Preface

We have entered an age of accountability with increased demands for performance and decreased resources. There are concerns about preparing students with the right knowledge and skills for the 21st-century workplace and equipping them with the critical-thinking skills to face challenges that have yet to be defined. Together, these conditions place unprecedented pressure on schools to do more with less. The need to analyze student performance data, scrutinize which practices produce promising results, and identify interventions that must be implemented when desirable results are absent has never been greater. Together, these demands inspired the development of *The Data Toolkit.*

The Data Toolkit was designed with two purposes in mind:

- To provide classroom teachers and other school leaders, schools, and districts with practical quantitative and qualitative instruments to analyze data in a meaningful way and contribute to changes in practice that ultimately enhance staff and student learning
- To highlight a wide array of specific tools that can be used to examine a variety of data. Embedded in the use of each of these tools is a process that both builds community and focuses on results

The emphasis of each tool is not just on examining, charting, or graphing data but rather propelling individuals and teams to action with a plan informed by data and focused on results.

WHY THIS BOOK?

Most schools are swamped with data, and staff members often feel overwhelmed and immobilized by them. Many times they are unable to find meaning and derive next steps from their data. Douglas B. Reeves (2010), in a "Leadership and Learning Blog" referred to these conditions with the phrase "Drowning in Data; Thirsty for Information." Even when educators know a problem exists, they often don't have a process that delineates what to do next. This may result in a lack of improvement or action, but it is not for lack of caring or trying.

Data paralysis, as opposed to data analysis, often occurs because teams do not have a structure to help them reflect upon data and ask meaningful questions about the data in order to clarify and identify the problem that needs to be solved. Once the problem is understood fully, then action planning can occur. Teachers, administrators, and support staff need specific tools to generate meaningful data, illuminate relationships between instructional interventions and student performance data, and facilitate conversations so that appropriate and responsive interventions can be designed, implemented, and carefully

monitored, with the end result being high levels of student learning. In the process, teachers and administrators learn as well. Hence, the capacity to produce the desired results over time is created. That is where the data tools come in. Data tools help frame the questions, drive the conversation, and lead to reflection—the most vital part of the data team process. Reflection is generated by the questions posed and pondered. Once understanding is uncovered, a data-driven plan with a focus on desired results can be crafted.

The Data Toolkit provides easy-to-use tools that support educators in understanding and analyzing what they have accomplished in classrooms and to determine what to do next. These tools help staff members move beyond just talking about their data to taking learning-focused decisive actions that make a difference in the lives of their students, the skillfulness of staff, and the health of their schools.

The book's chapters focus on

1. Providing a broad spectrum of meaningful tools to analyze data with the goal of directing action for school improvement efforts

2. Identifying specific processes to be used with each instrument/tool, which galvanize the collective expertise of staff members on data teams and will engage individuals in building norms for collaboration, respect for diverse perspectives, and trust in the process

3. Presenting examples of how data teams, professional learning communities (PLCs), and individual teachers in schools have actually used the tools in their own settings

4. Highlighting stories and examples of successful school improvement and reform efforts occurring around the country in which the analysis and meaningful use of data played a central role

■ USING THE DATA TOOLKIT

The tools are organized in a progressive manner from setting the stage (tools to help teams get started looking at data), quantitative tools (for analyzing numerical data), and qualitative tools (for analyzing questions, problems, and taking action). Teams or individuals can use the tools. They can be used by an entire staff and in individual classrooms by teachers as they examine student performance. Their use is limited only by one's imagination!

There are two types of data: quantitative and qualitative. Quantitative data are primarily expressed in numbers. Qualitative data are primarily expressed in words. Quantitative data can be easily measured and compared. Grade point averages (GPAs), student absences, and the percentage of students who pass a test are all quantitative data. Quantitative data are most often expressed via spreadsheets, charts, and graphs.

