Critical Issues Facing School Leaders Concerning Data-Informed Decision-Making

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Abstract

School systems have access to more data than ever before, but most teachers and school leaders lack the skills to use the data for student and school improvement. Current attempts to use data have lacked depth and have been more focused on accountability and meeting state and federal requirements than on systematically investigating the factors that support and hinder the teaching and learning process. As a result, the potential benefits of data usage have not been realized. This commentary examines the critical issues facing school leaders concerning data-informed decision-making based on existing research and firsthand experience working with school principals.

Individuals in many professions routinely use data as a basis for assessing progress and making quality decisions. For example, data play an essential role in medical diagnosis and treatment, engineering, and automobile manufacturing. Educators often report that we cannot rely on data to solve the challenges students face in the learning process, because in fact students are too complex (Wayman & Stringfield, 2006). I acknowledge the complexity of the teaching and learning process, but I maintain that using data appropriately can inform and improve the process.

Of course, in the age of the No Child Left Behind Act (NCLB), the phrase "data-informed decision-making" has become part of the lexicon of the American educator. The importance of using data is now taken for granted as an essential component of any educational improvement process. School district superintendents consistently report data use as the most important strategy for addressing NCLB, state accountability systems, and the constant pressure to improve student achievement (Coburn & Talbert, 2006; Means, 2009).

The use of data as a tool to drive school improvement is not a new phenomenon. Earlier reform movements, such as *A Nation at Risk* in the 1980s (Gordon, 2006) and *Goals 2000* in the 1990s (Zhao, 2009), also stressed the importance of using data in making educational decisions and assessing educational progress. However, due to both technological advances and the mandates of NCLB, there is more data available now than ever before, and the emphasis placed on data has grown. One particular type of data, student achievement data in the form of high-stakes standardized tests, has become particularly important. While multiple measures are advocated, student achievement scores remain a primary indicator of student, teacher, principal, school, and district effectiveness (Cravens, Chen, Porter, Elliott, & Carson, 2009;

Leigh, 2010). Furthermore, student performance on standardized tests also influences real estate values and the overall vitality of a community (Nguyen-Hoang & Yinger, 2011).

The use of data, particularly if only one type is being used, is not a panacea for school improvement. As Means' (2009) national study found, school systems have access to more data than ever before, but most teachers and school leaders lack the skills to use the data for student and school improvement. Current attempts to use data have lacked depth and have been more focused on accountability and meeting state and federal requirements than on systematically investigating the factors that support and hinder the teaching and learning process. As a result, the potential benefits of data usage have not been realized. We know that teachers, school leadership, curriculum, and community involvement all influence student learning. Properly utilized, data can help educators better understand how these dimensions influence student achievement in a particular context. Multiple types of data should be used, and data should become a mechanism to connect student performance with curriculum, instruction, remediation, acceleration, teacher professional development, and the allocation of fiscal and human resources for school and district improvement (Campbell & Levin, 2009).

A body of research is emerging on data use in schools. Much of the research to date has dealt with specific areas of schools, such as teachers (Lachat & Smith, 2005; Schildkamp & Kuiper, 2010), principals (Supovitz & Klein, 2003; Wayman, Cho, & Johnston, 2007), and the central office (Honig & Coburn, 2008; Moll, 2009). Additionally, a growing research base is available to help teachers understand educational data use systemically. Scholars are examining ways to use data to align, integrate, and support various components of a school district so that the entire district is a more coherent, data-using organization. Knowledge from these studies suggests that integrated, districtwide data use can be better accomplished by aligning vision, practice, and data (Supovitz & Klein, 2003; Wohlstetter, Datnow, & Park, 2008), focusing on leadership at multiple levels (Halverson, Prichett, Grigg, & Thomas, 2005; Mandinach, Honey, Light, & Brunner, 2008), efficiently integrating technology (Wayman, Conoly, Gasko, & Stringfield, 2008), and emphasizing professional development (Datnow, Park, & Wohlstetter, 2007).

Still, there is much to learn about how school districts may make better use of data. For example, we still need to determine the essential components involved in school leaders efficiently and effectively accessing, generating, managing, interpreting, and acting on data. In this commentary, I examine the critical issues facing school leaders concerning data-informed decision-making based on existing research and my experience working with principals, central office personnel, and state department of education personnel in a southeast state.

