

EFFECTIVELY LINKING TEACHER AND STUDENT DATA

The Key to Improving Teacher Quality

■ Key Messages

Current state and federal reform initiatives rely heavily on the ability of multiple stakeholders to access and use information from statewide longitudinal data systems (SLDSs) to improve student achievement.

Acknowledging the critical role that teachers play in any effort to improve student achievement, state policymakers are developing and implementing a variety of policies affecting educators. They will also, for the first time on a larger and more visible scale, use student achievement as a primary indicator of educator and program effectiveness.

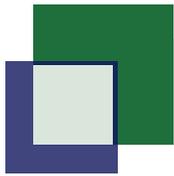
Therefore, policymakers must understand the importance of defining the purposes for and developing the policies to support a valid and reliable teacher/student data link. Twenty-four states report having this link on the 2009 Data Quality Campaign (DQC) survey. However, these linkages were not intended for high-stakes decisionmaking (e.g., evaluation, compensation, value-added). As a result, state and local data systems lack critical functions, including the abilities to:

- Account for the contributions of multiple educators in a single course;
- Enable a teacher to review his or her roster for accuracy;

- Incorporate common practices found in schools, including virtual classes, labs and team teaching; and
- Link students' attendance records with their teachers to track the actual number of days of instruction by a particular teacher.

This policy brief outlines some of the most critical challenges facing states and districts as they develop and implement policies based on the teacher/student data link and provides guidance on the emerging best practices for effective implementation, including:

- States must first determine how the data from the teacher/student data link will be used, which should drive the policy conversation around how the state will define *teacher of record*.
- Although IT and data staff are critical in developing the technical solution to capture the appropriate data, policymakers and educators must own the process from the beginning because they are best positioned to resolve issues relating to the appropriate attribution of student learning to educators.
- Teachers must have the means to periodically review their rosters to ensure that they are linked to the correct students.
- States and districts must work together collaboratively on all aspects of the teacher/student data link.



The Need To Capture Complex Connections

Faced with the need to create a competitive workforce and dramatically improve the quality of America's education system, states have embraced an aggressive policy agenda to better prepare students for postsecondary education and careers. Central to this agenda are developing robust longitudinal data systems and increasing the effectiveness of educators to improve student achievement.

State efforts and timelines to build data systems and focus on educator effectiveness have been reinforced and expedited by the unprecedented focus and funding opportunities provided by the federal American Recovery and Reinvestment Act (ARRA) State Fiscal Stabilization Fund and the Race to the Top competition.

As a condition of these funding streams, every state's governor has committed to implementing an SLDS that includes each of the DQC's 10 Essential Elements by October 2011. To meet the remaining ARRA assurances, states are developing plans that rely on data to inform and improve policies and practices to support educator success. Specifically, states are looking to leverage the teacher/student data link (DQC's Essential Element 5) to identify teacher impact and effectiveness, target professional development, develop evaluation and compensation systems, inform staffing assignments, distribute effective educators equitably, tailor classroom instruction, and identify programs that prepare effective teachers.

The linchpin of all these efforts is that states must reliably link students, teachers and courses in ways that capture the complex connections that currently exist in schools. The ability of a state to collect and provide high-quality information that can truly inform decisionmaking in ways that are accurate, fair and supported by key stakeholders rests on the policies and processes it puts in place around linking student and teacher data.

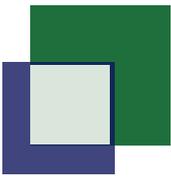
The National Landscape: Current Capacity and Plans for Use

State Capacity: To receive credit for DQC's Essential Element 5, a state must link teachers and students (and their relevant data) through courses by using state-assigned unique identifiers. Some states have struggled with implementation because existing state codes prohibit the effective assignment and use of these identifiers. According to the 2009 DQC survey, 24 states report the ability to link student and teacher data, but it is unclear if these states have processes in place to ensure that the link can provide reliable data to inform policy and practice to the degree being considered today. Beginning in 2010, the DQC survey will include additional questions on Element 5 to clarify our understanding of the quality of current linkages. Visit www.DataQualityCampaign.org for a state-by-state analysis of the teacher/student data link.

