

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

JUNE 2014



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Acknowledgments

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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

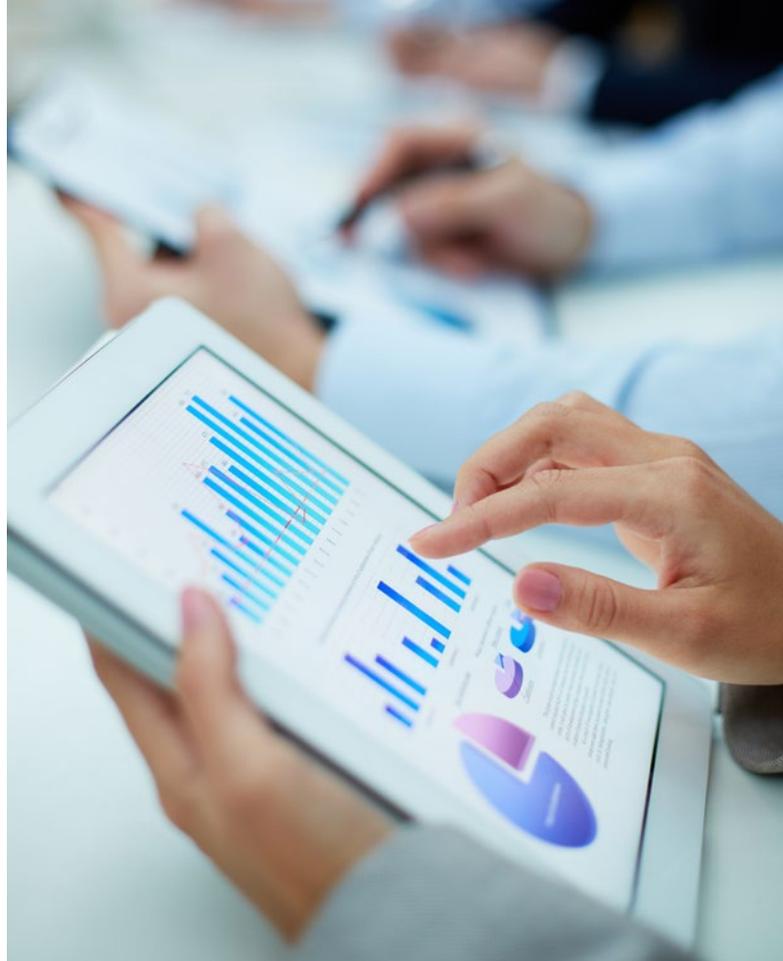
An executive summary of this paper is available for download at <http://all4ed.org/wp-content/uploads/2014/06/LearningAnalyticsExecSum.pdf>.

EMERGING APPLICATIONS OF LEARNING ANALYTICS

The field of learning analytics is being discussed in many circles as an emerging concept in education. In many districts and states, the core philosophy behind learning analytics is not entirely new; for more than a decade, discussions of data-driven decisionmaking and the use of data to drive instruction have been common. Still, the U.S. education system has not yet come close to reaching the potential of learning analytics. 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.

The Society for Learning Analytics Research (SoLAR) defines learning analytics as “the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs.”¹ Although closely related, learning analytics is different from education data mining (EDM), which develops methods and applies techniques from statistics, machine learning, and data mining to analyze data collected during teaching and learning. EDM tests learning theories and informs educational practice, while learning analytics applies techniques from information science, sociology, psychology, statistics, machine learning, and data mining to analyze data collected during education administration and services, teaching, and learning.

The National Educational Technology Plan addresses the purpose of using data and learning analytics in education: “The goal of creating an interconnected feedback system



would be to ensure that key decisions about learning are informed by data and that data are aggregated and made accessible at all levels of the education system for continuous improvement. The challenge associated with this idea is to make relevant data available to the right people, at the right time, and in the right form.”² Significant improvements in technology tools and resources, the implementation of the Common Core State Standards and the College and Career Ready Standards (CCSS/CCRS), and the focus on meeting the needs of individual students through personalized and digital learning have together provided an emerging context in which education systems have the opportunity to advance the values of learning analytics to truly inform teaching and learning. With access to data about a student’s achievement on a specific standard, ideal learning style, specific interests or activities, and digital content and activities that relate directly to the standard, the educator can make personalized decisions for that student.

Using data effectively to meet the needs of all students augments the potential for educational equity. The United States still has a significant dropout rate and a large achievement gap among students. The Alliance for Excellent Education reports,

Nationwide, only 72 percent of students earn a high school diploma. In the class of 2011, more than 1 million students dropped out before graduation. Among minority students, only 58 percent of Hispanic, 57 percent of African American, and 54 percent of American Indian and Alaska Native students in the United States graduate with a regular diploma, compared to 77 percent of white students and 83 percent of Asian Americans.³

As districts and schools strive to improve student achievement and increase graduation rates, with a focus on ensuring that students are prepared for college and a career, personalized learning supported by learning analytics can help meet the needs of individual students and change the very approach to equity. According to *Innovate to Educate*,

[e]ducational equity is not simply about equal access and inputs, but ensuring that a student’s educational path, curriculum, instruction, and schedule be personalized to meet her unique needs, inside and outside of school. Educational equity meets each child where she is and helps her achieve her potential through a wide range of resources and strategies appropriate for her learning style, abilities, and interests, as well as social, emotional, and physical situations.⁴

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

highest-need schools. The authors of the *NMC Horizon Report* on higher education found that “advancements in learning analytics have uncovered interesting applications that get to the heart of student retention and achievement by interacting with the student directly and continuously.”⁵

The education landscape has changed in a number of ways due to increased access to educational resources and digital content and advancements in assessment and data systems. These improvements have affected the potential seamlessness and agility of connecting assessment data, other pertinent information about student learning styles, interests, and effective instructional strategies, and specific digital content, activities, and learning paths. Marie Bienkowski, Mingyu Feng, and Barbara Means write, “The significant move to and emphasis on blended and student centered learning in the education landscape provides a welcome opportunity to introduce this robust data that more effectively and efficiently informs educators on the individual student learning pathway and trajectory ... Learning analytics provides the opportunity to create applications that directly influence educational practice.”⁶

THE EFFECTIVE USE OF DATA AND LEARNING ANALYTICS ARE BOTH CRITICAL COMPONENTS OF A DIGITAL LEARNING STRATEGY TO PERSONALIZE LEARNING FOR MANY MORE STUDENTS, ESPECIALLY TO INCREASE STUDENT RETENTION AND ACHIEVEMENT IN THE HIGHEST-NEED SCHOOLS.

For many years, states and districts have invested in longitudinal data systems, and almost all states have now met the requirements of the 10 Essential Elements of the Data Quality Campaign (DQC), but only incremental progress has been made in using the data to improve instructional practice:

Creating the conditions that support effective data use is doing more than collecting data and ensuring that each person—whether a student, teacher, or legislator—has the information he or she needs in the format and at the time he or she needs it. It entails promoting data ownership and trust, building end users’ capacity to use data responsibly, and focusing on using data for continuous improvement, not to shame or blame.⁷

Many states, districts, and schools that have been making sincere efforts to use data are recognizing that the increased efforts around longitudinal data systems, the collection of more data digitally, and online assessment systems may not be informing instruction on a regular basis. These systems provide more data and expanded access to information, but this has not necessarily been able to inform instructional decisions to help ensure equity for individual students.

Several potential negative ramifications, such as a lack of data privacy or labeling, are sometimes mentioned in relation to states, districts, and schools using learning analytics and data to drive instruction. Recently, the issues around new assessments and data privacy have become much more prevalent in the news and in national, state, and local discussions. Parents and others in the community are expressing concern about who has access to data and the potential use or misuse of the data. Legislators in many states have also become engaged in this discussion. *Education Week* reports, “Spurred by concerns that the rise of education technology and the increasing prevalence of new assessments will place student data in unreliable hands or be put to nefarious uses, lawmakers in dozens of states have acted this year to clarify who has what access to student data and to specify the best practices for shielding that data.”⁸ This has resulted in eighty-three bills in thirty-two states in the 2014 legislative session alone.⁹ The proposed legislation and rhetoric in communities and among parents often focus on the fear of mishandling of data and leave out discussion about why the data may be important for student learning. Whether or not the resistance to using student data has to do with the possibility to impact instruction and learning is not evident because the arguments quickly point to why or how the data could be misused.

Some arguments focus on third parties being able to garner information about students, while others may fear that there will be teaching to the tests or inadvertent labeling of students. Learning labels may be intended to help guide the most appropriate instruction for students, but they can instead pigeonhole students into a certain track of courses. These may be valid concerns. The education system that sincerely approaches learning analytics as a way to improve and personalize the learning



EDUCATION SYSTEMS MUST CONSIDER CAPACITY IN INFRASTRUCTURE AND HUMAN CAPITAL, DATA USE CULTURE IN SCHOOLS AND COMMUNITIES, AND POLICIES THAT ENABLE THE MEANINGFUL USE OF DATA TO EFFECTIVELY APPLY AND USE LEARNING ANALYTICS.

of each individual student should stay focused on just that: the student. Systems must continuously come back to the data that is needed to help educators make instructional decisions, as well as to the information that will help parents understand what their child needs to succeed. If this occurs, it will help alleviate fears and ensure that learning analytics is being used for its intended purpose.

The learning analytics initiatives described in this document 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. Ultimately, many of the examples provide a glimpse into how districts are preparing to take advantage of learning analytics to meet the needs of each student. This transition is not just about implementing new or better data or assessment systems, or even improving the analysis of data. Education systems must consider capacity in infrastructure and human capital, data use culture in schools and communities, and policies that enable the meaningful use of data to effectively apply and use learning analytics.

