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TEACHERS TEACHING TEACHERS ™

FOR A DYNAMIC COMMUNITY OF TEACHER LEADERS

High-leverage ideas

RESEARCH UPDATES BEST PRACTICES IN FOUR AREAS OF TEACHING
THAT CAN POWER YOUR IMPROVEMENT

By Valerie von Frank

In 1984, when Apple came out with the Macintosh, the computer had 128 kilobytes of memory. This year, computers being sold for home use can store terabytes worth of information — the equivalent of a trillion bytes.

Jim Knight, research associate at the University of Kansas Center for Research on Learning, likes to use the phenomenal advances in the computer example when he explains education today.

"Every year, the computer gets better and better," said Knight, "but we have a lot of teaching practices produced in 1984 that look exactly the same today."

Nearly a decade ago, Knight began investigating what he terms "high-leverage" teaching practices, those that have the greatest effect on student learning. In what he emphasizes is an ongoing and evolving project, he has identified four key high-impact areas: classroom management, content planning, instruction, and assessment for learning. Drawing in addition on other national leaders in some of these foci, Knight is working with teacher leaders and instructional coaches throughout the country to define and refine best practices in schools and classrooms, with the goal of creating a simple framework, tied to teaching practices, that educators can use to take a comprehensive look at instruction.

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NSDC's purpose: Every educator engages in effective professional learning every day so every student achieves.

He outlines each of the four areas in specific, data-driven terms. Each area has teaching practices that can be observed and tools to support it.

1. Classroom management

Knight said feedback from coaches raised the profile on this key issue, and the researchers partnered with Randy Sprick to help outline positive practices. Teachers with excellent classroom management skills:

- Provide structure by listing activities and transition times.
- Explicitly teach students their expectations. For example, students need to know what kinds of conversation are appropriate during transitions versus group activities or teaching or test taking.
- Praise more than they criticize students. Knight said youngsters are like plants in a window that lean toward sunlight. Kids respond by acting in ways that gain them more positive reinforcement.

The coach's role is to look for how teachers are working with students, to measure that, and to help teachers to improve by looking at the data collected. Coaches can observe teachers and ask:

- Are students engaged?
- How many disruptions to learning occur during class?
- How often does the teacher praise students compared with how often she corrects them?
- Do students know how they are expected to act during activities and transitions?

If a coach observes a teacher and finds that students are on task just half the time, for example, and the goal is 90% of time on task, the coach might use that observation to offer suggestions to the teacher: increase students' opportunities to respond, ask students more questions, be clearer on expectations, or consider activities that might be more engaging.

To improve the ratio of praise, the coach might suggest that the teacher watch for specific behaviors and aim for a specific number of positive statements, post a reminder to himself to remember to praise students, offer more unconditional praise at the beginning of the class, survey students' interests to look for areas to praise, or other ideas.

Another measure is the amount of time students take for transitions. If students spend five minutes transitioning from one activity to another and take that long four times in a day, that's 20 lost minutes of instructional time, Knight said.

The key is to gather information during an observation. "Usually just showing data can be a powerful tool to help teachers identify ways they can improve," Knight said.

2. Content planning

Knight, building on the work of Keith Lenz and his colleagues at the University of Kansas Center for Research on Learning, suggests that teachers will be more effective if they are intentional about what they teach. Becoming intentional can involve such activities as developing essential questions for a unit and then mapping lessons for students, Knight said. Teachers should vary their questions according to the levels in taxonomies such as those created by Bloom or Costa, with higher-level thinking questions that prompt students to go beyond regurgitating information.

Mapping the unit in bubbles, like a mind map, is a useful tool for laying out information to focus on what the teacher wants the students to know. These unit maps can help organize the teacher's planning, Knight said, and serve as a reminder to students of the content they've cov-

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WAYS TO COACH

Jim Knight says coaches help teachers with instruction through:

- Interviews;
- Small or large group presentations;
- One-to-one conversations;
- Modeling while the teacher gathers data;
- Observations of the teacher.

An important aspect of coaching, Knight said, is respecting teachers' professionalism and partnering with them to affirm their agreement with any aspects of the coaching plan or tools, or to modify actions so the tools work for the teacher. "Teachers don't want a ready-made checklist that somebody cooked up somewhere; they want a voice in what it looks like," Knight said, so the coach gets the teacher's agreement on each aspect of tools they use. "Reflection is the heart of the coaching conversation."

ered before beginning a new lesson. As the unit progresses, teachers elaborate on the map, he said. He likened these maps to a Global Positioning System that tells where you are and how to get where you are going.

