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ABSTRACT

This workbook offers information about building community support for educational reform, particularly for improving mathematics and science education. Following an introductory chapter that explains the need for community support, the second chapter offers step-by-step suggestions for bringing the community together, some of which are identifying participants and building a successful coalition. The third chapter describes steps for working together to create a vision. Tips are offered for creating a dialog, deciding what issues and questions to address, conducting a professional forum, choosing coalition leaders, deciding participants' roles, gathering information about the state of education, and working toward consensus. The fourth chapter provides examples of how states and communities have used the community-building process to improve mathematics and science education and to restructure the education system as a whole. Programs implemented in Alaska, Arkansas, Connecticut, Indiana, South Carolina, and Vermont are described. Four worksheets are included. Appendices contain suggestions for working with the media and for fundraising, examples of evidence of success in building community support, and a list of resources. (LMI)

WHAT COMMUNITIES SHOULD KNOW AND BE ABLE TO DO ABOUT EDUCATION

WHAT COMMUNITIES SHOULD KNOW AND BE ABLE TO DO ABOUT EDUCATION

Education Commission of the States

From
The Annenberg / CPB Math and Science Collection

July 1993

This publication, *What Communities Should Know and Be Able To Do About Education*, is a product of the ECS Synergy Project and is part of The Annenberg/CPB Math and Science Project Collection.

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The Education Commission of the States is a nonprofit, nationwide interstate compact formed in 1965 to help governors, state legislators, state education officials and others develop policies to improve the quality of education at all levels. Forty-nine states, the District of Columbia, American Samoa, Puerto Rico and the Virgin Islands are members. The ECS offices are located at 707 17th Street, Suite 2700, Denver, CO 80202-3427.

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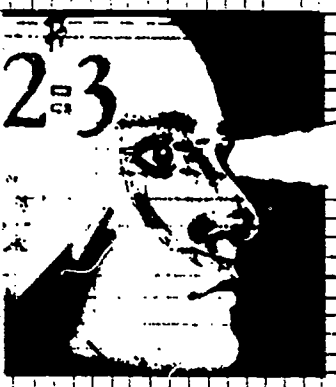


WHY DEVELOP COMMUNITY SUPPORT

The traditions and values of science and the history of science curriculum reforms... argue for a large critique and consensus effort. Science is tested knowledge; therefore, no matter how broadly based the perspectives of the developers, their judgment must be informed by others... particularly teachers, policy makers and the customers of education systems — students, parents, business, employers, taxpayers. One of several reasons for the limited impact of past reform efforts was the weakness of their consensus-building activities.

— National Science Education Project, National Research Council, 1992.
Charge to the Working Groups.

Over the past decade, Americans have become painfully aware that today's education system was designed for a time long past. Many people understand the importance of education to the nation's economic status; the country cannot compete internationally if its citizens are undereducated for a high-tech, fast-paced world. But economics is only part of the story. The quality of life in this country is dramatically influenced by the kind of education to which citizens have access.

Nowhere is the need for a better education more apparent than in the fields of mathematics and science. In this country, lives change constantly through advances in these fields. yet schools continue to teach math and science as they have for decades. In spite of calls during the past 10 years to increase student achievement in math and science, the National Assessment of Educational Progress notes that improvement has come in lower-level skills, not the higher-level ones. In math, for example, students remain weak in areas such as applying mathematics to real-life experiences, approximating and estimating, and finding patterns to organize information. In science, students have little understanding of how to investigate hypotheses or of the ethical decisions involved in science. The result is students are graduating unable to deal with the complex realities they will face as adults — questions about healthy choices, environmental pollution, the risks versus the advantages of nuclear power and so on — and without the skills they need to work in a world dominated by science and technology.

Too few citizens understand this connection between the kind of math and science education available and the quality of their individual lives. Even fewer understand that education is linked to all the nation's social issues. A hungry child can't learn. A child born with preventable learning disabilities falls behind. A child abused or neglected has no stomach for schoolwork. Like it or not, the school, home and community are interdependent. Like it or not, education is

The National Importance of Science and Mathematics

- Quantitative literacy is a prerequisite to decision making in an information age and, therefore, to full participation in a democratic society.
- New and emerging technologies are key to remaining internationally competitive. Most of these are mathematics-based.
- One-third of the country's gains in national productivity has come from technology.
- The rate of growth in mathematics-related occupations is about twice that for all occupations.
- Eight of the 10 fastest-growing jobs this decade will be in science-based occupations.

Compiled from materials in the resource list.

everyone's business. The job of educating young Americans to live and succeed in a complex world has become too big for schools to handle alone; the responsibility belongs to entire *communities*, not just people with a vested interest.

A decade of work in education reform has taught several lessons. Among the most important is that learning thrives where it is supported by the community. Communities that have succeeded in working together to improve math and science education have several things in common: (1) A focus on what students need to know and be able to do, and what support services are necessary to help them become functioning, thriving adults; (2) a realization that education is everyone's responsibility — schools, parents, non-parents, businesses, government agencies and other individuals and groups; (3) community organization — people working together for common goals. The makeup of the "community" varies; it may be the local school, the local school district, a consortium of districts, the state or even a larger group, depending on what the people involved decide is appropriate. The point is that all parts of the community must be involved in deciding on the goals for education, providing services to ensure that students meet the goals and evaluating the process along the way.

The second lesson from the reform work of the 1980s is that math and science education cannot be dramatically improved in isolation from the rest of the education system. What happens in a math or science classroom is affected by how teachers are prepared, what curriculum is approved, how much time is allotted for each class period, what kinds of assessments are required and other factors.

How To Use This Workbook

This workbook uses improving math and science education as its core because much reform work already is under way in these areas. But because math and science are interwoven with other parts of the system, the conversation must deal with education reform as a whole. Therefore, the information about building community support applies to all areas and subjects. A district will not succeed in improving science if teachers don't know how to use a new curriculum, if state regulations get in the way of innovation or if citizens do not support changes.

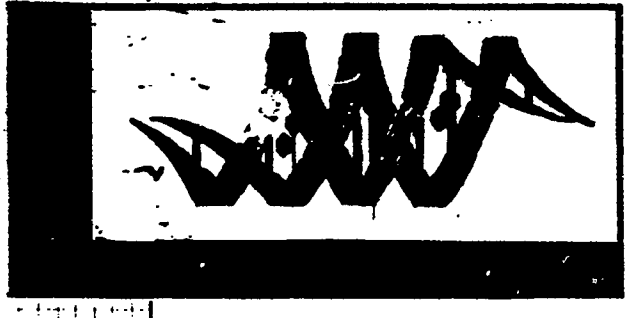
To one person with concerns or ideas about improving the education system, this task may seem insurmountable. But there are many people in every community with similar concerns who would like to do something, too.

People who have brought about fundamental change in organizations say it cannot happen without building a new sense of community. They have learned that when diverse groups get together, with the right kind of leadership, they begin to imagine new ways of doing things, communicate in new ways and build a new community whose parts are better related to one another and to the mission of the whole.

This is the environment needed to improve math and science education. Helping an interested person or group create this environment is the objective of this workbook, which presents ideas on how to bring people together, identify what they can contribute to the effort to improve education, ask questions, create dialogue and debate how to improve learning for all students.

The information presented here is basic. Yet, the basics of effective community-building techniques are frequently ignored by people attempting to make fundamental changes in an entrenched institution such as the education system. For community members already working together to improve math and science education, this workbook may provide additional ideas or lessons gleaned from the experiences of others. These community groups may want to seek further advice and support from organizations with extensive experience facilitating community dialogue on a large scale. Some of these organizations are listed in the resources section.

