

CAPACITY ENABLERS AND BARRIERS FOR LEARNING ANALYTICS: IMPLICATIONS FOR POLICY AND PRACTICE

AN EXECUTIVE SUMMARY

JUNE 2014



THE OPPORTUNITY

Significant improvements in technology tools and resources, the implementation of the Common Core State Standards (CCSS) and College and Career Ready Standards (CCRS), and the focus on personalized learning for all students provide an emerging context in which education systems may realize the value of learning analytics to inform teaching and learning.

THE POTENTIAL

The effective use of data and learning analytics are both critical components of a digital learning strategy to personalize instruction for many more students, especially to increase student achievement in the highest-need schools.

The learning analytics initiatives described in the full report are helping states and districts move from being data collectors to being data analyzers, able to use the vast amount of information being collected in a secure, practical, customized, and predictive system. Learning analytics applies techniques from information science, sociology, psychology, statistics, and data mining to analyze student information collected through the administrative process as well as during the teaching and learning experience.

The field of learning analytics builds on the earlier notion of using data for instruction and sets forth a more comprehensive view of what is possible. Although closely related, learning analytics is different from education data mining (EDM). Unlike EDM, which emphasizes system-generated and automated responses to students, learning analytics enables human tailoring of responses, such as through adapting instructional content, intervening with at-risk students, and providing feedback.



RECOMMENDATION

It is vital that policymakers and education leaders at all levels develop a clear understanding of the potential and rationale for learning analytics. Conducting research to support capacity building and policymaking is critical to the expansion of the field. Research on learning analytics should include case studies of districts that are making progress, analyses of successful state and district capacity-building strategies, and analyses of specific policies that enable learning analytics. A greater understanding of the field will help support the development of more effective strategies, tools, and policy resources for states and districts.

THE BIGGEST CHALLENGE: BUILDING CAPACITY

In many states, districts, schools, and classrooms, capacity limits the effective use of data and assessment to improve instruction in meaningful ways. In some cases, this is because of the overwhelming quantity of data without an organized approach to using it. In others, useful data is not available in a timely manner.¹ Regardless of the reason, education leaders must improve data policies and practices in the following ways:

Infrastructure & Technology

Provide infrastructure and technology that fosters transparency of student data between key stakeholders. These diverse and complex systems may include

- learning management systems;
- student information systems;
- formative or other assessment systems;
- interface systems;
- food/nutrition and other relevant non-academic data; and
- afterschool data.



Data-Informed Culture

Shift from a culture of compliance to a culture of school improvement by



- managing attitudes and knowledge around student privacy and data;
- using collaborative team approaches to the use of data for school improvement;
- making data analysis more user friendly and time efficient for teachers;
- ensuring that educators don't feel punished or fear ramifications for taking risks;
- focusing on the creation of learner-centered instructional strategies; and
- communicating clear expectations for measuring progress.

What does it take to build capacity for learning analytics?

Infrastructure & Technology

Fosters transparency of student data between key stakeholders safely and securely.

Learning Communities

Leverages data teams and online communities across districts and schools to share information.



Data-Informed Culture

Makes data analysis more collaborative, user friendly, and time efficient.

Ensures that educators don't feel punished for taking risks.

Human Capital

New roles within state, district, and school settings can help to bridge discussions on pedagogy and data.

Human Capital

Strengthen human capital at all levels of the educational system.

Interviews with education professionals in states, districts, and national organizations reveal that there are intense human capital needs at all levels of the education system.



States

State leaders must move toward ensuring that data is readily available and usable in local systems. This involves

- understanding district, school, and educator needs;
- collaborating with local education agencies to ensure that needs are met; and
- providing guidance and professional learning.

Schools

Human capital at the school level requires support for maintaining IT infrastructure and ensuring the fidelity of data. This involves

- setting a vision for the use of data to inform instruction; and
- working with library media specialists, data specialists, and instructional coaches to help teachers apply learning analytics.

Districts

District leaders should provide a clear vision for the use of data and play an important role in supporting a culture focused on strengthening human capacity. This involves

- providing the technical support to create and maintain complex systems; and
- helping stakeholders find meaning in the data.