State Plans for Use: According to an analysis of the first round of Race to the Top applications conducted by the Council of Chief State School Officers (CCSSO) and Learning Point Associates, nine states currently use and 27 states are proposing to use student performance measures in their teacher compensation reforms. Eighteen states defined how student growth would inform teacher evaluation. Visit [Learning Point Associates](http://LearningPointAssociates.com) for more information on this analysis.

National Efforts To Leverage the Teacher/Student Data Link: The knowledge that all states are not only developing a teacher/student data link but also planning for its use has spurred the development of many other initiatives that seek to leverage the resulting information.

- The [National Governors Association](http://NationalGovernorsAssociation.org) is working with six states to develop innovative teacher compensation models that would pay teachers based, in part, on student growth.
- The Bill & Melinda Gates Foundation is funding the "[Measures of Effective Teaching](http://MeasuresOfEffectiveTeaching.org)" project, which seeks to identify multiple measures of effective teachers.
- The federal [Teacher Incentive Fund](http://TeacherIncentiveFund.gov) grants are awarded to grantees to improve teacher effectiveness and develop compensation systems tied to student achievement.
- The [National Council for Accreditation of Teacher Education](http://NationalCouncilforAccreditationofTeacherEducation.org) requires that preparation programs track the progress of their graduates linked to their students' performance.



Critical Steps in Developing a Reliable and Effective Teacher/Student Data Link

As states work to implement strategies to improve teacher quality and effectiveness, they should not underestimate the importance of developing a reliable and effective teacher/student data link.

Most states that have had this link in place for years did not develop the link with current uses — such as high-stakes decisions — in mind, and often their systems do not yet adequately provide reliable, valid and relevant information. Typically, the links have informed low-stakes decisions including class size compliance and reports on highly qualified teacher status for the No Child Left Behind Act.

Moving forward, states must *first* determine and clearly communicate the purposes of the teacher/student data link (i.e., the decisions the link will inform). The identified purposes (e.g., compensation, teacher preparation evaluation, targeted professional development, resource allocation) should drive the policies and practices states develop to support teacher/student data link implementation. For this reason, policymakers and educators must work closely with IT and data staff — this is not an IT issue; it is a policy and practice issue.

All states, including those that already link teacher and student data, need to address the following policy and process issues to ensure the data and the teacher/student link are reliable and understood by critical stakeholders, particularly teachers.

- **Defining *teacher of record*:** Today's students learn from numerous teachers and staff. Efforts to understand educators' impact on students must reflect this reality and address issues including team teaching, students who are pulled out for extra support and virtual learning environments.

These complicated relationships must be captured accurately in the data system, and there must be clear policies that allocate responsibility for students' learning to specific teachers by defining *teacher of record*. Without a definition that reflects the reality of today's teaching assignments, states and districts *will be unable to accurately attribute student learning to teachers*.

To reliably inform personnel decisions at the local level and develop evidence-based policies at the state level, this definition must be consistent across districts within the state.

Recommendation: The state must work collaboratively with key stakeholders to develop a definition that answers questions such as: What should the specified proportion (or minimum threshold) of instruction time be to qualify an individual as a teacher of record for the subject/course? Should the measure be classroom instruction time in days or percentages? How does this proportion change if multiple teachers are tracked as the teacher of record for each student? What if no teacher is responsible for more than the specified proportion for a student? These questions cannot be answered by IT staff

Common Data Standards (CDS) Initiative

Determining a common definition for *teacher of record* should include establishing a set of "common data standards" that support the chosen definition (e.g., student identifier, attendance, etc.). In adopting this definition statewide, policymakers and educators also should adopt a comparable and consistent set of data to have at their disposal to inform policy and decisionmaking. An effort is under way to develop common data standards for a variety of key data elements that states/districts collect and use regularly. A consortium including CCSSO, the State Higher Education Executive Officers (SHEEO), the Schools Interoperability Framework Association, the Postsecondary Electronic Standards Council and the DQC is collaborating to promote the need for common data standards and definitions. CCSSO and SHEEO have created a [statement](#) around the need to develop and adopt common data standards; the U.S. Department of Education's CDS technical working group has a [Web site](#) detailing the scope and purpose of its work, including the draft standards as they are developed.

— these are policy conversations that will ultimately inform the appropriate IT solution.