CAPACITY FOR IMPLEMENTATION OF LEARNING ANALYTICS

Although progress has been made in recent years with state-level longitudinal data systems and, in many cases, district-level data and assessment systems, the impact of data and assessment on day-to-day instructional practices continues to be sporadic and inconsistent in most districts and schools across the country. In a study of the implementation of student information systems (SIS) and learning management systems (LMS), typically related to systems integral to learning analytics, Gartner, Inc., found that almost 70 percent of information technology (IT) professionals reported that the use of data by the teacher was not a focus of the implementation plan.¹⁰ Unfortunately, leaving teachers out of the equation in system implementation limits the potential for learning analytics. Learning analytics offers teachers and teams of teachers as well as school and district leaders a much clearer picture of student achievement, with detailed information to inform school reform efforts. Using the data as an academic improvement tool, not as a way to judge teacher effectiveness, provides teachers with time to reflect and differentiate instruction in ways that did not exist even five years ago. However, the lack of capacity in many states, districts, and schools limits the use of data and assessment in a meaningful way. 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. Regardless of the reason, states, districts, and schools must build and improve capacity to experience the potential of learning analytics to improve student outcomes.¹¹

First, improving capacity involves ensuring that staff members and leaders understand the potential of learning analytics and have the knowledge, skills, and professional learning opportunities to implement the system. Second, it includes putting the necessary infrastructure and technology in place. Third, it involves revising and developing policies that support data and assessment. The Data Quality Campaign has found that

[s]upporting the effective use of data at all levels requires building the capacity across all systems and stakeholders in three critical areas: investing in the IT and infrastructure to ensure that it is supporting growing policy and practice demands; rethinking the roles and relationships between states and districts, and across P–20/W sectors to ensure data flows seamlessly and efficiently; and focusing on investing in people—including parents, educators, and school and district leaders—by ensuring that stakeholders at every level have the capacity to access and use data.¹²

Building capacity includes the following four components:

- a culture of data-informed decisionmaking;
- adequate infrastructure and technology;
- human capital; and
- professional learning opportunities for administrators and educators.

A Culture of Data-Informed Decisionmaking



The culture in a district and its schools must support data-informed decisionmaking. According to the DQC, “[f]ield experience has shown that managing people’s attitudes towards data use and perceptions of its value is just as important as empowering them with the hard skills necessary to use those data. Developing more nuanced understandings of data systems and people’s relationships to them will be equally as important.” This culture includes empowering administrators and educators to use data on a regular basis to improve student learning.

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.

The SAS reported,

To have a successful reporting and analytics initiative, you need more than just executive approval of a budget to purchase software. You also need to have executive sponsorship at the highest level—someone who fully understands the value that reporting and analytics can bring to the district or institution and has a vision for using it to transform school, program and student outcomes for the better.¹³ Districts and schools must also demonstrate the priority placed on using data by developing robust systems that provide relevant data, but administrators must also help educators make time to determine and analyze appropriate data points and connect outcomes and information to teaching and learning. Currently, many districts and schools report that their data and assessment systems may not meet the needs of educators and administrators. In a study of more than 1,800 individuals, district and school leaders and teachers reported that student information systems and learning management systems do not currently meet their needs.¹⁴ Additionally, leaders and teachers agree that several barriers exist in the school culture for the meaningful use of data.

Educators should not feel punished or fear ramifications for utilizing more data or for taking the risk of implementing new instructional strategies based on data and assessments. If district and school leaders establish the commitment to using data to improve student learning—with the student at the center—and include the educators in the development and ownership of using learning analytics, the culture will slowly grow to one in which using data is assumed and valued. This also raises the importance of leaders expecting educators to utilize data, rather than data use being optional. The Alliance for Excellent Education finds that



[a] true shift to a learner-centered environment, including new roles for teachers and effective professional learning opportunities, requires a strong culture that embodies, encourages, and focuses on the needs of each student ... Administrators, teachers, students, and parents must all have a commitment to personalized and collaborative learning, and educators must be empowered to use innovative approaches for learner-centered instruction. Teachers must also have the support systems and professional learning opportunities to develop and continue to grow their skills and access the resources needed.¹⁵ Currently, many districts and schools are still struggling to ensure this trust and positive culture. According to Gartner, Inc.,

[s]imilar to school leaders and teachers, district leaders report that the current educational climate and culture breeds feelings of mistrust and a focus on content rather than teaching and learning. District leaders report that the vision and expectations for how to use data to impact student learning are not well communicated and leave teachers questioning how the data will truly be used.¹⁶

Adequate Infrastructure and Technology



The infrastructure and technology required for learning analytics are vast and diverse and frequently incorporate the data and assessment systems at the state and district levels. These are typically separate systems that ideally work together to support sharing of data and benefits to the district based on the submitted information. As referenced, most states have now met the Data Quality Campaign’s 10 Essential Elements; however, almost all continue to build on these initial systems to work with districts.

The DQC has found that “[w]hile states have made progress in building P–20/W data systems, there is still work to be done; districts—with the exception of large, higher capacity districts—are further behind.” At the district level, infrastructure requires broadband access, hardware, and complex systems. District infrastructure also may include learning management systems, student information systems, formative or other assessment systems, and interface systems to provide data in a usable format. Additionally, some districts see benefits from incorporating food and nutrition information, transportation systems, and afterschool data. Interoperability among systems at the district level, and ideally at the state level, also dramatically changes what is possible with learning analytics.

Human Capital



Interviews with education professionals in states, districts, and national organizations reveal that there are intense human capital needs at the state, district, and school levels to implement learning analytics. Unlike educational data mining, 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.¹⁷ Building human capacity requires understanding and identifying the needs in the education system at all levels.

States

States have focused heavily on building the infrastructure to collect, maintain, and report on longitudinal state data, but now must move toward ensuring that data is readily available and usable in local systems, along with a culture to support applying this data to instructional decisions. The DQC reports,

States are taking steps that will support effective data use, but the hardest work remains. Every state has built robust statewide longitudinal data systems that collect quality data beyond test scores. However, states have not taken the necessary steps to support a culture of effective data use. To foster a culture in which education data are used for continuous improvement, they now need to focus on ensuring their data efforts meet the needs of end users.¹⁸

Capacity at the state level requires individuals who understand district, school, and educator needs, who collaborate with local education agencies to ensure that reports and other data access are meeting needs, and who provide guidance and professional learning opportunities to increase understanding and meaningful use of data. According to the DQC’s 10 State Actions, only five states have met the action criteria to ensure that stakeholders can access, analyze, and use longitudinal data.¹⁹ Similarly, only six states (up from three in 2011) have built the necessary capacity, through policies and practice, to enable the effective use of longitudinal data.

Districts

The sophistication of district data and assessment systems and the need for these systems to communicate across the district and its schools, the state, and, frequently, outside stakeholders have increased the need for human capacity. Districts speak frequently about the importance of working across departments to ensure that the IT department or the chief technology officer works with the instructional or educational technology, curriculum and instruction, and assessment departments. The collaboration at the district level provides a clearer vision for the district and its schools and plays an important role in creating a culture that builds the human capacity in which data and assessments immediately affect instruction. Districts also need to ensure that IT support exists to create and maintain the complex systems needed to use learning analytics.

To capitalize on the potential of data and assessment, and specifically “big data,” for student learning, districts need dedicated professionals with the analytical and technical

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AND CREATING NEW RESEARCH
TOOLS.

ability to develop and manage the necessary systems and help stakeholders find meaning in the data that can readily be applied to students' learning paths. “Today, teachers and school leaders are surrounded by many data reports and often are frustrated by how much work is required to sort the useful from the useless,” Bienkowski, Feng, and Means write. “Data Dashboards need to be adapted to everyday users.”²⁰ Most districts and schools do not currently have this capacity, and districts that do have personnel with the critical skills may not be maximizing the potential with a common vision and collaboration.

Roy Pea, Stacey Childress, and Constance Yowell write,

Creating a talent base of education data scientists with deep analytical talent won't happen overnight. It will require prioritizing resources, developing a professional infrastructure, and creating new research tools. It will necessitate changes in education policies and a new social contract that strikes an appropriate balance between protecting privacy and drawing on large volumes of learning data to advance education outcomes. And it will require strengthening collaboration among academy, industry, practice, government, and private foundations.²¹

Schools

Human capital at the school level requires support for maintaining the critical IT infrastructure and tools, ensuring the fidelity of collected and analyzed data, and helping educators and administrators apply learning analytics to sound instructional decisionmaking. Schools must keep in mind the importance of IT support to keep everything running. Key positions that many districts and schools say are critical to their endeavors include library media specialists, instructional coaches, and data coaches.

Educators

Personalized learning must keep students and student learning at the center of the design and implementation of instruction. As education systems transition to digital and personalized learning, educators are taking on new roles, including that of “user of data and assessments.” The Alliance for Education reports,

For true learner-centered instruction, teachers need to have a better understanding of what students know and understand and how they learn most effectively. Technology allows teachers more immediate access to data and assessments, ideally including learning-style preferences and feedback from other teachers, and to focus more on formative assessment to drive instructional decisions. Formative assessments are ongoing check-ins or assessments that provide data to teachers immediately or in a timely manner. Based on effective use of data, teachers can make decisions about what a student needs to learn and the most appropriate content and activities to support deeper learning. The new InTASC Model Core Teaching Standards emphasize that “teachers need to have greater knowledge and skill around how to develop a range of assessments, how to balance the use of formative and summative assessment as appropriate, and how to use assessment data to understand each learner’s progress and adjust instruction as needed.”²²

Professional Learning Opportunities for Administrators and Educators



Professional learning opportunities are important to building the kinds of culture and human capital that allow learning analytics to have an authentic impact on student learning. In their survey of education leaders and teachers, Gartner, Inc., finds that “[a]lmost 75 percent of teachers report that professional development content is weak

for SIS solutions and over 66 percent of teachers report that professional development content is weak for LMS solutions. More than 60 percent of teachers report that it is difficult or they are unsure how to incorporate data from SIS and LMS solutions into curriculum and classroom activities.”²³ As evidenced by this snapshot of educators’ perspectives, opportunities cannot be brief, stand-alone workshops but instead should support the qualities of effective professional development. According to Linda Darling-Hammond and her colleagues, teacher training opportunities should

- be intensive, ongoing, and connected to practice;
- focus on student learning and address the teaching of specific curriculum content;
- align with school improvement priorities and goals; and
- build strong working relationships among teachers.²⁴

In supporting the culture needed for true implementation of learning analytics, time should be allotted for administrators and educators to devote to their own professional learning. In addition to more traditional courses or a series of workshops, several other professional learning approaches were identified by the districts interviewed, including the following:

- **Data teams or professional learning communities (PLCs):** Many schools establish data teams or PLCs to encourage the ongoing discussion and growth in skills around using data and assessments to inform instruction. In some schools, these teams or PLCs are created based on grade level or content area. In general, schools set aside a certain planning time, whether common planning time during the school day or hours created through early dismissals or late starts. This time allows educators to identify useful data, understand the data provided through reports or data dashboards, and/or develop skills in creating assessments to support learning. Districts

such as Arlington County Schools in Virginia and Utica Community Schools in Michigan and the state of Oregon, discussed in the following section, have implemented this approach to increase capacity.