For those communities that have not started organizing to improve education, or are just beginning, this workbook can help them get started.



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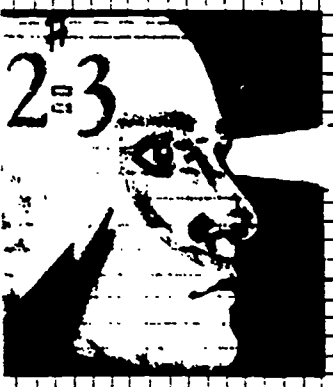

2-3 BRINGING THE COMMUNITY TOGETHER

Bringing a community together to improve mathematics and science education is a continuing process. Here are some step-by-step suggestions on how to determine who should be involved and how to get them interested in working toward what's best for students.

- **Step 1**: *Be willing to stand up and say, "We need to make some changes in our education system if our students are to succeed as adults."* Once you've opened the door, you'll find that other people are likely to come forward with similar concerns. Bring in outside professionals to talk about how they use math and science in their jobs or their daily lives.

- **Step 2**: *Decide which community groups have a stake in the education system* (virtually all of them!) and would be willing to share responsibility and accountability. When any individual takes responsibility for a problem and starts to identify other people who share similar concerns and are willing to work together, change becomes possible.

Your list of groups to contact may include some or all of the people below; adapt it to fit your situation.

- Students
- Teachers
- Science and math supervisors
- Superintendents, principals and other administrators
- Parents, including those of children not yet in school
- Policy makers (local and state school board members, legislators, etc.)
- Educators in postsecondary institutions
- "Experts" in education (curriculum and assessment specialists, reformers, etc.)
- Outside professionals (e.g., people working in jobs involving math and science)
- Businesspeople (small to large companies)
- Civic and religious leaders
- Representatives of local museums, aquariums or other science- or math-based cultural institutions
- Individual members of the community
- Officials from other government entities (mayors, city managers, county commissioners, etc.)

- Critics and organized opponents of education reform
- Senior citizens
- Representatives of taxpayer groups
- Representatives of other special-interest groups

The importance of involving members of all role groups cannot be underestimated. In particular, do not overlook the approximately two-thirds of citizens who have no children in school. While it is easier to begin a conversation about needed changes with parents, educators and businesspeople — persons with a direct stake in education — you must quickly involve non-parents and non-educators. Be certain that representatives from the groups listed above include a large number of people without children in the public schools. School districts across the country have found that the first people to oppose change, particularly one that may require additional funding, are citizens without children in the school system because they do not see the connection to their lives.

Everyone Can Act To Change Mathematics and Science Education

- **Principals** can learn about new standards and innovations and work with teachers to develop strategies for educational improvement.
- **Superintendents** can encourage public discussion of mathematics and science education, standards and curriculum.
- **School boards** can establish programs that support standards and align assessment with goals.
- **State school officers** can promote the adoption of standards, speak out in support of mathematics and science education reform and waive regulations that restrict innovation.
- **Business and industry leaders** can work with the schools to illustrate the links between mathematics and science knowledge and skills and careers, establish partnerships with education institutions and incorporate messages about mathematics and science in their corporate communications and advertising campaigns.
- **Elected officials** can encourage public discussion and understanding of mathematics and science issues, standards and reform.
- **Media representatives** can highlight major issues and innovative approaches to teaching math and science and employ contemporary mathematics and science vocabulary and images.

Compiled from materials in the resource list.

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☛ **Step 3**: *Identify people from the above groups and/or individuals who would make solid contributions to the effort to improve education in your community.* The *...And Learning for All* effort, a project of several national education organizations and public and cable television companies, suggests looking for people with:

- First-hand perspective, especially students (don't underestimate how well students know the education system and how willing they are to be involved, even at the elementary level)
- Sincere interest in improving learning for all students
- Respect from other people in the schools and community
- Knowledge of community demographics, topical issues and working relationships
- Access to various ways of communicating with groups and special interests, especially people who may have differing points of view
- Ability and desire to invest time in the effort
- Ability and willingness to organize tasks and people
- Willingness to accept group assignments, as well as provide leadership
- A history of follow-through on projects

There are a variety of ways to contact the people you need to involve, including school, district and community publications, local newspapers, radio and television public service announcements, and signs and flyers distributed at meetings of groups that should be involved. However, the best response is likely to come from making personal contact with people whose involvement is considered critical. Ask a few interested parties to make phone calls, write personal letters or attend meetings where the people you want to recruit may be present. **(See Worksheet 1, "Organizing for Involvement," to help you organize your recruitment efforts.)**

Tips for Building a Successful Coalition

- **Build on the success of others in your state.** You don't need to reinvent the wheel. Use the experience of others to avoid mistakes and achieve success more quickly.
- **Don't go it alone.** Contact others who are going through the same coalition-building process you are. They can provide ideas, advice or support when the going gets tough.
- **Select your coalition leadership for influence and action.** Find early allies who are respected in the community and who also are willing to roll up their sleeves and help get the process under way.
- **Involve progressive educators.** It is difficult to succeed in the change process without the active commitment of educators. Identify school district leaders who are open to change and recruit them as early participants.
- **Look for specific "do-able" targets.** Teachers and parents know that the way to help a child reach a long-term goal is to create some immediate successes. The same is true of your coalition. Find a small area where you can have an immediate and visible impact to help build commitment to the project.
- **Be prepared for a long-term project.** There are no quick fixes, so develop staying power.

From the Texas Business and Education Coalition

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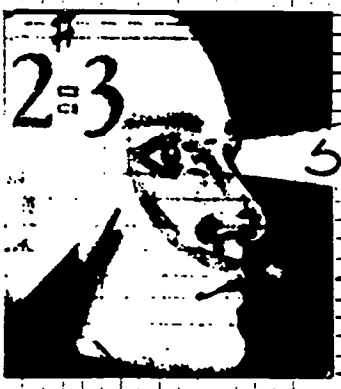

SO THE COMMUNITY'S TOGETHER. NOW WHAT?

Once you bring community members together, then what? How do you get the conversation started? Working together to create a vision for math or science education or determine what students should know and be able to do when they graduate are worthy goals. But forming a group of different people into a cohesive unit, where different opinions are valued but everyone is working toward the same goals, is the most difficult part of community building.

In many communities, work to improve the education system begins with a look at the math and science curricula because of the challenges involved in keeping current. The discussion might start by addressing questions such as the following:

- Where does the district or state stand in math and science? Look at test scores, number of students taking advanced math and science classes, number of students going on to higher education and focusing on math and science, and the percentage of minority students and girls taking higher-level math and science classes.
- What can you learn about math and science? You will find, for example: it's important for the country that more young people learn a higher level of math and science than they have in the past and that experts believe all children can learn more math and science.
- What do you want students to know and be able to do in math and science when they leave high school? New higher standards already exist for both math and science (see the resource list for where to get more information).
- Who can help you think about how to raise standards in math and science? Consider area businesspeople, math and science teachers, scientists and mathematicians, retirees with backgrounds in the fields.

As the discussion develops, community members quickly will see that math and science education cannot be improved in a vacuum. Other issues will emerge about how the school day is structured, how teaching and learning takes place, what opportunities exist outside of the classroom for learning math and science, what community resources are available and what kind of policy and organizational changes are needed to support significantly higher levels of achievement in math and science by all young people. ECS' work to date in math and science education reform shows:

- Successful, lasting improvements in mathematics and science education will only occur in the context of a fundamentally changed education *system*.
- To change a system, representatives of the entire system must be "in the room" together.
- Successful strategies for change come from envisioning the future.
- Identifying common ground and common futures taps creativity and fosters commitment.
- Ordinary people are extraordinary sources of information and ideas.

