

13 TEACHERS TEACHING TEACHERS™

FOR A DYNAMIC COMMUNITY OF TEACHER LEADERS

LEARNING CYCLE SPINS individuals into a team

By Valerie von Frank

Jenny Cooper and Tim Yoder stood outside their portable classrooms on a recent rainy March morning, umbrellas in hand, greeting their 6th-grade students side-by-side. Yoder, a 33-year veteran teacher, and Cooper, who is in her second

year of teaching at McConnell Middle School in Gwinnett County, Ga., are a united front. The two have formed a strong bond based not only on their personal regard for one another, but on the teamwork created at McConnell that includes schoolwide shared content planning and common assessments.

Before last school year, Cooper and

Yoder had worked in a more typical school culture. “Until that time,” Yoder said, “everybody winged it. ... Everybody was the Lone Ranger.” He said teachers developed their own ideas and effective practices — and then most kept the means to any successes a secret.

Now, this middle school has teacher teams jointly developing mini-lessons within their curricular area, and teachers spend time observing one another teaching. Groups have or are in the process of developing common assess-



What's inside

NSDC tool

Take a spin around the Professional Learning Team Cycle.

Pages 4, 5

Lessons from a coach

Coaches can help teachers succeed.

Page 6

Voice of a teacher leader

Report cards need to be better than guesses.

Page 7

Focus on NSDC's standards

A shift in attitudes can start closing the achievement gap.

Page 8

Research brief

A national math panel totals up the improvements needed.

Page 11



National Staff
Development
Council
800-727-7288
www.nsd.org

ments, and the weekly 80-minute collaborative meetings during the school day are full of what Yoder called “practical sharing.”

When teachers have opportunities to create, lead, and learn in teams, both teachers and students can benefit if the teams understand the purpose and how to focus their work, said Ed Tobia, a program associate with SEDL, a private, non-profit education research, development, and dissemination corporation based in Austin, Texas. Tobia, an NSDC Academy coach, worked with McConnell Principal Paula Everett-Truppi in the NSDC Academy on strategies for professional development.

Tobia said the keys to successful learning teams are structure and school culture.

“I’ve seen too many conversations go awry where the principal just throws teachers in a room and says, ‘OK, talk about what you’re doing and what your kids are doing. Now go to it,’” Tobia said. SEDL outlines a professional learning team cycle (PTLC) that is a structured process involving specific phases in an ongoing circle of learning (see pp. 4-5).

NSDC’S BELIEF

Sustainable learning cultures require skillful leadership.

Tobia said the PTLC offers teachers a framework to have a professional learning team conversation about what to teach, how to teach it, how to get a handle on

whether students have learned the material, and what to do if they don’t.

Data are the first essential to working collaboratively, he said. Once the data reveal an area for the team’s focus, the team can work together to dig deeper to find the specific strand within that area, then look at how teachers are approaching that topic and look at strategies across content areas, he said. “That’s how the process starts.”

At McConnell, teams begin by looking at scores for every child in each teacher’s class. Every teacher has an ongoing data folder, and in a cumulative effort every nine weeks, the data are broken down and examined to determine failure rates by subgroup.

Everett-Truppi, in her second year as princi-

pal of the 2,600-student school, is proud to point out an improved record of learning as a result — the county’s ranking of the school moved from 16th of 20 middle schools in 2007 to 11th last year. She attributes the change directly to the teachers’ work in teams and the school’s culture of collaboration.

Tobia said the difference in schools where learning teams are effective is leadership — and not just from the top. “Anyone who is a change agent can look at strategies and do some things that will have an impact,” he said.

SIX AREAS OF FOCUS

Teacher collaboration is enhanced by a context of favorable conditions within the school, Tobia said. He said teacher leaders can focus on these areas:

A safe, orderly environment

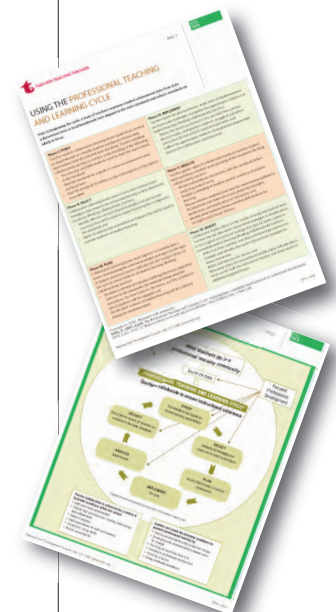
“If teachers are spending most of their time on discipline and the school is in disarray in terms of administrative procedures, those issues become disruptive and eat up a huge amount of teacher time,” Tobia said. “If the environment is orderly, teachers are more likely to be able to focus on instructional issues rather than logistics, such as how to get students to class on time.” Teacher leaders can address such schoolwide issues and create a sense of collegiality, “we’re all in this together,” rather than “a police state,” he said.

