NATIONAL COUNCIL OF SUPERVISORS OF MATHEMATICS

NCSM JOURNAL

of Mathematics Education Leadership

VOLUME 9, NUMBER 2 WINTER 2007

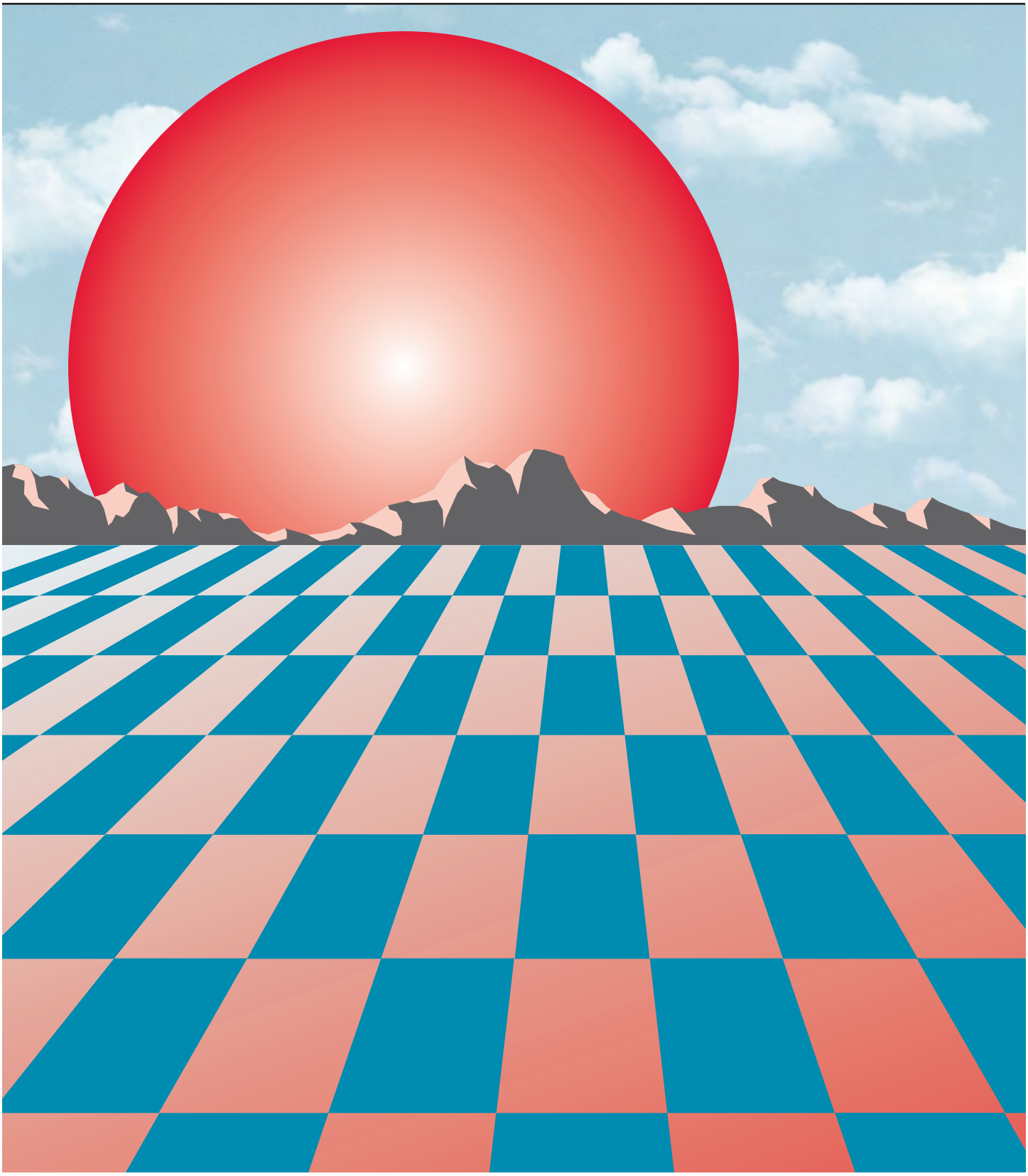

Table of Contents

COMMENTS FROM THE EDITOR:
Representing TODOS and NCSM 1
Mark Driscoll, Education Development Center, Newton, MA

LESSONS FROM A UNIVERSITY-K-12 PARTNERSHIP:
Five Strategies for Mathematics Professional Development 5
Matthew G. Jones, California State University, Dominguez Hills

MANAGER TO INSTRUCTIONAL LEADER:
Developing Teachers as Leaders 7
Ted Hull, NCSM Regional Director for Southern 2 and Chair of NCSM's Equity and Leadership Initiative

