A PCG Education White Paper

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It can be challenging to change the culture of a school or district from one that bases decisions on tradition or instinct to one that makes decisions based on data. However, to substantially improve student outcomes it is critical that schools and districts develop a culture in which data are used at all levels to make decisions related to policies, programs, placement, and practice.

We know that simply providing data is not enough. Mandated meetings to analyze benchmark test results rarely lead to sustained improvement. Educators must have time to explore the data, understand the data, and build a collective belief that using the data more effectively will improve outcomes for students.

School-based data teams alone, while important, are not sufficient to change the culture of data use throughout a district in a meaningful and sustained way. The systems aspect of data use — e.g., data collection and reporting — often extends across schools and requires district-level coordination. In highly successful data use initiatives, teams of educators, both within schools and at the district level, meet regularly to ask questions and analyze data in order to understand and solve problems.

This PCG Education White Paper describes how a **district data team** can support and sustain a culture of data use throughout a district, leading to improved student outcomes. Specifically, five key functions of a district data team are discussed: vision and policy management, data management, inquiry analysis and action, professional development, and monitoring and communication.

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WHAT IS A DISTRICT DATA TEAM?

A district data team is a cross-departmental leadership team with membership that represents *those who collect and manage the district's data and those who are consumers of that data*. The district data team serves a vital role in establishing the supports and tools necessary for all district stakeholders to use data more effectively. Because it is a cross-functional group, a district data team promotes the problem-solving approach needed to resolve the technical, communication, and practical issues that accompany data use in the classroom, within the data team, across the school, and throughout the district.

School-based data teams are fairly common. Teachers from the same grade level or teaching team use data to identify student learning challenges and work together to plan instructional changes that will yield increased learning. Principals and other members of school improvement teams use data to identify goals that drive instructional initiatives. Data can also guide the ways teachers collaborate and learn, positively impacting results for all students.

However, school data teams often face challenges, some of which are beyond the ability of one school to address. Much has been written about the cultural, technical, and political barriers that are faced in making data use commonplace (Ingram, 2004). When educators mistrust the data or resist changes to the status quo, it is sometimes difficult to know what to do. To break such logjams, district leaders need to create a structure to address districtwide policy, systems, and organizational issues and support the work of school-based teams in their quest to improve teaching and learning. One structure used in many districts to move toward a culture of effective data use is the **district data team**.

WHO SHOULD BE ON THE DISTRICT DATA TEAM?

The district data team should be led by a data use champion, who has the positional authority and credibility to ensure that the work of the team is

- Supported by the resources necessary to function effectively;
- Visible to others in the district;
- Acted upon; and
- Connected to other improvement initiatives.

Another critical role on the team is the data manager, who has positional authority over the more technical aspects of the team's work, such as

- Establishing systems to ensure the cleanliness and quality of the data;
- Integrating different data systems; and
- Ensuring all users are using the same data dictionary and terminology.

Other members of the team should include district-level staff who have responsibility for general and special education student services, curriculum and assessment, and elementary and secondary education. In any given district, of course, responsibilities for these areas may be held by a small or large number of people. The most effective district data teams have members who want to support the inquiry process through the use of data and are broadly representative from a district perspective.

Some essential questions to consider when organizing and determining members of a district data team include

- Who currently has the responsibility for leading and supporting data use in your district?
- Who has a solid understanding of programs, initiatives, and other efforts taking place across the district?
- Who at the district level shares a deep commitment to improving the learning of all students and the practice of all adults involved in their education?

FIVE FUNCTIONS OF A DISTRICT DATA TEAM

In PCG's work and research, we have found that to be successful in building a culture of data use, a district data team needs to fulfill five essential functions.¹

FIVE KEY FUNCTIONS OF A DISTRICT DATA TEAM

Vision and Policy Management

- ✓ Create and articulate the vision
- ✓ Set and model expectations
- ✓ Implement and uphold policies for data use in the district

Data Management

- ✓ Identify data to be collected
- ✓ Manage data infrastructure and access
- ✓ Design meaningful data displays

Inquiry, Analysis, and Action

- ✓ Select or develop models for inquiry and data use that will be used districtwide
- ✓ Model the inquiry process publicly

Professional Development

- ✓ Provide training and professional development to support district departments, principals, school data teams, and teachers in their use of data
- ✓ Use data to identify professional development needs

Monitoring and Communication

- ✓ Monitor the progress of the district toward achieving its vision for data use
- ✓ Establish the lines of communication necessary for the sharing of results and best practices

¹The original concept of these functions was developed during PCG's collaboration with the Massachusetts Department of Elementary and Secondary Education creating of the state's District Data Team Toolkit. This white paper extends the discussion of the functions and draws on our experience working with many districts throughout the United States and Canada.