Qualitative data, on the other hand, are best expressed through story and are collected through observations, conversations, interviews, and surveys. For example, it is only through qualitative data that we understand *why* a

student is missing 30 days of school. Even though quantitative data are most easily produced and distributed, qualitative data are absolutely essential to helping schools and districts improve. If all our plans and strategies are based on numbers alone, our implementation efforts will miss the mark, and we will end up with unintended consequences, plans that don't make sense, and activities that do not reach the intended outcome. Both quantitative and qualitative data sources are vital to every school and district improvement effort. Quantitative data (numbers) help us to see. They prevent positive illusions. Qualitative data (stories) help us to understand. They prevent unintended consequences.

School improvement hinges on being able to use both quantitative and qualitative approaches to data. Both types of tools are used throughout this book, and when faced with complex problems, practitioners often use a combination of tools and approaches to see results. The bottom line when it comes to all improvement efforts is the ability to do something differently by leveraging data in such a way that a team's actions are effective in terms of outcomes and efficient in terms of resources.

Setting the Stage

The first three tools, Build Your Team, Identify the Problem, and Three Guiding Questions, set the stage for deep data analysis by helping educators build a sound foundation to effectively analyze data. As mentioned earlier, data analysis can be conducted by individuals or teams. Effective teams understand their members and develop norms to govern their behavior. These teams also realize that data alone don't solve problems. It is only as a result of asking questions about data that individuals can discover what needs to be done and how to orchestrate and implement effective interventions.

Quantitative Tools

The next three tools, Analyze Your Students, Four Quadrants, and Wagon Wheel are all tools that address and work with numbers. Analyzing Your Students attaches one set of numbers to each student. Four Quadrants attaches two sets of numbers to each student, and the Wagon Wheel can attach multiple sets of numbers to students, grade levels, or schools. Using tools that deal with numbers is a great starting place for many teams because plotting data according to a tool removes all judgment from the initial conversation and helps teams move from understanding the data to developing plans to address the data and create desired results.

Qualitative Tools

In the next portion of the book, three qualitative tools are introduced: Five Whys, Relations Diagram, and Fishbone. These are predominantly tools that engage teams in problem solving through discussion, speculation, and interaction. These qualitative tools help teams understand the story behind the numbers.

The Five Whys tool is used to help teams explore the root causes of a problem. The Relations Diagram helps teams identify which problem's cause drives other causes, so that interventions can be effectively constructed. The Fishbone combines elements of the previous qualitative and quantitative tools and provides data teams with a structured framework for exploring the reasons behind a success (improved test scores, for instance) or a cause for concern (poor attendance). The Fishbone presented in this book provides a reflection component, ranking of reasons, and strategies for taking an improvement to the next level.

School Improvement Mapping

The final tool, School Improvement Mapping (SIM), fosters synergy as a result of multiple data sources. Through this tool, a team can design an action plan that will make a difference in student learning and achievement outcomes. It includes a process for designating specific steps for implementation of an action plan. The SIM helps faculty members begin with the end in mind and accomplish that end based on an action plan informed by performance data.

Special Features

Each chapter of *The Data Toolkit* begins with a meaningful quote and vignette designed to illustrate the application of the featured tool, followed by a description of how the tool is used in the school setting and a real world example of practitioners using the tool. Throughout each chapter there are additional stories of how the tool can be used by teachers and other school leaders. Educational reform and improvement efforts are highlighted throughout the book as they relate to the tools being presented. In addition, each chapter concludes with an "In the Field" and "Putting It all Together" feature that showcases how a school team has used that particular tool to support their school improvement efforts.

The book concludes with a chapter titled "Now What?" There, the reader will find blackline masters of each tool, along with several suggestions for potential classroom, team, school, and district uses of the tools. *The Data Toolkit* is designed to provide practitioners with everything they need to apply each tool in a variety of settings. As authors, we wish you the best in making meaning from your data and using it in ways that lead to staff and student learning and achievement!