When teachers meet, they can develop specific norms that foster a sense of safety. Part of creating a positive culture is developing a sense of trust among teachers that allows people to open up, to ask questions, and to not be judged for doing so, Tobia said.

Open, trusting relationships

Tobia said he once attended a learning team meeting that focused on improving instruction for students on alliteration. After the hour-long meeting, a teacher pulled him aside. “What is alliteration?” the teacher asked.

“Unless people feel they can open up without being judged, they are going to be quiet or just do the minimum,” Tobia said. “When you have deep conversations where the focus is on



ON PP. 4-5

SEDL outlines a professional learning team cycle (PTLC) that is a structured process involving specific phases in an ongoing circle of learning.

people’s beliefs about student learning and the best form of instruction, that opens the door to getting people to be more open.”

A sense of urgency

A strong vision for change that the school community can rally around is an important piece of the learning model, Tobia said. “It’s not about creating a mission statement,” he said. “It’s the gut level. Leaders put information out to get people to recognize how important the work is that they need to do. It’s a strong message. It’s about making an emotional commitment to the idea that we need to change, not just an intellectual one.” Emotions, he said, create a stronger sense of the urgent need for action.

For example, he said, a sign in a park that says, “Pick up after your dog,” connects with some people only at an intellectual level. One that says, “Children play here, so please pick up after your dog,” conveys a more emotional reason to take action.

High expectations for staff and students

“If you don’t have specific, high expectations, you will not get people to do the deep, meaningful work that’s necessary to improve teaching and learning,” according to Tobia. “If you just have teachers meet and expect that they turn in a report, that’s all you’ll get. You’re not going to have people get into deep conversations. ... Someone there at the meeting needs to keep challenging people and reminding them of the importance of the work and of not having the conversation devolve into talk about what Emily, for example, isn’t doing.”

Competent, caring adults

Adding content knowledge is one focus for professional learning team work. Analyzing student work and understanding the way students learn is essential to competence, as well, Tobia pointed out, saying all this is work that learning teams may focus on. “You don’t create competence by having a workshop,” he said. “You have to be consistent.”

Caring connects individuals to create a context that makes the work meaningful, he said. Staff are more likely to engage deeply if they are

Leadership is the difference — and not just from the top — in schools where learning teams are effective, said Ed Tobia. “Anyone who is a change agent can look at strategies and do some things that will have an impact.”

immersed in a caring environment. Tobia told a story he attributes to NSDC Emeritus Executive Director Dennis Sparks of a superintendent who wanted to make a point about how many students in the district were at risk. Rather than citing a percentage or giving a number, the superintendent wrote each name on one line of a scroll, then unrolled it for everyone to see the length of the list. The visual impact had an immediate emotional connection for those present.

Mutual accountability

The sense that each individual is responsible not only for his or her own work, but the outcomes of the group, is important to effective learning teams and collaborative culture, Tobia said, and “to go beyond the surface work that so often happens when PLCs are created without paying attention to the culture.” He said group members must take responsibility for holding one another accountable. For example, if some aren’t on time to meetings or don’t arrive prepared, others need to speak up and call attention to the issue.

Principal Everett-Truppi said McConnell’s work to create a positive culture and continued improvement is ongoing. “Some groups have embraced” learning teams after the first year-and-a-half, she said. “Some struggle.”

“There was some resistance,” Yoder admitted. “Everybody had a problem initially with more meetings. But when you see the results, how do you argue with success?”

And Cooper said the collaborative culture and teaming make hard work easier.

“In my first few years of teaching, I felt I had to do it all,” Cooper said. “I felt like I was doing every lesson. I’m much more confident now because I know what everybody else is doing. ... Everybody shares openly and makes everybody feel good about what they’re doing.” ♦



For additional information about the PLC cycle, see the April issue of *The Learning Principal*, <http://www.nsd.org/news/issueDetails.cfm?issueID=268>

USING THE PROFESSIONAL TEACHING AND LEARNING CYCLE

Prior to beginning the cycle, a team of teachers examines student achievement data from state achievement tests or local benchmark tests aligned to the state standards and selects standards on which to focus.