Knight said coaches can use a checklist with teachers of what good questions look like and help teachers build concept maps or visual unit organizers.

3. Instruction

Knight makes a distinction between two kinds of learning: mechanical and metaphorical learning. Mechanical learning occurs when students learn information that has very clear, correct answers, such as two times two equals four or the names of the five Great Lakes. Mechanical learning, he said, is best taught through an intensive-explicit or direct instruction approach.

Other content, he said, doesn't have one right answer. There are multiple ways to solve a problem or answer the question, "Is this a beautiful poem?" He said this kind of learning is best taught through constructivist practices.

"What happens in schools sometimes is teachers adopt one way or the other way; they say everything is constructivist or everything is direct instruction," Knight said. "The trouble with everything being constructivist is there may be some really important information the kids absolutely have to master, and they don't. The flip side is that if you do everything direct instruction, you take the beauty and the joy and the fun and the complexity out of the content." Teachers should vary their instruction based on the content.

For "mechanical" information, teaching involves intensive explicit instruction to help the student master the information and move on. Teachers use:

• Pretests of students' knowledge;
• A student "contract" outlining the students' commitment to learning;

• Clear explanation of what students need to know;
• Modeling of processes to be learned;
• Numerous practice attempts;
• Frequent checks for understanding;
• Constructive feedback;
• Many opportunities to respond;
• Precise monitoring of students' progress.

The constructivist approach for "metaphorical knowledge" provides learning opportunities that empower students to make their own sense of what they are learning. Constructivist teaching practices include:

• Cooperative learning;
• Experiential and project-based learning;
• High-level questioning;
• Journaling and other thinking devices.

4. Assessment for learning

Knight, who said he was greatly influenced by the work of Richard Stiggins, said he believes instruction is more effective and students are more motivated when teachers and students know precisely how well each student is doing in a course.

To accomplish this, instructional coaches guide teachers through a planning process which involves (a) identifying essential questions (this usually happens during the content planning phase); (b) determining the correct answers to those questions (which might involve developing short propositional statements or rubrics); and (c) creating checks for understanding so that teachers and students know how well they are performing.

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INVITING TEACHERS AND COACHES

Using a wikipedia approach to the project, Jim Knight is developing tools that coaches can use to enhance teachers' practices in the four areas. "You don't ever say, 'Well, I'm done learning now,'" he said. So he invites teachers and instructional coaches to use the tools and provide feedback based on their experiences to improve the tools for other users. Log on to www.instructionalcoach.org to download many of the teaching/coaching tools described here, along with many other tools that teachers and coaches might find useful. Knight solicits feedback through Twitter and e-mail at jimknight@mac.com.

Checks for understanding might then be:

• Student responses during class, from a thumbs-up or answers on whiteboards;
• Questioning in class;
• Brief or extended writing assignments;
• Paraphrasing comments;
• Student performance;
• Student products;
• Interviewing students.

"The coach helps the teacher create the questions, answer the questions, and come up with the checks for understanding," Knight said. "Teachers should be able to look at the class and know where every student is and every student should know where they are in terms of progress in class."

Learning in action

These four areas came out of conversations with teachers and coaches, Knight said. "These areas have emerged organically," he said. "We didn't set out to create a model. We began through reflective practice and tried things out. Everything we say is translated into a practical teaching practice, and there's a tool for it. … It's not really finished; it's just that this is where we are right now. And this is all still evolving and will continue to evolve.

"We can continually improve, become better and better," Knight said. "But better doesn't have to mean more complicated; it means either easier or more powerful." ◆

Digital moxie helps change focus

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

Anyone who reads my writing regularly knows that I've drunk the digital Kool-Aid in a serious way. I'm a blogger who maintains wikis, a Skyper who voicethreads, and a podcaster who jumps into discussion forums. Enthusiasm for electronic tools comes easy, because they've changed the way I learn.

I constantly read and write online, articulating my practice and tailoring others' innovations to my work. I participate in several digital networks with accomplished peers, sharing ideas and support. Nothing is more professionally meaningful than the free learning that I stumble across every day on the Internet.