- **Data Com:** Miami-Dade County Schools in Florida has worked to increase administrator capacity through the use of dashboards, but perhaps more interestingly through a process called Data Com. The district holds periodic meetings with district leaders and principals, grouped by schools with similar initiatives, to dig into the data and develop plans to address identified issues. This supports learning how to interpret the data and determining the next steps.
- **Social media:** Many districts and educators across the country share that they engage in informal professional development through social media to learn more about using data and assessment to improve and personalize learning. Educators rely on Twitter, Edmodo, Facebook, webinars, and information from other educational organizations to expand their knowledge and networks. Although these pathways are not typically connected to district or school professional learning, teachers and administrator leaders often bring back what they learn to school- or district-based discussions.

One caution that emerges with this increase in the focus on professional learning around data and assessment is that the emphasis on learning analytics needs to truly connect with personalizing learning in terms of instructional strategies, content, and curriculum. Without this connection, data and assessment can instead lead to teaching to the test or being afraid of implementing student-centered learning. Viewing learning analytics as central to personalized learning and improving student learning creates a positive lens through which to view professional learning opportunities and collaborative work.

Policies at all levels of the education system, including those related to data access, privacy, informed consent,

and ownership, are also important to creating an environment in which learning analytics can thrive and improve education. Policies and the ways in which they enable or hinder the implementation of learning analytics are the basis for the capacity-building work discussed in this section and will be expounded on later in the paper.

TRENDS IN NATIONAL, STATE, AND DISTRICT EXAMPLES OF LEARNING ANALYTICS IN ACTION

Trends in National Efforts That Support Learning Analytics

Taking the initial work and vision of data and assessment systems and applying the potential and additional components of learning analytics require shifts at all levels of the education system. State and federal initiatives such as inBloom and the Learning Registry demonstrate the potential, interest, and investments in learning analytics and new strategies to support personalized learning and the use of data to make this shift. The increased focus includes education systems as well as the business and technology industries. Stephanie Simon writes, “The sector is undeniably hot; technology startups aimed at K–12 schools attracted more than \$425 million in venture capital last year, according to the NewSchools Venture Fund, a nonprofit that focuses on the sector. The investment company GSV Advisors tracked 84 deals in the sector last year, up from 15 in 2007.”²⁵

The Learning Registry, a joint effort of the Departments of Education and Defense, also reflects the vast and untapped marketplace for customizable learning solutions that will presumably spur innovation in the K–12 environment. The Learning Registry is designed

to encourage the sharing and use of digital learning resources as described in both the National Education Technology Plan and the National Broadband Plan. The Learning Registry will be an open technology framework that will offer all educational content developers an opportunity to contribute, including for-profit corporations, nonprofit entities, colleges and universities, and educators. By harvesting and analyzing the submitted data, the Learning Registry will allow educators to quickly find content that is specific to their unique needs; it will also allow sharing of ratings, comments, downloads, and standards alignment to help educators personalize instruction in more meaningful ways for every student.²⁶

InBloom was an example of foundations working to create a collaboration with several states and pilot districts to develop systems that could leverage data, content, and tools for educators to help personalize learning. The goal of this collaborative was to ensure that the middleware existed to help participating states and districts share a

THE LEARNING REGISTRY WILL BE AN OPEN TECHNOLOGY FRAMEWORK THAT WILL OFFER ALL EDUCATIONAL CONTENT DEVELOPERS AN OPPORTUNITY TO CONTRIBUTE, INCLUDING FOR-PROFIT CORPORATIONS, NONPROFIT ENTITIES, COLLEGES AND UNIVERSITIES, AND EDUCATORS.

secure technology infrastructure to integrate data, align services and applications, and partner with companies to streamline processes to foster personalized learning strategies for teachers.²⁷ Simon notes, “Local education officials retain legal control over their students’ information. But federal law allows them to share files in their portion of the database with private companies selling educational products and services.”²⁸ This sharing of data and connecting data to potential content and curriculum provided the underlying platform that had the potential of leveraging multiple data sets into one easily navigated dashboard that would offer teachers an opportunity to respond much more effectively to each student’s learning needs. While inBloom charted new territory in developing a platform, it also became a lightning rod for concern and criticism by parents and other stakeholders in the name of data privacy. The states that initially agreed to partner with inBloom slowly decided not to participate, and inBloom announced in April 2014 that it would begin winding down operations.

While these two national examples indicate that efforts around learning analytics are becoming more comprehensive and sophisticated, the response from parents and other groups, especially to inBloom, has included tremendous concern about data ownership and sharing of personal information about students. The information is protected by federal laws and policies as described in the policy section, just as with other initiatives and systems that involve student data. However, parents fear the slippery slope of access to their children’s information, and questions will continue to be raised about privacy and security issues. Finding the balance between the need to access data in order to take advantage of the potential of learning analytics and the fear about privacy and security issues will certainly need to be addressed in the near future.

Trends in State Efforts That Support Learning Analytics

For at least a decade, states have been implementing longitudinal systems that collect well-defined data and information. As states expand their efforts to connect with districts and develop the capacity to support data application, they are recognizing many different avenues for leadership in working with districts and schools. The DQC challenges states and districts to continue to expand the initial gains realized through the statewide data systems and reports to provide meaningful information to districts: “To change the culture of education data, states need to not only create enabling state conditions—such as P–20W leadership that spans early childhood through postsecondary and the workforce; policies that support data systems and use; and resources including time, money, and staff that are conducive to effective data use—but also determine their role in creating enabling local conditions.”²⁹ Several states are assessing the specific district-level needs to determine the most effective programs and initiatives to implement at the state level. For some states, this involves improvements to infrastructure and broadband, while for others it focuses directly on the need to build human capacity to address data analysis and personalized instruction strategies at the state, district, and school levels.

State efforts to move forward in the use of data and assessment at all levels frequently support the critical components to implementing learning analytics. Although the state initiatives provide only a few examples of the work going on in states, some key themes quickly emerge:

- States understand the need to help build capacity for administrators and educators to utilize data in a meaningful way. While districts are at different points in terms of infrastructure and understanding of data, states like Oregon and Kentucky are working

to provide more readily accessible and usable information and training on how to most effectively apply the data to inform teaching and learning.

- States are also supporting the infrastructure and systems needed—beyond the longitudinal data system—to make data and assessments more accessible and effective. North Carolina and Rhode Island are expanding the initial definition of state systems to help support access to storage, systems, digital content, programs, and assessment items and engines.

In line with the DQC’s suggested action steps, the following states are addressing the necessary enabling conditions of P–20 leadership, policy, and resources.³⁰

Kentucky

In striving to ensure that students are prepared for college and careers, districts in Kentucky and several state organizations recognized that secondary schools did not necessarily have a clear understanding of their students’ pathways and achievement beyond high school. Kentucky decided to tackle linking K–12 and postsecondary data by developing high school feedback reports. The reports are developed by the P–20 Data Collaborative through a partnership with Kentucky’s Council on Postsecondary Education, the Kentucky Department of Education, and the Kentucky Higher Education Assistance Authority. The student report provides information related to high school characteristics, in-state postsecondary enrollment data, colleges and universities attended, college readiness, and ACT scores.³¹ Readiness information is provided for college-level math and English.³² District leaders, principals, and teachers at Kentucky’s secondary schools can now see specific data about the choices students make after high school and their success or failure in college or a career. This access to data changes how school leaders approach teaching and learning, how they

define the term “college and career ready,” and how they develop remediation options at the high school level. According to the DQC, “Kentucky reports an increase in postsecondary enrollment from 50.9 percent in 2004 to 61.4 percent in 2010. Although no single initiative is solely responsible for this increase, the state believes that providing this information to stakeholders is a key driver.”³³

North Carolina

North Carolina is investing significantly in infrastructure and technology to ensure that districts have what they need to utilize data and assessments effectively. This includes access to the cloud and the wireless technology to support implementation and use. Through federal Race to the Top (RTTT) funding and state collaboration and leadership, North Carolina is developing a statewide cloud initiative (NC Education Cloud) to create infrastructure at the state level and within districts and schools. The NC Education Cloud’s website outlines that the cloud will provide “highly available, server infrastructure supporting the K–12 education enterprise statewide” and that “the NC Education Cloud Identity and Access Management System (IAM) shall provide every K–12 student, teacher, staff member, parent/guardian, and school community member in North Carolina an account, with a single username and password, that will enable access to cloud-based learning resources.”³⁴ Funding includes approximately \$34 million at the state level, and RTTT funding distributed to the districts also helps to provide additional technology, support, and professional development for instructional purposes.

The cloud initiative strives to make data, assessments, and content agile and readily available to address students’ needs. The state recognizes that it must ensure that districts and schools have the leveraged

capacity—defined as the use of technology to impact curriculum and instruction—to support student achievement.³⁵ In addition to the NC Education Cloud, through RTTT funding the state is also merging the student information system and the instructional improvement system into one platform to provide access to data and resources to educators, parents, administrators, and parents.³⁶ The capacity also includes the need to maximize the potential of the cloud effectively, as well as to develop the policies related to data ownership and privacy.

Although the initiative is still in progress, many districts already report that RTTT funding has helped to accelerate the implementation of digital learning and the use of data and assessments.