<p>Phase I: STUDY</p> <p>Teachers work in collaborative planning teams (grade-level, vertical, or departmental) to critically examine and discuss the learning expectations from the selected state standards. Teachers working collaboratively develop a common understanding of the following:</p> <ul style="list-style-type: none"> • The concepts and skills students need to meet the expectations in the standards • How the standards for a grade or course are assessed on state and local tests • How the standards fit within a scope and sequence of the district curriculum 	<p>Phase IV: IMPLEMENT</p> <p>Teachers teach the planned lesson, make note of implementation successes and challenges, and gather the agreed-upon evidence of student learning. Working collaboratively, teachers:</p> <ul style="list-style-type: none"> • Deliver the lesson as planned in the specified time period; • Record results, noting where students struggled and where instruction did not achieve expected outcomes; and • Collect the agreed-upon evidence of student learning to take back to the collaborative planning team.
<p>Phase II: SELECT</p> <p>Collaborative planning teams research and select instructional strategies and resources for enhancing learning as described in the standards. Working collaboratively, teachers:</p> <ul style="list-style-type: none"> • Identify effective research-based strategies and appropriate resources that will be used to support learning that is aligned to the standards; and • Agree on appropriate assessment techniques that will be used to provide evidence of student learning. 	<p>Phase V: ANALYZE</p> <p>Teachers gather again in collaborative teams to examine student work and discuss student understanding of the standards. Working collaboratively, teachers:</p> <ul style="list-style-type: none"> • Revisit and familiarize themselves with the standards before analyzing student work; • Analyze a sampling of student work for evidence of student learning; • Discuss whether students have met the expectations outlined in the standards and make inferences about the strengths, weaknesses, and implications of instruction; and • Identify what students know and what skill needs to be strengthened in future lessons.
<p>Phase III: PLAN</p> <p>Collaborative planning teams work together to formally plan a lesson incorporating the selected strategies and agree on the type of student work each teacher will take into the “analyze” phase of the cycle to reveal evidence of student learning. Working collaboratively, teachers:</p> <ul style="list-style-type: none"> • Develop a common formal plan outlining the lesson objectives (relevant to the standards), the materials being used, the procedures, the time frame for the lesson, and the activities in which students will be engaged; and • Decide what evidence of student learning will be collected during the implementation. 	<p>Phase VI: ADJUST</p> <p>Collaborative teams reflect on the results of analyzing student work. Teachers discuss alternative instructional strategies or modifications to the original instructional strategy that may be better suited to promoting student learning. Working collaboratively, teachers:</p> <ul style="list-style-type: none"> • Reflect on their common and disparate teaching experiences; • Consider and identify alternative instructional strategies for future instruction; • Refine and improve the lesson; and • Determine when the instructional modifications will take place, what can be built into subsequent lessons, and what needs an additional targeted lesson.

Copyright by SEDL. Reprinted with permission.

Tobia, E. (2007, April). The Professional Teaching and Learning Cycle: Implementing a standards-based approach to professional development. *SEDL Letter*, 19(1), 12. Retrieved from www.sedl.org/pubs/sedl-letter/v19n01/SEDLletter_v19n01.pdf.