- **Capturing schedule changes:** Throughout the year, students' schedules often change as the result of the addition of a course section, dropping a class or transferring to a new school. However, states typically collect a snapshot of scheduling data at certain points in the year — and often just once at the start of the year. This practice fails to capture enough information to accurately record the time period for which a teacher is responsible for a student throughout the year.

Recommendation: States must work with their districts to determine the most appropriate data collection schedule to ensure that schedule changes are reflected at the state level and the data are sufficiently current to inform decisionmaking.

- **Verifying rosters:** To ensure data quality and assure teachers that decisions are being made based on accurate information, teachers must be given an opportunity to verify their rosters of students and submit corrections. An accurate roster also will enable the state to return vital student data to the appropriate teacher regarding assessment results or through an early warning system. Without access to data on their current students, teachers will be unable to reflect on their practice or appropriately differentiate instruction based on student need.

Recommendation: While frequent (e.g., weekly or at least monthly) data transfers from local-level student systems can provide more accurate tracking of changes

The Teacher/Student Data Link Project

The Center for Educational Leadership and Technology (CELT) is funded by the Bill & Melinda Gates Foundation to begin to address the implementation challenges noted here. This project is a cross-state, collaborative effort focused on developing a common, best practice definition of *teacher of record* and business processes for collecting and validating linked teacher and student data. This important initiative brings five states (Arkansas, Florida, Georgia, Louisiana and Ohio) and 15 pilot districts together to leverage their collective experiences, knowledge and resources to address one of the most critical components of their data systems and a key step in using data to increase student learning and improve teacher quality. Promising practices, the teacher of record definition framework and other project outcomes will be continuously updated on the DQC and CELT Web sites. For more information on this effort, please visit www.celtcorp.com/TeacherStudentDataLink.aspx.

to student schedules, a state can implement a short-term solution by providing schools with a roster verification application that enables teachers and principals to review the state's latest data and make corrections.

As states begin to address these concerns, they must actively collaborate with districts in their state that may be further along in reliably linking teachers and students through courses/subjects. In many cases, district leaders have years of experience and many lessons learned to share around implementation, the use of the data, appropriate business processes and — perhaps most important — the communications necessary to build trust among key stakeholders around data quality.

Policy Implications of an Ineffective Teacher/Student Data Link

States are pressing forward with ambitious, data-driven teacher quality improvement policies through a variety of means including legislation. In the age of Amazon.com and Google, policymakers and educators alike believe that we now have the technological sophistication to transform education into an information-based sector. However, if states proceed without addressing the issues outlined in this brief,

data-driven efforts to measure and improve teacher quality will not deliver the expected results and may face unintended repercussions. The following section provides some examples.

■ Evaluation and Compensation Policies

As noted previously, states are currently collaborating with districts around new evaluation/compensation models that

Teacher of Record: Sample Definition

A teacher of record is an educator who is responsible for at least 25 percent of the class time or academic standards aligned to a student's learning activities and the performance measures within a subject/course.

Each state must collaborate with districts to determine the appropriate percentage and to develop policies around what is meant by individual terms such as *learning activities* and *subject/course*. For example, how does the state account for virtual courses and teaching? Once the definition is determined, districts statewide must adopt it and adapt local data systems to capture the information accordingly and ensure the consistent implementation of state education policies.

rely in part on student achievement. Without a definition of *teacher of record* that is implemented consistently across the state, these state policies will have unintended consequences among districts.

If District A can implement a more sophisticated definition that enables the linking of multiple teachers and allows them to review their rosters prior to decisionmaking and District B is only linking a homeroom teacher to a student and has no roster verification process, then the teachers employed by these two districts could have very different evaluation results even if the teachers are, in fact, similarly effective.

Inconsistent implementation of the teacher of record designation could influence how and where teachers choose to teach as they seek more favorable environments. States and districts also may face valid skepticism from educators over proposed policies that directly affect them if steps are not taken to ensure that decisions are informed by consistent, high-quality data.

■ Teacher Impact Models

States are developing and implementing impact models (e.g., value-added) with the intent to determine an individual teacher's impact on student learning. Even if the chosen model is valid and has broad stakeholder support,

the successful application of the model will depend on a reliable teacher/student data link.