These functions are clearly interconnected and synergistic. Building a vibrant culture of inquiry and effective data use requires a coordinated effort involving district leaders from several departments. This coordination ensures that data enhance the work of educators rather than burdening them.

In the next sections of this paper, we discuss in more detail each of the functions of an effective district data team and provide some **Questions to Consider** and **Actions to Take** when establishing a district data team in your district.

VISION AND POLICY MANAGEMENT

A vision that specifically addresses data use in the district can connect the various functions that a district data team fills, as well as the team to other district efforts. A vision statement takes into account the mission of the district and describes how things will look in the future when data use becomes in the basis for all decision-making. Hallmarks of a clear and vibrant vision (Curtis & City, 2009, chap. 4) include the following.

- The vision is reflected in the district's strategy for improvement and corresponding use of resources.
- Everyone in the district can give the same responses to the question, "Why is data use important to teaching and learning?"
- Stakeholders demonstrate a shared belief, collective clarity, ownership, and energy for data use.
- People are inspired to look beyond quick fixes and dig into real challenges.

When a district begins a data use initiative, it does so because it wants to promote collaborative practices that will empower educators to research, understand, and implement effective practices for school and classroom improvement. However, this vision is not always communicated well enough or frequently enough for all members of the school community to understand. The district data team is responsible for articulating a specific vision for how data are to be used by teachers, principals, district leaders, and others in service of student learning. The team should also identify specific actions that will result from data use and the benefits those changed practices will have for students.

The work of developing a clear and coherent vision for data use is essential because every decision or action the team makes should connect to the vision. Once agreed upon, the vision needs to be broadly communicated throughout the district to ensure that all education professionals in the district, as well as parents and students, understand the purpose behind using data.

Once a vision has been established, the team's responsibility is to make certain that all policy decisions about time, tools, and resources related to data use are in alignment with the vision. For example, a vision that includes the use of data to drive decisions about student placement in intervention programs will guide which staff members need to have access to the data necessary to identify students and provide interventions, what data need to be provided to them, and what types of decisions the districts expects to be made using that data.

VISION AND POLICY INITIATIVES

Questions to Consider

- ✓ What is the current vision for data use in your district?
- ✓ Is it a powerful vision that will improve student achievement?
- ✓ How does the district specifically support, through structures and policies, the implementation of that vision?
- ✓ Where is improvement needed?
- ✓ Who needs to be part of the conversation?

Actions to Take

- ✓ Develop and communicate a districtwide vision for data use
- ✓ Meet with principals, coaches, and other instructional leaders to communicate the district's vision for how data are to be used
- ✓ Review scheduling and common planning time to ensure that all teaching staff have the time to use data collaboratively

DATA MANAGEMENT

The district data team shares responsibility with the information technology (IT) staff to ensure that complete, accurate, and relevant data are provided to district and school staff in a timely manner. For this reason, it is critical that IT staff be represented on the district data team. Although IT staff will exercise the greatest responsibility for managing specific technical functions, the district data team must understand and engage with the data management process. Specifically, the district data team, working with the appropriate district leader, is responsible for

- Providing districtwide leadership for the collection and management of high quality data.
- Ensuring that data are accessible in a timely manner to support inquiry throughout the district.
- Establishing systems, tools, and resources to support user access to data at the district and building levels.
- Supplying complete and accurate data to external agencies as required by state regulations.

Flowing from these general areas of responsibility are specific functions that the district data team needs to fulfill. The breadth and depth of these functions will vary across districts but will include

- Making certain that data collection systems are coordinated throughout the district.
- Collaborating with district and building-level staff to identify new data elements that need to be collected to support district and school-level inquiries.
- Designing and publishing meaningful data displays to support inquiry.

- Preparing, maintaining, and publishing an assessment calendar and data dissemination schedule.
- Ensuring that school personnel have access to the data that will enable them to carry out their inquiries.

For example, in a district where data are being managed effectively, hardware and software are in place to support the collection, storage, and dissemination of data in user-friendly formats. There is also a high level of cooperation among all staff to ensure that data are complete, accurate, and available in a timely manner to those who need information. All stakeholders in the district are aware of the data elements that are collected and stored and can gain access to the data they need. Updated data displays are published according to a dissemination calendar and are routinely used to inform program and instructional decisions. District data team members work with individuals and groups, helping them secure the data and/or data displays they need to support their inquiries.