Unfortunately, electronic tools have yet to change learning in the American classroom.

Schools and districts, wrapped in an electronic frenzy and afraid of leaving children unprepared for "the global economy," are investing in interactive whiteboards and class sets of student responders. Ads for video cameras and ceiling mounted LCD projectors, along with promotions for subscriptions to countless student learning services, promise to "revolutionize learning."

Despite the millions of dollars invested in this digital eye-candy, most kids still spend their days sitting silently, listening far more than learning. Fooled into thinking that 21st century teaching means rolling clickers into their classrooms, old-school educators change little about their broadcast-model instructional practices and remain hopelessly muddled in yesterday.

So how can your building avoid this embarrassing — and expensive — mistake?

Start with one straightforward understanding: 21st century classrooms are not created by putting tools into the hands of teachers. Instead, they're defined by the skills demonstrated by students. Twenty-first century learners are experts at managing information. In an era when content multiplies exponentially, skilled citizens must efficiently identify and evaluate the sources of knowledge available to them.

Twenty-first century learners also are creative, recognizing that they can be contributors — rather than simply consumers — of knowledge. Buoyed and unintimidated by invention, they design new ways to organize understandings and express individual passions. Finally, 21st century learners are communicators and collaborators — working toward shared outcomes and skilled at compromise.

Our most accomplished educators have been engaging students in creative and collaborative efforts forever, proving that tools alone cannot ensure that classrooms today prepare students for tomorrow. Technology can, however, make lessons that are driven by invention and collective effort easier for every teacher to manage.

With a bit of digital moxie polished through professional development, learning can be transformed from a static experience to a student-centered, two-way exploration of content. Kids in any building can become instant publishers — connecting to, sharing with, and learning from the world.

The key is shifting the focus of the digital dialogue in your workroom. Stop pushing for improved tools and start pushing for improved teaching. Once you begin seeing technology as nothing more than an effective vehicle for supporting high-quality instruction, your school will finally be on the way to properly preparing students for the 21st century. ◆

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

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

Together, we're smarter and better

Communities of learners thrive when members collaborate skillfully. In schools, teachers are most often separated into individual classrooms, coming together only occasionally. Isolation and privatization have compromised adults' abilities to work collaboratively. A collection of individuals cannot be an effective team. Without specific effort, only pseudocommunities exist. Eventually, these false communities will fail to engage members in the complex work of effective teaching.

Over time, with commitment and opportunity to learn how to become a true community, staff members can reduce the isolation within their schools and create communities in which they thrive.

In many schools, the need for skillfulness in collaboration is growing rapidly as teachers work together in learning communities focused on improving student achievement.

"Collaboration among educators improves learning opportunities for students," Hirsh and Killion report in *The Learning Educator: A New Era in Professional Learning* (2007). "Educators are recognizing that all students benefit when they pool their collective expertise. They also realize that educating all students requires more than what any one of them knows and can do. "

Congenial interaction marked by guarded interactions or competitiveness fails to tap the wisdom of the group. Teams, according to James Surowiecki (Anchor, 2005), author of *The Wisdom of Crowds*, are smarter than individuals. They develop a collective intelligence pooled from the knowledge and expertise of all members.

For example, when data in a school demonstrate that some students are not learning at the same level as other students, pseudocommunities engage in blaming, fault finding, and formulating simplistic solutions that address symptoms rather than root causes. In true communities, members come together to assess their knowledge and skills, explore their individual and shared beliefs, challenge their current knowledge and practices with new information, formulate goals that require change in practice, and measure their success in student results.

True communities emerge when members face the need to interact differently, often as the result of a crisis or the need to innovate. Both require people to interact differently, outside their comfort zones, and often with fewer resources than they normally have.

Working together requires new relationships — relationships in which individuals are willing to share ideas, explore possibilities, listen with new openness, and appreciate differences. When adults learn the essential skills of collaboration, they accomplish more than they do alone. They are smarter together, better able to identify and solve complex problems, and are more satisfied.

Communities emerge as individual members share more about their values and beliefs, learn to appreciate those of one another, have opportunities for what Judith Warren Little calls joint work in which all members contribute to the development of something new, communicate effectively, handle conflict, and generate consensus. Each area includes a set of related skills that can be learned and practiced until they become automatic. Increasingly, as teachers form communities to plan instruction, analyze data and stu-

COLLABORATION
Staff development that improves the learning of all students provides educators with the knowledge and skills to collaborate.