Clarifying the Role of Data

The presence of common understandings about educational goals and practices is an important aspect of organizational improvement. The function and role of data in the school improvement process is often poorly defined, leading schools and school leaders to be confused about how and when to use specific types of data. As Wayman and Springfield

(2006) have argued, a common understanding of the role of data is critical if it is to be used to improve schools and student achievement.

There are several important elements involved in clarifying the role of data. It is first important to be clear about whether decisions will be data-driven, data-based, or data-informed. I support the argument advanced by Shen and Cooley (2008) that data should inform rather than drive decisions. Data can serve as an important element in effective decision-making, but educators should not entirely base their decisions on data. Education is a human enterprise involving children, and data fail to give educators all of the information they need to help children learn.

Second, it is important to take a systemic, continuous improvement approach to data analysis. Educators should gather and analyze data to gain a better understanding of the system that is producing the current results in a school or district. Then they can use the data to continuously improve the system and, ultimately, enhance student learning. By "system" I mean all the processes and procedures that influence student learning. Systems thinking (Senge, Cambron-McCabe, Lucas, & Kleiner, 2000) is about viewing the whole and the inter-relationships of the parts of the whole to each other. From a systems thinking perspective, most differences in student performance are due to the system, not the individual student. In other words, it is important to look not only at the material presented but also the ways in which it is presented.

Third, data collection and analysis must be firmly connected to guiding questions posed and answered by teachers and other school leaders. Teachers and other school leaders must specify what they want to know about their school and students, and must know why the information is needed. In addition, they must determine what types of data they need to answer their questions. By keeping the focus on guiding questions developed and answered by school staff and administrators, data collection and analysis has a clear purpose. After all, "data, alone, are not evidence of anything until users of the data bring concepts, criteria, theories of action, and interpretive frames of reference to the task of making sense of the data" (Knapp, Swinnerton, & Copland, 2006, p. 10). Several studies have confirmed that when school staff work together to develop guiding questions and select data collection approaches, they have a better understanding of the role of data, and they remain more focused on the connection of different types of data to student achievement (Langley, Moen, Nolan, Nolan, Norman, & Provost, 2009; Wayman, Cho, & Richards, 2010).

Using Data for More than Accountability

My experience with principals and central office personnel is that they typically use only one form of data—student achievement data—and that they use this type of data more for accountability purposes than as a mechanism to help improve teaching and learning. As Chen and Cooley (2008) state, "the predominant focus on achievement data in general and on standardized achievement data in particular points to the fact that, in the current environment, data are used primarily for accountability purposes" (p. 322). The use of student achievement

data in the form of standardized test scores for accountability purposes has a significant political dimension, as the media and the public at large focus on such data to make judgments about the quality of schools, teachers, and administrators. This distracts school leaders from using student achievement data and other forms of data to address the core work of schools—improving teaching and student learning. The principals I work with rarely mention using data to monitor and assess important school processes and programs, because they are focused on what will happen if they don't get test scores up to a certain level. It is a serious issue when school leaders view data primarily as measure of accountability rather than a tool to improve classroom teaching and student learning.

Student Achievement Data Must Be Combined With Other Forms of Data

I do not discount the importance and value of student achievement data, but it is only when student achievement data are used in connection with other school data that we can learn the important lessons that ultimately influence our school culture, classroom instruction, and student learning. Unfortunately, my work with principals and central office personnel, and the results of several studies (Wayman & Cho, 2008; Wayman & Springfield, 2006), have revealed that school leaders often view standardized test results "as a way of holding teachers accountable for classroom performance and as an educational necessity for state accountability, but with little relationship to factors influencing student learning" (Shen & Cooley, 2008, p. 321). Until school leaders use student achievement data as one data source among many, and not the *only* data source, the data-informed decision-making movement will have little effect on improving schools and student learning.

