

## ENGAGING THE PUBLIC

### RAISING EXPECTATIONS THAT ALL CHILDREN ARE CAPABLE OF LEARNING CHALLENGING MATHEMATICS

#### ADVISORY GROUP PROVIDES GUIDANCE

*About a month after the “prom” encounter described in the opening of this report a small advisory group was gathered. Two parents, a school board member and technology training consultant, and a college mathematics teacher joined the director of curriculum and two math teachers to think about how to introduce the math committee’s choice of a standards-based mathematics program to parents and the community. The members were selected based on their knowledge of the community and their interest in mathematics. The communications team leading the meeting brought in these advisors only at key points in the process of creating and implementing their communications effort.*

*The first two meetings were dedicated to discussion about the community’s relationship with the schools and a review the new curriculum materials. The teachers reported that district math teachers were poised for change having been members of the Minnesota Council of Teachers of Mathematics for over ten years. Between the two meetings, advisors each interviewed five people about their experiences with mathematics and their perceptions of it’s role in their lives. They found a view of mathematics generally limited to arithmetic and procedures, although awareness of the power of mathematics showed up in a few cases.*

*At the third meeting advisors pooled their experience and generated a list of possible avenues to take to help reach the community. The first priority was to hold a focus group inviting community leaders to an interactive presentation of the mathematics program being proposed. The goal was to verify the teachers’ belief in the program and to create buy-in from these leaders. The advisors generated a list of people to invite and helped with the phone calls.*

*During the fourth and last meeting, the advisory team reviewed suggestions from the community leaders’ focus group. Observing that community leaders were highly positive about the curriculum choice, the advisory group counseled the math curriculum team to follow the suggestions of the community leaders and to provide more research at parent meetings, and to allow participants more time to ask questions. The team also decided a print a summary of the benefits of the program so parents could have “take home” information as a reminder of what they had learned<sup>1</sup>. In October, parent meetings set up around the district on a variety of evenings were well attended. By January, when students were selecting their math courses for high school, the power of the communication plan was realized when parents and students overwhelmingly chose the standards-based curriculum over the traditional option.*

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“The organization becomes part of the community, learning from it, becoming aware of its strengths, resources, concerns and ways of doing business. The organization does not have the complete answer in advance.”

MOSES, R. AND COBB, C., (2001). RADICAL EQUATIONS, MATH LITERACY AND CIVIL RIGHTS, P. 112.

The question, “What can be learned from school districts in various stages of adopting standards-based curriculum materials?” becomes increasingly relevant as the numbers of districts adopting these programs grow. Driven by the belief that “all students deserve an opportunity to understand the power and beauty of mathematics,” district curriculum committees in this study researched and ultimately selected mathematics programs consistent with the Minnesota Graduation Standards and *Principles and Standards for School Mathematics* (2000). In doing so, they encountered a range of community, parent and teacher perspectives that complicated the adoption process. Amid political debate on education that was magnified by the media, the various publics that school leaders address were swamped with a mixture of information, misinformation, fact, myths and data in-and-out of context<sup>2</sup>. Just as the math team who sought guidance from an advisory committee, school leaders realized that adopting the new curriculum was unlike any other adoption in their experience. Because standards-based programs challenged beliefs about learning and the meaning of mathematics, leaders understood the necessity of engaging their publics—parents, teachers and community members—at a point where their interests intersected with the work of schools. In an information-saturated society the paradox is that as the volume of information increases, the meaning people can make of it decreases. With a society that is only minimally engaged with the issues of education the challenge becomes significant<sup>3</sup>. *How do school leaders make visible the enormous learning needs of children destined to live in a world even more complicated by technology than it is today? How do they enlarge the meaning of mathematics from a preoccupation with procedure, to an appreciation for its power to equip children to participate successfully in their world?*

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“Public engagement is not the same as public relations...Public engagement entails drawing the public into the communications process, encouraging them to weigh a range of choices and allowing them time to deliberate and reach their own conclusions...Public engagement requires greater time and energy on behalf of leaders and experts but it gets to the root of what democracy is about.”