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

dent work, identify interventions, reflect on their work, and evaluate its effectiveness, they will learn these skills. By engaging in authentic work in which members solve problems, analyze data, plan, and evaluate, they practice collaboration skills. When they reflect on their collaboration skills, they have opportunities to improve those skills.

Teams can assess their degree of collaboration by using surveys, guided questions, and process observers. Surveys allow team members to share their perceptions on the degree of collaboration within a team and can identify target areas for improving collaboration skills. When teams tabulate anonymous responses to provide the range, modal, and a mean, team members can determine where to focus their improvement efforts. For example, if the mean score on a survey question that asks members to rate how valued they feel within a team indicates that one or two team members feel less valued, the whole team can identify strategies to make all members feel valued and reassess several meetings later to determine whether the strategies are working.

Using reflection questions, team members can set aside time periodically, more often when they are new teams, to discuss their "teamness." To assess the team's collaboration skills, ask:

- How well do we listen to one another? What are some examples of times when we listened to each other and times when we didn't?
- If a team member disagrees, what are our strategies for examining the ideas and considering them?
- To what degree do all team members take an active role in the team's work?
- What is our most common form of decision making? What other ways might we make decisions? What are the advantages and disadvantages of each of those ways? Should we consider using another decision making process in our collaborative work?

A team can benefit from periodically having an outside observer. Process observers provide more objective data about team members' interactions. A coach, principal, or a team member can sit just outside the team and observe, making notes about members' interactions. Sometimes a team member can do this while serving as a member of the team, although it is difficult to do both roles thoroughly. Process observers typically have several areas of focus for their observations that the team has determined in advance of the observation. Near the end of the meeting, the process observer shares his or her observations and allows members to discuss what actions they might take as a result of the feedback.

WHAT IS A TRUE COMMUNITY?

True communities have distinguishing characteristics, many of which relate to how team members collaborate. Team members:
- Share goals, getting clear on the outcomes they want to achieve.
- Use processes and shared leadership to advance their work.
- Willingly share ideas.
- Communicate expertly, listening fully to one another.
- Speak efficiently by making observations, stating their points of view, and making requests of one another so that members know one another at the belief and value level.
- Use one another's expertise.
- Trust one another to keep the best interests of the team in the same high regard as their goals for student achievement.
- Enjoy one another, choosing to work collaboratively rather independently.
- Set and achieve challenging goals.
- Allow conflict because they are comfortable resolving it.
- Feel valued and appreciated for their contributions.

Skillful collaboration takes practice. Ongoing opportunities to learn how to collaborate effectively, to practice collaboration in authentic work, and to assess effectiveness strengthen learning communities, deepen their commitment to the work, and improve their results. Team members, those who support teams, and those who supervise them hold collective responsibility for teams' effectiveness and efficiency. Strong collaboration skills coupled with authentic work are necessary to successful teamwork in schools. ◆

Chart the stages of teacher development

The stages of teacher development are offered not as a way to label a teacher, but rather to guide the mentor's decision about what services or support to provide to the teacher to promote the greatest development.

Providing services to a teacher at the survival stage that are more appropriate for a teacher at the consolidation stage is a mismatch and may frustrate the teacher more than help him or her.

The table on pp. 8-9 suggests stages of teacher development drawn from over 25 years of research. It associates those stages with years of teaching; however, the years of teaching alone are insufficient to determine a teacher's stage of development. Some first year teachers, for example, behave as teachers in the Renewal Stage. Also, some third-year teachers still demonstrate the behaviors of a teacher in the Survival Stage. It is highly recommended that a mentor consider the teacher's behaviors as indicators of his or her stage of development rather than his or her years of teaching.

STAGE	TEACHERS AT THIS STAGE ...	MENTORS CAN BE MOST HELPFUL IF THEY ...
SURVIVAL STAGE Year 1	• Have many specific needs mostly focused on coping with the daily demand of teaching, management issues, classroom organization, and sense of personal and professional competence. • Ask "Can I survive until the end of the week?" • Focus on their own needs and have little understanding of what is happening for students in their classroom. • Frequently do not take responsibility for what occurs in their classroom. • Fail to acknowledge problems. • Tend to blame students, others, resources, just not themselves. • Have little sense of control. • Feel a diminished sense of efficacy.	• Provide specific suggestions or "how to's." • Do classroom demonstrations. • Provide limited options so teachers can choose what is most comfortable. • Co-teach with the new teacher. • Give ongoing personal support. • Connect new teachers with other teachers. • Arrange for the new teacher to observe other teachers. • Ensure that new teachers have all the resources they need including curriculum guides, student books, etc. • Check in frequently. • Listen and honor their concerns. • Remember no problem is too insignificant to be a major one to a new professional.