DATA MANAGEMENT

Questions to Consider

- ✓ How closely does this description of the data management function resemble what occurs in your district?
- ✓ What specific steps can you take to improve how data is collected, managed, and reported?
- ✓ Who needs to be involved to take action on this aspect of effective data use?

Actions to Take

- ✓ Ensure teacher access to existing data and data analysis tools.
- Review available reports of benchmark data to ensure they provide teachers with data displays that fit their needs.
- ✓ Monitor data quality and provide documentation and ongoing training to data collection staff.
- ✓ Identify reports to be developed for particular data use needs; e.g., a school year student roster report with historical data, or a standard set of reports to monitor key performance indicators for principals.

INQUIRY, ANALYSIS, AND ACTION

Adopting a standardized inquiry process is fundamental to the effective use of data for district or school improvement and the enhancement of classroom instruction (Ronka et al., 2008). District-level curriculum leaders and assessment/accountability officers, as well as principals, department chairs, and lead teachers, can all provide leadership in the use of data to enhance student achievement. Following a single districtwide model for inquiry will strengthen the data use culture throughout every part of the organization.

Many models for inquiry exist in education both in practice and in the research literature. Central to all are the concepts of

• Question formulation or problem identification to initiate inquiry;

- Focused data collection and analysis, action planning; and finally
- Outcome evaluation.

Most models are cyclic as problem statements are refined and new actions contemplated in response to the data that are collected and analyzed during action plan implementation. The Cycle of Inquiry and Action presents an example of a basic inquiry cycle that can guide the data use process.



THE CYCLE OF INQUIRY AND ACTION

This data-driven inquiry cycle is designed to support district, school, and classroom level change. When implemented at the school level, e.g., when developing school improvement plans, the work is based on high-level data, the questions are large in scope, and resulting actions require significant time for implementation. This results in schoolwide improvement goals and action plans that guide organizational improvement efforts over the course of months or even years.

Classroom-based inquiry uses much more granular data and has a limited scope and time frame. In practice, these inquiry cycles are carried out by teachers collaboratively developing project or unit plans, sharing ideas and resources to use in instruction, and assessing their results with a common assessment. Over the course of a school year, one district or school improvement plan may be crafted and acted upon, whereas multiple targeted classroom plans can be developed and implemented throughout the same period.

The district data team should select or adapt an inquiry model to use at every level of the organization: classroom, grade level or department, school and district. The identification of a single model of inquiry is important because the

implementation of the model establishes common habits of mind and ways of working throughout the district. This approach can help the district achieve its vision for data use from the central office to the classroom. Additionally, the adoption of a single model supports the development of a common language about how inquiry is conducted.

This can, in turn, support transition to a common process for making decisions related to policies, programs, placement, and practice (Ronka et al., 2010). Once the inquiry model is selected, the district data team should use it for its own inquiry, as well as helping staff at all levels to implement the model by providing helpful protocols, technical assistance, and direct support.

INQUIRY, ANALYSIS, AND ACTION

Questions to Consider

- ✓ Does your district have a common approach to data-driven inquiry? What is it called?
- ✓ Is use of the model widespread at all levels in the district? Why or why not?
- ✓ How could this be improved?
- Who needs to be involved in a conversation about how your district uses inquiry?

Actions to Take

- ✓ Analyze data at the district level to identify essential questions across schools; e.g., what are the early warning indicators of students at risk of dropping out?
- ✓ Coach school improvement teams to use data to set goals and develop action plans.
- ✓ Use data to assess the efficacy of the district's instructional coaching; e.g., are our instructional coaches working with the right teachers on the right strategies based on student needs?

PROFESSIONAL DEVELOPMENT

Using data to inform decisions requires new skills and abilities, from using particular data technologies to working in groups analyzing data to using protocols throughout the cycle of inquiry. A deliberate effort needs to be made by district leaders to design and implement appropriate and effective professional development that helps staff at all levels in the organization develop these capabilities. Additionally, data about teacher understanding and practice, as well as student performance, should inform decisions about school and district staff professional development, enabling differentiated support strategies that meet the real needs of the educators.

Professional development designed to build the capacity of all staff to use data

To foster a culture of systemic inquiry and data use, the district must ensure that staff members acquire the skills, knowledge, and attitudes that will equip them to use data effectively. The district data team shares leadership responsibility for this with other district and building level leaders. Among the capacities critical to effective data use are understandings of

- The types of data available, where to find them, when the data are available, and how to access them;
- The district's data systems and how to access and use them;
- Standardized assessment literacy, from terminology to appropriate use;
- An "inquiry habit of mind" (Earl & Katz, 2002) and a working knowledge of the district's inquiry process;
- The limitations of data and the inferences that can be made from particular data sets; and
- Specific protocols that ensure collaboration and full participation of stakeholders.