Student achievement data must be connected to other data streams to enhance student learning. The work of Bernhardt (2004) in this regard has great promise. As Bernhardt (2004) states, "to know if a school is achieving its purpose and is meeting improvement goals, multiple data measures—collected from varying points of view—must be used in a process called data intersection" (p. 20). Four broad types of data are analyzed in the data intersection process: (a) student achievement data, (b) demographic data, (c) perception data, and (d) school process data. Student achievement data should include both formal high-stakes standardized tests and more informal measures developed by the teacher and district. Demographic data include the dynamics of race, gender, attendance, and enrollment factors on student learning. Perception data involve community and school beliefs and attitudes about the school and district and how they influence student learning, and process data involve descriptions of existing school programs and procedures and their influence on student learning.

The four types of data are interconnected, and school leaders should collect and examine each type of data to create an accurate and clear perspective of the progress of the school and district. Data analysis may involve two types of data interacting, three types of data interacting, or all four types of data interacting. For example, student performance on standardized tests can be disaggregated by race, gender, and student attendance over a

specific period of time (intersection of two data types over time). The question, "To what extent do students of different ethnicities perceive school culture differently, and are their scores on standardized tests consistent with these perceptions?" is an example of data analysis intersecting three types of data (demographic, perception, and achievement data).

Regrettably, my work with schools suggests that school leaders rarely implement Bernhardt's concept of intersectional analysis. Data analysis procedures that focus exclusively on student achievement may fail to identify the core cause of the problems and challenges that impede student learning. For the promise of data-informed decision-making to be realized, school leaders should begin to regularly employ intersectional analysis to gain insight into the variety of factors influencing school culture, teaching practices, and student learning.

Make Data Available in a User-Friendly Form

Schools now have access to more data than ever before. One of the most important challenges facing schools and school districts is how to provide data to teachers and other school leaders in easy-to-use forms so they can use the data to improve curriculum development, classroom instruction, school and district programming, and community relations. Principals and teachers do not have the knowledge, skills, and time to sort through, organize, and make sense of volumes of data. Without the necessary technological infrastructure to store, organize, and display data, analyzing data will likely be a cumbersome and ineffective process. Many districts spend thousands of dollars on testing and yet do not have the needed technology to provide teachers and other school leaders data they can use (Swan, 2009; Wayman, 2007). The principals I work with report that they rarely receive data in a form they can efficiently use to focus on curriculum, instruction, and student performance issues. Without an infrastructure that can provide teachers and school leaders data they can understand and use, the potential use of data will not be realized.

Professional Development to Support Effective Data Analysis and Use

Even when data is presented in user-friendly forms, teachers and principals need ongoing professional learning opportunities to develop the knowledge and skills to make sense of the data, discuss the meaning of the data with colleagues, and make adjustments based on the data to improve school culture, classroom instruction, and student learning. Professional learning for data use is a socially based endeavor that is daily, ongoing, and connected to school improvement goals (Desimone, 2009). Consistent with more general work on professional learning (Guskey, 1991; Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009), my stance is that teacher capacity for using data will be better built if teachers participate in frequent learning opportunities that allow them to quickly try out new skills and knowledge. I believe that this approach will not only make individual learning more effective but will improve knowledge-sharing among groups of educators (e.g., interdisciplinary or grade-level teams, campuses, district departments). However, I also recognize that for professional learning opportunities to live up to their potential, professional

learning supports need to attend to specific characteristics so that learning may be linked to practice in useful, coherent ways (e.g., Guskey, 1991; Yoon, Duncan, Lee, Scarloss, & Shapley, 2009). Consequently, it is important that professional learning is supported by activities that are: (1) job-embedded; (2) collaborative; and (3) small.

Conclusion

I truly hope that data-informed decision-making will not have the same fate as so many other failed educational reform movements. I believe it has great potential for helping teachers and other school leaders improve our schools. The concept of using data to inform their decisions is challenging for many school staff members, and there are multiple obstacles to institutionalization of this practice. School leaders must take the time to clarify the role of data in the school improvement process, must go beyond student achievement data to use multiple types of data, must develop ways to organize and present data in a user-friendly format, and must provide ongoing, targeted professional support to help educators develop the knowledge and skills to effectively analyze and use data to improve schools and student learning. Addressing these issues will help prevent data-informed decision-making from becoming just another failed reform effort. Much work in this area lies ahead.

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