STAGE	TEACHERS AT THIS STAGE …	MENTORS CAN BE MOST HELPFUL IF THEY …
CONSOLIDATION STAGE Year 2	• Begin to think about the instructional needs of students. • Typically teach to the middle of the class with little differentiation. • Recognize that there is a connection between what they do and how well students learn. • Implement rules and routines easily. • Ask "How can I change my instruction so all students learn?"	• Share ideas with the teacher. • Co-teach with the teacher. • Observe and give feedback. • Recognize the teacher's effort and results. • Bring new resources to the teacher's attention. • Engage the teacher in problem solving. • Introduce the teacher to other networks for support and idea exchange. • Engage the teacher in professional learning experiences that include teachers other than new teachers.
RENEWAL STAGE Years 3-5	• Demonstrate competence in teaching. • Find that some routines need refreshing. • Look for new ideas about teaching, the curriculum, and how students learn. • Have mastered management issues. • Have mastered most basic instructional strategies. • Have a sense of efficacy as a teacher. • Ask "What are some new techniques for . . ?"	• Share articles from professional journals. • Connect the teacher with state and national professional associations. • Engage them in professional experiences outside the school, including conferences, networks, etc. • Engage them in action research projects. • Allow them to demonstrate lessons for new teachers. • Arrange for new teachers to observe the teacher. • Provide opportunities for them to reflect on their professional practice. • Suggest that they consider the National Board certification process.
MATURITY Year 6 and beyond	• Are interested in new ideas and resources. • Ask questions about the more complex issues related to teaching, such as how to reach a specific type of learner or how to teach a challenging concept. • Refine their beliefs about teaching. • Establish themselves within the professional community. • Analyze the impact they have on student learning and make adjustments. • Take on more leadership responsibilities within the school. • Display a strong sense of personal and professional efficacy. • Demonstrate a commitment to education and to a career in education. • Consider their career future in education. • Ask "What is my role in promoting democratic ideal in education?" or "What is my role in improving the school?"	• Observe and give feedback, especially when the teacher is practicing new instructional strategies. • Engage the teacher in professional networks and communities. • Encourage the teacher to seek leadership opportunities for the teacher. • Encourage the teacher to become a mentor, learning facilitator, department or grade-level chair, committee chair, etc. • Provide support and coaching about leadership skills. **Source:** *Taking the Lead: New Roles for Teachers and School-Based Coaches,* by Joellen Killion and Cindy Harrison. NSDC, 2006.

Year starts with a day for data

Nancy Booth is an instructional coach for Boone County Schools in Madison, W.V.

Q **How do you help teachers use data?**

In our district, everyone comes together before school starts for a paid day to examine data. Teachers are in groups according to their subject or grade level. They get a report for the whole school that shows what percent of kids had correct responses under each of the state standards. They also get individual reports for their own students. They identify the low and marginal scores. Then teachers decide as a group how to bring up achievement in those areas and why those areas are deficient, and that's where coaches step in. So coaches might interject, "Where would this content standard fit if you're teaching a module? How can we hit this objective two or three times? Can we fit it in different places so the kids will be exposed to it more than once?"

The greatest challenge of coaching, whether you're working with data or anything else, is getting the teachers to know that they need help. As a teacher for 30 years, that was my area of expertise, I thought. There were a lot of times I didn't realize I needed help.

Building rapport is important for all coaches — letting teachers know that you're one of them, that you think of yourself as a teacher first and that you're willing to help down in the trenches. You want them to know you're willing to do the slug work so they're free to teach. And when you do that for them, they'll turn around and they'll feel more comfortable with you and ask you to do other things which are more meaningful — co-teach with them or work with them on a big project or help them see another way to teach a particular content objective that maybe they haven't thought about before. ◆

What can teachers do to encourage girls in math and science?