Context for Change

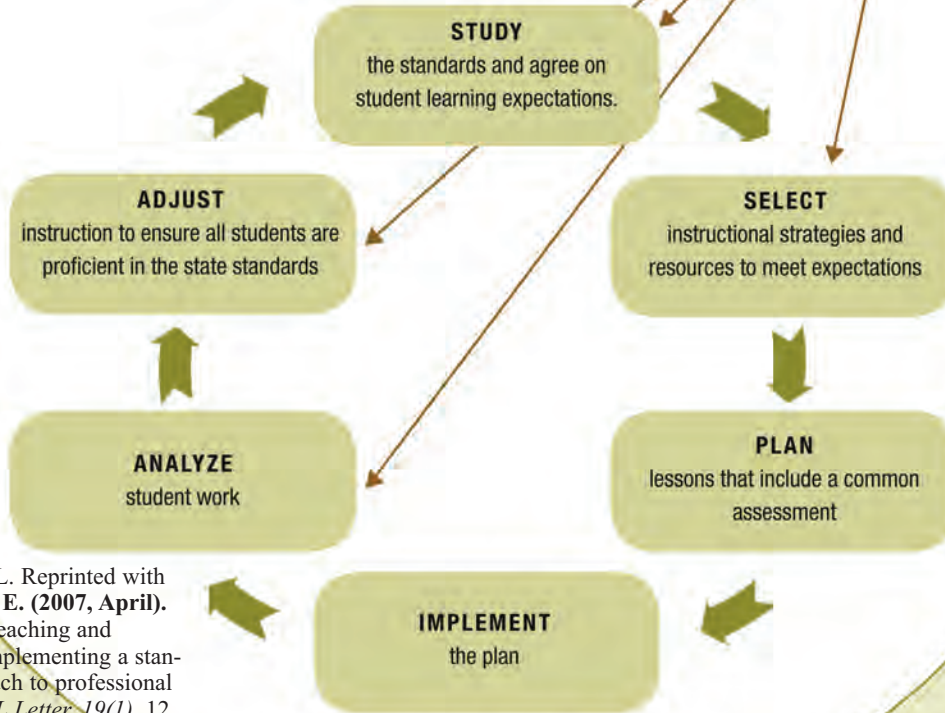
What teachers do in a professional learning community

Focus on data

Focused Professional Development

PROFESSIONAL TEACHING AND LEARNING CYCLE*

Teachers collaborate to ensure instructional coherence



Copyright by SEDL. Reprinted with permission. **Tobia, E. (2007, April).** The Professional Teaching and Learning Cycle: Implementing a standards-based approach to professional development. *SEDL Letter*, 19(1), 12. Retrieved from www.sedl.org/pubs/sedl-letter/v19n01/SEDL_Letter_v19n01.pdf.

*Adapted from the professional teaching model of the Charles A. Dana Center

- Teacher collaboration is enhanced by a context of favorable conditions within the school:**
- Safe and orderly environment
 - Climate that promotes open, trusting relationships and collaboration
 - Sense of urgency
 - High expectations for staff and students
 - Competent, caring adults
 - Mutual accountability

- Leaders can create the favorable conditions for powerful professional learning by:**
- Creating an atmosphere and context for change
 - Developing and communicating a shared vision for change
 - Planning and providing resources
 - Investing in professional development
 - Checking progress
 - Giving continuous assistance



Marie Alexander is a literacy specialist at MS 216 in District 12, New York City and has coached teachers since 2001. You can contact her at malexander@ufttc.org.

We help teachers to taste success

Q How do you support new teachers?

You want to support what they're doing. They get on themselves a lot, and you want to celebrate their successes. You want them to work on just one thing, such as how to transition from one activity to the next, or what can we plan to get students engaged, and then move on and keep scaffolding the learning.

You go into the classroom to provide support and talk about what you see, then you try to guide them into being more reflective thinkers and practitioners. You ask, "What worked? Where did the breakdown happen and how can we fix it?"

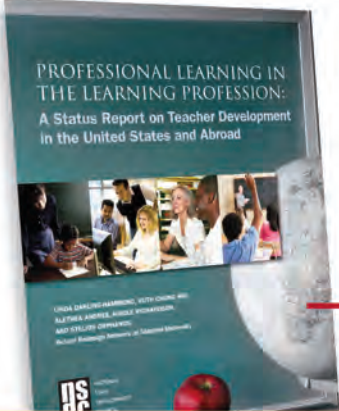
At first, since they're fresh out of college, they're thinking at a college level. I try to have them be more reflective. They have to deconstruct what they want and teach the kids the steps — don't just throw it at them and say, "Do this." They have to learn to take it slowly and teach

students the steps.

New teachers get frustrated sometimes with management. It's breaking that down into what procedures need to be put in place and helping them connect with students, helping them find ways to understand the students and learn how to communicate with them — to not take things personally. They sometimes think, "My students hate me." You have to help them think a different way. "It's not that they hate you. They're the students; you're the teacher. How can you get them to want the things that you want?"


A lot of times, they may not know what to do. You have to break it down to show them. And once they see that they can do it, then you can get them to do different things. Once they taste that success — they've got a great lesson — they're upbeat and ready to start the next day.