- Everyone has a role and a responsibility in improving mathematics and science education for all children.

> *It takes a whole village to educate a child.*
>
> — African proverb

- **Step 4:** *Make sure the forums where most of this discussion is likely to occur are handled professionally.* Most of the decisions that will govern the coalition's work will be made in formal meetings. The process will go much smoother, and participants will be more likely to stay involved, if meetings are well designed and managed. Here are some tips for running effective meetings. (Also refer to the resource list at the back for information on other materials on managing effective meetings.)

Select an accessible, comfortable location. Provide:

- Clear directions to site and specific room(s)
- Visible, adequate parking and access for people with disabilities
- Chairs or tables set up to encourage one-on-one interaction
- On-site child care if possible
- Registration table and sign-up sheet for followup activities
- Agendas, minutes or copies of materials available to participants

Do the basics right at each meeting.

- Describe the purpose of the meeting; be brief and specific.
- Identify what is to be accomplished.
- Give adequate notice with information about location, date, day, time, sponsor and who is invited.

Set clear goals for each meeting.

Goals of meetings could be:

- To agree on a common image of the type of math and science education desired by community members or to seek consensus on broad concepts and ideas about math and science.
- To solve problems and find solutions, keep participants thinking through possible results, such as meeting the National Education Goal relating to math and science ("By the year 2000, U.S. students will be first in the world in science and mathematics achievement").
- To agree on a plan of action, seek a majority opinion and identify implementers and evaluators.

Establish ground rules for decision making.

- Will action result from a simple majority of who is present or two-thirds?
- Will voting be by a show of hands or by ballot?
- Will members join at will or will there be a procedure for joining?
- Are meetings open to observation and/or participation by anyone?

problem to the horizon."

William O. Douglas

One way to ensure efficient, effective meetings is to use a skilled facilitator. This person can be a coalition member, a community person skilled in meeting facilitation or an outside "expert." The key in selecting a facilitator is to choose someone who can maintain an objective attitude (assuring that all viewpoints are heard), and who can keep participants on task and off personalities and side issues. Here are some things to look for in meeting facilitators:

- Belief in the value of coalitions and a commitment to focus on what's best for students
- Experience in leading groups or willingness to learn, especially if a student shows interest
- Ability to view issues from a broad perspective
- Strong communications skills
- Ability to listen to all points of view and reflect back points and concerns accurately and objectively to the group, keeping the focus on improving learning for all students
- Ability to lead group through a problem-solving approach
- Ability to guide group toward consensus
- Ability to run meetings on time and efficiently but not at the expense of what needs to get done

☛ **Step 5:** *Choose coalition leaders carefully.* These people will play a major part in the coalition's success, so establish leadership by identifying:

- Chairs or co-chairs with knowledge of the issues around improving math and science education and with strong ties to the community
- Community and school district organizers, including students
- Committee chairs or co-chairs
- Key communicators with media and other "publics" **(See Appendix A, "Working with the Media")**

As ...*And Learning for All* notes, the role of coalition leaders is largely one of continued recruitment and coordination. Selected leaders will be expected to participate in related meetings, work with others in looking for new participants and allies, recruit meeting facilitators, arrange logistics, set agendas and clear objectives for each meeting, publicize meetings and events, and follow up with appropriate activities. If your group of leaders includes some people without children in the public schools, you will be able to gain public support more quickly and easily.

☛ **Step 6**: *Decide what community members want to contribute and how they want to work together.* Once the group has designated leadership, members should learn as much as possible about one another and what each wants to get out of the process and what each person is willing to contribute. Listen to what different members of the coalition and the groups they represent think about the math and science they had and want for their students, the education system as a whole and their role in helping students get the best education possible. Find out:

- Why are participants interested in the process? (clarifies and affirms purpose) **(See Worksheet 2 for ideas on helping people think about what they expect to learn about education, what they can contribute, what they expect others to contribute and how that might best happen.)**
- What is good about the current math/science curricula? (builds on the positive)
- What do they expect from the math/science curricula in the future? (gets participants to see past what is going on now) **(See Worksheet 3 for critical questions to get the conversation going.)**
- What do participants think about change and their role in it? (identifies barriers)
- How will the group know when it reaches its goals and objectives? (creates the desire for shared accountability and measurable results) **(See Appendix B, "Evidence of Success.")**
- Where can the group find the funds needed to carry out needed activities? **(See Appendix C, "Thoughts on Fundraising.")**
- Who else needs to be part of the process?

☛ **Step 7**: *Gather information about the schools, district and community and about the process of changing an education system.* Even if the coalition has chosen to focus on one goal or area, such as science and math, community members need as much information as they can get about the state of education as a whole in their community (and across the nation) and what other people are doing to improve it.

Know what schools do, how much they spend and if other agencies are better qualified and funded to provide some of the services students need, e.g., drug and health education, counseling, vocational training, extracurricular activities, etc. The Texas Business and Education Coalition suggests gathering the following information before members begin to debate what kind of changes are necessary to improve the education system:

- Who are the students? Who will they be in the future? What does your community as a whole look like? (Analyze demographic and social data, including gender, race, age, ethnic origin, educational attainment, labor force experience, percentage in poverty, alcohol and drug usage, marital status, percentage of residents with no children in school.)
- Who are the educators? (Look at qualifications of teachers, counselors, principals, superintendents, board members and opportunities for training.)
- How well are the schools doing? (Examine assessments of student skill levels, percent and profile of college-going students, percent receiving remedial education, dropout rates.)
- How do the schools operate? (Consider governance, decision-making lines, politics, policies and regulations, planning cycles, communications.)
- What resources are available? (Look at higher education, scholarships, job-placement services, counseling, vocational preparation, partnerships, government programs.)
- What funding is available? (Gather data on per-pupil funding, trends, salaries, tax revenues, federal funds, expenditures.)

What works? What doesn't?

ECS' experience in education reform has shown that certain steps work and others fail in improving math and science education.

What works:

- Creating relationships built on trust and respect
- Knowing the context, e.g., policies, politics, structures, relationships and communication patterns of groups and individuals in your community
- Building people's capacity to do the work; providing tools, guidelines, policy options, facilitation and other forms of technical assistance and support
- Developing a comprehensive, long-term strategy for communicating about mathematics and science education reform

What doesn't work:

- Quick fixes, trying to short-circuit the process of change
- Mandating changes in mathematics and science education without developing the infrastructure or the resources (including human resources) to support them
- Making decisions in a vacuum, failing to listen to the ideas and concerns of all the people affected by proposed reforms and/or failing to realize that decisions made about funding, length of school year or staffing ratios affect what happens in the math and science classroom
- Reacting to current problems rather than creating a mutual vision of the future and strategies for equipping children to succeed

☛ **Step 8:** *Once the group is equipped with information and understands the differing viewpoints offered, work toward consensus about what the group wants for students in the education system.* Establish a framework through which the coalition can function on a long-term basis and, if need be, merge with other groups at some point.

- Keep conversations and actions focused on what's best for students, not only at school, but also in the community at large.
- Tie the needs of children to every facet of government, business, communities and professional organizations and hold those agencies and groups accountable.
- Be prepared to work at this for the long term. Remember that not only is it difficult to keep the public involved for a long time, but administrators and teachers also may be reluctant to change their attitudes and approaches.
- Ensure the group operates in an open, democratic manner.
- Decide how the group will deal with different points of view, criticism, friction and opposition to what you are trying to do. **(See Worksheet 4 for more on dealing with disagreement.)**
- Have a clearly stated purpose and structure.
- Set up benchmarks for evaluating efforts to make the coalition work and measure how successful it is in reaching goals.

