[4] See http://www.sifinfo.org

Q: What are the costs associated with adopting the Ed-Fi specification?

A: Ed-Fi is free to license. The Michael & Susan Dell Foundation does not and will not charge schools, vendors or any other party for either Ed-Fi licenses or ongoing use or maintenance. Implementation costs for local and state education agency data systems will vary, but will not include licensing fees for Ed-Fi.

Q: How is Ed-Fi any different than education data products offered by SAS or Pearson?

A: The Ed-Fi specification is not a product; it allows for data standards to be implemented in many classroom-facing products. It is free to license and enables interoperability among products. The Michael & Susan Dell Foundation does not and will not charge schools, vendors or any other party for Ed-Fi licenses, or for ongoing use or maintenance. There may be implementation costs, however, charged by third-party vendors.

The Ed-Fi dashboards are one example of a reporting product that can be built using the Ed-Fi data specifications.

Q: My state is adopting CEDS. If the SLI is using Ed-Fi, will it be compatible with my state's existing infrastructure?

A: Yes. The Ed-Fi data specification is an application of CEDS and includes additional K–12 classroom-level data needed to make possible the types of personalized learning applications that will be available through the SLI.

Q: How will users of CEDS implement the SLI?

A: The SLI includes data ingestion features for integration with longitudinal data systems at the state and district levels. It also includes a data API for support of learning applications. Both the ingestion system and the API use the CEDS data elements. The adoption of CEDS by all systems greatly facilitates integration by eliminating the need for data translation.

Q: Will Ed-Fi be adopting CEDS 2.0 when it is released in January 2012?

A: The Ed-Fi team will be implementing CEDS 2.0. The date of full implementation has not yet been announced because the Ed-Fi team is awaiting final release.

Q: How do Ed-Fi and CEDS relate to the SIF? Will the SLI be compatible with SIF?

A: Users of the SLI, whether they use CEDS, SIF or other data standards and systems, will have a way to import their classroom-level data into the system. SIF is an open data-sharing specification for K–12 schools that includes an XML specification for modeling educational data, and a service-oriented architecture specification for sharing that data between data systems, applications and institutions. Close to 90 percent of CEDS 1.0 elements were drawn from or aligned with the SIF Specification 2.4, and remaining differences will be considered in future versions of SIF implementation. The SLI will offer SIF adapters to facilitate data ingestion from SIF systems.

Q: Will implementation of SLI (with its use of Ed-Fi) invalidate states' investment in the SIF?

A: No. The SLI will be flexible, interoperating with and leveraging other data standards and systems. The SLI will allow student data to be collected and analyzed in the ways most useful to individual educators, districts or states and is being designed as an open architecture that will be extensible to allow states to customize it to their needs. The SLI data ingestion options to be included in v.1 are the following:

- XML Format (Ed-Fi data interchange schemas incorporating CEDS)
- CSV format
- SIF Agent
- Built-in adapters for select student information system (SIS) and assessment vendors

Q: My state doesn't use CEDS or SIF. How will we be able to populate the SLI?

A: The SLI will allow data ingestion from a wide variety of source systems along a continuum of technical sophistication. The SLI will accept data ingestion from bulk-loaded CSV files as well as active Web services integration with source system applications.

Q: How will the SLI interact with existing state and local school data systems, and for what will my state or local agency be responsible?

A: The data that can be maintained in the SLI will be created and managed by a variety of state education agency (SEA) and local education agency (LEA) source systems. Student attendance, transcript, class schedule and assessment data are typically stored in many different systems within LEAs and SEAs. The SLI offers a data store to integrate that data and an API layer to make it available to applications. The SLI will offer robust tools to ingest and validate bulk data to enable successful data integration. LEAs and SEAs will be responsible for sourcing, governing, loading and validating their data.

The system itself will be based on a cloud computing approach, and third-party applications will have access to record-level data to help create a complete picture of each student's learning. Because the data system is non-exclusive as far as data storage and interoperability are concerned, each state will be able to populate the SLI. In addition to storing core entities and attributes such as those noted above, the data store will include the ability to store custom data that may be unique to a particular SEA, LEA or application. This custom data will be accessible through the API layer.