REFORMING MATHEMATICS TO MEET THE NEEDS OF EXCEPTIONAL LEARNERS 13
Lesa M. Covington Clarkson and Lesley Craig-Unkefer. University of Minnesota

FIDELITY AND ADAPTATION OF PROFESSIONAL DEVELOPMENT MATERIALS:
Can They Co-Exist? 16
Nanette Seago, WestEd

BUILDING COACHING CAPACITY THROUGH LESSON STUDY 26
Lucy West, Ginger Hanlon, Phyllis Tam, Milo Novelo

DEVELOPING CAPACITY WITHIN A SCHOOL DISTRICT TO BRING ABOUT CHANGE THROUGH PROFESSIONAL DEVELOPMENT 34
Teruni Lamberg, Ph.D., College of Education, University of Nevada, Reno

A MATHEMATICS TEACHER LEADER PROFILE:
Attributes and Actions to Improve Mathematics Teaching & Learning 45
Jan Yow, University of North Carolina at Chapel Hill

Manager to Instructional Leader:
Developing Teachers as Leaders

Ted Hull
NCSM Regional Director for Southern 2 and Chair of NCSM's Equity and Leadership Initiative

Now, more than ever, educational leaders are being challenged to engage and empower staff with the intent of improving student achievement in mathematics. This transition in the role of the school principal, often referred to as a shift from manager to instructional leader, is difficult and challenging. School principals, by their line position, are vested with the authority to make change. Yet, these same individuals may be unfamiliar with the requirements necessary to adjust their use of authority to meet the new leadership demands in the form of influence or power. Furthermore, they appear to have no united plan with mathematics leadership staff for encouraging, supporting and sustaining teacher behavior change with any degree of scale. They unfortunately and unsuccessfully still rely on the more traditional top-down management authority, based on coercion and compliance, instead of shared leadership power, based on pressure and support (Corallo and McDonald, 2002), to impact teachers and create the positive conditions for change. Since mathematics leadership staff positions are not normally vested with the same authority, the two sides fail to connect in providing a cohesive message.

To work collaboratively in promoting and supporting entire school change initiatives, mathematics leadership must understand this power dynamic. Changes in school instructional practices will fail if the principal is apathetic toward or against the recommended changes. Mathematics leadership in staff positions, such as coordinators, supervisors, coaches, and other school or central office personnel responsible for changes in mathematics, must be aware of the power dynamics of school principals as well as their own power position. Collaboration is an invaluable skill since, in most instance, the support staff named above are the link between teachers, principals, and reform mathematics. Principals and mathematics leadership must combine their energies to engage and empower classroom teachers and teacher teams in effectively changing mathematics instructional techniques.

This ends in one important, but perhaps uncomfortable, fact for change. If a person is in a leadership position, line or staff, then he or she must actually lead, not just manage. To meet the new demands of leadership, to increase student achievement in mathematics, and to properly develop teachers as leaders, four elements must merge. The leaders, line and staff, must:

1) provide clearly articulated expectations of teacher behaviors that impact student achievement,
2) provide timely and accurate feedback to the teachers,
3) strategically develop teacher leadership in collaborative teams, and
4) take time to reflect upon the ensuing results.

The nuances of leadership, authority, power, pressure, and support are complex. To successfully accomplish these tasks, principals and mathematics leadership must work together in setting the direction. To improve student achievement is to improve classroom teaching (Marzano, 2003). With the focus of improving classroom instructional practices, leaders must thoughtfully consider the current implementation status of each classroom teacher, the desired strategy to be implemented, and the actions required to move each teacher and the school to the next level of proficiency with the desired strategy. Since individuals adapt to change at different rates (Hord, 1987), it is

important to clarify and focus the efforts of all instructional leaders so a consistent message is communicated as to what strategies are to be employed in the classroom.

Clear expectations

In providing clear expectations and focus for teacher classroom behavior, it is valuable to know both the current and the desired approach to teaching mathematics. Current mathematics instruction in American schools is very predictable and usually fails to successfully teach mathematics to a majority of traditionally underserved students. According to the Third International Mathematics and Science Study (TIMSS), many mathematics teachers follow the same instructional routine of review, demonstration, practice, and assignment (U.S. Dept. of Education, 2000).

This approach, also identified by the National Assessment of Educational Progress (NAEP) research, has dominated the mathematics classroom and resulted in a distinct achievement gap among various student populations (Wenglinsky, 2004). If achieving equity and closing the achievement gap in mathematics is desired, this instructional routine will need to be changed to one that is more engaging and challenging for all students. In mathematics, more effective, inclusive approaches have been identified.