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- Build in times to review progress and determine the future course of the coalition, including whether or not it should continue to exist.

By following these steps and examining other materials on community building, such as those listed in the resources section, you will have the tools for bringing the community together and starting to work for better education systems.

Following are examples of how the community-building process has worked on state and local levels to improve math and science education and restructure the education system as a whole.

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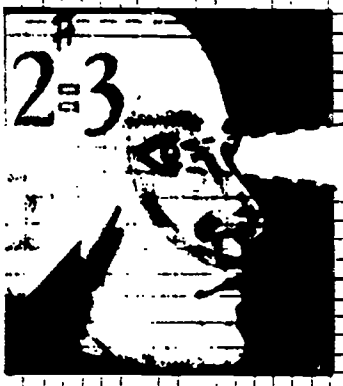

WHAT SOME COMMUNITIES HAVE LEARNED

■ Alaska faces unusual challenges in building community support

When Alaska decided to apply for a National Science Foundation math and science grant, leaders had to work especially hard to build community support in a diverse state. Following is a summary of their efforts, drawn from interviews with Cindy Adams of the Alaska Funding Exchange, which assisted the State Department of Education in writing its proposal, and Cathy Carney, mathematics and computer education specialist with the state department.

What strategies did you use to promote community support?

The grant-proposal process was based on a grassroots effort to listen to what the people — teachers, students, principals, parents and others — felt was lacking in their communities in math and science. The other important task was finding non-educators in the community who wanted to be involved. That turned out to be a non-trivial task. Some of the best leads came through the Vocational Education Department, which has experience forging links with the business community and other groups. The grantwriters also contacted people who had been part of a previous task force who had indicated a particular interest in math and science. In addition, the state school board was a good source for suggestions of people who might be interested.

In Alaska, a special challenge comes from the combination of distance and diversity. The state has many small villages that are geographically distant from one another and only connected by air or river or sometimes just a trail. Because of this geographic distance, there is also a lot of cultural diversity. On one level, the community is the whole state, and on another level there are numerous communities that are all culturally different. The Inupiat Eskimos, for instance, have a very different culture from the Athabascan Indians. That is true across the state, with both Eskimo and Indian populations and subcultures within each. What would work well in one village might not work at all in another village.

So, the grantwriters had to look at the project from two levels, viewing the state as one community, and within that community a diverse number of cultures. In some ways it was much like working with a big city with a diverse population. The grantwriters' solution was to listen to people and provide them with the tools they need to design their own approach to math and science, one that is appropriate for their community.

What strategies were not completely successful?

With few roads to get people together, one solution was to create an electronic network. It's always good to get people together face-to-face, but sometimes the electronic network is the only way to afford to bring people together. But the computer link has its problems, too. Training was provided on Alaska-Net, but for the most part it's been difficult to get businesspeople and community members who are not educators involved in its use. Efforts to build a distance network aren't yet completely viable.

Grantwriters also tried public information made available through a mass mailing. That may have helped get some people interested, but the benefits don't seem to outweigh the costs.

What advice do you have for others?

- Word-of-mouth, finding someone who knows someone else, is the best strategy to build community. Any time you can establish a chain like that, it works very well.
- Build upon efforts that are already there. Show you don't think you're starting something completely new, but are aware of and acknowledge the work that's been done by different partnerships and organizations in the past and that you value their contributions.

■ Arkansas school involves staff, students and community in reforms

Perryville (Arkansas) High School began a restructuring program in 1987 that included cooperative learning, block scheduling and interdisciplinary teams. Efforts with mathematics and science focused mainly on professional development, trying to get teachers to look at math and science in a different light. As the school has begun to move toward meeting National Council of Teachers of Mathematics standards, it has completely replaced traditional algebra and geometry with courses in applied mathematics. Reforms also include using more manipulatives, equipping students with calculators and computers, and including math and science in interdisciplinary teams.

Although school officials at first encountered opposition to some reforms, they were able to refine a communications strategy and successfully restructure their school. James Floyd, principal, and Karen Coleman, a member of the Citibank Coalition Faculty, talk about their experiences. Coleman is a teacher trained by the Coalition of Essential Schools and funded by Citibank.

What strategies did you use to promote community support and involvement?

Floyd: We included parents on our curriculum committees and created a volunteer program that provided community people in classrooms whenever teachers had inservice training on campus. As a result, those people saw what was really going on at the school; then they communicated what they learned with other community members.

We also involved non-certified staff in what we were doing, making sure they were included in staff-development activities early on. That includes cafeteria workers, custodians and bus drivers.

Coleman: That was really important. It explained to the non-certified people why we were making messes in our rooms and why we needed the cafeteria for exhibitions; then they were much more willing to share their space with us.

Floyd: They also got excited about being a part of it. For instance, when we had activity days, the cafeteria workers would dress up to fit in with the theme (Native Americans, for example). A lot of the custodial staff would offer time to come in early and work as volunteers or stay late. We have a Spanish-speaking cook in an elementary school who volunteers time working with kids and tutoring classes in her native language.

Who else did you involve?

Floyd: Some key community people were invited in on some of the staff development. We had a couple of retreats early and invited some community leaders. We're also moving into more student involvement. Students are going out to talk to community groups and local school boards, which seems to be working very well.

In addition we've helped organized a Family Advocacy Team, which ties together community services in the area — health services, social services, county and local government and law enforcement — to start collaborating to serve the total family.

Were there strategies you tried that didn't work?

Coleman: If we had to start over again, we'd certainly do much more with the community than we did, and maybe do some things differently. For instance, we tried to organize parents to explain what we were doing. That was good, except many didn't come. We ran into a problem when we moved away from relying heavily on specific textbooks. Kids have always been dragging home one book they could work from, and parents didn't understand when that stopped. I sometimes say that's one way we got our community involved really quickly — by just not handing out a book.

Floyd: We found we didn't understand how important educating the whole community was. We did that almost as an afterthought, because some community members expressed concern about some things we were doing. We're still having problems with some people because of mistakes we made four or five years ago. Perceptions created then are still prevalent with a small group of people, and we have to deal with that.

Coleman: I think too that if we would have handled it differently it would have helped. Some people can't see that there is a reason to restructure education. They say, "What we had was fine, let's keep it."

Floyd: The community was not educated in the need for change. We did a poor job of that.

What advice would you give to others?

Floyd: Identify those populations that make up the district, then identify key community people and staff members who are perceived as leaders in each of those populations, not just the "elite" or most vocal group. Educate those people about the need for change, what's available and what research is out there.

Coleman: Let it be a true partnership, not just owned by the school.

Include students. We hadn't given students much background on the principles of reform. Now we have students starting to organize workshops for other kids here on campus and from different schools. After the kids went to a workshop, they came back and said, "I knew we were doing this, but you never really told me why. You didn't give me this background." This came even from kids who are very supportive. We should have and still need to clarify things for the kids more.

Coleman: Look at leadership. You need a principal who understands the need for change and who can coordinate it, then step back and let people work.

■ Connecticut concentrates on family involvement

Connecticut was among states receiving a State Systemic Initiatives (SSI) grant from the National Science Foundation to reform math and science. Mary Keeney, deputy director of the Connecticut Academy for Education in Mathematics, Science and Technology, details the state's strategy to make the community part of the reform effort. The academy was established by the legislature to serve as the vehicle for long-term systemic change in education.

What strategies have you used?

