

We *all* have a role to play and teachers can't do it alone

(Chapter 13 from “Accessible Math”)

On one level the strategies we've discussed can seem very clear and very straightforward. But taken together, they represent a significant change in practice for many teachers. It is unreasonable to expect to see their broad implementation simply because the strategies are posted or advocated or even if this book is widely distributed. More realistically, the instructional shifts being advocated require understanding, attention and commitment on the part of many beyond the classroom.

Consider what we would expect to see **students** doing in an effective classroom:

- Engaging in tasks that promote mathematical reasoning, communication and problem solving;
- Interacting with each other, as well as working independently;
- Using textbooks as one of many instructional resources;
- Using manipulative materials, technology, and other tools when appropriate;
- Applying mathematical ideas to real-life situations and embedding mathematics in realistic contexts;
- Communicating verbally and in writing to explain their reasoning and their solutions; and
- Proposing alternative approaches and challenging defending, confirming and verifying possible solutions.

It should be clear that these behaviors depend directly on what teachers do and the classroom routines and practices they establish. In an effective classroom where students regularly exhibit the above behaviors, one would expect their **teachers** to be:

- Setting high expectations for students in word, tone and deed.

- Aligning daily instruction with the district and state curriculum framework and the skills and concepts assessed on the high stakes accountability tests;
- Providing students with rich mathematical tasks and problems that constitute the heart of all lessons;
- Promoting collaboration and communication in pairs, small groups and whole class settings;
- Encouraging students to find alternative approaches and solutions;
- Seeking answers to “why” and expecting that students explain their reasoning;
- Using the textbook as one of several resources for planning and conducting instruction;
- Modeling and encouraging the use of manipulative materials, calculators and other tools as appropriate to enhance the development of mathematical understanding;
- Embedding assessment opportunities into all activities to monitor instruction;
- Moving around the room, monitoring instruction, keeping students on task, and assessing individual progress; and
- Working collaboratively with school and grade-level colleagues to solve common problems, plan collaboratively, and provide mutual support.

Just as students operate within the context of a classroom, teachers operate within the context of a school. Accordingly, to ensure that teachers are able to act in these ways, **principals** should be:

- Knowledgeable about district mathematics standards, the expectations of the high-stakes accountability tests, and standards-based instructional materials that support the curriculum;

- Setting clear expectations for curriculum and instruction and communicating these expectations frequently to students, teachers, and parents;
- Monitoring daily instruction to ensure that students are actively engaged in worthwhile mathematical tasks and that assessing understanding is embedded in all activities;
- Assisting teachers and other professional staff in providing rich mathematical tasks and problems that constitute the heart of all lessons;
- Ensuring professional interaction among teachers by facilitating ongoing sharing of ideas, strategies, experiences and materials through classroom visitations, peer observations and faculty discussions;
- Providing the resources needed to assure that teachers have the instructional materials necessary to implement the mathematics program;
- Using faculty meetings to address instructional issues and improvement;
- Using student achievement data to build action plans for improvement; and
- Supporting and encouraging teachers to take risks and try new approaches.

And just as teachers operate within the context of a school, principals operate within the context of a district. Principals are no more or less likely than teachers to implement these practices unless district level **administrators and supervisors** are:

- Knowledgeable about district mathematics standards, the expectations of the high-stakes accountability tests, and standards-based instructional materials that support the curriculum;
- Establishing a comprehensive K-12 mathematics curriculum that is aligned with the state framework and tests;

- Ensuring that principals have the necessary professional development to effectively carry out their instructional leadership responsibilities;
- Providing time for principals to work collaboratively on instructional issues;
- Providing resources and encouragement for high quality professional development at the school level;
- Ensuring that principals have the resources needed to provide sufficient instructional materials to implement the mathematics program.
- Working with principals to analyze and use achievement data to build action plans for improvement; and
- Supporting and encouraging principals to take risks and try new approaches.

In other words, we are an interdependent system. We are all in this improvement business together. Students won't behave in mathematically and educationally productive ways unless regularly encouraged and supported to do so by their teachers. In similar fashion, most teachers are unlikely to adopt the practices discussed here unless they are regularly encouraged and supported by their principals. And it follows that few principals are likely to put mathematics instruction on the front burner unless and until they too are regularly encouraged and supported to do so by district level administrators.

Too often we blame the kids or bemoan the teachers or castigate the administrators. Instead, the only effective mindset is one, from top to bottom, of "we're in this together" and improving student achievement requires specific actions on the part of all.