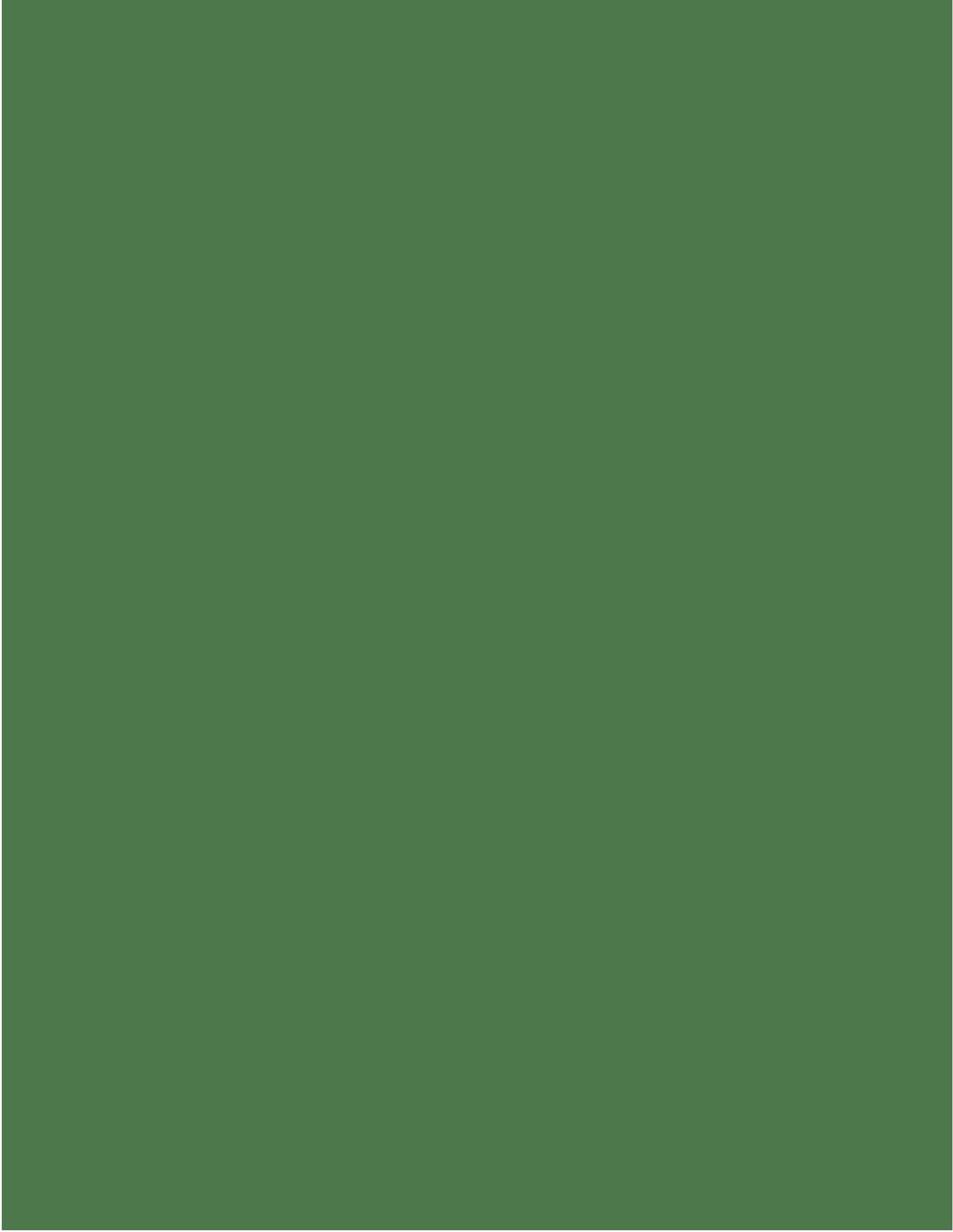


*A Report for School Boards in Planning
for and Using Data Systemically*

WHAT SCHOOL BOARDS NEED TO KNOW:

Data Conversations





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School board members serve their local communities as stewards of public trust charged with making decisions that ensure all students have access to high quality learning experiences in efficient and well managed environments.