At the time study participants began to adopt standards-based mathematics curriculum materials designed to help students meet the emerging expectations of the 21st century, a storm of controversy erupted in other parts of the country. Fueled by assumptions rooted in industrial-age practices, the fallout triggered misinformation and confusion about the meaning of standards-based mathematics and the nature of learning itself. Before leaders could begin to engage their various publics, they had to untangle the issues surrounding mathematics education, find clear and convincing data that supported the necessity of changing classroom instruction, and identify the “adaptive challenge.” They asked, *What do we understand about learning and what does that mean for mathematics education?*

As participants in this study demonstrated, generating broad support for their standards-based mathematics curriculum was no small task. The fundamental lesson learned from the four districts who participated in this study, it is that leadership and learning cannot be separated. The work of adopting and implementing standards-based mathematics demanded a style of leadership grounded in research about how people learn. Ultimately, engaging their publics meant using that knowledge to bring their various constituencies through a learning process themselves and into a new understanding of their role in helping students achieve mathematical proficiency. Participants found that today, as the world becomes more complex, leadership is less about having the right answers and more about having the right questions.

## LESSONS LEARNED

Erosion of the long-assumed compact between the public and its public schools threatens the democracy this country was founded on and comes at a time when public support is needed more than ever in its history (Mathews, D.,1996). Today, public engagement represents school leadership’s most fundamental challenge, a challenge that has seldom been more visible than in the case of raising the expectation that all children are capable of learning challenging mathematics.

*Engaging the public means forming productive associations with others who participate in our work.* These relationships are inclusive, open and serve pragmatic ends that are achieved through conversations directed at options and cooperative action. A public emerges “when people see connections between what is happening to them on the one hand, and what is valuable to them on the other” (p.32). Regardless of whether the "public" is parents, teachers, or community members, public engagement parallels learning theory and, at each step, presents leadership with a specific challenge. Based on the experience of study participants, a picture of public engagement around mathematics education can be drawn in broad brush strokes:

### I. OPENING UP THE PROCESS CREATES CLARITY AND COMMITMENT

Public engagement starts by returning the work to the people; it means allowing them to name the issues as they relate to their interests and to identify options for action. Engagement cannot happen in a void. Leadership finds avenues to engage participants’ preconceptions, and to provide them with opportunities to understand the current situation fully. In the case of adopting standards-based mathematics, it means understanding the limitations of procedural approaches to mathematics, reviewing the

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### FOCUSED ATTENTION

“The United States cannot reach the goal of mathematical proficiency for all students by continuing to tinker with the controls of educational policy, pushing one button at time. Instead, systematic modification will need to be made in how the teaching and learning of mathematics commonly proceed, and new kinds of support will be required. At all levels of the U.S. educational system, the formulation and implementation of policies demands sustained, focused attention to school mathematics.”

KILPATRICK, J., SWAFFORD, J.,  
FINDELL, B. (Eds.) 2001.  
ADDING IT UP; HELPING  
CHILDREN LEARN MATHEMATICS.  
p. 14.

research on how children learn, and drawing a connection between what is known about learning and expectations in Minnesota’s Graduation Standards and the *Principles and Standards of School Mathematics*. Whether the audience is teachers, parents, or community members, when district leaders provide information in a language the public can understand, one based in everyday experience, people are able to name the problem and identify their role in its resolution. Two elements contribute to success in the early phases of public engagement in decision making: 1) Including diverse perspectives encourages participants to clarify their thinking, and it gives school leaders early indications of the issues they may encounter later on. 2) Holding people accountable for their decisions gives value to their work and fosters commitment.

Attention to process means *taking the time needed to bring people together in their thinking*. There are no recipes for adopting standards-based mathematics curriculum materials. In more than one case, district leaders went back and revised their early research timelines because not everyone was ready and consensus was not apparent. Because omissions or shortcuts at this stage are magnified later on, taking the easy way out is costly in the long run and not an option.

As participants reported, when piloting teachers and parents observed students engaged in higher levels of thinking, solving problems and connecting mathematics in the everyday world, *while also mastering basic skills*, they were affirmed in the direction they had chosen.

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“*Reform and accountability* connote compliance, a response that ranks low in its appeal to the human spirit. *Renewal and responsibility* connote limitless possibilities and disciplined commitment to moral principals.”

GOODLAD, 2000, *EDUCATION AND DEMOCRACY: ADVANCING THE AGENDA*, PHI DELTA KAPPAN.

## II. BUILDING CAPACITY MEANS CREATING NEW PATTERNS OF THINKING

Public engagement also means engaging others in a deliberative dialogue where people examine their assumptions and beliefs in light of the current situation (Heifetz, 1994; Mathews, 1996). Because people describe the way the world works through cultural scripts learned over time, *leadership’s task is to create spaces where conversations can occur naturally and through which people sort their priorities together*. As teachers, parents and principals think collectively about student’s mathematical experiences, they need to talk about what’s most important, what the consequences are related to various options, and what costs and trade offs must be made. Through conversation, patterns of thought change. As one study participant was fond of saying, “The one who does the talking is the one who does the learning.” When parents, teachers and community members see their respective responsibilities relative to the consequences in children’s lives, their willingness to make adjustments in their roles increases.