First, teachers can strengthen girls' beliefs in their own abilities. To do this, they can (a) teach explicitly that one's academic abilities are not "set in stone" and can be expanded and improved with effort and practice and (b) provide prescriptive, informational feedback on strategies, effort, and the process of learning.

Second, teachers can cultivate girls' interest in math and science by selecting activities that connect course content to related careers without reinforcing gender stereotypes and by offering supplemental resources outside of class to students who show strong interest in a particular topic.

The IES expert panel found these strategies to be supported by research evidence having a "moderate" level of rigor. The panel also recommends exposing girls to female role models and training students in spatial skills (e.g., mentally rotating images, drawing spatial representations). Both strategies are supported by research, although the panel rated the rigor of this research to be "low."

What can be done at the school and district levels?

The IES panel reminds us that ultimately, students' career choices "reflect multiple influences that accumulate over time." To minimize the possibility that girls will prematurely rule out careers in math and science, schools and districts need to build students' confidence and skills in both subject areas at the elementary, middle, and high school levels.

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Principal, George C. Marshall High School
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Brenda Krupp
Elementary Professional Development Coach
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Michelle Contich – Principal, Lipscomb Elementary School, Brentwood, Tenn.

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FOR ADDITIONAL INFORMATION:

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303-432-0958 • Fax 303-432-0959
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Deadline for the NSDC Academy applications is February 13, 2009.

Key methods encourage girls

TO ENCOURAGE GIRLS IN MATH AND SCIENCE, EDUCATORS CAN FOSTER CONFIDENCE ABOUT THEIR ABILITIES, SPARK THEIR ONGOING INTEREST, AND BUILD SKILLS.

By Carla Thomas McClure

A panel of experts convened by the U.S. Department of Education's Institute of Education Sciences (IES) has analyzed existing research and identified five ways educators can encourage girls in math and science. The strategies backed by the strongest research evidence involve changing the way students think about their abilities, performance, and opportunities in math and science.

Why are researchers interested girls' achievement in math and science?

Almost half of the U.S. workforce is female, but only 26% of the nation's scientists and engineers are women. Researchers are curious about why more women are not choosing advanced degrees and careers in the physical sciences, computer science, and engineering. Girls, on average, graduate from high school with slightly more credits in math and science than boys. Although boys do slightly better than girls on SAT tests in math, girls' grades in math are as good as boys'. These data suggest that ability, per se, may not be the factor that's holding girls back when it comes to making academic and career choices related to math and science. What is holding them back? That's the question researchers are asking.

What does the research say about it?

According to an IES practice guide published in 2007, girls begin showing less interest in science and math careers than boys during early adolescence. Some studies show that many

HANDS-ON SCIENCE AND MATH ACTIVITIES

Uncommon Knowledge: Projects That Help Middle-School-Age Youth Discover the Science and Mathematics in Everyday Life was developed by AEL (now Edvantia) through a National Science Foundation Grant and published by the ERIC Clearinghouse on Rural Education and Small Schools.

The two-volume set is available online from ERIC. Volume 1 contains science activities involving herbs, nutrition, and food preservation:
http://eric.ed.gov/ERICDocs/data/ ericdocs2sql/content_storage_ 01/0000019b/80/16/17/96.pdf
Activities in Volume 2 teach math concepts through quilting and craft activities:
http://eric.ed.gov/ERICDocs/data/ ericdocs2sql/content_ storage_01/0000019b/80/16/17/f1.pdf

girls lack confidence in their math and science abilities and tend to underestimate their potential for success in these subject areas. Meanwhile, girls and boys who are confident about their math and science abilities tend to take elective courses in these fields, perform well, and select college majors and careers related to math and science. According to the expert panel convened by IES, empirical research suggests that "children's beliefs about their abilities are central to determining their interest and performance" in academic and career pursuits. A new study reported in *Science Daily* echoes this conclusion and suggests that parents and teachers should do more to promote an "I can" approach to learning before girls enter middle school.

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.