There was a teacher who thought about nothing but getting through the day. Now she's thinking differently. "Oh, I'm getting students to learn even more." That's an accomplishment. ♦



“Most states and districts are still not providing the kind of professional learning that research suggests improves teaching practice and student outcomes,” says *Linda Darling-Hammond*.

Learn more in NSDC's recently released *Professional Learning in the Learning Profession*.



**NATIONAL
STAFF
DEVELOPMENT
COUNCIL**

Download the report at www.nsd.org/stateproflearning.cfm



Bill Ferriter is a 6th-grade social studies and language arts teacher at Salem Middle School, Apex, N.C.

No better than a fortune teller?

One summer, my buddy Mike and I took a day off from the camp where we were working and traveled around Maine taking pictures of an unopened bottle of Rolling Rock in interesting locations. I'm not sure why, but we thought it was hilarious! Early in our adventure, we drove past a house with a sign reading, "Have your fortune told. REAL crystal ball!"

Figuring that we had to have a picture with a "real crystal ball," we pulled over. We paid \$15 and then sat down at a card table with a haggard old woman and the cheap glass paperweight she swore was an enchanted object passed down through her family for generations.



Doubting the supernatural but enjoying the experience, we settled in for a completely bizarre conversation. "I see many things here," she started. "You are both going to make many people laugh and many people cry. You will love and be loved. Troubles will come, but you will remain undaunted."

We weren't impressed with these ambiguous predictions, and so we pushed for more. "There's got to be something better than that in a real crystal ball!" we argued.

"Yes," she whispered, "It is coming to me. I see that you are both going to make money and spend money!" That was it. Mike and I broke into hysterics, forcing our fortune teller to kick us out.

Sadly, I'm wondering whether schools are any better at giving feedback to clients than my fortune-telling friend. Think about it: Can parents really learn anything more about the strengths

and weaknesses of their children from the grades that come home on report cards than I learned sitting around a glass paperweight with a cheesy mystic?

Chances are the answer is no. In most schools, educators work independently of one another to determine students' levels of mastery — causing standards of performance to vary from one room to another, dependent on nothing more than the opinion of individual practitioners.

What's worse, teachers rarely have time to provide meaningful feedback to students. Buried under planning, paperwork and parents, the only time that we control in our day is the amount of time that we spend grading assignments. As a result, students get tasks back covered in generic comments like,

"Nicely Done" and "Needs Improvement."

Not as hysterical, is it?

So what's the solution?

First, teams of teachers need to collectively create exemplars demonstrating levels of excellence that parents and students can use to better understand what competence and content mastery look like. Even better, exemplars ensure evaluative consistency across entire hallways — something that is often nonexistent in schools.

Second, school leaders need to limit the external demands placed on teachers. No longer is it OK for schools to push meaningless tasks onto classroom teachers. Ensuring that planning and grading are the No. 1 priority of the professionals working with students in your building may just guarantee that feedback can be something more than ineffective fortune telling.

Don't we owe that to parents and students? ♦

Join the conversation with Bill by visiting www.nsd.org/learningblog/ and offering your opinion. Bill posts his provocative ideas frequently — be sure to return often.

Eliminate a myth, close a gap

NSDC's purpose is a rallying cry for improving student learning: "Every educator engages in effective professional learning every day so every student achieves."

The purpose statement includes three elements. It describes who, how, and for what. Often as education leaders talk about professional learning, they focus on those learning professionally and neglect the primary reason for the learning. The result of effective professional learning is learning for every student. Not some. Not most. Everyone.

Coaches and teacher leaders have a crucial responsibility to confront beliefs and practices that interfere with the results NSDC advocates. The simple fact is this: Education is uneven and inequitable. Some students have access to learning opportunities that others do not. Those in historically low-performing schools or with large numbers of students living in poverty often experience an education program that falls below what their counterparts in wealthier or higher-performing schools experience.

In some schools "blamestorming" rather than brainstorming is a common practice. Educators find it is easier to identify the reasons students can't achieve rather than imagine how to guarantee that they do. Yet teachers are incredibly resourceful and inventive. Given a challenge and an opportunity to move beyond reasons students can't learn, they will discover ways to ensure they do.

Coaches who work with teachers who see problems more readily than possibilities often are frustrated with peers whose views are less positive. How do coaches help teachers shift their perspective and practice to provide every student opportunities to learn? Perhaps the best strategy is to provide examples of success.