Oregon

Oregon’s Direct Access to Data (DATA) program provides training to help build capacity in understanding and applying data to instruction. Professional development for instruction is paired with technical training for data stewards to ensure that schools and districts can utilize the data on a regular basis. In conjunction with access to key student data, strands include data to improve learning in districts in schools, data to improve learning in classrooms, and the application of data to reading instruction. Funded through an Institute of Education Services grant, the project relies on partnerships throughout the state and in-service and pre-service programs for educators. The DQC reports that the program provides direct training but also works through regional centers to develop data teams and professional learning communities and train-the-trainer opportunities for each district to support and sustain the ongoing efforts.³⁷ Results from the DQC indicate that the DATA project is having an impact on teachers and schools: “Participating schools were closing the achievement gap at a faster rate than schools without access to data training ... Teachers in participating schools

felt more comfortable using data in their classrooms, suggesting a culture change around data use.”³⁸

Oregon’s investment in human capital has built on the important work of developing a longitudinal state data system. While states have made remarkable progress in their efforts to implement statewide longitudinal data systems, collecting data alone is not enough to improve student learning. Neither is making data available to educators sufficient to drive use. Targeted training empowers educators to incorporate data use into their efforts to improve instructional practices, which leads to improved student learning. Consequently, states can ensure that investments in data systems are maximized by building the capacity of educators to use the data.³⁹

Rhode Island

The Rhode Island Department of Education partners with districts and schools to apply a multifaceted approach for “enhancing existing assessment infrastructure, increasing assessment literacy, and assisting with the development of comprehensive assessment systems across the state. The instructional management system (IMS), launched in 2012, is a single sign-on, web-based platform that houses curriculum, instruction, and assessment material and data.”⁴⁰

The statewide IMS allows educators to access curriculum and assessment resources and helps build capacity through formative assessment modules on strategies for developing and implementing assessments. The IMS provides educators access to data at the student, classroom, school, and district levels as well as specific reports to support instruction. The state system also supports the development and use of interim assessments through a test-item bank and a development engine that allows districts to create and score assessments.

Trends in District Efforts That Support Learning Analytics

Although districts may not yet specifically consider their data and assessment efforts to be part of the field of learning analytics, they are also making progress and building a foundation for this meaningful use of data to inform instruction. The district examples illustrate that the implementation of data and assessment systems varies widely in approach and progress depending on needs, priorities, and resources. Several trends emerge from the district examples in terms of efforts being made that will directly enable or support the move toward learning analytics:

- In some way, each district is working to build human capacity in the use of data and assessment among administrators and teachers. Whether through data teams, ongoing professional learning opportunities, or formal discussions with district and school teams, each district recognizes that using data and assessments effectively to impact instruction requires work, knowledge, and time.
- The connection of data and assessments to instruction is a work in progress in almost every district and can be further improved by the use of aligned digital content and resources. In some districts, the analysis of data and connection to the content or other activities is a very manual process; other districts have begun to use analytics, if even on a program-by-program basis, to immediately connect student performance with specific strategies or activities.
- In many places, the data and assessment systems are still in their infancy in terms of providing the critical information at an educator’s or administrator’s fingertips through a dashboard or other digital workspace on a daily basis.

Miami-Dade County Public Schools, Florida

The data initiative in Miami-Dade County Public Schools has several different components to make data more accessible and actionable. This district of approximately 345,000 students developed a robust portal that allows administrators, community members, parents, teachers, and students, with a single sign-on, access to data in a defined method. This includes information from the data warehouse to drive instructional practice.

Educators and administrators use state and local interim assessments to direct students to different online resources and tools, and students are exposed to certain instructional tools based on FCAT assessments. Students are assigned to paths, but educators and administrators revisit those paths based on interim assessments and realign them as appropriate. Principals are provided specific views of the data consistent with that for educators, parents, and central office staff using a very straightforward approach, assigning a system of red, yellow, and green indicators denoting “not ready,” “making progress,” and “standard achieved.” Reports for principals are updated nightly and are exportable to a spreadsheet that provides immediate viewing through drop-down menus of various No Child Left Behind student subgroups (i.e., free or reduced-price lunch students, African American students, and so on).

The district has created reports for teachers specifically tailored to their needs. Teachers have incentives to review models to support student learning and also to help them earn the pay-for-performance options available in the district. Miami-Dade has worked hard to ensure that everyone receives the same information. With 20,000 teachers in the district, this has been a difficult task, and Miami-Dade has found that capacity building takes between five and seven years in an urban district to achieve. The superintendent has made using data a high

“WHAT MAKES DATA SO POWERFUL IS THAT THE DISTRICT STARTED BUILDING THE DATA WAREHOUSE YEARS AGO TO BRING ALL INFORMATION TOGETHER IN ONE SYSTEM, INCLUDING TESTING, FOOD & NUTRITION, BUSINESS, ETC. THIS TIED ALL INFORMATION TOGETHER. WITH A 40 PERCENT MOBILITY RATE, TEACHERS NOW HAVE INFORMATION THE NEXT DAY AFTER A STUDENT MOVES. THEY DO NOT HAVE TO RETEST OR WAIT FOR DATA TO SHOW UP LONG AFTER A STUDENT BEGINS AT HIS NEW SCHOOL.”

—Miami-Dade County Schools

priority, and the perception of the importance of data is becoming institutionalized.

About five years ago, Miami-Dade developed Data Com, a uniform, standardized process that combines the use of data with consistent communication. The initiative was designed to offer principals, regional superintendents, central office staff, and the superintendent the opportunity to review data and create tangible next steps to address any challenges or issues reflected in the data. Many principals are present for the Data Com meetings, but the discussions allow the group to focus on one school and its data at a time. Principals are asked questions based on the analysis of the data, and then engage in a discussion with the superintendent and others to determine what additional resources are needed to help students who are not meeting expectations. Initially, the principals reported on their data; this year, however, the district reflected on

and revised the protocol. Instead of principal reporting, several principals (at various levels of performance) gather to discuss the issues and concerns made evident by the data. The district is finding that this approach, with principals grouped based on initiatives in their schools, is providing opportunities for collaboration and sharing of resources. High school principals meet three times a year in day-long meetings, and elementary and middle school principals meet twice a year, following each benchmark.

Forsyth County Schools, Georgia

Building capacity happens over time. Seven years ago, Forsyth County started looking at trend data—in three-year durations—to get a better idea of the big picture. At the same time, it established data teams in all the schools to review student data on a regular basis. With the advent of the Common Core State Standards, the county is moving from the state-mandated test to drilling down to the granular level. Forsyth County updated the data system platform and is in the process of updating the digital content to tag it to the CCSS, identify the digital content by type, and match it to student learning style. Additionally, the data system is now linked to the learning management system and provides immediate feedback to the teacher on summative and formative assessment; it also includes longitudinal data.

Longitudinal data is important because it describes who the student is and indicates what has or has not been successful for the student in the past. Response to intervention is a meaningful record of the plan, but it doesn't drive instruction on a daily basis. Teachers need to know information about the whole student in order to adequately personalize instruction. Teachers utilize the data to determine a student's learning style in order to decide the best content and curriculum to use, and to do so as efficiently as possible. As teachers plan

lessons, they can search for digital content that is already aligned to the CCSS. When students take the CCSS assessments, the responses will trigger recommendations about what type of content teachers should assign to particular students. In this environment, the goal is to determine what standards a student does and doesn't understand. With this knowledge, teachers can accelerate or remediate, as necessary, for each individual student.

Forsyth County has identified some of the barriers to implementing learning analytics: technology is constantly and quickly changing, and there are capacity issues with RTTT and national efforts to revise teacher and leader evaluations, as well as federal reporting requirements. Forsyth is working to develop the human capital and leadership necessary to collect and manage the massive amount of data needed to meet these requirements. The lack of interoperability poses problems throughout the education community and often places more of the burden on local districts. Often, districts only want modules and not entire systems, increasing the potential for interoperability.

“START WITH AN EXERCISE IN LEARNING HOW TO ASK THE RIGHT QUESTIONS. WHAT REALLY ARE THE ISSUES? THERE ARE BASKETS FULL OF DATA THAT DON'T ANSWER ANY OF THE QUESTIONS THAT WE NEED TO BE ASKING. ONCE YOU KNOW WHAT ANSWERS YOU NEED, LOOK AT THE DATA TO SPECIFICALLY GET ANSWERS OR SUGGESTIONS.”

—Sue Derison, Forsyth County Schools, Georgia

Dysart Unified School District, Arizona

Dysart Unified Schools is a data-driven district that uses student information on a daily basis to enhance instruction and student learning. Dysart’s primary data and assessment initiative, iPAL—“I plan, I assess, I learn”—empowers teachers to use data for instruction. The district focuses on driving data and information down to the student level, where teachers can easily personalize learning from pre-K through high school. In order to effectively use data, Dysart developed iPAL, an electronic warehouse of information that includes student data but also contains curriculum, curriculum resources, and professional development opportunities for teachers. Teachers are able to go to their desktop or their laptop, log in to iPAL, and have everything they need, including analytic tools that are built into the program, so they can analyze the data. As part of the iPAL program, Dysart implemented the innovation ambassador program in each school to work with teachers on how to best use data and technology as a learning tool. Innovation ambassadors work with teachers on understanding data, including how to measure student growth, provide feedback, refine instruction, and present the information. Dysart has professional learning communities that provide administrators and teachers with a community where they can share what works well. This also offers an opportunity for teachers to work together collaboratively to determine the best approach on how to use the data effectively for personalizing instruction.

When Dysart implemented iPAL, it engaged members of the community and other stakeholders in the process to address privacy and security concerns. Dysart’s approach is to introduce pilot programs, hold focus groups, receive input from the community, address critical concerns, and then report back to all stakeholders.

The district uses multiple measures for data and is in the process of incorporating data for soft skills into the system. As part of this implementation, Dysart is creating a student profile of a sample high school graduate who is college and career ready and has appropriate critical thinking and communication skills. Dysart created the Career and College Ready Advisory Committee to analyze data and information to determine what skills are needed to prepare students for college and a career. The committee was comprised of business and community leaders, government leaders, representatives from higher education, parents, students, teachers, administrators, and staff. Through this process, Dysart now defines a college- and career-ready graduate as a student who is a global citizen, self-directed, a collaborator, civil, a critical thinker, a communicator, tech literate, and creative. The committee offered recommendations for implementation that include determining common definitions for the profile student, embedding the profile skills in the learning environment, and providing professional development and training.