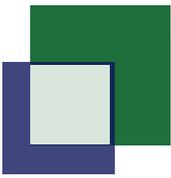
Once implemented, the models are expected to guide school-based decisions such as staff assignments and evaluations, district decisions around professional development priorities and personnel policies, and state policies around ensuring that effective teachers are distributed equitably throughout the state. Principals attempting to assign teachers to students based on the success of a teacher with certain students (e.g., English language learners) will not achieve expected results if the existing teacher/student data link doesn't account for other types of impact (e.g., resource staff, team teaching, etc.). If best practices are not followed and the data system can, for example, link only one teacher with a student within a single course, how will the model affect decisions around team teaching?

Decisions based on these models have resource implications, and errors will be costly; therefore, if these models are meant to drive data-based decisionmaking, states must ensure that the data are accurate.

■ Increasing the Supply of Effective Teachers

Policymakers and educators have expressed an interest in learning what the characteristics of effective teachers are to inform preservice programs and increase the supply of graduates with the same knowledge, skills and abilities. Efforts to inform/reform teacher preparation based on effectiveness data will be inefficient and potentially harmful if states base these reforms on data resulting from an unreliable teacher/student data link.

For example, a state could look at the data and determine that a particular teacher preparation program is underperforming to the degree that it eventually loses its accreditation. If teachers are not appropriately linked with the student data that actually reflect a teacher's performance, some programs could be unnecessarily sanctioned while ones that are truly underperforming might appear to perform better than they actually are.



Conclusion

Improving teacher effectiveness will require the implementation of policies and practices that are supported by data at the state and local levels. However, it is worth noting that while policymakers are focused now on using the teacher/student data link to develop these policies, educators themselves can leverage a quality teacher/student data link to reflect on and inform their own practice to improve instruction and outcomes for the students they are responsible for today (*DQC's State Action 9*). Both of these mechanisms for change necessitate providing high-quality information to enable well-informed decisionmaking. Stakeholders want, and are expected, to make informed decisions about personnel, professional development, program continuation, curriculum design, instructional planning and services needed by students, teachers and schools. Through collaborative and thoughtful implementation of the teacher/student data link, states can ensure that this important work is informed by timely, accurate, relevant information, enabling all students to benefit from an effective teacher.

Resources

Strengthening the Teacher-Student Data Link to Inform Teacher Quality Efforts, Data Quality Campaign, www.DataQualityCampaign.org/resources/947.

Teacher Identifiers and Improving Education Practice: Experiences in Colorado and the Nation, Colorado Children's Campaign and the University of Colorado Denver, www.DataQualityCampaign.org/resources/826.

Questions To Guide State Policy and Use

States are rapidly implementing the teacher/student data link and developing policies around the use of the link. However, if states don't systematically address the challenges raised in this brief and don't collaborate with districts and educators around solutions, these efforts could face serious setbacks. The policy questions below are intended to guide conversations in your state.

1. Is there a statewide definition of *teacher of record*? If so, does the definition accurately reflect the complex relationships seen in schools today?
2. Does the state's definition of *teacher of record* accurately reflect the purposes for which the state intends to use the data?
3. How frequently is scheduling information, including the teacher/student data link, collected by the state?
4. How does the state ensure that teacher and student data are accurate? Do teachers have the opportunity to verify their roster(s) of students?
5. How is the state working with districts that are already implementing teacher quality reforms based on student achievement data?

The Importance of Accurately Linking Instruction to Students to Determine Teacher Effectiveness, Battelle for Kids, www.DataQualityCampaign.org/resources/838.

Using Longitudinal Data Systems to Inform State Teacher Quality Efforts, The Partnership for Teacher Quality (AACTE and NEA), www.DataQualityCampaign.org/resources/952.

Element 5: Linking Teacher and Student Data, Data Quality Campaign, www.DataQualityCampaign.org/resources/485.



The **Data Quality Campaign (DQC)** is a national, collaborative effort to encourage and support state policymakers to improve the availability and use of high-quality education data to improve student achievement. The campaign provides tools and resources that will help states implement and use longitudinal data systems, while providing a national forum for reducing duplication of effort and promoting greater coordination and consensus among the organizations focused on improving data quality, access and use.

To download DQC resources, visit www.DataQualityCampaign.org. Or visit us on Facebook.