NSDC STANDARD

Equity: Staff development that improves the learning of all students prepares educators to understand and appreciate all students, create safe, orderly, and supportive learning environments, and hold high expectations for their academic achievement.

The Education Trust, a Washington, D.C.-based not-for-profit educational organization, highlights schools that have closed the achievement gap. Its president, Kati Haycock, in an address at Bridge to School Reform, the Wallace Foundation's National Conference in October 2007, noted that national trends in student achievement indicate that the gap between white and black students and between white and Latino students is narrowing. Schools are demonstrating that they can overcome some of the factors often cited as the reason for poor student academic performance. The news is particularly good for elementary school students and more uneven for middle and high school students.

Strikingly, Haycock points to trend data that suggest that the choices made by both policy makers and educators contribute to these inequities. Policy makers choose to spend less on schools with large populations of poor or minori-



Joellen Killion is deputy executive director of the National Staff Development Council.

For more information about NSDC's Standards for Staff Development, see www.nsd.org/standards/index.cfm

ty students. Educators, too, contribute by lowering their expectations, providing less rigorous instruction, and placing less experienced teachers in schools with poor and minority students.

“When you add up the effects of both sets of choices — both the choices that policy makers make and the choices that we educators make — the results are devastating,” says Haycock. “The gap that separates poor kids from middle class kids and kids of color from white kids grows wider and wider the longer they remain with us in school” (p. 27).

The Education Trust studies schools and districts that have reversed the trend and have begun to close the gap by studying schools and districts where student performance is increasing and the

gaps are minimal. Lessons about what leaders do can inform the work of district leaders, principals, teacher leaders, and school and district leadership teams. Here are several of those lessons:

Focus on what can be changed rather than what can't. Teachers, teacher leaders, principals, and district leaders are concerned about the life conditions facing many students. However, their primary focus is on ensuring that students experience the highest quality teaching every day and that instruction is rigorous, aligned with state standards, and has high expectations for student success. Identifying students who can benefit from extra support, targeting interventions to specific students, and celebrating success are strate-

Teachers Teaching Teachers (T3)[™] is published eight times a year by the National Staff Development Council, 504 S. Locust St., Oxford, OH 45056. Copyright, NSDC, 2009. All rights reserved.

MAIN BUSINESS OFFICE

504 S. Locust St.
Oxford, OH 45056
513-523-6029
800-727-7288
Fax: 513-523-0638
NSDCoffice@nsdc.org
www.nsdco.org

Editor: Valerie von Frank
Designer: Kitty Black

NSDC STAFF

Executive director
Stephanie Hirsh
stephanie.hirsh@nsdc.org

Deputy executive director
Joellen Killion
joellen.killion@nsdc.org

Director of business services
Leslie Miller
leslie.miller@nsdc.org

Director of learning
Carol François
carol.francois@nsdc.org

Distinguished senior fellow
Hayes Mizell
hmizell@gmail.com

Emeritus executive director
Dennis Sparks
dennis.sparks@comcast.net

Scholar laureate
Shirley Hord
shirley.hord@nsdc.org

BOARD OF TRUSTEES

Charles Mason (2010)
President
masonc@mtnbrook.k12.al.us

Ingrid Carney
President-elect
icarney@boston.k2.ma.us

Mark Diaz (2011)
markdiaz54@yahoo.com

Karen Dyer (2009)
Past president
dyerk@leaders.ccl.org

Sue Elliott (2011)
selliot@sd45.bc.ca

Cheryl Love (2010)
samsseed@aol.com

James Roussin (2009)
jim.roussin@gmail.com

Ed Wittchen (2010)
ed.wittchen@telus.net

COPYING/REPRINT POLICY

All content in *Teachers Teaching Teachers (T3)* is copyright protected by the National Staff Development Council and may not be copied or reprinted without permission. Please see www.nsdco.org/news/permpolicy.cfm for details as well as a form for submitting a request.

CONTACT

Complete contact information for all staff and board members is available on the web site at www.nsdco.org/about/index.cfm.



gies for helping teachers develop a deeper understanding of how they do influence students' academic success.

Little is left to chance. District leaders hold high expectations of principals, and principals in turn hold high expectations of teachers. Coaches step in to support teachers who want to refine teaching, assessment, and planning so that teachers meet every student's learning needs. Principals and teams of teachers conduct various formative assessments to identify which instructional practices are successful and which ones to revise. Teachers plan together, learn together, and foster collective responsibility for every student's success. Multiple interventions within classrooms and schools are available to proactively address student learning needs.