To govern effectively, it is essential that school board members have access to the kinds of data that will result in informed decisions. For more than a decade, the National School Boards Association has helped school boards think about their role within the context of an eight-part framework called the Key Work of School Boards. Although each component of this model can be supported by data, the particular type of data and its usefulness will vary as boards move their discussions through this framework.

The topic of data can be complex and confusing to individuals who are not accustomed to defining, collecting, storing, manipulating, analyzing, interpreting, sharing, or displaying it as a routine part of their jobs. This document is designed to provide board members with a common vocabulary around data, an explanation of the various types of data, a series of critical questions that should be asked at various points in data conversations, and resources to assist in those conversations. This document focuses

on the local education agency (LEA) and its use of data in policy considerations at the local, state, and federal levels. School board members need a comfort level about data that allows them to ask the district staff meaningful questions based on the information presented to the school board

DATA RICH AND INFORMATION POOR

Historically data has been utilized within K-12 education to inform decisions at many different levels, from the classroom teacher's decision about what grade to assign or which instructional intervention to use to an administrator's projections about student enrollment or school boundaries and bus routes. Unfortunately, districts have frequently been left with a multitude of data points, yet very little information on which to base decisions. This is a result of systems that were difficult to access, the failure to collect the right piece of data, or the timeliness with which the data could be reviewed.

Data is neutral. It is neither positive nor negative, yet how it is perceived and used within a district's decision-making structure establishes a culture that views its use as either a punitive club or a tool that contributes to positive, continuous improvement efforts. Often questions are asked and data provided that do not align directly with the initial question because there is a lack of understanding about what a particular piece of data represents. Necessary longitudinal data systems and the establishment of appropriate policies at the local, state and federal level need to be understood in greater depth by all education stakeholders: school board members, superintendents, teachers, parents and community



members. This is critical to advance the use of data for strategic decisions. A *longitudinal data system* can be defined as a data system capable of tracking student information over time and efficiently and accurately managing, analyzing, and using education data and information.

We are at a crucial point in education in the United States of America. We have an opportunity to provide students with an unprecedented educational experience. A paradigm shift is underway for the next plateau – a use of *Intelligent Data* to inform learning, teaching, and operational decisions. When looking closer at intelligence, it can be defined as what people do in terms of abstract reasoning and deduction. When applying to this data, and specifically intelligent data, skilled data analysis must be aligned to using this data in an intelligent manner for data-driven decisions. Data intelligence is relational to the intelligent use of data.

This paradigm shift includes moving away from simply reporting data to the state department of education, to using data in thoughtful ways to inform all decisions at the school district level: administrative, human resource, financial and instructional. Having strategic and thoughtful data-driven dialogue that produces effective decisions should be a priority with a school board. When a school board identifies where it can make effective use of data as a part of its systemic process, the decisions linked to that data can be evaluated resulting in increased accountability.

Improving student achievement should serve as a key motivator for all district decisions. Modern data systems, with tools that let teachers, administrators and board members see results in a timely fashion, encourage greater use of these data. As the demand for data has grown, so too has the need for better leadership training around its use in the classroom and the boardroom. In addition, community members who want to evaluate schools in different neighborhoods, or parents who want to track how their child is doing in school, need the knowledge base and skill set to correctly use the data that is made available in print and online. While technology tools for data analysis and presentation are increasingly common, many districts have yet to experience the transformational impact that data-driven decision-making can have on a learning community.

As a school board member, asking questions is your responsibility. Some of the questions school boards need to be critically asking, discussing and thinking about include:

- *How do we measure our success?*
- *Is the data collected aligned to produce results in a format that can be used to reflect on the success of the organization?*
- *How are we using data to inform decisions in a way that impacts our definition of success?*
- *In what way do the data system and processes promote action?*
- *Have we allowed time on the calendar for data driven discussions that are productive and focused?*
- *What processes are in place that will ensure continuity for year-to-year review of progress, even if there are staff changes?*

As this report dives into each of these topics in greater detail, school board members will be better prepared to understand what barriers may be in the way of these conversations as well as how to further the strategic goals and objectives of the school district – ultimately increasing student achievement for each individual student.



Local education agencies (LEAs) and state departments of education (SEAs) have historically not been consistent about the use of data.