Dysart is currently working on improving its data systems to provide more access for parents. The district is combining intranet and internet access, and moving toward cloud-based storage. Dysart expects cost savings as it moves in this direction—realizing, however, that there are potential policy implications in the new data-warehousing environment.



Utica Community School District, Michigan

Utica Community Schools has put in place data systems to assist the first generation of data use, including a system to share assignments, grades, and other information with parents and students, a calling system to inform parents of emergencies, and assessments, such as Explore/Plan/PSAT, to track and identify the needs of students for Advanced Placement and college and career readiness. In conjunction with the implementation of full-day kindergarten, Utica started a pilot program in eighty kindergarten classrooms using Northwest Evaluation Association (NWEA) assessments to collect baseline student data to personalize digital content and provide learning apps for students. Utica purchased iPads and the necessary learning apps for the pilot program. Utica uses the data to track students and to reassess midyear and end-of-year progress. The teachers have a dashboard on their computer that provides daily feedback about each student's performance and skills, including an assessment of how the student feels in general on that day (i.e., his or her "affect") and how he or she feels after performing a given activity. In School Year 2013–14, Utica will expand the pilot program to an additional eighty kindergarten

“WHERE ARE WE GOING WITH CCSS/ LEARNING ANALYTICS—IF YOU THINK ABOUT THE TESTING, IT'S ABOUT HOW TEACHING AND LEARNING AND ASSESSMENT NEED TO BE INTERTWINED. HIGH-STAKES TESTS SHOULD BE INTEGRATED INTO DAILY LESSONS.”

—Christine Johns, Utica Community Schools Superintendent

“KINDERGARTNERS REPRESENT THE CLASS OF 2025, SO IT IS A GREAT PLACE TO START. IF WE CAN INTERVENE AT THIS LEVEL, WE CAN REALLY SET THE PACE EARLY FOR PREPARING STUDENTS FOR COLLEGE AND A CAREER.”

—Christine Johns, Utica Community Schools Superintendent

and first-grade classrooms, involving approximately 4,000 students. Utica's program also fits with the Smarter Balanced assessments. Utica's pilot program is producing results: the February 2014 NWEA assessment showed that 30 percent of kindergartners were already prepared for first grade.

Utica empowered the kindergarten teachers with the human resources necessary to learn how to innovate and use data for personalizing instruction. The teachers are supported by the state board of education and the district, and are the pioneers for learning analytics in the district. In the summer before the start of the pilot program, Utica provided professional development to help teachers learn how to use the apps, manage the digital content, and use the assessment data. Utica created professional learning communities so that teachers could continue learning and collaborate with other teachers at different schools. Teachers were thus able to share their challenges and successes with other educators. Utica also set up an online committee to engage in social media. In addition, the district held face-to-face quarterly professional development meetings. Teachers had 24/7 access to technical assistance, and the district continues to provide professional development to help teachers innovate. By offering many different professional learning opportunities, Utica created a safe space for teachers to take risks and innovate.

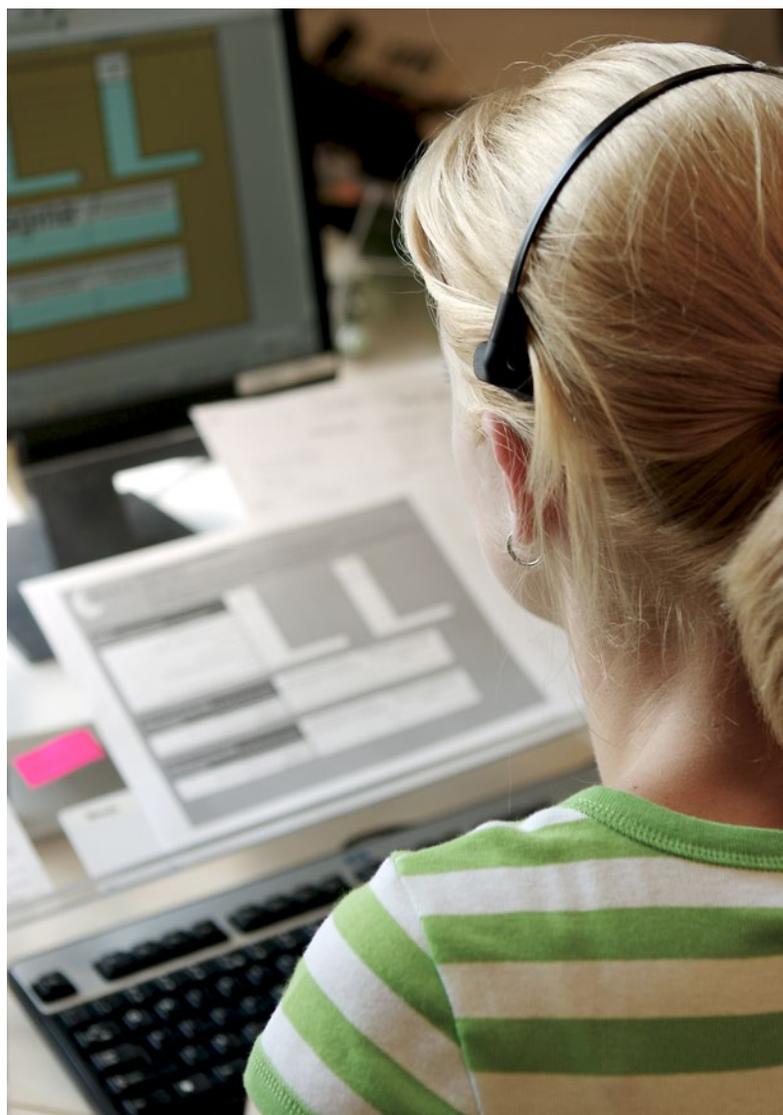
North Carolina State University and Wake County Schools, North Carolina (COBALT)

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, through a series of three webinars and one face-to-face event to introduce school-level decisionmakers to the School Technology Needs Assessment (STNA). The STNA is a survey that is intended to help administrators, technology facilitators, media coordinators, or technology committee members collect data to plan and improve uses of technology in teaching and learning activities. While roughly one-third of participants had previously administered the STNA, they were unsure how to interpret the data and/or develop action plans. The remaining participants had little or no prior knowledge of the assessment. Sherry Booth, research scholar at the Friday Institute, said,

We saw a real need among participants for not only tools that could help them assess technology needs, but more importantly, for support in interpreting the data and turning them into action plans. The webinars focused on understanding STNA as an evaluation tool and learning to interpret the data in general. The face-to-face event provided participants with time to examine their own data, technical assistance with interpretation of their data, and perhaps most critical, time to talk with other educators about strategies for addressing needs identified by the survey. Online conversations as well as face-to-face conversations enabled participants to network with people from other schools and districts and to engage in meaningful conversations about contexts and reasons behind the data, as well as opportunities to brainstorm and share successful strategies for action.⁴¹

Participants are engaged in a very different level of discussion about the data and its application, and the dedicated time and blended approach in a cohort of peers is designed to change the discussion and make the data more actionable.

The national, state, and district efforts provide examples of what is currently happening across the country. Throughout the development and implementation of the data and assessment efforts, technical and other issues emerge, as well as challenges that require revisions to or development of new policies and efforts to ensure that stakeholders understand the policies and ramifications.



POLICY ENABLERS AND BARRIERS TO MAXIMIZING LEARNING ANALYTICS

States and districts quickly uncover the need to comply with, revise, or establish certain policies as they work to implement learning analytics as a core component of their teaching and learning. These policies may be in response to federal, state, or local laws or requirements or to address a new area identified as needing clarification or direction. In some cases, existing policies may appear to hinder the practical use of learning analytics for students, while others seek to open the door to effective and efficient uses of data while keeping security and privacy at the forefront. The federal government, in particular, provides many incentives and opportunities for learning analytics through grants and even long-term legislative options. As states and districts develop the capacity for learning analytics, they must also ensure that policies and programs support their efforts for fidelity of implementation and impact on student outcomes.

Federal Policies

The federal government provides several key laws with which states and districts must comply to ensure the privacy and security of students and their data, and has developed several programs that can directly support or enable the implementation of learning analytics through the thoughtful development of grant applications and programs.

The *Children's Internet Protection Act (CIPA)*, enacted in 2000, seeks to ensure that children do not have access to harmful or obscene content over the internet.⁴² Requirements are imposed on schools and libraries that receive E-rate funding. Currently, twenty-four states have passed legislation that requires internet filtering to publicly

funded libraries, schools, and other institutions. Many of these laws focus on requiring internet plans that are redundant to the E-rate requirements.⁴³ CIPA is taken into careful consideration by districts implementing learning analytics, especially those that move from acceptable use policies (AUPs) to responsible use policies (RUPs), as described in the district policy section below. While CIPA does not explicitly hinder the use of learning analytics, if the regulation is misunderstood it may limit the choices that districts make in terms of opening up access to digital content and other resources on the internet. This is typically due to a misunderstanding of the law rather than the specific requirements.

The *Children's Online Privacy Protection Act (COPPA)* is a federal law enacted in 1998 to ensure that children are not "personally identifiable" when data is shared. COPPA provides parents, students, and online content providers with specific rules for children under thirteen. COPPA requires parental consent for children under the specified age for registrations and membership, and requires that vendors provide well-documented privacy policies on their websites. In general, according to the DQC,

COPPA only affects a statewide longitudinal data system (SLDS) if the SLDS or one of its agents is somehow associated with commercial children's websites or general audience websites that knowingly collect personal information from children under the age of 13, or have a separate children's area where such information is collected. Such websites are required by COPPA to disclose their information practices in a privacy statement and to obtain verifiable parental consent before collecting information from children under the age of 13.⁴⁴

States and districts should carefully review COPPA requirements when developing a learning analytics plan, especially regarding any digital content linked to specific

websites, lesson plans, or interventions accessed from the system. Specifically, the system should prohibit any functionality where a student's specific information is shared with third parties.