For example, instructional strategies that present a challenging problem to small groups of students are highly effective (Marzano, 2001). Effectiveness further increases when students are allowed to compare and discuss their various problem-solving approaches to well-designed tasks while working in small groups. Through skillful questioning, the mathematics teacher can draw the mathematical thinking from the students and guide increased understanding (Boaler, 2002). From these and other proven strategies, leaders must collaborate with teachers to decide which actions, behaviors, and techniques are needed in the mathematics classroom and then make the strategies known to all teachers. The leaders must regularly monitor the instructional staff in the progress they are making toward achieving the effective use of these strategies and take the needed time to provide this information to the instructional staff in positive, supportive feedback.

Feedback

Feedback is a key element in getting results in student achievement (Marzano, Walters, and McNulty 2005; Schmoker, 1999), and individuals need feedback provided by an outside source to gauge the accuracy of their actions (Brandt, 1998). Without a process to provide timely feedback to teachers, there is no way to monitor the effects of instruction and develop the sense of teacher efficacy. Feedback that guides expectations toward "continuous, incremental improvements [provides] the real building blocks of sweeping systemic change that is rapid — and attainable" (Schmoker, 1999). To be meaningful, feedback must be specific, and to be specific, feedback must address a clearly articulated achievement objective.

In education, providing feedback to teachers has acquired a negative connotation. For the most part, teachers work in isolation (Short and Greer, 2002) and receive feedback in an impersonal, contrived situation that addresses broad, indistinct goals. For many classroom teachers, the principal provides the only feedback. It is presented in the form of cumulative data gathered from required annual state assessment results and annual summative classroom observation forms. With these forms and numbers, little connection is made between the teacher's routine actions and student results, thereby decreasing efficacy. The numbers, whether good or bad, seem totally disconnected from the reality of day-to-day teaching. This is evaluative feedback required by law and based on authority. Teachers need supportive feedback in order to sustain change efforts.

Herein lies one of the major difficulties in shifting from the old manager authority system to the new instructional leadership one — giving worthwhile, supportive feedback is difficult and demanding. This is particularly true for principals who must operate in both evaluative and supportive realms, but it is also difficult for mathematics leadership staff unaccustomed to providing supportive feedback.

This necessary shift will require instructional leadership skills, not management ones. The ability to thoughtfully garner support from the mathematics teachers by setting clear goals, collecting classroom visitation data and providing timely and accurate feedback to the teachers in a positive way is of utmost importance. These responsibilities require instructional leaders to employ a reflective process.

Before initiating the reflective process, the instructional leader must identify small groups of mathematics teachers and the instructional initiative or strategy to be reviewed. Schmoker (1999) recommends taking on small, manageable tasks to increase the likelihood of successful implementation. Overwhelming tasks never seem to get completed. For this reason, the leaders should begin with a reasonable

size group of teachers such as third grade, high school mathematics department, or perhaps Algebra 1, and perhaps one or more complementary strategies.

Developing Teacher Leaders:

In most situations, one individual is not going to be able to create and sustain change initiatives to any degree or scale. Collaborative teams are fundamental to change (DuFour et al, 2004). Further, effective teams need effective team leadership. In developing and running collaborative teams, the duties of the principal and team leader are intertwined. The team leader is acting as an extension of the authority of the principal. The team leader must regularly schedule, plan, attend, and guide the team meetings. They will need to maintain the focus of the meetings on student achievement, instructional strategies, content, pacing, success, and intervention. The principal will need to be aware of the meeting schedule and topics, and periodically attend the meetings.

The team leader will be charged with the responsibility of maintaining open communication with the principal and team members, as well as any mathematics support staff. The principal will need to schedule regular meetings with the team leaders to promote the communication and keep clear the school expectations.

The team leader will be responsible for charting the progress of the students impacted by the collaborative team. He or she will need to gather and chart student achievement data for the team members and the principal. The principal will need to use this data as part of a larger review of progress by looking at team data, grade level or course data, and school data.

One additional power that can be distributed is classroom visits for supporting the implementation of instructional strategies. Regularly visiting classrooms is a must. Through the act of entering classrooms for support, the leader has added credibility and accuracy to his or her comments. Teachers must also be encouraged to visit classrooms to remain informed and develop a sense of community. "Peer pressure, when coupled with valued professional feedback, increases teacher engagement. Teachers do their best work when they collaborate with demanding colleagues." (Williams, 1996).

To be successful, these actions need the support and backing from the school administration and formal mathematics leaders. A list of leadership actions is attached to this article (list 1). The list is designed to help formal leaders recognize their responsibilities in encouraging and developing teachers as leaders.

Reflective process

With this group of mathematics teachers and the expected strategy, behavior, or technique in mind, the instructional leaders are prepared to consider, and reflect upon teacher leadership within collaborative teams as well as the other identified elements. Individuals do not change at the same rate, nor equally respond to the same stimuli. In efforts to improve classroom practices, one size does not fit all. Time to reflect upon the change, growth, and progress will help to sustain momentum, target specific areas of need, and identify successes. In collaborative teams, teachers are encouraged to reflect upon the work of the team and student progress. Leaders must also reflect upon the work and progress of the school.