Some state departments of education collected data longitudinally for some time and others are just beginning. This data may or may not have made the way back to LEAs in a timely fashion to impact decisions being made in the classroom. While data played an important role in terms of reporting and high-level accountability, these data have not been useful in a transformative way for LEAs or even SEAs in programmatic improvement.

Widely, LEAs have not used or collected data longitudinally. There are numerous reasons. Some of these include:

- the fact that the data provided to LEAs from the SEAs is not very informative for strategic decisions at an LEA level
- the data is sent too late in order to make instructional decisions
- a lack of data quality exists and timely information is missing
- the frequency with which the data is collected is not sufficient
- disparate data systems with no deployed capability of data interoperability, exchange or reporting standards
- a lack of capacity to build comprehensive longitudinal data systems

Since the No Child Left Behind Act of 2001, a greater emphasis has been placed upon the effective use of data. With the accountability required of LEAs and SEAs, educational organizations have paid closer attention to data being collected as well as the quality of this data. Performance and financial information have been tied to the data and accuracy of reporting has never been higher.

WHERE ARE WE TODAY?

Since 2002, the federal government has provided funding for state longitudinal data systems as part of the Educational Technical Assistance Act. This competitive grant administered by the Institute of Educational Sciences (IES), is intended to help states create “systems that are intended to enhance the ability of states to efficiently and accurately manage, analyze, and use education data, including individual student records. The data systems developed with funds from these grants should help states, districts, schools, and teachers make data-driven decisions to improve student learning, as well as facilitate research to increase student achievement and close achievement gaps.” This grant program, referred to as the State Longitudinal Data Systems (SLDS) Grant Program, has been a starting point for many SEAs. To date 41 states and the District of Columbia have received one of the State Longitudinal Data Systems Grants. The focus for most of the states has been to build greater capacity within the existing SLDS, or begin building a SLDS.

The Data Quality Campaign and Managing Partners have identified ten essential elements for a longitudinal data system. These ten essential elements serve as a basic foundation for state departments of education to build a longitudinal data system. The key piece to understand is how these elements relate to a district longitudinal data system.



As states receive the SLDS grants, a disconnect often exists between the SEA and LEA data systems. An emphasis should be placed on vertical reporting and the connections between the various data systems. Vertical reporting involves getting quality data from the LEA up to the state's data system and also from the state's data system down to the LEA. Districts and states must engage in conversation with one another around ways to identify, collect and report data. Specifically this includes:

- data transaction
- data transformation
- data analysis
- decision outcomes for student performance and achievement.

As a school board member, it is important to establish that your district's staff is engaged in an ongoing dialogue with the state education agency to ensure the needs of the LEAs are represented in data collection, management and analysis.

These data transactions between the LEA and SEA are vital for several reasons. The data that the school district collects must be represented accurately, with the same meaning and in the same format for the state to understand and utilize.

Data transformation involves a revolution in how data is collected, managed, used and discussed. Unless LEAs and SEAs work together to, strategically discuss these issues, both groups will become frustrated. A common and mutually agreed upon way data is talked about by the state and the district will provide a radical shift and an improvement in schools.

Decision outcomes for student performance and achievement require timely reporting of data bi-directionally – from the LEA to the SEA and from the SEA to the LEA. It is necessary for this data flow to be timely. For example, data from state assessments often is referred to as “autopsy data.” The results from the assessment are returned after students have moved on to another grade level. This data is not the best data to use in the classroom for individual students, but can be used in other ways. For example, looking at state results in fourth grade mathematics over time may indicate that for the measurement standard, students perform at a low level. Using this piece of data can inform the LEA leaders and ask questions such as: is the fourth grade not sufficiently addressing measurement across the

elementary grade levels or does the LEA need to offer professional development for the elementary grades in content and instructional strategies for teaching measurement?

Determining how to use this data and what the decision outcomes for this data are going to be, will provide a consistent dialogue between the LEA and SEA and set appropriate expectations around the data. In addition, school board members will know the suitable questions that can be asked based upon the data.

From the school board perspective, there are several questions that can be addressed to SEA and state policy makers around connecting state and local longitudinal data systems:

- What information do you need in order to have a meaningful dialogue with the SEA and policymakers?
- What type of questions would the school district likely be able to answer from the existing longitudinal data?
- What should the LEA consider as the state is building the LDS?
- How can we ensure the LEA is considered when designing the state LDS to take into account seamless data transactions?