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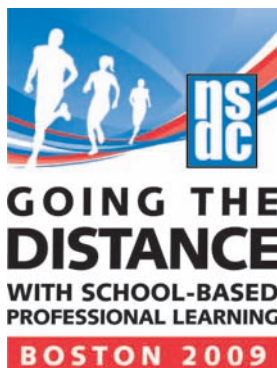
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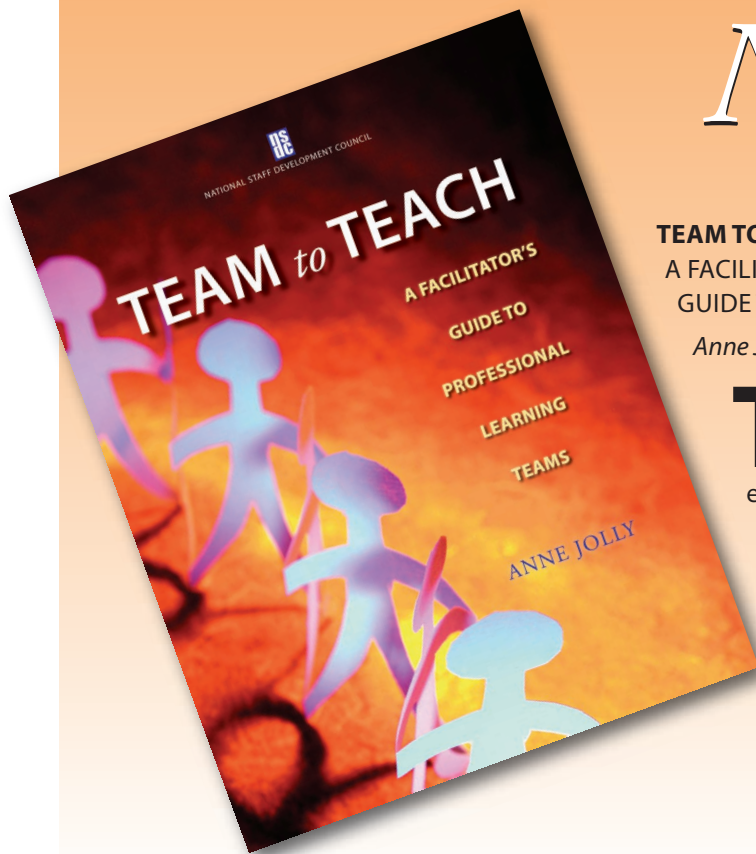
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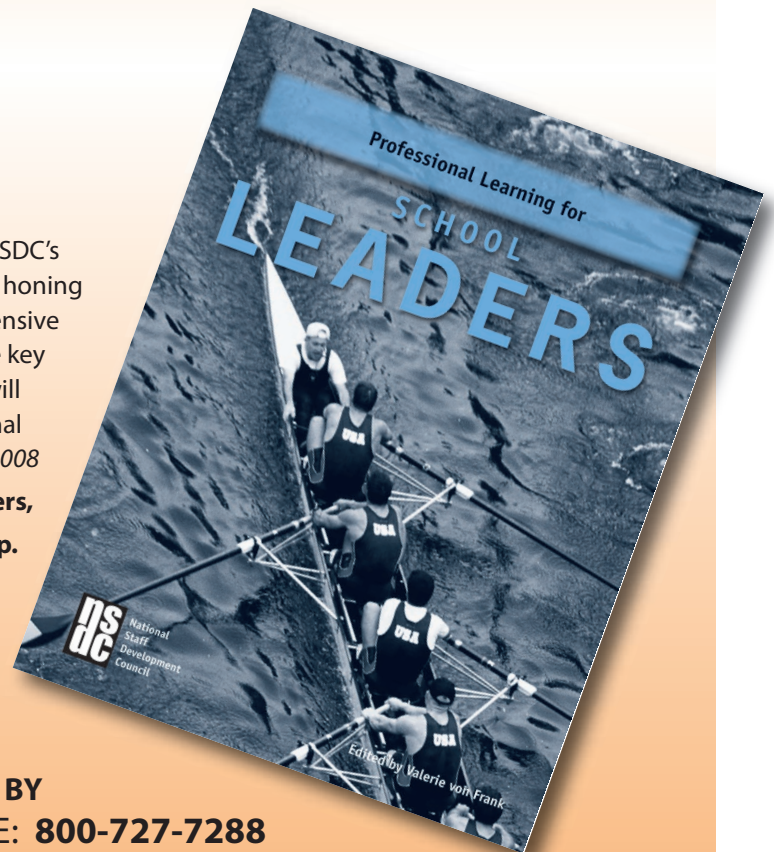
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