Summary

Leaders possess a great deal of power. To improve achievement opportunities for students, they will need to use this power wisely and efficiently. Many positive, effective initiatives for classroom change never get implemented because leaders do not actually plan for the implementation stages. Leaders must learn how to build a critical mass of teacher support for change by empowering teachers to be an integral part of the change process. If an initiative is to be effectively implemented, then teachers need to be supported and encouraged as well as empowered as leaders. Specific, positive, thoughtful feedback is a major key in accomplishing this end. If this feedback is to be thoughtful, then it stands to reason that the leader must engage in a reflective process.

As noted, current conditions in the mathematics classroom are not generally closing student achievement gap. These conditions will not change without intervention from the leader. Large, unsupported change efforts often fail due to the inability of the administrator to monitor implementation and provide meaningful feedback to the individuals involved. With this list as a starting place, the leader will be able to select actions that will engage and empower teachers in school change. By highlighting specific, effective procedures, and targeting willing and able staff, the leader can build support for the desired change in mathematics instruction, thus ensuring every child a high quality, challenging, and effective mathematics education.

Administrative Support for Teachers as Leaders

LIST 1

In developing teachers as leaders, the school administrator will promote:

Collaboration by:

Leading efforts to form teams
Clarifying roles and expectations
Periodically attending meetings
Periodically meeting with current team leader
Periodically meeting with current team leaders
Garnering teacher input and respecting it

Training by:

Attending professional development training with teachers or teacher leaders
Guiding teachers in selecting school-wide strategy selection
Encouraging and promoting teacher training on strategies

Classroom visitations by:

Visiting classrooms with specific list of elements
Working with teachers to develop the list
Working with teachers to provide feedback
Working with teachers to promote peer coaching

Data interpretation by:

Analyzing data with teacher leaders
Assisting in defining:
• What does the data tell us?
• What does the data not tell us?
• What additional data do we need?

Intervention by:

Working with teachers to plan intervention strategies
Balancing inside classroom and outside classroom intervention

Collaboration with Central Office and Support Staff by:

Encouraging teacher leaders in meeting regularly with these individuals
Ensuring consistency and coherence in message delivery
Working with teacher leaders in setting school direction

References

Boaler, J. (2002). *Experiencing school mathematics: traditional and reform approaches to teaching and their impact on student learning.* Mahwah, New Jersey: Lawrence Erlbaum Associates.

Brandt, R. (1998). *Powerful learning.* Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).

Corallo, C. and McDonald, D. (2002). *What works with low-performing schools: a review of research.* Charleston, W. VA: AEL

Downey, C. (2004). *The three-minute classroom walk-through: changing schools supervision practice one teacher at a time.* Thousand Oaks, CA: Corwin Press, Inc.

DuFour, R, DuFour, R., Eaker, R., and Karhanek, G. (2004). *Whatever it takes: how professional learning communities respond when kids don't learn.* Bloomington, Indiana: National Educational Service.

English, F. (2000). *Deciding what to teach and test.* Thousand Oaks, CA: Corwin Press, Inc.

Geisler, J. (2003). The Power grid of Leadership. Retrieved May 17, 2005, from http://www.poynter.org

Hord, S. et al. (1987). *Taking charge of change.* Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).

Marzano, R., Walters, T., and McNulty, B. (2005). *School leadership that works: from research to results.* Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).

Marzano, R. (2003). *What works in schools.* Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).

Marzano, R. (2001). *Classroom instruction that works: researched-based strategies for increasing student achievement.* Alexandria, VA: Association for supervision and Curriculum Development (ASCD).

Schmoker, M. (1999). *Results: The key to continuous school improvement.* Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).

Schmoker, M. (2004, February). Tipping point: from feckless reform to substantive instructional improvement. *Phi Delta Kappan*, volume 85 (issue 5). 424–432.

Short, P. M., and Greer, J. T. (2002). *Leadership in empowered schools: Themes from innovative efforts.* Columbus, OH: Merrill Prentice Hall.

U.S. Department of Education. (2000). *Before it's too late: A report to the nation from the National Commission on Mathematics and Science Teaching for the 21st Century.* Jessup, MA: Education Publications Center.

Wenglinsky, H. (2004, November). Closing the racial achievement gap: the role of reforming instructional practices. *Educational Policy Analysis Archives.* volume 12 (number 64). 1-23.

Williams, B. (1996). *Closing the achievement gap: A vision for changing beliefs and practices.* Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).

Whitaker,T. (2002). *Dealing with difficult teachers.* Larchmont, N.Y.: Eye on Education