We know the entire public needs to be made more aware of the importance of math and science, but we chose families, particularly parents, to start a tailored public-awareness program. An obvious reason is that they've got a vested interest in what we're trying to do; they're our natural allies. We need to give families the tools to be able to do what only they can do, which is demand change. Our campaign, "Learning Doesn't Take A Vacation," is trying to get people to feel comfortable taking part in their child's learning experience. People keep hearing that we're falling behind globally, but we want to bring it down to a classroom level and let parents know the questions they need to ask within their own school systems.

We're trying to approach families where they're going to be this summer, in places they wouldn't necessarily expect to be learning. We've got a McDonald's placemat we've worked out with the franchises in Connecticut and western Massachusetts that's going to have math and science activities. We also have a 30-second public service announcement (PSA) that will appear on television and radio. Then we'll move into other messages in the fall, winter and spring.

We've targeted all the state's major commercial television stations in a very labor-intensive way, working out deals with each of them to be our equity partners. For instance, one station's weather forecaster will do a series of reports linking science with weather prediction, while another station's popular sportscaster will use baseball as a way to show families about the mathematical aspect of sports. Another station is producing a series of vignettes that feature their student reporters doing some of the science and math activities we're producing through the print media.

Another media partnership is with the largest paper in the state, the *Hartford Courant*. With them, we're running a two-sided poster that's been designed as a game that parents and children can do together during the summer in their neighborhood. In addition, we're working with the Connecticut Broadcasting Association on radio distribution, with theater chains to see if they will play the PSA before all the movies this summer and with the science museums as well as a variety of community groups in the state.

Was there anything you tried that didn't work?

It's important to keep this issue in front of the media as much as possible. But we're missing the boat if we don't have a lot happening within the communities themselves. It's one thing to "blitz" people over the airwaves, but then they have to have a way to get involved locally. You've got to get the community groups in each area to buy into the whole idea. It's not that hard, but it's very labor intensive. The worst thing would be for the groups to feel like something was imposed upon them.

Another mistake is the fact that, if you have a large minority community in your state, you can't approach it just as a translation situation. I really want an all-inclusive feeling, yet at the same time we've got to speak to the different cultural elements.

What advice would you give to others?

- Work one-on-one: The one thing we're doing that really seems to be working is this one-on-one approach, particularly with the popular media. One of the real flaws in many public-awareness programs is speaking to people in a way they are not familiar with — the language of education.
- Recognize conflicts: We're trying to recognize that people are busy, that this is a time of economic downturn, that people have a lot of concerns on their mind. Children's education is an important consideration, but we've got to approach parents in a way that they can utilize the information, not be threatened by it.
- Be businesslike: The approach we're taking with the media is to say, "You have a proven track record of communicating with the public at large and we need you to help us." And the media have really accepted that approach. There's a lot in it for them, as well — they're dependent on community good will. However, we're trying not to make it a philanthropic thing to do just because it's good; we're making it a business proposition — we're each bringing something to the table. That has really opened a lot of doors for us.

■ Indiana district has history of community building

Washington Township, Indiana, has been involving community members in its schools for 25 years. Vickie Haley, president of the Parents' Advisory Committee, was interviewed about the group's function and successes.

Many schools find it hard to get parents and other community members involved in education. But, in Washington Township, Indiana, citizens compete to be members of the schools' Parents' Advisory Committee. Created about 25 years ago, the committee is still going strong. Each of the eight elementary and three middle schools nominates 10 people, plus the parent-teacher organization president, to serve on it for two-year terms. The high school nominates 20.

The committee's main function is unique — it is charged with nominating a slate of candidates for school board elections every two years. In the fall before the May primary election, a screening committee made up of two people from each school recruits and screens candidates. After two days of interviews, two people are nominated for each board vacancy, and then the entire committee votes to recommend one person for each opening. The process does not preclude other people from running for office — or winning. But it allows parents to learn first-hand how much the candidates know about the issues and to back those that are acceptable to the majority, Haley said. It also provides the candidates with public exposure, as well as campaign funds.

The screening and campaigning also gives parents "quite a bit of clout" with the school board since most of the recommended candidates win, said Nancy Cobb of the Indiana Department of Workforce Development, a former member of the parents' group. "Through this method, you also don't get single-issue candidates like some of the new coalitions work for; it's a good safeguard to prevent that," she added.

Haley noted that the committee benefits parents by giving them a forum in which to communicate with one another and the administration and in which to learn and talk about issues. "Learning to talk about concerns is the strength of being a committee member," she said. "You may think you have an isolated issue at your school, and then you find it's a concern of others. It's encouraging to

know you're not all alone, that you can work together. In addition, it's a means for parents to feel comfortable about asking questions because they get to know the administrators and board on a personal level. It's a wonderful experience."

■ South Carolina combines state and local efforts

Terry Peterson, counselor to the U.S. secretary of education, led the business-education coalition in South Carolina from 1983-90, the years in which the Educational Improvement Act (EIA) was conceived, passed and implemented. Every major program of the EIA was fully phased in, a feat uncommon with reform efforts. Statewide objectives and standards for science were established and science was added to the Basic Skills Assessment Program. In addition, the "Superstars" program was added to the elementary school mathematics curriculum to help students develop thinking skills and problem-solving abilities.

What strategies have you used?

It's critical to combine statewide involvement with a grassroots, local effort. You need coordination from the top with a broad set of statewide stakeholders connected to lots of local people. That combination is very powerful, because then it's not just an isolated effort in a couple of communities, and it's not just something done from the top to people — it's a joint effort.

Our strategy started with two large committees of statewide leaders — not just state leaders, but *statewide* leaders — who may or may not be office-holders in organizations but who are thought of highly by a big sector. While these committees were looking at the issues, there was a series of grassroots activities feeding information to the committees. For example, something that is easy enough to do but rarely done is a really good, extensive public opinion poll, with a big-enough sample to break it out by general public, public with kids in school and teachers. Our poll asked about critical issues, issues you could do something about. We polled people on a variety of ideas about how to improve and reform schools. That's very important, because it gave us a feel for where everybody's at.

Then we created a series of grassroots networks, both to energize local communities as well as to give us ideas and feedback at the state level about what local teachers, parents, community members and business leaders thought needed to be done. First, we formed a small committee of people in each of the counties to be in charge of a grassroots campaign and just keep "tuning in" so we had someone in each community who knew what was going on. Then we used that group and all the statewide leaders to sponsor a series of forums around the state.

The forums had two pieces, a daytime and a nighttime activity, both of which were really important. In each region of the state, we first had a daytime activity designed to create a critical mass of interest in an area at one time. Anywhere from 10-20 statewide leaders would spend the entire day in that region. They covered the county, visiting schools, speaking to PTA meetings, Rotary meetings, chambers of commerce and so on. If people they contacted were interested in being more involved, they could come that night to the forum.

In the evening forum, state and local leaders spoke briefly about the need for educational improvement and some of the problems and issues, but not about specific solutions. Then the audience, no matter how large, was broken up into discussion groups with trained discussion leaders. People often use hearings, which aren't very productive — it takes an enormous amount of time to hear from 20 people. In discussion groups, you can literally get advice from hundreds of thousands of people.

The discussion leaders, who were chosen because of their proven track records, asked their groups about the statewide committees' six general goals: "Do these six goals seem right? Is something missing?" Then they took time to process ways to reach each of the six goals. The groups, with 10-20 people each, met from an hour to two hours. Then, when the discussion groups were finished, the leaders met and synthesized the big themes under each of the goals. That information was then fed back to the committees.

During that type of nighttime activity, we counted about 13,000 people participating, so that's one way to get good, meaningful grassroots advice and input. Then we also asked people when they were leaving if they wanted to stay involved and had them fill out a card if they did. Probably half said they wanted to continue to be involved.