The *Family Education Rights and Privacy Act (FERPA)* provides guidance on when and with whom student-level data can be shared. When building a learning analytics system, districts must ensure that they comply with FERPA requirements regarding student-level data and privacy rights. However, FERPA should not be viewed as a barrier to implementing a robust learning analytics system. On the contrary, FERPA offers guidelines on how and when to share student data with appropriate partners and educational entities safely and securely. State and district leaders should specifically define the data being collected and provide a list of the people who will have access to the data at each level of the educational system, including qualified third-party partners, who must also comply with FERPA regulations.

Several districts, including Miami-Dade and Arlington County, use precise definitions of various roles (e.g., teacher, principal, district administrator, parent, or student) to determine and systematically address access to data. Miami-Dade uses a single sign-on system, in which all access to data is driven by role-determined authorization paths. For example, a principal only has access to his location and the students in his school. A curriculum director has access to all students from schools that report to him. A teacher only has access to data for students who are directly assigned to her. If data has to be exported to a publisher in order to take advantage of formative or adaptive assessment, the publisher must agree to the compliance requirements as part of the contract. In Utica, Michigan, district and school leaders regularly review FERPA regulations to ensure that they are in compliance. In the Dysart Unified School District, both COPPA and

FERPA requirements are built into the data system. Data project teams include the IT personnel who provide input on access and restriction issues.

On January 30, the National Academy of Sciences held a public forum to discuss the findings of the consensus study and resulting report that the Bill & Melinda Gates Foundation co-funded with the Sloan Foundation to communicate the position of the behavioral, social, and educational research community on revising the Common Rule. Please see:

- National Research Council, "Proposed Revisions to the Common Rule in Relation to the Behavioral and Social Sciences: Workshop Summary" (Washington, DC: National Academy Press, 2013), http://www.nap.edu/catalog.php?record_id=18383.
- National Research Council, "Proposed Revisions to the Common Rule for the Protection of Human Subjects in the Behavioral and Social Sciences" (Washington, DC: National Academy Press, 2014), http://www.nap.edu/catalog.php?record_id=18614.

Why is this important, and why is it important to focus on it now?

The Common Rule is the baseline standard of ethics by which any government-funded research in the United States is held, and nearly all academic/research institutions and organizations hold their researchers to the Common Rule regardless of funding source. In other words, *almost all foundation research studies and evaluation efforts that involve humans are affected by the Common Rule.*

The work of the committee is to inform the current efforts of the federal government to update the Common Rule (45 CFR 46), last revised in 1991. This kind of revision is done only once in a generation, so the time to act is now.

The final report includes recommendations addressing the most critical issues, alternative procedures and guidance that will facilitate implementation of the regulations, and topics for research that will assist in developing best practices for implementing the regulations and assessing their effectiveness. In particular, the committee provides guidance on the appropriateness of the Common Rule for

- different behavioral, social, and educational research methods;
- the concept of information risk and its relationship to methods and mechanisms developed by the federal statistical community to protect confidentiality while providing access to research data;
- the concept and appropriate treatment of psychological risk for human research participants;
- appropriate classification of research projects by the level of scrutiny required by an institutional review board (IRB);
- revisions to the consent process to facilitate informed decisions by human research participants while minimizing barriers to participation; and
- training that can effectively instruct researchers, IRB members, and other administrators with a role in IRB processes.

Getting the Common Rule Right in Terms of Student/Teacher Data and Education Research

The report examines how best to protect data used in human-subjects research in the information age, given new privacy concerns and the potential harms that could result from inappropriate disclosure of health, financial, educational, or reputational information. The report *does not support* the suggestion in the advanced notice of proposed rulemaking to use the Health Insurance Portability and Accountability Act (HIPAA) as the standard for specifying data protection plans, especially with



respect to social and behavioral research. Neither the the privacy rule nor the security rule of HIPAA is sufficient to maintain the confidentiality of research participants' information beyond limiting access to authorized users. HIPAA does not strike the balance between protecting data and promoting worthwhile research. Instead, researchers and IRBs should draw upon an array of data protection approaches, selecting the methods most appropriate to the level of risk involved in the specific research.

To promote data sharing and protection when linking data sets, the report recommends that investigators must adhere to original conditions of use, confidentiality agreements, and consents, and prepare a data protection plan that is consonant with these conditions. No further consent is needed for linking the data, unless it is required in the original agreements/consent or unless new data is being collected from human participants.

This recommendation associated with linking is essential for professional learning work when stitching together data sets collected from multiple sources without the need to necessarily obtain “re-consent,” which is the costly, time-consuming, and formal approval of study participants to allow his or her data collected in a study to be used in research beyond its initial intent.^a

^a See Appendix A for table of committee-recommended levels of IRB review and oversight.

State Policies

State policies play a significant role in the move toward learning analytics through specific rules and guidance, as well as initiatives that may drive the expanded use of data and assessment for student instruction. As stated above, twenty-four states have implemented internet filtering laws that are generally consistent with the federal CIPA legislation.

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 to personalize learning for each student only expands the need for disparate and/or complementary interactive systems. Data for Action (DFA), developed by the DQC, informs efforts about using data in decisionmaking and highlights states' progress and key priorities in the effective use of longitudinal data. The DFA consists of the 10 State Actions to Ensure Effective Data Use.⁴⁵ States are making progress toward effective data use, but they still are working toward the use of learning analytics to impact instruction for each child.

Florida's robust data system, with very strict guidelines, enables Miami-Dade to easily transmit data many times each year based on strict data parameters and specifically defined rules, including the requirement that data will be housed on state-owned servers. Florida has very clear expectations and directives, which helps with uniformity. Recently, Florida signed a new rule with the K–20 data warehouse to allow the state to share some data with agencies, such as the U.S. Department of Education, to conduct longitudinal studies. This will allow districts to acquire college data to understand where students go after high school, and it represents a significant step toward linking K–12 data with universities. The additional postsecondary data will also help to further drive and personalize learning experiences for students.

Common Core State Standards, College and Career Ready Standards, and online assessments represent a state-led effort to establish a single set of clear educational standards for K–12 English language arts and mathematics that states can share and voluntarily adopt. The standards have been informed by the best available evidence and the highest standards across the country and around the world. They are designed to ensure that students graduating from high school are prepared to go to college or enter the workforce and that parents, teachers, and students have a clear understanding of what is expected of them. They are benchmarked to international standards to guarantee that the nation's students are competitive in the emerging global marketplace. The initiative is led by the Council of Chief State School Officers and the National Governors Association Center for Best Practices, which have worked with teams of experts from all around the country and globe. Forty-eight states, the District of Columbia, and two territories—representing 87 percent of all U.S. students—have signed on to this initiative. As the Alliance for Excellent Education has written, the CCSS are referred to as “common standards” and are considered “fewer, clearer, and higher” than most existing state standards.⁴⁶ The implementation of learning analytics can help states and districts accomplish the goals of the common standards by providing a personalized learning environment that prepares students for college and a career.

Similarly, the move to online assessments, led by two primary consortia, Smarter Balanced and PARCC, is changing the potential of and demand for learning analytics. As states and districts begin to implement or grow their use of online assessments, they will encounter more challenges around the infrastructure and capacity requirements, while also having the opportunity to maximize the results of the assessments for teaching and learning. By viewing the transition to online assessments

as part of teaching and learning, the investments in infrastructure, technology, and capacity can be streamlined to support educators, administrators, and students in meeting the needs of individual students. From a policy perspective, the implementation of online assessments should be viewed as part of the broader education system and incorporate the use of data in a timely and regular manner by teachers and students.

In Belvidere Community Unit School District #100 in Illinois, school and district leaders are recognizing the need for learning analytics in support of CCSS implementation. As data is collected it provides teachers with meaningful information to use in a team environment to highlight the linkages to a more skills-based approach to assessment. Additionally, this approach provides students with cross-curricular learning opportunities. Forsyth County utilizes data systems to search for digital content that is already aligned to the CCSS. When students take the common core assessments, the responses trigger recommendations about what type of content teachers should assign to students.



New administrator teacher evaluation systems are being developed by states across the country, with several Race to the Top recipients being early implementers. While the level of state involvement varies among states depending on local control, these new systems could have a significant impact on teaching and learning and serve as a lever for learning analytics. New teacher evaluation systems under RTTT must include multiple measures, including student achievement information and classroom observations.⁴⁷ Patrick McGuinn writes, “Developing new teacher-evaluation systems has been identified by scholars and policymakers alike as a crucial part of improving teacher quality and raising student academic performance across the country. It is imperative that we learn more about the most effective way for state education agencies to support districts in this difficult work.”⁴⁸ As states begin to implement the new systems, they are also seeing the importance and high demand for their own capacity to carry out this work—and in tough budget times. The focus of the evaluation systems for teachers and administrators can drive changes in schools and districts depending on the connections made to certain initiatives and actions. Illinois developed the Performance Evaluation Reform Act, which requires that “performance evaluation systems ... assess professional competencies as well as student growth.”⁴⁹

Belvidere recognizes that the new administrator evaluation system, of which student growth is a primary component, will likely increase the focus on data and assessment use. The way in which these new systems are enacted and the interpretation and application of utilizing student achievement and other measures in the evaluation systems may provide an important leverage point for learning analytics that could ultimately improve teaching and learning if implemented effectively.

Competency-based learning is being considered by many states and districts as a way to personalize learning by eliminating the tie to specific pacing and timing for learning. 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. However, the strict confines of seat time often get in the way of innovation with competency-based approaches. At a symposium led by the Software and Information Industry Association, the ASCD, and the Council of Chief State School Officers in 2010, "education leaders ... rallied around redefining the use of time and the Carnegie Unit as the single most significant policy enabler for personalized learning. Many personalized learning models reverse the traditional model that views time as the constant and achievement as the variable ... These physical limitations of time and place can dramatically hinder the flexibility needed to encourage and enable personalized learning."⁵⁰ At the state policy level, competency-based learning can be enabled or hindered based on Carnegie unit and seat time requirements or lack thereof.