One way districts accomplish high quality, system-wide professional development for data use is through the structure of Professional Learning Communities (PLCs). The district data team can help PLCs and other teacher and administrator teams understand their role in fostering data use by building their capacity directly through staff trained to facilitate inquiry. Embedded professional development and coaching increases the school's capacity to identify problems, form hypotheses, collect and analyze relevant data, test their hypotheses, draw valid inferences from the data, and translate these inferences into action plans.

The following is an example of how one school supported teacher teams as they used data to improve student performance.

Franklin Elementary School in historic Franklin, Tennessee faced a serious challenge in the first decade of the 21st century. An unintended consequence of the district's opening of a new K-8 school lead to rapid change in the socio-economic and ethnic make-up of the nearly centuryold school. Franklin Elementary's student population shifted from a poverty level of under 30% in 2000 to 65% by 2008. The percentage of minority student more than doubled in that same time frame, from less than 25% to more than 50%. The number of students from non-English-speaking homes nearly tripled. Faced with a rapidly changing student body and the shifting needs that accompany, the teachers and administrators at Franklin Elementary took bold action to disaggregate and examine their available data in order to make needed changes to improve instructional effectiveness.

Teachers began their school year before the students even arrived by closely examining results of the previous spring's assessment data. Grade-level teams and individual teachers identified strengths as well as areas needing improvement and shared effective teaching strategies. Teachers also looked ahead by studying the scores of students new to their classes and collecting data on their learning styles and needs.

Once the school year began, a school data team formed with the goal of ensuring there would be one well-informed and trained data "guru" on each grade-level team. These teams provided a venue where collaborative ideas were shared and disseminated. A data wall, created in a common meeting room, clearly displayed goals, progress indicators, and assessment data. It was updated throughout the year. The school's schedule, built to ensure uninterrupted literacy blocks for instruction, maximized the use of paraprofessional assistance and common planning time for teams to do the ongoing collaborative work necessary to produce positive gains in student achievement.

In the face of this rapid evolution in student demographics, student achievement scores and value-added gains exceeded those in the majority of Tennessee's schools and Franklin Elementary was recognized in 2006 by the United States Department of Education as Tennessee's lone elementary NCLB Blue Ribbon School. A concentrated focus on the effective analysis and use of student data was a central factor in that improvement effort.

Franklin Elementary used data "gurus" at each grade level to embed data use professional development that supported teacher collaboration and planning. An added benefit, the connection between the grade level teams and the school's data team created strong lines of communication within the school about classroom improvement efforts. Making this type of collaboration the norm in any school involves a thoughtful implementation of professional development for each step of the inquiry process. To achieve this level of data use across multiple schools requires leadership and support from a district data team.

Data use to inform decisions about professional development needs in all areas

Beyond training on how to use specific technology, the inquiry cycle, and basic data literacy, district leaders should use student performance and classroom observation data to inform decisions about teacher professional development. Often the data indicate that teachers need to address a specific instructional issue and might benefit from targeted assistance from an instructional coach.

An example of what this can look like can be found in another school where we have worked. In this school, the data from a benchmark assessment was reviewed by a cross-curricular eighth grade team. The teachers discovered that a significant portion of students struggled with responses to writing prompts asking for persuasive arguments. The team agreed that all subject areas would emphasize writing that involved establishing a point of view and supporting it with examples from a text and the students' own experiences. However, none of the teachers, including the English teacher, knew how to explicitly teach students to do this. The team asked the district literacy coach to provide embedded professional development over the next six weeks to build each teacher's capacity to deliver effective instruction related to persuasive writing strategies. During the first team meeting with the literacy coach, team members collaboratively developed formative assessments with scoring rubrics that served as progress monitoring benchmarks while they implemented newly learned strategies. They also arranged for the literacy coach to observe each of their classes and provide feedback about their implementation of the new strategies.

The district data team can support the collection of evidence through specific inquiry about the types of professional development that coaches are providing, when, and to whom. Incorporating data collection about the work of the coaches and the changed practices of teachers in an embedded coaching model can yield powerful information when connected to student outcomes.