We had participation from the governor, the first lady, state superintendent, some well-known business leaders, the lieutenant governor — a whole range of people. Local coordinators did the programming to assure that people went where there was the most interest. We estimate we touched easily 40,000 or more people altogether. Then there was a story in each local newspaper about the issues and concerns, what people said, how they responded to the speeches that were given. This created a critical mass of activity. All that generated grassroots involvement and excitement.

We also used toll-free hotlines to get advice from people about what we should do and how they could volunteer. We had an ad campaign, paid for by private-sector money, around the issues of why we needed to improve schools and what we were doing. That spawned other, unsolicited activities. For example, some superintendents ran newspaper ads paid for out of their own pockets, supporting the idea that Johnny *can* read if we change schools. Some business leaders printed bumper stickers. Part of the public involvement also included teachers — they were in the forums, on the committees and in the visitations, so they felt a real part of the reforms. That's often underattended to: people often forget to include educators in "the public."

Were there strategies you tried that didn't work?

The toll-free number didn't yield as much as one might think. Unless you've got constant advertising for it, you probably don't get as much return as you would like. It sounds good, but it may not be worth it in terms of time and effort if you've got limited resources.

You also need many strategies. The biggest thing you learn is that you can't just decide to do one or two. You won't have a big impact without having a whole set of strategies.

What advice would you give to others?

Building community support can be rewarding, but there will always be some frustration, too. For example, the regional Federal Center for the Southeast asked people, "Have you heard of your state's school reform effort?" On average, only 25% of the people had; in South Carolina, it was twice that, around 52%. That's both good news and bad. The good news is that we had done better than most, but it also means that only half the public was tuned into it. That tells you how much work you've got to do to reach the public, and it tells you that you can't reach everyone.

The best opportunity to get parent, citizen and educator involvement is while you're putting things together. Then, once the reform passes, everybody kind of gives a sigh of relief. But that second stage of involvement is critical. I think that people totally underestimate the importance of keeping people informed and involved during implementation. Over a seven- or eight-year period of reform, there is tremendous turnover in people, so you need a way to keep everyone tuned in to what you're trying to do.

■ Vermont finds a variety of strategies work

Rick Mills, commissioner of education, talks about Vermont's continuing process of education reform. While a large part of the state's effort is concentrated on a "massive transformation" of science, math and technology education, supported through a $10 million National Science Foundation grant, the Vermont Department of Education's long-term goal is to build continuing support for a variety of reforms.

What strategies have you used to promote community support and involvement?

We use a variety of strategies. For example, every two weeks, one member of the state board and I go to a region in the state. We start very early in the morning and finish up late at night. We have a series of visits with students, parents, the business community, administrators and boards, and we end up with a community meeting. We have a very simple message and ask very simple questions. For example, with students we ask, "Is the work that you do challenging?" The answer is almost invariably "no."

So we go to the next group, for instance a board, and ask, "Have you ever invited the kids to talk with you about the kind of work they're doing?" We end up with a community meeting where we talk about what we've seen, give them a five-minute version of the reform agenda and point out some practical things they can do.

Basically, you need one five-minute talk, and at each subsequent meeting you talk about what you heard at the previous meeting. You get a lot of opportunities to talk with the local press. It's not a speech-making opportunity; it's listening and talking, a rolling conversation.

Another example — we are about to start a "Help Wanted" campaign with the Public Agenda Foundation (see the resource list). It's a strategy tried in several other places, based on research indicating that leaders and the community at large tend to be on different levels on a variety of issues, such as education, business or community. The "Help Wanted" campaign for education is designed to demonstrate the link between educational quality and economic vitality. It involves some hard-hitting ads and then, in partnership with the media, developing a communications strategy. It's not a public relations campaign; it's a communications strategy designed to get public support for major change.

We've built all of our major initiatives with very large public involvement. Our Common Core of Learning is a good example. Instead of setting up an expert panel to develop it and then try to sell the idea, all the idea development was done through local forums, which then fed information to a leadership group. So far, 4,000 people have given up time to sit down for at least two hours to help write down answers to questions, such as "What do you think every child should know and be able to do to succeed in the 21st century?"

Another example was "School Report Night" which we developed as part of the portfolio assessment program. It started in two schools, then we got a small grant from a major employer to expand it to 100, and now it's pretty much all over the state. The idea is that there should be, in every town every year, a town meeting focused on student performance, where the partnership gathers parents, teachers, students and others to look at the portfolios and talk about performance. Some of them have been huge. The biggest one I know of was in Colchester where 1,000 people showed up. I saw a striking one in Cabot that packed the gym; the whole town was there. They had many display boards and every kid had work up. The contents of student portfolios in math, science, art and other subjects were displayed, along with standards of performance. People could see four or five sketches from a student artist and a rating sheet showing the standards of performance, the qualities or attributes they were looking for in the score. It didn't say "98" or "A" or "atta boy"; it dealt with five or six different criteria of performance; everyone could see what high performance

was supposed to look like. It's very different from back-to-school night, because the adults are not there making speeches; the focus is on the work that students do.

Who did you involve?

As much of the community as possible. When we wanted to go for one of the National Science Foundation's State Strategic Initiative grants, we involved more than 100 people in the design — people from business, higher education, K-12 educators, students, everybody. When the grant-making team came to visit, we had a huge meeting in the governor's office. They said, "How do we know that the business community is going to be there?" and the head of one of the largest employers said, "We're going to make a major contribution, and we've already put up money in advance of the award."

The award is building on comprehensive education reform efforts already in place and represents a new level of cooperation between education and business. An advisory board headed by a businessperson raised funds to support activities under way before NSF funding was received. And the governor said, "We have a governor and a former governor here, and we'll get you three more former governors if that would help." It's just a very aggressive attitude toward involving everyone.

I also try to form a good relationship with the media. One strategy that seems to work is using the state board of education meeting to get the message out to the media. Every third Tuesday of the month there's a lot of radio and television coverage because the press has learned over the years that they get the straight story. We've organized state board meetings so that we have controversial issues during what we call "prime time," from 10 to noon, on the morning of a state board meeting. So if you come there with your camera, you're guaranteed to get an interesting story. It will not be talking heads.

Were there strategies you tried that didn't work?

Sure, lots of them. We're constantly trying things. Mostly, when something doesn't work we don't discard the strategy altogether, we try it a different way. For instance, we found that school report nights that don't involve kids don't work. You've got to have the whole partnership there.

Sometimes it takes a while to get results. For example, with the Vermont Partnership for Education, we paired up educators and business leaders to go to all the editorial boards in the state. The idea was to inform them of the need to change and what we're trying to do. In many cases, we were disappointed because there was no follow-through — we didn't see a lot of editorials or articles. But as I look back on it, in the year since, maybe there has been some payoff.

What advice would you give to others?

- 110% of the job is communication.
- You have to get public permission to make radical change.
- Listen first, talk later. When I came to Vermont five years ago, I got a flood of invitations to "come and talk to us about your vision." I always accepted the invitations, but I never talked about my vision. I thought that was an imposition, because I was from the outside. Instead, I presented the data and asked people how they felt about it. For example, I would say, "You're spending $650 million per year on education. You know where the money goes, but you don't know what you get for it. How do you feel about that?" They'd say, "We need some kind of test or something." So I pulled the agenda from the public. Then I can always go back and say, "The reason we're doing this is because you said you wanted it."
- The most important thing is to be local. Go into schools and get off the tour, don't look at things they want you to look at. Ask questions of students and use the information they give you.