Teaching quality matters. The best teachers step into the roles that allow them to affect the students who need them the most. As Haycock states, strong leaders make sure their strongest teachers are not teaching just the high-end students, but those who need them the most. Traditionally, schools with the largest populations of poor and minority students have the most inexperienced teachers. To take advantage of the strengths of every teacher and to support all teachers in improving their instructional practices, teachers collaborate to plan instruction, develop and score assessments, and reflect on their practices so that what the most experienced and most effective teachers know is known by every teacher.

Teacher leaders and coaches have five primary responsibilities to ensure equity in students' education. They:

1. Communicate high expectations for self, students, and staff;
2. Support their colleagues in doing the same;
3. Work with staff to understand the impact of their attitudes, background, culture, and social class on teaching and learning;
4. Contribute to the development of a learning environment that is emotionally and physically safe for students and staff; and
5. Demonstrate respect and appreciation for students, staff, and their families for their

family heritage, language, and cultural background (Killion & Harrison, 2006).

Educators set high expectations and create productive learning environments that foster and support student and teacher learning. By focusing on eliminating unevenness and inequities in learning for every student and for every educator, the achievement gap will diminish. Sadly, both educators and policy makers continue to believe that poor and minority students cannot learn at the same levels as other students. "That myth holds on, but it's dead wrong," Haycock insists (p. 29). Substantial research supports her. By telling their stories, identifying turnaround schools, and engaging in examining research about what it takes to close the achievement gap, The Education Trust has amassed the evidence to make the doubters question their beliefs. The organization can point to specific practices that all schools can implement to ensure that every student achieves. To make academic success a reality for every student, teachers and principals engage in continuous professional learning, collaborate about their practices, share collective responsibility, and hold one another accountable.

References

Haycock, K. (2007, October). *Closing the achievement gap: Where are we? What are the most important roles for education leaders?* Presentation at The Wallace Foundation's National Conference, New York. Available at www.wallacefoundation.org/KnowledgeCenter/KnowledgeTopics/CurrentAreasofFocus/EducationLeadership/Pages/a-bridge-to-school-reform.aspx

Killion, J. & Harrison, C. (2006). *Taking the lead: New roles for teachers and school-based coaches.* Oxford, OH: National Staff Development Council. ◆

Strong leaders make sure their strongest teachers are not teaching just the high-end students, but those who need them the most.

Math panel counts ways to improve

By **Carla Thomas McClure**

The National Mathematics Advisory Panel, established by executive order in 2006, was charged with recommending research-based actions to advance the teaching and learning of mathematics. The panel of mathematicians, cognitive psychologists, educators, and other experts reviewed more than 16,000 research and policy reports, public testimony from 110 individuals, written commentary from 160 organizations and individuals, and survey results from 743 algebra teachers. The panel concluded that the U.S. “delivery system in mathematics education — the system that translates mathematical knowledge into value and ability for the next generation — is broken and must be fixed” (p. xiii).

The big picture

The panel’s final report (2008) takes a broad view in presenting 45 findings and recommendations, with the central message being to put first things first. In a nutshell:

- Streamline the preK-8 math curriculum and emphasize the most critical topics (whole numbers, fractions, and particular aspects of geometry) in the early grades. Follow a coherent progression, and avoid revisiting topics year after year.
- Capitalize on research on how children learn (e.g., give them a strong start in mathematics; help them develop conceptual understanding, computational and procedural fluency, and automatic recall of facts; and emphasize effort and persistence).
- Attract, prepare, evaluate, and retain effective teachers.
- Inform instructional practice through high-



quality research and the professional judgment of accomplished teachers.

- Improve the quality of the National Assessment of Educational Progress (NAEP) and state assessments; increase their emphasis on the critical knowledge and skills students need for algebra.
- Build the nation’s capacity for rigorous research in mathematics education, and use research findings to inform policy and practice.