Classrooms

To take on new roles as users of data and assessment systems, educators need access to support that is intensive, ongoing, and connected to practice. Time should also be allotted for administrators and educators to devote to their own professional learning. This requires

- having access to timely data; and
- acquiring the skills needed to design and analyze assessment data.

Learning Communities

Support teachers through professional learning communities. In addition to more traditional courses and workshops, districts should support teachers through



- **data teams and meetings** that include planning time for educators to identify useful data and/or develop skills in creating assessments;
- **intra-district communication** that enables district leaders and principals to consistently share information about data, grouped by schools with similar initiatives, to develop plans and address identified issues; and
- **leveraging social media and online communities** within Twitter, Edmodo, Facebook, Google Hangouts/webinars, and other educational organizations to expand knowledge and networks around the proper and effective use of data.

LEARNING ANALYTICS IN ACTION

State Trends

For at least a decade, states have been implementing longitudinal systems that collect well-defined data and information. In line with the Data Quality Campaign's suggested action steps, the following are a few of the states addressing the necessary enabling conditions of P–20 leadership, policy, and resources.

- **Kentucky**
Links K–12 and postsecondary data by developing feedback reports on high school characteristics, in-state postsecondary enrollment data, colleges and universities attended, college readiness, and ACT scores.²
- **North Carolina**
Developed a statewide cloud initiative to make data, assessments, and content agile and readily available at the state, district, and school levels. Merges the student information system and the instructional improvement system into one platform for educators, parents, administrators, and parents.³
- **Oregon**
Pairs professional development focused on instructional strategies with technical training to ensure that schools and districts can utilize the data on a regular basis and understand how to apply data to instruction.⁴
- **Rhode Island**
Enables educators to access curriculum, instruction and assessment resources, and data reports at the student, class, school, and district levels.⁵

“WITH A 40 PERCENT MOBILITY RATE, TEACHERS NOW HAVE THE INFORMATION THE NEXT DAY AFTER THE STUDENT MOVES. THEY DO NOT HAVE TO RETEST OR WAIT FOR DATA TO SHOW UP LONG AFTER A STUDENT BEGINS AT A NEW SCHOOL.”

—MIAMI-DADE COUNTY PUBLIC SCHOOLS

District Trends

In many districts, data and assessment systems are still in their infancy in terms of providing access to data through a dashboard or other digital workspace on a daily basis. These district examples illustrate the varying approaches to the implementation of data and assessment systems:

- **Miami-Dade County Public Schools, Florida**
The data initiative in Miami-Dade County Public Schools provides administrators, community members, parents, teachers, and students with a single sign-on and access to data that drives instructional practice.
- **Forsyth County Schools, Georgia**
With the advent of the Common Core State Standards (CCSS), Forsyth County updated its data platform and is in the process of aligning digital content to the standards and matching it to student learning style.
- **Dysart Unified School District, Arizona**
Dysart's primary data and assessment initiative is an electronic warehouse of information that includes student data, analytic tools, curriculum resources, and professional development opportunities for teachers.

- **Utica Community School District, Michigan**
Utica Community Schools has put in place data systems with the ability to share assignments, grades, and other information with parents and students; a calling system to inform parents of emergencies; and assessments to track and identify the needs of students for Advanced Placement and college and career readiness.
- **North Carolina State University and Wake County Schools, North Carolina (COBALT)**
The Friday Institute for Educational Innovation at North Carolina State University developed the COBALT program to support schools and districts in building capacity to evaluate their technology needs, including the use of data and assessment.⁶

POLICY CONSIDERATIONS

Federal Role

The federal government provides incentives, protections, and guidelines for the responsible use of learning analytics. The **Children’s Internet Protection Act (CIPA)**, the **Children’s Online Privacy Protection Act (COPPA)**, and the **Family Education Rights and Privacy Act (FERPA)** provide limitations on how and when to share student data with appropriate partners and educational entities.^{7 8} There are also a number of federal government programs that can serve as potential sources of funding for the implementation of learning analytics. These include

- E-Rate
- Connect2Compete (C2C)⁹
- Individuals with Disabilities Act (IDEA)¹⁰
- Elementary and Secondary Education Act (ESEA)
- Race to the Top (RTTP)¹¹
- Investing in Innovation (i3)¹²

RECOMMENDATION

Many different funding sources and programs exist that can be connected to the field of analytics when districts and states focus on the goal of improving student learning. Education leaders at all levels should consider how the range of available funding sources might better support the use of learning analytics through the creation of incentives and program guidance funding sources not traditionally accessed for learning analytics.

