Timely Access to Education Data
Annotated Bibliography

Over the last two decades, states invested significant amounts of their funding to design, develop and implement statewide P-20 education data systems to collect, store and examine data. These systems were aptly named Longitudinal Data Systems (LDSs). Along the way, 13 SREB states won federal LDS grants to support their efforts. Some SREB states also used federal American Recovery and Reinvestment Act stimulus funds to support their state LDS efforts. LDSs offer states the potential to collect, analyze and share longitudinal education data from prekindergarten to the workforce — at each critical level: student, school, district and state.

As states embarked on this major technological push, they had to overcome significant challenges in policy and practice. To support their efforts, 10 national organizations launched the Data Quality Campaign (DQC) in 2005 to help states improve the collection, availability and use of high quality education data. The improved data and analysis help states identify trends that inform efforts to improve education and raise student achievement.

Ten years later, one major challenge states still need to overcome is the lack of timely access to education data. This bibliography highlights key studies related to developing LDSs and the importance of providing timely access to data and analysis.

Using data to improve education systems

1. **Means, B., Padilla, C., & Gallagher, L. (2010). *Use of Education Data at the Local Level from Accountability to Instructional Improvement*. U.S. Department of Education Office of Planning, Evaluation and Policy Development. Available online at www.ed.gov**

   The report reviews how school systems use data to improve education, and what processes schools and districts use to analyze data. It outlines three broad themes with respect to improving local use of education data systems. First, states and local districts need to support school leaders and help them align the structures within schools that use data, if data are to be used effectively. Second, efforts to promote data-driven decision making are more successful when implemented as part of a larger systemic effort to improve instruction for every student. And finally, providing timely and credible interim assessment data is key to motivating teachers to use data systems.

2. **Dougherty, C. (2010). *Using the Right Data to Determine if High School Interventions Are Working to Prepare Students for College and Careers*. National High School Center. American Institutes for Research. Available online at www.betterhighschools.org**

   A researcher from the National Center for Educational Achievement reviewed longitudinal data on students from Arkansas and Texas to assess student readiness. The report underscores the importance of data in helping to prepare students better for colleges and careers. Data analysis revealed that many students — especially black and Hispanic students and those from low-income families — did not meet college-and-career-readiness targets by grade eight. The report describes the data needed to look for patterns of student growth, plan interventions and promote student learning. It concludes that states should promote collaboration among state education agencies and other education related entities to build a statewide longitudinal database they can use to analyze student growth and improve intervention successes.

3. **Data Quality Campaign. (2014). *Paving the Path to Success: DQC Annual Report*. Washington, D.C.: Data Quality Campaign. Available online at www.dataqualitycampaign.org**

   The annual DQC report summarizes state progress in developing comprehensive state data systems that can link information across years and sources. In 2005, DQC identified 10 essential actions that states needed to complete to support the LDSs that most of the states had successfully adopted by 2009. At that time, DQC shifted its focus to effective state use of education data with the "10 action steps for effective data use," designed to ensure that states were using their LDS data effectively. This report reveals that while the majority of states have made progress on the 10 actions, many states have still not completed all 10 as of 2014.

4. **Reindl, T. & Reyna, R. (2011). *From Information to Action: Revamping Higher Education Accountability Systems*. NGA Center for Best Practices. National Governors Association. Available online at www.nga.org**

   Students need a better understanding of the job market and workforce needs in order to meet the demands of a highly competitive economic environment — and higher education must respond in turn. According to the National Governors Association, better education data systems will improve accountability and lead to greater higher education productivity. These accountability systems must include efficiency and effectiveness metrics; the data need to be used to make decisions that improve higher education institutions as a whole. While many states collect data, few states use these data to make decisions about improving and funding institutions. Data tools can be used to develop metrics for gauging student performance and targeting areas for improvement and for identifying policy options that can contribute to meeting goals. The report proposes metrics for credential completion, efficiency and effectiveness.

5. **Mullin, C.M. & Lebesch, A. (2010). *Moving Success from the Shadows: Data Systems That Link Education and Workforce Outcomes.* Policy Brief 2010-01PBL. Washington, D.C.: American Association of Community Colleges.**

   This policy brief calls for better data on the outcomes of higher education in meeting workforce needs and stronger linkages between education and workforce outcomes. Researchers examined assumptions that federal legislation makes about linkages between education and workforce outcomes and the data needed to document these. The authors also reported on how well current data systems capture the information necessary to link these education and workforce outcomes. Legislation to support statewide student-unit record systems helps in the implementation of LDSs. The authors call for states to create LDSs that have the capacity to link data between education and the workforce. Policies that increase this linkage must provide colleges with access to data systems and comprehensive employment data.