MOVING TO MEANINGFUL DATA

Longitudinal Data Systems and Trend Analytics

A misconception often exists between longitudinal data systems and trend analytics. Longitudinal data systems are typically those that are described as collecting student level data. This data most often includes basic enrollment, demographic, program participation and assessment performance. In addition, funding for each program is typically represented. Longitudinal data systems do not often support continuous growth in learning amongst students. The data elements that could be used for student achievement, such as formative assessments, are lacking.

Student performance data has typically been reported by grade level. While this information can be helpful in improving curriculum and lessons by grade level, this information is not as meaningful in improving learning for each individual student. For example, if a student in third grade takes a mathematics assessment, the data is reported under

third grade. When that student takes the fourth grade math assessment, the data is reported under fourth grade results. This information is not detailed enough to track student-level progress through the grade levels. A teacher requires reports that provide student progress against the learning standards, the student's misconceptions and where instruction can be provided to further that individual student. Without this timely and actionable data, teachers simply cannot personalize education for every student which would ultimately increase student achievement. In addition, effective collaboration and best practice sharing around this data and instructional strategies with peers is required.

What appears to be trend data can be misleading. Trend analytics can be defined as what has happened in the past in terms of student performance, attendance, or even business processes, and analyzing the data in order to make assumptions and predictions of what will happen in the future in order to help each individual student. Policy makers, teachers, community members and school boards are losing confidence in public education. These data truly fail to show the progress of the students over time because the data systems report snapshots of the current population rather than track a cohort of students, or the same group of students over time. Many reports are collected and building a longitudinal data system that can truly represent cohorts of students over time serves as critical to the improvement of school districts. School board members should consider if they are looking at snapshots of populations, or comparing a cohort of students and viewing their progress over time.

Many reports can be derived from a longitudinal data system. A system needs to be in place to find what is meaningful in the next steps towards improving student achievement or business processes. How do these data systems raise flags to the surface such that those specific pieces of data are displayed? An attendance report can be important in traditional longitudinal data, but transforming that report by marrying the demographics of those individuals and their attendance might prove more valuable in providing support for those specific students.

Consider dropouts in a school district. Certain data is collected about these students. In the analysis of the data collected, a trend has been identified that certain characteristics of a specific cohort of dropouts exist. Based on this data, how might we apply this information to provide assistance to those students? How can the school district provide this information

in a timely, proactive fashion? These types of trend analytics provide clearer answers to address the individual student and not just the same grade level statistics from year to year. There is tremendous potential to impact the educational experience through facilitating dialogue around effective reports.

School districts have limited resources and time, so as a school board member, having these conversations with district staff, state and federal policy makers can add those lenses to data, which would then prove the data invaluable. School districts must purposely and in a focused way accomplish this. Quality longitudinal data systems can support districts in achieving this.

WESTERN HEIGHTS PUBLIC SCHOOL DISTRICT

Western Heights Public School District in Oklahoma City, Oklahoma has been utilizing longitudinal data as an integral part of school improvement for over a decade. This school district of 3,200 students is very culturally diverse and possesses a high mobility rate. The district administration desired to use longitudinal data, based on cohorts, to identify necessary areas for improvement and target each individual student for continued growth in student achievement.

Western Heights Public School District decided to implement the Schools Interoperability Framework (SIF) to solve the problems of interoperability between all of the various software applications. The SIF Specification is an open standard designed to define data and how to move that data consistently within a school district and between a school district and the state department of education. The district staff knew that the data needed to be accurate and get to the right place at the right time. All of the data from the account login, two assessment systems, student information system, food services, grade book, library, data warehouse, instructional management system and transportations systems are now available to everyone in almost real-time through a dashboard.

Once placing such an importance on longitudinal data, Western Heights Public School District in an 18 month time frame:

- increased student achievement over 30%
- generated \$1.3M in 18 months in additional federal and state funding
- improved accuracy, consistency, and timeliness of student data

“All aspects of the system need consideration including technical, professional development, curriculum, assessment, data reporting and many others. We want to change from what we have done to what we want to be able to do.”