The algebra pipeline

Based on available data, algebra is often described as a gateway to higher math courses, better math scores on standardized tests, and college attendance. For this reason, the National Math Panel recommends that more students should be prepared to succeed in algebra and have the opportunity to take it in the 8th grade. The most recent NAEP results show that only 39% of 8th graders are at or above the “proficient” level in mathematics. “Problems in mathe-

EDVANTIA™

Carla Thomas McClure is a staff writer at Edvantia (www.edvantia.org), a nonprofit research and development organization that works with federal, state, and local education agencies to improve student achievement.

mathematics learning in the U.S. increase in late middle school before students move into algebra,” the panel reports (p. 3). NAEP scores indicate that the problems continue throughout high school, with only 23% of students achieving proficiency or better in mathematics in the 12th grade.

Although much has been made of the call for 8th-grade algebra, the panel emphasizes that higher standards alone are not likely to yield the hoped-for results. A random national survey of Algebra I teachers indicates that preparation for success in algebra needs to begin in elementary school. They noted that student preparation seems especially weak in three areas: rational numbers, word problems, and study habits.

Regarding instructional practices, the panel concluded that quality research does not support the exclusive use of either “student centered” or “teacher directed” approaches. Struggling students and those with disabilities benefit from explicit instruction when the teacher provides clear models for solving problems, offers examples, lets students practice and think aloud, and provides extensive feedback. Other findings: Formative assessment can improve student learning in the elementary grades. Using real-world contexts to introduce mathematical ideas does not improve student performance on assessments that focus on other aspects of math, such as computation, simple word problems, and equation solving. Although students’ use of calculators was found to have little or no impact on calculation skills, problem solving, or conceptual development over periods of one year or less, the panel cautions that “to the degree that calculators impede the development of automaticity (e.g., instant recall of multiplication facts), fluency in computation will be adversely affected” (p. xxiv).

Professional development for teachers

The panel recommends that professional development for mathematics teachers should not only strengthen their knowledge and skills, but also help them understand how the content they teach is connected to what students have already learned and what they will learn next. Unfortunately, existing research offers little infor-

Recommended resources

- CENTER ON INSTRUCTION
K-12 mathematics resources
www.centeroninstruction.org
- NATIONAL RESEARCH COUNCIL
How People Learn: Brain, Mind, Experience, and School
www.nap.edu/openbook.php?record_id=6160
- U.S. DEPARTMENT OF EDUCATION
National Math Panel Report and Related Resources
www.ed.gov/about/bdscomm/list/mathpanel
- ORGANIZING INSTRUCTION and Study to Improve Student Learning (IES Practice Guide)
<http://ies.ed.gov/ncee/wwc/pdf/practicguides/20072004.pdf>

mation about “what effective teachers do to generate greater gains in student learning” (p. xxi). The panel also lamented the lack of quality research on the efficacy of placing full-time math teachers in elementary schools.

Reference

National Mathematics Advisory Panel. (2008). *Foundations for success: The final report of the National Mathematics Advisory Panel.* Washington, DC: U.S. Department of Education. ◆

A random national survey of Algebra I teachers indicates that preparation for success in algebra needs to begin in elementary school. They noted that student preparation seems especially weak in three areas: rational numbers, word problems, and study habits.

SAVE \$50
when you register by April 30th
on a 3- or 4-day registration



Who Should Attend:

- Teacher Leaders
- Principals and Assistant Principals
- Mentors, Coaches, and Instructional Specialists
- Staff Developers
- Curriculum Consultants
- District Office Administrators
- Program Developers
- Technical Assistance Providers

Going the Distance With School-Based Professional Learning

NSDC's 5th Annual Summer Conference for Teacher Leaders and the Administrators Who Support Them
July 19–22, 2009 – Boston Marriott Copley Place

Keynote Speakers:

ROBERT DUKE, professor of music and human learning, The University of Texas at Austin

RONALD FERGUSON, economist and senior research associate, Malcolm Wiener Center for Social Policy at Harvard University

CAROL JOHNSON, superintendent, Boston Public Schools

PHILLIP SCHLECHTY, president and CEO, Center for Leadership in School Reform

CRIS TOVANI, teacher, consultant, and author of *I Read It, But I Don't Get It* and *Do I Really Have to Teach Reading?*

Over 180 breakout sessions and roundtables will address:

- Learning Communities
- Data-Driven Learning
- Professional Learning Processes
- The Learning Gap
- New Teacher Support
- Teacher Leadership
- Administrator Development



**NATIONAL
STAFF
DEVELOPMENT
COUNCIL**
800.727.7288
www.nsd.org

REGISTER NOW AT WWW.NSDC.ORG