State Role

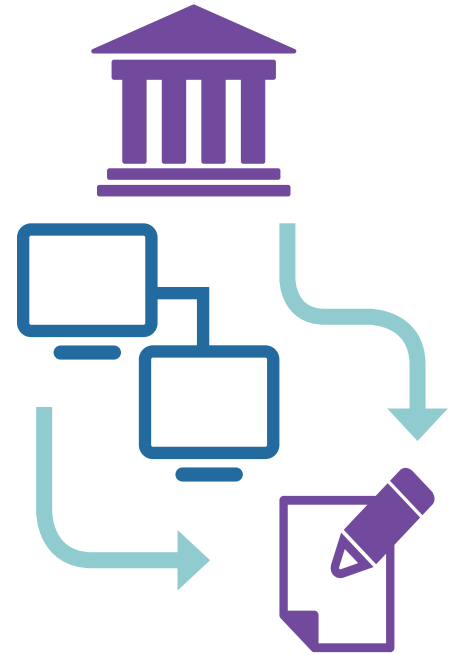
State policies can provide leverage to expand the effective use of data and assessments. Key policy drivers include the following:

1. The **interoperability and effective use of data systems** continues to be a struggle for states and districts, and the deeper application of data and assessments in learning analytics expands the need for disparate and/or complementary interactive systems.
2. The goals of the **Common Core State Standards, College and Career Ready Standards, and online assessments** are supported by the implementation of learning analytics.¹³
3. The way in which **new teacher evaluation systems** utilize student achievement data and other measures may provide an important leverage point for learning analytics that could ultimately improve teaching and learning.
4. **Competency-based learning** aligns with the potential of learning analytics as it focuses on allowing students to progress at their own pace while ideally personalizing the learning paths based on each student’s needs.

District Role

While efforts like seat time, teacher certification requirements, and reporting may be housed at the state level, districts have the opportunity to shape the approach, culture, and ultimate effectiveness of learning analytics.

- **Acceptable-use policies and responsible-use policies** protect students from potentially dangerous content on the internet; ensure that they do not harm others online; and provide them with access to digital content that supports their instruction without causing distractions.
- **Professional learning policies** that encourage teacher and administrator training and the use of learning analytics are necessary to fully utilize the potential of learning analytics.



RECOMMENDATION

Policies and guidelines at the federal, state, and district levels have a direct impact on the potential implementation and use of learning analytics. The set of recommendations below for federal, state, and district leaders will help ensure that policies enable rather than hinder the use of data.

- Federal education leaders should continue to clarify and provide technical assistance on FERPA and COPPA; work to increase the cap on E-Rate funding; and embed incentives that support learning analytics in the next ESEA reauthorization.
- State education leaders should consider policies that leverage Common Core State Standards and College and Career Readiness Standards; include learning analytics as a required aspect of teacher certification, preparation, and evaluation; ensure compliance with the Data Quality Campaign; and address the connection between learning analytics and competency-based learning.
- Local education leaders should consider policies that elevate learning analytics as an essential component of professional development and include adequate guidance on the responsible use of technology and student data.

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The Alliance for Excellent Education is a Washington, DC–based national policy and advocacy organization dedicated to ensuring that all students, particularly those traditionally underserved, graduate from high school ready for success in college, work, and citizenship. www.all4ed.org

ENDNOTES

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¹¹ U.S. Department of Education, “Race to the Top Fund,” <http://www2.ed.gov/programs/racetothetop/index.html> (accessed April 2013).

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