2008 Data and Learning Summit Final Report

This paradigm shift of using *Intelligent Data* to inform learning and teaching requires considerations for the entire system. As a school board member, you want to ensure resources are aligned to provide tools that support a culture of inquiry, and shift from a monologue to a dialogue about the role of data in decision making. School boards can model the kinds of questions they ask and then act on the findings by appropriately resourcing the functional areas.

In order for this to occur, it will be necessary to allocate resources, from a financial and time perspective, to manage the shift in culture. In order to facilitate this change, think about:

- What communication mechanisms are in place?
- What questions should the school board ask that will better enable the administrator to build a culture of collaboration and inquiry?
- What resources may need to be shifted to obtain the long term gain?
- What barriers exist that need to be addressed?
- What possible professional development does the school board need to better understand to enable a culture of inquiry?

As the remainder of this document addresses additional components to be considered when building a culture of collaboration, building a longitudinal data system and informing policy at a local, state and national level, reflect on the current situation in the LEA that you serve.



DATA NEEDS FOR VARIOUS STAKEHOLDERS

Numerous stakeholders within the education ecosystem exist. In making decisions regarding a longitudinal data system in the school district, the stakeholders that need to be considered include:

- Teachers
- Administrators
- Students
- Parents
- Community members
- Higher Education Staff
- Local, State and Federal Policymakers
- Information Technology/Information System Managers
- Chief Information Officers/Chief Technology Officers

Each of the stakeholders will want to ask different questions and need different types of data and information. Teachers will want information about their students that can impact their decisions in the classroom in teaching and learning. The focus for *Administrators* will change based on which stakeholder group has raised a question, and will vary depending on where their positions are based – the building or the district. For example, a district administrator might want to focus on data based across all fourth grade students to make needed changes in the curriculum. A building administrator will want to know about teacher performance and to determine professional development strategies.

Students and Parents will care about data pertaining to their assessments, progress toward learning standards and meeting graduation requirements. Parents will also be interested in attendance and disciplinary actions while the community is interested in the overall performance of its schools because of the impact on everything from the quality of the future workforce, to the value of real estate. *Higher Education* is interested in student success factors, identifying necessary remediation, monitoring the performance of graduates from their institutions and developing predictive models to target potential students for success in their environment.

Finally, State and Federal Policymakers focus on what data is necessary to impact decisions at programmatic funding levels. For example, what programs are most successful or which programs can be replicated to

impact student achievement? Because answers to such questions drive funding decisions to expand or eliminate programs, it is essential that individuals have the best possible data in a format that helps clarify their thinking.

At a district level, the focus is on the student key performance indicators (KPIs) that impact student achievement. Key performance indicators include metrics that measure and report out results. For example, if we are measuring student achievement, KPI might be the course completion rate, instructional time or increasing scores on assessments. Defining the KPIs first ensures expectations are expressed and that this data can be included in the data set to report out for those measures.

As school board members, it is important to understand each point of view as the school district begins to build or improve upon the current longitudinal data system and processes that exist within the LEA.

Policy Questions

- *What other stakeholders need to be considered in the school district served?*
- *What is the best way to include each of these stakeholders in a conversation around data?*
- *What mechanisms need to be put into place to ensure communication is present and consistent across all stakeholders?*
- *What potential questions need to be asked of the data system to provide answers to each of these stakeholders?*
- *What messages need to be communicated about possible resources to each of these stakeholders?*

UNDERSTANDING THE TYPES OF DATA NEEDED

“Since NCLB, schools have learned they must use data to improve student learning for all students. As schools use data, they quickly learn they must use more than student achievement data to understand what they can do differently to get better results.”

Victoria Bernhardt, Executive Director
Education for the Future Initiative

According to Victoria Bernhardt, there are four types of data that school districts collect – student learning, demographic, perceptual and school process data. These different data types focus on different areas of data to improve not only instruction, but the overall educational organization. Each of these types of data is important for school districts to be aware of in order to make systemic policy decisions. In addition, according to Knapp, et. al, teacher characteristics, behavior and professional learning need to be taken into consideration.

The Family Education Rights Privacy Act (FERPA) provides federal legislation for the protection of identifiable data and information about students and families. Appropriate state legislation should be in place to ensure that the needs of schools are met as well as meeting the federal law. Guidance is provided by the United States Department of Education around the interpretation and implementation of FERPA.