Math and Science Effort Based on New Level of Cooperation

As one of 26 states selected to receive funds from the National Science Foundation (NSF), Vermont is using its $10 million for systemwide reform of its math and science education programs. Mills attributed Vermont's success in getting the grant largely to the coalition behind it. "Our partnership is huge and committed: Businesses, higher education, elected leaders, state agencies, schools — everyone stretched to help." NSF also pointed to the Vermont grant as significantly different from previous efforts to reform math and science education because it is a comprehensive approach and requires a very high degree of participation by key education, community, institutional and state leaders.

A nonprofit organization will carry out the five-year math, science and technology initiative. The Vermont Institute for Science, Mathematics and Technology is pursuing sweeping improvement through goals including:

- A statewide science, math and technology curriculum
- Recruitment and preparation of highly trained, knowledgeable teachers
- Professional development to improve the science, math and technology knowledge of current teachers
- Assessment strategies that build on Vermont's existing student portfolio assessment program
- School structures that promote higher student performance in science, math and technology
- Appropriate materials and technologies
- Expanded business and community involvement in science, math and technology instruction
- Expanded opportunities for girls and women, minorities, low-income students and rural students to pursue opportunities in math, science and technology
- Additional resource development

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WORKSHEET 1. Organizing for Involvement

Group	Who are the key people to involve?	How can they contribute to the coalition?	How can we reach them?	Who's responsible for contact?	When?
Students					
Parents (including those whose children are not yet in school)					
Teachers					
Supt., other admin.					
College educators					
"Experts"					
Businesspeople					
Civic leaders					
Math and science supervisors					
Religious leaders					
At-large community members					
Government officials					
Critics of reform					
Senior citizens					
Taxpayer groups					
Other special-interest groups					

Adapted from *...And Learning for All*, published by Whitehorse Productions, Boulder, Colorado

WORKSHEET 2. Generating Discussion and Debate

Ask people who are interested in joining the effort to improve education to answer questions such as the following:

I expect to learn more about education and:

- _____
- _____
- _____
- _____

Sample answers might include comments such as:

- The need to change math and science education to better prepare students for the 21st century
- How education is funded
- The nature of governance and administration
- The relationship between policy and day-to-day operation of schools
- How community members can have an impact on schooling

I expect to contribute:

- _____
- _____
- _____

Sample answers might include:

- Ideas on what students will need to know about math and science when they get into the work force
- Suggestions on curriculum content and instructional methods that will better prepare students for postsecondary work and learning
- Time to serve on committees and the broader coalition
- Time to reinforce classroom work and study at home with my child
- Time to attend parent/teacher conferences and other school, district or education-related events

I expect the following to happen as a result of our work:

- _____
- _____
- _____

Sample answers might include:

- Students to learn higher-level math and science skills which will enable them to become better workers and citizens
- Administrators to contribute directly to student learning or resign
- Policy makers to encourage and recognize administrative activities targeted at dramatically improving learning for all children
- Educators in postsecondary institutions to work with K-12 institutions in developing math and science education programs that help students better prepare themselves for postsecondary education

- Experts to be less territorial and more willing to integrate their philosophies with those of other experts to better serve student learning
- Civic and religious leaders to learn more about education and advocate new programs and projects geared to improving student learning in math and science as well as overall
- Members of the community to become more informed about what types of math and science skills students need and more involved in serving the needs of young people in their location
- Critics and advocates alike to honor democratic processes in discussing diverse points of view about how to improve education

I think these things might happen if people:

- _____
- _____

Sample answers might include:

- Are focused on what's best for students, asking what students should know and be able to do in math and science
- Share their hopes and fears
- Volunteer their time and expertise
- Develop a sense of common understanding and purpose
- Agree on what successful efforts should look like

I think the next steps should be:

- _____
- _____
- _____

Sample answers might include:

- Continue face-to-face dialogue about the kind of math and science education we want for our children
- Start to build consensus on what the community wants for education as a whole
- Gather more knowledge about the status of math and science education in the school, district, state or nation

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WORKSHEET 3. Generating Dialogue About Math and Science Education

Ask people to discuss critical questions about mathematics and science education, such as the following:

What does it mean to be scientifically literate?

The American Association for the Advancement of Science's *Project 2061: Science for All Americans* project suggests that scientific literacy includes:

- Knowledge of the basic beliefs and attitudes scientists share about what they do
- Knowledge of the important themes and transcendent ideas of science, including systems, models, constancy, patterns of change, evolution and scale
- Knowledge about the biophysical environment and social behavior
- Knowledge about technology and its applications
- The habits of mind necessary to solve complex local and global problems—including the ability to examine evidence, think critically and independently, construct logical arguments and deal with uncertainty

I think scientific literacy is:

- _____
- _____
- _____

What does it mean to be mathematically literate?

The National Council of Teachers of Mathematics suggests that mathematical literacy includes:

- The ability to communicate mathematically, using the signs, symbols and terms of mathematics to clarify, refine and consolidate thinking
- The ability to reason mathematically, to make conjectures, gather evidence and build, support and test an argument
- The ability to use a variety of mathematical methods to solve problems

I think mathematical literacy is:

- _____
- _____
- _____

WORKSHEET 4. Good News! Questions and Criticism Are Signs of Progress

Although questions and criticisms can feel like attacks on your group and its motives, they are actually natural byproducts of the process of change. If you began to discuss changes and nobody noticed, you would question if you were really doing anything worthwhile. So, welcome questions and criticisms and understand that the right balance of faith and doubt enriches ideas, actions and results.

In one-on-one and group conversations, it's often helpful to raise the following questions before you talk about changes you want to make in the education system.

1. Why did you come to this meeting?

2. What is your worst fear about what we're going to discuss?

3. What is your best hope as we begin to talk?

At times, you may feel stressed out and defensive, but it is essential to participate in these discussions sincerely and objectively.

As you raise such questions, the underlying issues will begin to surface. Up front, people clearly need to identify the issues, agree on ways issues will be addressed and the results expected. Remember that the issue pointed to may really be something else. For example, concern about bringing more tools such as computers and calculators into the classroom may really be concern about whether a student will no longer learn computational skills. Help people think through concerns so they and you will get to the root of the problem.

This process anchors communications and the change process itself in values. People talk and interact in a way that reflects individual values. But their discussion evolves into a consensus for action based on community values. When people act on their values, there's a greater commitment to action and, in this case, change.

What situations or issues can you apply this process to immediately?

_____

_____

_____

_____

_____

_____

What situations or issues can you apply this process to later?

_____

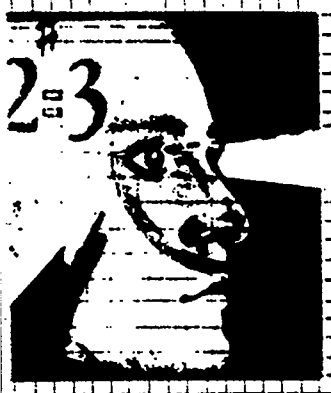
_____

_____

_____

_____

NOTES



APPENDICES

APPENDIX A. Working with the Media

Gaining visibility is crucial to building support. Newspapers, radio and television are good resources for communicating a community group's existence, purpose and progress. A media strategy should be part of every effort to reform the education system. Here are some things to keep in mind.

Designate a spokesperson.

This person:

- Serves as the contact person for media inquiries
- Directs interested reporters to the appropriate people rather than answering all questions alone
- Needs to be kept well informed of all activities by all leaders of subcommittees or key people carrying out specific assignments

Develop a positive working relationship with media representatives.