Five states—Connecticut, Maine, New Hampshire, Rhode Island, and Vermont—have formed the New England Secondary School Consortium (NESSC) to promote innovative strategies in education.⁵¹ The NESSC is moving toward proficiency-based (also referred to as competency-based or standards-based) learning to ensure that every student has the skills and knowledge necessary for college and a career. The NESSC notes that proficiency-based learning in these consortium states focuses on four key areas: "students must demonstrate what they have learned before moving on; teachers are very clear about what students need to learn; common, consistent methods are used to evaluate student learning; and while learning expectations are fixed, teachers and students have more flexibility."⁵² Movement toward competency-based learning

provides a catalyst and requirement for the use of learning analytics to drive instruction.

The state policy areas have the opportunity to provide leverage to states to expand their work on data and assessments overall to provide more support to districts with regard to the use of learning analytics.

District Policies

Districts often develop the policies that are closest to the day-to-day use of technology, data, and other resources. 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 usefulness of learning analytics through their policies.

Acceptable-use policies and responsible-use policies exist in most districts across the country. The Consortium of School Networking (CoSN) notes that AUPs have two different dimensions that should not be, but often are, in conflict. They include protecting students from potentially dangerous content on the internet and ensuring that students do not harm others online. The second dimension involves providing students with access to digital content that supports their instruction without causing distractions from teaching and learning. CoSN states that "there is a wide range of restrictions regarding digital media access and use across school districts in the U.S. Some districts believe that the best way to eliminate inappropriate use of the internet and mobile devices is to rely on extensive blocking of internet sites and to restrict or substantially limit the use of student-owned mobile devices in the classroom."⁵³ As districts begin to rely on learning analytics as a core component for personalized learning, the balance of the two dimensions can sometimes shift and require districts to think differently about students' use of devices and the internet. When policies are implemented

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thoughtfully, they can support the protection of students while providing them with access to the internet and content to support learning.

For many districts, such as Forsyth County Schools, the move toward learning analytics is taking place in conjunction with a digital learning initiative because learning analytics requires data and assessment systems, robust digital content resources, and strong communications platforms. Forsyth chose to develop and implement a bring your own device (BYOD) program to maximize student access and accelerate the digital learning transition. While this allowed the district to put available resources into bandwidth and ensure equity for students who may not have their own device, BYOD also opened up several practical and policy issues related to acceptable use. In Forsyth's case, the district opted to move from the more traditional "filter and prevent access" approach to one focused on the same security and privacy through a responsible use policy. Jennifer Fritschi and Mary Ann Wolf write,

The latter change reflects a shift in the institutional mindset: Schools are moving toward making students responsible for their behavior with regard to mobile technology, rather than policing student behavior in this area. Thus, successful implementation of [a mobile] m-learning initiative requires a thorough review of the organization's [acceptable use policy]

to ensure that it reflects an updated philosophical perspective on the use of mobile devices on campus. The AUP should not be too restrictive with regard to specific kinds of technology, and the language should be more inclusive than exclusive.⁵⁴

Districts implementing learning analytics and increasing communication and access to district systems and the internet as part of personalizing learning for students must consider how to best approach students' use and access.

Miami-Dade is anticipating a need to move in a similar direction, as the district is currently exploring the potential of a BYOD program, which will expand the opportunity to use technology for instructional purposes. In preparation, the district moved from an AUP to an RUP. The RUP takes a very simple approach to address the fact that students will now have access to external resources. When students bring their own device, they must use the district network. Miami-Dade has also included the requirement that teachers must direct students to use their devices, to avoid collective bargaining complications.

Professional learning policies that encourage teacher and administrator training and support in the area of data and the use of learning analytics are necessary to fully utilize the potential of learning analytics. Professional learning in a school district can have many different policy levers and drivers and can apply to administrators and educators as well as other staff members. As referenced in the building capacity section above, effective professional development has several key components and must be job embedded, ongoing, and sustainable. As districts implement programs and guidelines, they have opportunities to develop policies to encourage professional learning in certain areas and for individuals in specific roles in the school or district. Additionally, districts are responsible for establishing professional learning time along with the scheduling specifics at a school. Many school districts

have implemented certain policies that demonstrate that professional learning is a priority, and several of the districts interviewed report that this time is spent learning how to use, analyze, and apply data and assessments more effectively.

Arlington County Public Schools in Virginia recently piloted a systemwide formative assessment strategy. It found that supporting teachers and principals with professional learning communities, helpful dashboards containing meaningful, easy-to-use data, and leadership training is essential to the success of learning analytics. Utica Community Schools partnered with eSPARC to provide professional development to help teachers learn how to manage the digital content and use the assessment data. Utica also created professional learning communities so teachers could continue learning and collaborate with other teachers throughout the district.

New teacher evaluation systems are being implemented in most states and districts across the country, and there has already been much discourse about the approaches, requirements, and other measures being used. Regardless of one's opinion on the direction of the evaluations, the emphasis on student growth provides a significant lever for the more extensive use of data and personalized learning made possible through learning analytics. As referenced in the state policy section, the addition of multiple measures, including student achievement in evaluation systems, could encourage and accelerate the transition and capacity building in terms of educators' and administrators' ability to use and apply data to personalize learning. However, it is possible that if teacher evaluations are not implemented in a thoughtful manner, they have the potential to hinder learning analytics.

The day-to-day implementation of learning analytics requires compliance with and response to federal and state policies. Additionally, districts have several of

their own policies that may help or hinder the use of data to inform instruction. Districts that keep the focus on improving student learning seem able to develop reasonable policies that ensure security and privacy while expanding the possibilities for personalized learning.

Existing Funding Sources to Support Learning Analytics

States and districts should consider using the following existing federal government programs as potential sources of funding for the implementation of learning analytics. Whether through the expansion of technology and infrastructure using E-rate funds or professional learning programs to integrate learning analytics into professional development, existing funding sources provide an opportunity to maximize the potential or accelerate the implementation of learning analytics. Leveraging existing data and assessment systems, statewide networks, and cloud computing is an option, as well as leveraging alternative sources not traditionally accessed for data and digital content systems. While it is not always easy to change existing practices in the fast-moving digital learning environment, there is an opportunity to tap into these funding sources and start making incremental changes on how these programs support student learning more effectively.

E-rate was authorized under the Telecommunications Act of 1996 as an extension of universal service. E-rate currently provides public/private schools and libraries with discounts for telecommunications services, internet access, and internal connections, with priorities based on poverty measures. The program has an annual cap of approximately \$2.25 billion, but as of 2012 the program remained underfunded by \$2 billion. The E-rate program could be used by district leaders to pay for the infrastructure necessary to securely house student-level data, but this would require additional funding.

The *Connect2Compete (C2C)* partnership provides low-cost broadband service to K–12 students who lack internet access at home. Cable companies in many communities provide internet service for \$9.95 per month to any family that qualifies for free or reduced-price lunch and does not already have internet service at home. This program is a community outreach effort of the National Cable and Telecommunications Association (NCTA), cable providers, and other nonprofit organizations, and is not publicly funded.⁵⁵ Quakertown Community School District in Pennsylvania helps families take advantage of C2C to expand the reach of its cyber program and other digital learning initiatives.

The *Individuals with Disabilities Education Act (IDEA)* directs states and districts on the provision of early intervention, special education, and other related services for children with disabilities.⁵⁶ Learning analytics can be particularly useful for students with special needs to provide personalized, individualized instruction.

Elementary and Secondary Education Act (ESEA) (Title I, Title II, and School Improvement) programs' primary focus is to close student achievement gaps by providing all children with a fair, equal, and significant opportunity to acquire a high-quality education. Personalizing instruction using learning analytics provides the opportunity to reach these goals. Funding within these programs can be used to advance learning analytics through the acquisition and expansion of bandwidth, hardware, software, digital content, and professional learning opportunities. States and districts can leverage these resources to benefit more students.

The *Race to the Top (RTTT)* program provided \$4.35 billion in funding through a competitive grant program for states. States are required to demonstrate innovation and reform in the following four key areas:

- adopting standards and assessments that prepare students to succeed in college and the workplace and to compete in the global economy;
- building data systems that measure student growth and success, and inform teachers and principals about how they can improve instruction;
- recruiting, developing, rewarding, and retaining effective teachers and principals, especially where they are needed most; and
- turning around our lowest-achieving schools.⁵⁷

Through RTTT funding, North Carolina is developing a statewide cloud initiative to create infrastructure at the state, district, and school levels. This includes access to the cloud and the wireless technology to support implementation and use.

The *Investing in Innovation (i3)* program focuses on providing funding to districts and/or nonprofit organizations that “develop and expand practices that accelerate student achievement and prepare every student to succeed in college and in their careers.”⁵⁸ In 2013, eligible grantees could receive grant funding of up to \$12 million for projects that had moderate levels of evidence or that demonstrated strong evidence of improving student achievement. Forsyth County utilized i3 grant funding to help support its data system platform and is in the process of updating the digital content to tag it to the CCSS and match it to student learning style.

All of these programs or funding sources are being tapped in states and districts across the country. Connecting learning analytics and data and assessment systems to core teaching and learning provides an important lens for determining the use of resources. Districts that look at learning analytics as part of a systemic approach to instruction seem to be more creative in their allocation of resources.

RECOMMENDATIONS AND OPPORTUNITIES FOR POLICYMAKERS AND EDUCATION LEADERS

In many ways, learning analytics is the convergence of collecting data that meaningfully affects instruction and analyzing and providing the data in a format that is readily usable in a timely manner to drive instructional practice. It is the practical realization of what many education leaders have been envisioning for decades: the effective use of technology combined with formal and informal assessment to improve instruction, with the goal of personalizing learning outcomes for every student. As the notion of digital and blended learning becomes more commonplace in K–12 education, learning analytics can help teachers shift from classroom-based instruction to a more data-informed, personalized approach to instruction using digital media, informal assessment, and learning analytics.

Based on research and trends in many states and districts, the authors and the Alliance for Excellent Education developed several recommendations, focused primarily on building capacity and ensuring that policies enable rather than hinder learning analytics innovation. While districts and states are clearly at various points on the continuum of using data and assessments to personalize learning, the recommendations below would likely benefit every district. Policymakers and education leaders should do the following:

1. **Develop a clear understanding of the potential and rationale for learning analytics.** Learning analytics can help ensure equity for all students by providing educators, parents, and students with usable data and information to meet the needs of each student. While data use often brings up concerns about privacy and security or the notion of an overwhelming amount of information, learning analytics can be implemented

and utilized in a thoughtful and systemic way that addresses safety, privacy, and feasibility. To truly maximize the potential of learning analytics, education leaders must

- a. foster support for the importance of personalized learning and equity; and
- b. ensure that community members, school board members, administrators, parents, teachers, and students understand how learning analytics improves teaching and learning.