In further examination of the types of data necessary to support students and student achievement, Reeves (2005) suggests that there are three tiers of information to be accounted for:

1. Typical accountability data
2. Measurable indicators to reflect professional practices
3. School narrative



The typical accountability data includes test scores, attendance, discipline, etc. At the surface, these types of data provide basic snapshot and demographic information. Also included in this information should be overall assessment data – formative, summative, benchmark and diagnostic. This data should also be able to answer individual questions about the student and their progress towards achievement at the individual level. For example, what science courses has a student taken and what was the science assessment score?

Like student learning, creating measurable indicators to reflect professional practice can be difficult. Pinpointing the appropriate data to capture information about curriculum, teaching and leadership proves important when creating a culture of inquiry and in analyzing practices at the school district.

Finally, school narrative data presents a qualitative context for quantitative data – the story behind the numbers. Data and information can be portrayed any way to support the cause or point that a LEA is trying to make and/or support. However, the more important question remains as to what is the data truly representing? ***The true story behind the numbers is critical to systematic improvement and analysis. Once the story is represented, a school district can move from analysis to action.***

Policy Questions

- *What needs to be in place in order to determine what this data should include?*
- *What information does our LEA need in order to better provide support for students and in reaching greater levels of achievement?*
- *What do the district leaders need to communicate to the state department of education and other state policy makers about the types of data that need to be collected?*
- *What barriers exist in preventing this data from being collected?*
- *How is the state interpreting FERPA and how does that impact the data that is needed for a longitudinal data system?*
- *How does the LEA define professional practice and what data needs to be collected to reflect this?*

ORGANIZATIONAL CHANGE IN CLOSING THE ACHIEVEMENT GAP

Organizational structure is one of the most important components. Change management without structure to sustain that change will cause failure and unnecessary stresses to the organizational structure. Without the underlying foundation in place, the support and follow-through will not occur. According to the Colorado Learning Foundation Guidebook for Best Practices in Closing the Achievement Gap (2008), the following must be adhered to:

- Culture of high expectations and accountability for all students
- Targeted assessments and intensive use of data to guide instruction
- Individualized support for struggling students
- Active engagement of teachers in school leadership and decision-making
- Substantial time for collaborative planning and options for professional development
- Commitment to core academics and standards but not at the expense of other important learning in the arts and humanities
- Stable and consistent leadership
- Small learning communities of educators
- Flexibility to use resources to support student needs and reinforce school culture
- Economically integrated student bodies

In the role of a school board member, ensuring that the administration has the support to implement organizational change is crucial. Without this leadership, shifting to the use of intelligent data will not occur. Barriers that exist may be difficult to remove, but the results will be worthwhile.

Once policies have been established to provide a venue for each of these guidelines to occur, ongoing structure and support will be needed. Intentional conversations and structures are essential to continue growth and ensure the changes become engrained into the culture of the school district.

Policy Questions

- *As a school board, what needs to be considered to enable the best practices?*
- *How is this information best communicated to state leaders in order to build support for resources? For example,*
 - *What needs to be communicated to support time for collaborative planning?*
 - *What resources are needed to support and develop targeted assessment?*
 - *What policies need to be in place to ensure that the LEA has the flexibility to use resources to support student needs?*

TECHNOLOGY CHALLENGES

“If schools are to make data-driven decisions about effective organizations so that educators can do their best work, information must be available and readily accessible.”

Eric Hirsch, Director of Special Projects
New Teacher Center at the University of California
at Santa Cruz

Technology plays a critical component in implementing a longitudinal data system. Without the appropriate infrastructure and software applications, data collected may not be able to be accessed or may not be collected.

According to the 2008 Data and Learning Summit report, some of the challenges in the use of technology include a lack of interoperability, the proper use of technologies and applications, a lack of data warehouses at the SEA level, insufficient infrastructure, insufficient access to the data, limited storage space and the consolidation of legacy systems.

An important consideration for the technology remains not only the overall structure and implementation, but the transaction component as well. This includes moving the data from application to application and to the state in a seamless, timely fashion. Connecting all of these disparate systems, without requiring manual exchange, proves critical for the ease, use, transparency and representation of the data. With interoperability, this data from the disparate systems can be accessed and used for streamlined reporting to all stakeholders.