- Be straightforward, honest, complete and prompt in your responses.
- Treat reporters with the same courtesy you expect from others.
- Contact the media only when something of significance needs to be relayed.
- Contact the media even if the significant information is unfavorable or unpleasant; you need to make sure your side is at least accurately conveyed.
- Let the media know when and where meetings will be held and include them in information circulated, such as official reports, highlights of interesting research, minutes of meetings (if they're brief) and summaries of progress.
- Honor deadlines. Remember reporters always are on deadline, so respond to information needs as quickly as you can; don't wait until you have every scrap of information because reporters usually don't have room for details, anyway.
- Meet often for brief periods with reporters and editorial boards of local newspapers and electronic media to keep them up on progress. When appropriate, ask for an endorsement of your efforts.
- Admit mistakes. If something isn't going well, say so and explain what you're doing about it.

Learn how to carry out an effective interview.

- Never say anything you don't want to see in print or hear on the air.
- Know in advance the points you want to make.
- Never say "No comment."

- Don't ask for questions in advance or to see a story before it runs.
- Be concise and speak in common English, avoiding jargon.

Learn to recognize "hooks" and understand what will be of interest to the media.

- The media will always be interested in questions related to money *(What will restructuring cost?)*, personnel *(Will personnel be reduced, increased, reassigned?)*, teacher training *(Will teachers have to be retrained?)*, students *(How will restructuring affect students' chances for getting into college?)* and evidence of whether something works *(How will you track progress?)*.
- A hook, the angle around which a news story is created, could be a human-interest story about student or parental involvement or a business contribution that is unusual in nature, scope and results or an interesting new approach being tried in a particular math or science classroom.
- Scheduled activities are sometimes hooks, e.g., appearance of experts or well-known speakers before your group, recognition events, reports to the board of education.

Adapted from ...And Learning for All, *published by Whitehorse Productions in Boulder, Colorado, and* Communicating About Restructuring, *published by ECS.*

YOUR IDEAS

APPENDIX B. Examples of Evidence of Success in Building Community Support

- Conflict and disagreement begin to be resolved into positive collective action, e.g., arguments about standardized math or science tests vs. portfolios result in a recommendation for combining the two.
- Policy makers (including local and state boards of education and legislators) begin to give more choices to the community on what is best for schools and are more receptive to ideas, e.g., state board waives regulations requiring a specific math or science curriculum in every school.
- More community discussions about math and science education take place, and a greater number of people are involved in schools and/or participating in decisions.
- More media attention is devoted to discussion of math and science education issues and approaches.
- Relationships among the key participants and the groups they represent improve as each better understands the others' viewpoints.
- Individuals and/or groups who may have been omitted or were not interested at first begin to express interest in efforts to reform math and science education.
- Participants express satisfaction with the process and continuing it.
- The public image of the work participants are doing is positive.

YOUR EXAMPLES

APPENDIX C. Thoughts on Fundraising

- Be cautious. Consider the need and sources of money. You may or may not need much money but in either case, target your approach.
- Make sure you really need to get into the fundraising business because it is time-consuming to raise the money as well as to comply with reporting requirements.
- See if you can't get needed services elsewhere. Can a company that employs mathematicians or scientists provide internship experiences? Can a community member provide research? Technical assistance? Equipment? Services such as printing? Management advice? Legal services? Computer software?
- Look to formal or informal partnerships with individuals and groups to generate the modest amount of dollars needed. Don't overlook companies that hire people with math and science experience; they may be happy to work with the schools or provide funds since they will benefit from changes in the long run.
- Don't step on other organizations' toes in soliciting money, i.e., PTA, foundations, booster clubs, etc. Look for organizations or groups with an interest in math and science.

YOUR THOUGHTS

APPENDIX D. Resources

For more information on **science and math standards**:

American Association for the Advancement of Science. *The Liberal Art of Science: Agenda for Action*, Washington, DC: AAAS, 1989.

American Association for the Advancement of Science. *Science For All Americans*, Washington, DC: AAAS, 1989.

D.C. Heath and Company. *Making the Case for Math*. Lexington, MA: D.C. Heath, 1992.

Mathematical Sciences Education Board and National Research Council, *Major Messages in Mathematics Education*. Washington, DC: MSEB, 1992.

Mathematical Sciences Education Board and National Research Council. *Reshaping School Mathematics: A Philosophy and Framework for Curriculum*. Washington, DC: National Academy Press, 1990.

Mathematical Sciences Education Board and National Research Council. *Measuring Up: Prototypes for Mathematics Assessment*. Washington, DC: National Academy Press, 1992.

Mathematical Sciences Education Board and National Research Council. *Counting on You: Actions Supporting Mathematics Teaching Standards*. Washington, DC: National Academy Press, 1991.

National Council of Teachers of Mathematics. *Curriculum and Evaluation Standards for School Mathematics*. Reston, VA: NCTM, 1989.

National Council of Teachers of Mathematics. *Professional Standards for Teaching Mathematics*. Reston, VA: NCTM, 1991.

National Research Council. *Moving Beyond Myths: Revitalizing Undergraduate Mathematics*. Washington, DC: National Academy Press, 1991.

National Research Council. *Everybody Counts: A Report to the Nation on the Future of Mathematics*. Washington, DC: National Academy Press, 1989.

National Research Council. *On the Shoulders of Giants: New Approaches to Numeracy*. Washington, DC: National Academy Press, 1990.

National Science Board Commission on Precollege Education in Mathematics, Science and Technology, National Science Foundation, *Educating Americans for the Twenty-first Century: A Plan of Action for Improving the Mathematics, Science and Technology Education for All American Elementary and Secondary Students So That Their Achievement Is the Best in the World by 1995*, Washington, DC: NSF, 1983.

The NETWORK, Inc. *Building Scientific Literacy: A Blueprint for Science Education in the Middle Years*. Andover, MA: The NETWORK, Inc., 1990.

For additional information on **science standards**, contact Elizabeth Stage, director, Critique and Consensus Science Education Standards and Assessment, National Academy of Sciences, 2101 Constitution Avenue NW, HA486, Washington, DC 20418.

For more information on **community building**:

Doyle, Michael, and David Straus. *How to Make Meetings Work*. New York: Jove Books, 1982.

Education Commission of the States. *Building Private Sector and Community Support*, Denver, CO: ECS, 1992.

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Education Commission of the States. *Communicating About Restructuring*. Denver, CO: ECS, 1992.

Weisbord, Marvin R. et al. *Discovering Common Ground: How Future Search Conferences Bring People Together to Achieve Breakthrough Innovation, Empowerment, Shared Vision and Collaborative Action*. San Francisco: Berrett-Koehler Publishers, 1992.

Yankelovich, Daniel. *Coming to Public Judgment — Making Democracy Work in a Complex World*. Syracuse, NY: Syracuse University Press, 1991.

...And Learning for All, a cooperative project of The Western Cooperative for Educational Telecommunications — WICHE, Mid-continent Regional Educational Laboratory, KRMA-TV, Pacific Mountain Network, Mind Extension University, National School Public Relations Association and Colorado 2000 Communities. For information, write *...And Learning for All*, P.O. Box 18306, Denver, CO 80218-0306 or call 1-800-727-5663.

Hard Talk, Kettering Foundation, 200 Commons Road, Dayton, OH 45459-2799.

Ernesto Cortes, Texas Industrial Areas Foundation, 1106 Clayton Lane, Suite 120 West, Austin, TX 78723.

National Civic League, 1445 Market Street, Suite 300, Denver, CO 80202.

The Public Agenda Foundation, 6 East 39th St., New York, NY 10016.

Texas Business and Education Coalition, 900 Congress Avenue, Suite 501, Austin, TX 78701-2447.

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