PROFESSIONAL DEVELOPMENT

Questions to Consider

- ✓ What structures and teams exist in your district?
- How is professional development delivered through each of these?
- ✓ What kinds of professional development about data use have been provided?
- ✓ How has this professional development been differentiated?
- How are coaches deployed to support issues identified through using data?
- ✓ Who needs to be involved in conversations about professional development in your district?

Actions to Take

- ✓ Conduct targeted professional development for new teachers and principals in district data use protocols to ensure effective use.
- ✓ Identify and train staff to serve as facilitators of professional learning communities in high need schools.
- ✓ Use student achievement data and information collected from PLCs to target embedded professional development where it is most needed.

MONITORING AND COMMUNICATION

A data use initiative is an ongoing process aimed at changing the way educators think, work, and collaborate. If a district is to achieve its vision of being data driven, then monitoring the challenges and making adjustments to policies, technology, time, and other resources must be an ongoing responsibility of the district data team. To meet this responsibility, effective district data teams employ the same inquiry-based approach to creating action plans and setting goals and benchmarks as school and teacher teams do in their own work. The district data teams should seek to collect information about how well data teams are functioning, how the available technology is supporting that work, and the degree to which the training and professional development it provides is responsive to the needs of users. A district data team's responsibility for data use and inquiry across the district requires that team members deliberately foster communication across schools and between district departments about how data are being used to take action. The team must also monitor the actual data use itself to ensure that data are used appropriately and effectively given the inquiries conducted.

Providing opportunities for teams to share their inquiries and results can support learning and collaboration among adults in the district. Sharing can be accomplished through large events such as data fairs (similar to science fairs held for students), at which teams present their work and findings. Sharing can also be integrated with the regular work of established structures such as cross-school principal roundtables. District data teams can use technology to capture the work of teams through the creation of a best practices database. These searchable repositories allow teaching teams to share how they addressed specific student learning problems. The best practices databases might include lesson plans and classroom assessment techniques as well as reports on the results of schoolwide initiatives. Best practices in data use can also be shared by teachers in grade level or subject matter meetings across the district.

In these examples, the district data team seeks to support communication that fosters learning and collaboration while at the same time monitoring data use to ensure that stakeholders have the right data, tools, and support to do their work. The district data team should use this information regularly to review what is and is not working, and make necessary adjustments to policies, technologies, data collection, assessments, and professional development that continue the district's progression toward its vision.

MONITORING AND COMMUNICATION

Questions to Consider

- How does your district currently foster interschool communication about efforts to improve student learning?
- ✓ How do district administrators currently monitor the effectiveness of the supports they provide?
- ✓ What steps can you take to improve both of these?
- ✓ How can you make use of available technology to help with these activities?
- ✓ Who would need to be involved in conversations about policies, technology, time, and other resources to support data use?

Actions to Take

- Establish quarterly roundtable meetings with principals to review key performance indicators for school improvement and student achievement.
- Collect student learning challenges being addressed by teams at each grade level across the district to identify patterns across schools and opportunities to support collaboration or provide assistance.

CONCLUSION

There are multiple benefits to having a central district data team that supports schools' data use work. These benefits include

- Communicating a common vision and goals;
- Optimizing allocation of human and financial resources across schools;
- Common planning for professional development around data use that results in a consistent level of data literacy across schools in a district;
- Comparing outcomes across schools and supporting their joint inquiry, analysis, structured diagnosis of problems and actions taken; and
- Sharing proven solutions and best practices of data use.

Successful district data teams require the purposeful coordination of the actions of many people who are collectively responsible for carrying out the five key functions discussed in this paper. District-based structures provide a vital leadership role by assuring collaborative learning environments, supporting change, and establishing context for improvement (Fullan, 2001; Fullan, 2004). PCG's work with schools reinforces the notion that the most effective data use initiatives are characterized by a strong and public leadership effort that creates systemic change and nurtures a culture of continuous improvement.

As a centrally based structure, a district data team can provide a roadmap and coordinated support for school-based teams. This enables school data teams and PLCs to thrive because they have the support necessary to connect their work to district and school goals, and to create opportunities for educators to learn from each other. The collective inquiry of multiple teams is a form of a distributed leadership (Copland, 2003; Wayman, 2006) and allows educators to take formal or informal leadership roles to support school improvements.

Our hope is that the issues raised in this paper cause you to think about how a district data team might be created in your district, or how you might enhance the roles currently played by district leaders related to data use to support higher levels of academic achievement. You may be pleasantly surprised by how effectively a district data team can align and support the various actions you have already taken toward achieving your goal of developing and sustaining a culture of data use at the classroom, school, and district levels.

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