Creating capacity means that whether it is professional development, parent

information nights or community meetings, leaders need to allow ample time for cultural scripts to change. Study participants provided ongoing training for teachers, multiple parent opportunities to examine their concerns and learn new ways to help their children, and an availability to respond to questions in the community. When districts adopt standard based mathematics materials as a means to improve student mathematical proficiency, then they necessarily must provide deep learning for parents, teachers and community members. *Unless the mathematics programs are taught well and supported by parents, the significant improvements possible will not happen.*

In the study, teachers said they began to see their own thinking change. Their ability to connect their professional responsibility to improving student achievement in mathematics motivated changes in professional practice that translated to other subject areas.

### III. RETHINKING LEADERSHIP FOR LEARNING

Engaging the public in deliberative dialogue leads naturally to collective action. Leadership provides direction by helping people see how a problem touches what they care about most, connects them with others who care about the issue, and provides them with ideas about how they can help. Focusing attention on the critical role mathematics plays in children’s futures serves as a driving force that motivates people to action. *Unlike special interest groups, public action embraces large ideas as they apply to everyone, and unfolds gradually through horizontal connections people make with each other around the issue* (Mathews, 1996). Because the issues are complex, leadership provides parents, teachers and community members with a conceptual framework that helps them translate their knowledge into meaningful involvement. Instead of being out in front, leaders who invite others to bring information and knowledge to their peers, and who create partnerships with constituents improve cooperation and reduce anxiety simultaneously. In the study, as principals shared their professional development work with teacher leaders, staff involvement increased and building tensions decreased.

Isolation is the enemy of improvement. Successful implementation of standards-based mathematics curriculum materials require leadership to be knowledgeable about the content and pedagogy the programs contain, and to find multiple ways to connect teachers and parents with the common goal of higher expectations for student mathematical proficiency. Because the implementation will be only as successful as the weakest link, school leaders necessarily must work to strengthen relationships at every level.

When parents and teachers ask for more opportunities to learn how to help children with their mathematics, district leaders know that meaningful involvement is taking root.

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“Never before has the success, perhaps even the survival, of nations and people been so tightly tied to their ability to learn.”

DARLING-HAMMOND, 1997,  
THE RIGHT TO LEARN, p. 2.

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"I am aware that strengthening public life for its own sake may strike harried educators, worried about the fate of the next tax levy, as a distraction they can ill afford. Local school boards may be so intent on evaluating personnel on the basis of students test scores, that educators don't feel free to spend time on community building. Still, there is no escaping the logic that public schools can't exist without publics."

Mathews, 1996, Is There a Public for Public Schools?, p.76.

#### IV. ALIGNING GOALS AND RESOURCES IN SUPPORT OF LEARNING

There is a difference between a persuaded public and one formed from a community that has identified its goals and assumed responsibility to realize them. Like other human relationships, the bonds in a community need constant attention if they are to remain strong. *Meaningful participation in the decisions and work of schools creates energy that is reinvested in the system.* As district leaders find multiple ways to include parents, teachers and community members in deciding the issues that touch their lives, credibility and confidence in the school's ability to prepare children for an unknown future grows. The higher scores parents give to their local schools as compared to the scores given by the general population for public education verifies the importance of engaging other community members in the work of schools. Rather than mass information efforts, if school leaders seek opportunities to align the benefits of educating mathematically proficient children with the challenges of an increasingly technological society, they will improve support for standards-based curriculum materials. Participation increases understanding about the complexity of system-wide change and awareness of the signs of ongoing improvement.

Unless district leaders magnify their efforts by aligning resources with large community goals, their energies are dispersed and successes small. For example, by deciding to use standards-based mathematics curriculum materials as a way to address Minnesota Graduation Standards, some districts aligned their staff development and curriculum review dollars around mathematics. They achieved a common focus that translated to a coherent K-12 mathematics program, encouraged best practices in classrooms, fostered collegial conversations, and served to bring parents and teachers together in the interest of student achievement. In addition, district ability to track success and keep it in public view increased public support at every level.

When teachers and parents connect improvement in student work to standards-based curriculum materials, they are able to weigh the merits of conflicting information based on their own experience and more likely to support long-term improvement over quick fixes.

