

THE **SCHOOL LEADER'S GUIDE** TO BUILDING AND SUSTAINING MATH SUCCESS

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Introduction: Attending to Math Performance

There has been increasing international attention to student performance in mathematics, both within the education community and from outside. Within the education sector, there are large numbers of studies each year that focus on the teaching and learning of mathematics. Whether the studies form the basis for doctoral dissertations or whether they are carried out by established educational researchers, the number of studies grows each year, and, with easy access to the internet, the audience for those studies has broadened.

In addition, departments of education, ministries of education, and organizations like the National Governors Association, which supported the development of the Common Core State Standards, are paying increased attention to mathematics teaching and learning. In some jurisdictions, math has become a major focus for entire cities or states.

Even outside of the world of education, the results of high-stakes tests, particularly when used to compare educational jurisdictions, dominate the media in ways that did not occur in the past (e.g., Gordon, 2016; Green, 2014; “PISA Envy,” 2013; Stutz, 2013). This has drawn a significant amount of attention to mathematics teaching and learning in the K–12 sector.

While there are vocal critics of how mathematics is currently taught, there are also equally vocal proponents; no matter, the attention is not going away. School district officials and the principals in those districts feel that pressure and the need to improve the performance of their students.

What Changes Performance in a School?

There is abundant evidence from research to support the assertion that schools change when leadership focuses on that change. According to Fullan (2006), effective change occurs when these characteristics are present:

- Motivation
- Capacity building, with a focus on results (building collective knowledge and providing resources to increase the effectiveness of the group in closing the gap in student learning)
 - Learning in context (opportunities to practice in the classroom the ideas being discussed)
 - Changing context (sharing ideas with others in the system, thereby changing the context in which the school operates)
- A bias for reflective action (purposeful thinking about potential changes on the part of the leader and the group)
- Tri-level (broad) engagement (school and community, district, and state or province)
- Both persistence and flexibility in staying the course

However, those who write about how to accomplish this change generally are not grounded in the discipline of mathematics and rarely use examples with mathematics. As a result, principals have difficulty translating change theory into actions to improve math instruction. The change ideas make sense to the leader theoretically, but the implementation is not targeted toward teachers' mathematical practice.

The Purpose of This Resource

Principals who must lead the change to improve student math performance in their schools often tell us that they feel disadvantaged because they are uncomfortable with math themselves. Although they may have successfully completed math courses in school, many remember being taught in ways that are no longer advocated. Therefore, they don't always have much direct experience with math instruction that is based on more recent research, and they don't always see clearly how to lead change that promotes newer approaches to higher-quality math instruction. This resource is meant to provide school and system leaders with a better understanding of what these changes look like and to give specific suggestions for what they can do and what they can ask of their staff and students.

The resource will offer extensive guidance that will be useful to the principal, including advice about the kinds of data to collect and how to use those data to promote teacher change in the teaching of mathematics. In addition, suggestions for “look-fors” that principals can use in their observations and conversations with both students and teachers are provided.

This resource contains significant discussion about the need for a whole-school improvement focus based on student performance. Principals need to instill the belief in all staff that positive change will occur through consistent implementation of adopted core priorities. A collaborative culture of mathematics learning and data literacy must become valued by all staff.

The book also covers the use of sophisticated quantitative data analysis as an ongoing basis for school and class formative assessment. It stresses the importance of monitoring short- and long-term growth, analyzing improvement trends at several points throughout the school year, and tracking individual-level growth from grade to grade. The book describes a culture in which regular staff communication occurs around student performance and whole-school data on multiple platforms.

Included in the resource are examples of many specific scenarios a principal might face when moving a school's math culture, with suggestions for actions to take, suggestions to make, and feedback to give. There are numerous charts that principals might use in staff meetings or with individual teachers in focused discussions. We firmly believe that it is the principal of a school who makes the greatest difference in building real math success in that school. We hope that the advice we offer will help you be that principal.

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