2. **Build capacity for the implementation of learning analytics.**

Although most states and districts have developed more robust data systems in recent years, especially with regard to state longitudinal data systems and learning management systems, the capacity to utilize data on a regular, even daily basis to inform instructional and learning decisions to personalize learning is not yet a reality for most students. Capacity includes having the infrastructure and data and assessment systems in place, but just as importantly develops the human capital necessary for an environment in which evidence-based decisionmaking is the norm. To build the necessary capacity for learning analytics to impact instruction, education leaders must

- a. create a culture for informed decisionmaking where data is seen as a tool to make instructional decisions and critical aspects of teaching and learning;
- b. identify new roles needed within state, district, and school settings to maximize learning analytics, including education data scientists and instructional coaches who can help bridge the discussion on pedagogy and data;

- c. develop human capital through professional learning opportunities at the state, district, and school levels that are job embedded, ongoing, and sustainable; and
 - d. develop infrastructure and technology to ensure that bandwidth for data transfer and assessments is readily available, educators and administrators have access to synthesized data, and privacy and safety needs are met.
3. **Identify and develop policies to support and enable learning analytics.** Policies and guidelines at the federal, state, and district levels have a direct impact on the potential implementation and use of learning analytics.
- a. To ensure that policies enable rather than hinder the use of data to personalize learning, education leaders at the **federal** level must
 - i. continue to clarify and provide technical assistance on FERPA and COPPA to ensure that states and districts understand what is and is not acceptable;
 - ii. increase the cap on E-rate funding to ensure more access to bandwidth to enable data systems, online assessments, and other digital content to be utilized efficiently and effectively; and
 - iii. embed incentives that support learning analytics into ESEA reauthorization to ensure a systemic approach to technology and data purchases that align with curriculum and instruction, data, and assessment decisions.
 - b. To ensure that policies enable rather than hinder the use of data to personalize learning, education leaders at the **state** level must
 - i. understand and guide districts on how FERPA and COPPA apply to the use of student-level data to improve instructional practice;
 - ii. develop policies to ensure that state longitudinal data systems can interact with district data systems (interoperability);
 - iii. ensure that state-level policies and systems comply with DQC elements and action steps;
 - iv. consider policies that leverage CCSS/CCRS and the new online assessments to encourage and foster the implementation and effective use of learning analytics;
 - v. include data use and learning analytics as a required aspect of certification, teacher preparation, and teacher evaluation programs; and
 - vi. consider policies that address the connection between learning analytics and competency-based learning.
 - c. To ensure that policies enable rather than hinder the use of data to personalize learning, education leaders at the **local** level must
 - i. understand how FERPA and COPPA apply to the use of student-level data and provide administrators, educators, and parents with a succinct explanation of how the district's implementation protects a student's privacy and security aligned to these laws;
 - ii. consider implementation of RUPs instead of AUPs to expand access to data, content, and curriculum and acknowledge the responsibilities of the district, school, students, and parents; and
 - iii. elevate data use and learning analytics as an essential component for professional learning opportunities.

4. **Develop funding models to support learning analytics.** 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. Districts and states should consider how the range of funding sources might contribute to the overall efforts of personalizing learning through the use of learning analytics, including the following:

- a. leverage existing data and assessment systems, statewide networks, and cloud computing options to implement learning analytics;
- b. investigate and leverage alternative funding sources not traditionally accessed for data and digital content systems, including
 - i. E-rate/C2C;
 - ii. RTTT; and
 - iii. ESEA (Title I, Title II, and School Improvement Grants); and
- c. create incentives within programs and guidance:
 - i. ESEA (Title I, Title II, and School Improvement Grants);
 - ii. RTTT; and
 - iii. i3.

5. **Conduct research to support the capacity building and policies critical for learning analytics.** The review of research and district and state examples point to several specific areas, outlined in the above recommendations, that should be addressed to maximize the potential of learning analytics. Identifying and developing case studies that demonstrate how to build capacity and policies will provide tangible models for other districts and states to follow. This will accelerate the potential of implementing learning analytics in more districts and states by garnering information from the early adopters and implementers. Research in this area should include

- a. a series of in-depth case studies of states and districts making significant progress with learning analytics for personalized learning;
- b. analysis of state and district examples to further identify specific strategies and tools to facilitate the capacity building in the state, including a culture of informed decisionmaking, adequate infrastructure, human capital, and professional learning opportunities;
- c. analysis of state and district examples to identify specific policies that enable learning analytics; and
- d. development of a tool kit of strategies, tools, and sample policies to disseminate widely to districts and states working to implement learning analytics.

Appendix A: Table of Committee-Recommended Levels of IRB Review and Oversight

Not Human-Subjects Research	Human-Subjects Research		
	Excused from IRB Review	Expedited IRB Review	Full IRB Review
<p style="text-align: center;"><u>Classification and Procedures</u></p> <ul style="list-style-type: none"> • Classified as “not human-subjects research” because it involves either <ul style="list-style-type: none"> » scholarship or other information-gathering activities that are not covered by the intent or spirit of the term “human-subjects research” or » research activities in which the investigator is not obtaining data through interaction or intervention with living subjects or is not obtaining identifiable private information. • Falls outside of the Common Rule regulations. • Not subject to IRB determination, review, monitoring, or auditing. • Investigators are responsible for the ethical conduct of their research and its accurate classification. • Investigators are expected to observe professional standards appropriate to their fields and to responsible conduct requirements of their institutions. 	<p style="text-align: center;"><u>Classification and Procedures</u></p> <ul style="list-style-type: none"> • Classified as human-subjects research because there is interaction or intervention with human subjects or use of data with private information, including studies using preexisting research or non-research data that include private information.*** • Studies where the research procedures involve informational risk that is no more than minimal (when appropriate data security and information protection plans are in place). • Investigators register the study, describe consent procedures, and provide a data protection plan calibrated to type and level of information risk. (The committee does not endorse HIPAA as the mandated data security and protection standard.) • IRBs have oversight of the registration through prospective and retrospective audits, and data protection plan provided. 	<p style="text-align: center;"><u>Classification and Procedures</u></p> <ul style="list-style-type: none"> • Classified as research that poses no more than minimal risk and is on the OHRP-approved list of types of studies that can be expedited. This list of studies should be expanded and periodically reviewed. • Some research that might usually be classified under the new excused category might instead be appropriate for expedited review. Research might require expedited review when the specific nature of the research procedures and/or the characteristics of the subject population necessitate consideration of human-subjects protections beyond those normally applied in the excused category to ensure that any harm or discomfort created solely by the research procedures is not greater than minimal risk. • Research is reviewed and overseen by the IRB. • Eliminate annual continuing review. 	<ul style="list-style-type: none"> • No major changes proposed in ANPRM or by committee. • To avoid overestimation of risk, expedited review should be considered the default procedure for evaluating social and behavioral science research that is not excused. Decisions to require full board review should be based on established scientific or professional knowledge indicating a significant probability that participants will experience a magnitude of risk that is greater than minimal and that cannot be adequately reduced through risk-minimizing procedures.
<p style="text-align: center;"><u>Study Types/Examples</u></p> <ul style="list-style-type: none"> • Scholarship outside of the definition of human-subjects research such as biographies, personal observation, or fact checking with sources for nonfiction writing. • Public information outside of the definition of human-subjects research from these types of sources: <ul style="list-style-type: none"> » the observation, coding, or recording of the behavior of individuals in public settings where there is no interaction or intervention and no assumption of privacy, such as recording admissions lines to study social interaction in crowds at sporting or cultural events, coding informational content of publicly published Facebook pages, and observing differences in tipping behavior in restaurants; » demographic, sociological, or other research that uses publicly available data sources, such as birth or decedent records, home ownership, and court records, where the information is public and there is no assumption of privacy; and » research that uses certified public-use data files—that is, data files tested to ensure that respondents cannot be identified, and public-use files available from such studies as the Panel Study of Income Dynamics, the Early Childhood Longitudinal Program, the National Longitudinal Study of Adolescent Health, and many others. 	<p style="text-align: center;"><u>Study Types/Examples</u></p> <ul style="list-style-type: none"> • Use of preexisting research and nonresearch data that includes private information, including use of extant research data under restricted use provisions or use of non-research data that is accessible but includes private information about individuals that they may not expect to be public. • Benign interactions or interventions that involve methodologies that are very familiar to people in everyday life and in which verbal, behavioral, or physiological responses would be the research data being collected, including <ul style="list-style-type: none"> » educational tests, surveys, focus groups, interviews, fieldwork or “participant observation,” and similar procedures; » sociolinguistic studies; simulation studies; games, markets, negotiations, and voting; » individual or group decisionmaking; » studies of educational processes, teaching, and learning; » studies of social perception and judgment; » personality, achievement, and ability tests; and » role playing involving routine activities or tasks under different scenarios and that do not in and of themselves introduce or heighten physical pain or psychological discomfort. • Would not be limited to adults. 	<p style="text-align: center;"><u>Study Types/Criteria to Be Considered</u></p> <ul style="list-style-type: none"> • The participant population is known to have decisional vulnerabilities empirically established to require enhanced informed-consent protections for the type of study to be conducted. • The study is designed to produce clinical changes in health, health-related behaviors, or symptomology, and includes identifiable information. • Public awareness of recruitment procedures can jeopardize participants’ physical safety or reveal criminal behavior. • The nature of the research data collected requires specific plans for reporting illegal behaviors, providing emergency treatment, or protecting a participant or third party from physical harm. • Use of deceptive techniques are specifically designed to induce psychological, social, or physical discomfort. • When additional protections are necessary to avoid harms produced by an existing professional or service relationship with research staff that would compromise voluntary participation. 	

INTERVIEWS

Conducted April 18–May 10, 2013

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