#### **BIFURCATION POINT**

In dynamic systems, a bifurcation point is the point of departure where systems transform themselves (Briggs and Peat, 1999). Today schools are at a crossroads. Never has it been more important for school leaders to describe a future "in which all students have

access to rigorous, high-quality mathematics instruction” (NCTM, 2000). Creating public understanding of mathematics means moving people from a preoccupation with procedure to an appreciation for mathematic’s role in equipping children to participate successfully in their world. At a time when public engagement in education is low, school leaders need to bring their various constituencies together in productive associations that lead them to understand and assume responsibility for supporting a mathematically literate generation. While participating districts are too early into the adoption and implementation process to have long-term quantifiable local data, observations of leaders, principals, teachers and parents do indicate that children’s mathematical proficiency improves when standards-based mathematics is taught by teachers well trained in the new curriculum materials<sup>4</sup>. They see children’s needs being met at all achievement levels—problem solving and basic skills development improving—along with learning that spills across subject areas. District leaders will say that, though the implementation process is bumpy, using a learning model throughout represented an unfolding process that was at once demanding and effective.

As national and state legislatures debate education policy and the meaning of standards, the imperative to improve student achievement looms large on the landscape of public education. Faced with increased demands for accountability, educators argue for the long-term improvement of student achievement as seen in student performance and demonstrated levels of understanding. In order to be heard, school leaders are creating arenas at every level in their districts where stakeholders examine their beliefs about learning in light of the changing needs of children today. If people are to support standards-based mathematics, the meaning of math must be cast in terms they understand from experience.

While the lessons learned from participants in the study have direct and practical application to those preparing to implement standards-based mathematics, their experience sheds light on the shifting contours of school leadership today. Standards-based reform poses fundamental questions about the organization of schools and the roles their leaders play. “The stakes are high for the future of public schooling and for the students who attend public schools....We are in an early and perilous stage of the process in which it is not clear whether public schooling will actually respond to the challenge of large-scale improvement” (Elmore, 2000, p. 35). National mathematics standards underline the vital importance of the broader community’s engagement in issues surrounding education. standards-based education needs the support of policy makers, parents, teachers and the public in order to make lasting improvement in student learning a reality. To win that support, school leaders must engage all their publics in deliberative dialogue about what matters most<sup>5</sup>.

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“Mathematics is at the same time inside and beyond culture; it is both timely and timeless...Mathematics is invented and it is discovered as well. Students learn it on their own, and they learn it from others, most especially their teachers. If students are to become proficient in mathematics, teaching must create learning opportunities both constrained and open.”

KILPATRICK, J., SWAFFORD, J.,  
FINDELL, B. (EDS.) 2001.  
ADDING IT UP: HELPING  
CHILDREN LEARN MATHEMATICS,  
P. X.

## LESSONS LEARNED - ENGAGING THE PUBLIC

1. The publication *Math Makes Sense* came out of this series of meetings with community, parents, teachers and students. For additional resources that support the adoption of standards-based mathematics curriculum materials, see SciMath<sup>MN</sup>'s web site at [www.scimathmn.org](http://www.scimathmn.org), or go to [www.mathematicallysane.com](http://www.mathematicallysane.com).
2. In their article on the politics of the California anti-reform efforts, Becker and Jacob (2000) describe the mixture of myth and misinformation that precipitated California's return to "the basics." "The rapid changes in California's mathematics policy followed a persuasive (albeit deceptive) campaign alleging the failure of the current reform movement in mathematics education...and they failed to note that for the most part, today's students with unacceptable scores have not experienced the reformed mathematics curricula." The attention the media gave to California's reversal of its mathematics education policy magnified the misinformation across the country, making headlines in newspapers and TV news broadcasts.
3. Besides the *Action for All* article ([Washington Post](http://www.washingtonpost.com) (April 16, 2001) cited in part four of this report, Public Agenda has tracked American attitudes about public education for the last ten years. While participation in the work of schools is low, opinions about education are explicit. See [www.publicagenda.org](http://www.publicagenda.org).
4. See footnote 8 in part three of this report for a sample of the early data coming in.
5. The cover graphic represents visually the meaning of public engagement. Rather than a mass communications effort or large public forums, the expanding ripples suggests that *public engagement results from multiple opportunities schools create to involve stakeholders meaningfully in decisions that affect them*. As the circles expand and intersect with each other, a wider understanding of the issues become prevalent in the community.

The process study participants described applies to each circle of engagement: 1) begin with a small, representative group who help identify the current challenge; 2) build the knowledge bases of those who will make the decision; 3) give the decision makers the responsibility of bringing that decision to their peers but support them with the tools and data they need; and 4) focus or frame the immediate challenge within the larger goals and expectations of the community. At every opportunity, district leaders need to give stakeholders a clear picture of what public education looks like today, how the task has changed, what we now know about how students learn, and the demands an increasingly technological world will make on student achievement goals.