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Longitudinal Data Systems

6. **Dacey, B.E., Burke, N., & Chatis, C., et.al. (2010). *Book Two of Four: Planning and Developing an LDS*. In *Traveling Through Time: The Forum Guide to Longitudinal Data System.* National Forum on Education Statistics. Washington, D.C.: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.**

   This book, the second in a series of four guides on LDSs, explores key factors in their implementation. It offers best practices to assist state education agencies in strengthening ties with local school districts. The book explores the importance of interoperability and portability of data to school systems, in order to help them most efficiently harness the power of LDSs. The authors put forward evaluation systems and criteria to determine how LDSs function, and this publication also provides guidance on which data elements should be collected to meet stakeholders' information needs.

7. **Data Quality Campaign (2011). *Leveraging the Power of State Longitudinal Data Systems*. Data Quality Campaign. Available online at www.dataqualitycampaign.org**

   This report discusses two of the primary challenges states face with regard to effective LDS use: transforming data housed in current state LDSs into useful information and overcoming the human capacity challenges needed to accomplish this task. The human capacity challenges include identifying the type of analyses required, matching job skillsets to required analyses and acquiring individuals with the appropriate skills to carry out the work. The report indicates that state education agencies should ensure that personnel conducting analyses are properly trained. Even if states use external agents to carry out analyses, they need to maintain a minimum internal capacity to confirm the reliability and validity of the work. The report also stresses the need for common data vocabulary and definitions across multiple state data systems, so these systems can exchange data seamlessly.

8. **Mandinach, E.B. (2012). A Perfect Time for Data Use: Using Data-Driven Decision Making to Inform Practice. *Educational Psychologist*. (47.2), 71-85.**

   According to the article, data-driven decision making (DDDM) should be an essential component of educational practice at all levels, and it should receive policy and financial support. DDDM refers to the systematic collection, analysis, examination and interpretation of data to inform practice and policy in educational settings. DDDM should help to advance educational entities by transforming data into actionable knowledge that can then inform decisions and practices. In the past 10 years, education stakeholders have placed more emphasis on establishing data collection and rigor. Recent policy discussions have turned to using data most effectively. These researchers believe the key to DDDM is making technology tools available to education leaders and policymakers to support both data inquiry and data literacy. When school systems lack either, they face challenges using data to make informed decisions.

9. **Piety, P. (2011). Educational Data Use: A Sociotechnical Process. *Measurement* (9), 217-221.**

   The article describes educational data use as the interaction between users and data systems. Each state education system develops in its own sociopolitical context. Consequently, each state develops a unique sociotechnical process consisting of data analysis and reporting based on its state leadership and organizing principles.

Understanding of the interaction between users and data systems can help stakeholders grapple with how they make data-driven decisions, a necessity at times when states are designing and implementing complex data models to evaluate teacher and student performance over time.

Challenges to Longitudinal Data Systems

10. **Nowicki, J.M., Mascia, J., Gregory, J. & Hazra, N.R., et.al. (2014). Challenges in Matching Student and Worker Information Raise Concerns About Longitudinal Data Systems. *GAO Reports*. U.S. Government Accountability Office. GAO-15-27.**
    The Government Accountability Office (GAO) reviewed the status of state LDS initiatives that were awarded grants through the U.S. Department of Education's Statewide Longitudinal Data System Grant Program. GAO examined the extent to which grantees matched individual student and worker records and shared data between education and workforce sectors. It also reviewed how well grantees used longitudinal data to improve education and workforce outcomes. It found the number of grantees able to match data across systems decreases with the percent that are able to track unique individual records reliably among connected databases. Over half of grantees could track some individuals from early education to the workforce, but data were generally limited due to circumstances such as data tied to social security numbers and other privacy policies. Many grantees use data to produce early warning reports for students at risk of academic failure and to develop research agendas. Maximizing the potential of LDSs will rest with the ability to match information more fully on specific programs and characteristics of individuals that could help in further analyzing education and workforce outcomes.

11. **Buzick, H.M. & Laitusis, C.C. (2010). *A Summary of Models and Standards-Based Applications for Grade-to-Grade Growth on Statewide Assessments and Implications for Students With Disabilities*. Educational Testing Service. Available online at www.ets.org**

    This report summarizes how to ensure that LDSs are used accurately in accountability systems when reporting on students with disabilities. Reporting on these students poses practical challenges in measuring and monitoring growth. In order for LDS users to draw accurate conclusions about the performance of these students, analysts need to account for factors such as testing accommodations, grade-level performance and student-growth across testing programs.

12. **Means, B., Chen, E., DeBarger, A., & Padilla, C. (2011). *Teachers' Ability to Use Data to Inform Instruction: Challenges and Supports*. U.S. Department of Education Office of Planning, Evaluation and Policy Development. Available online at www.ed.gov**

    This exploratory study identified misconceptions or difficulties teachers are likely to have when trying to make data-driven decisions. The authors identify five skill areas teachers need to know to use data well. Teachers should be able to find the relevant data in the system, understand what the data signifies, analyze the data's relevance to student needs, select instructional approaches to address the data in relation to students' needs, and frame instructionally relevant questions. Before school staff can use data to transform instruction, those who lack LDS expertise will need professional learning related to data literacy, comprehension and interpretation.

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