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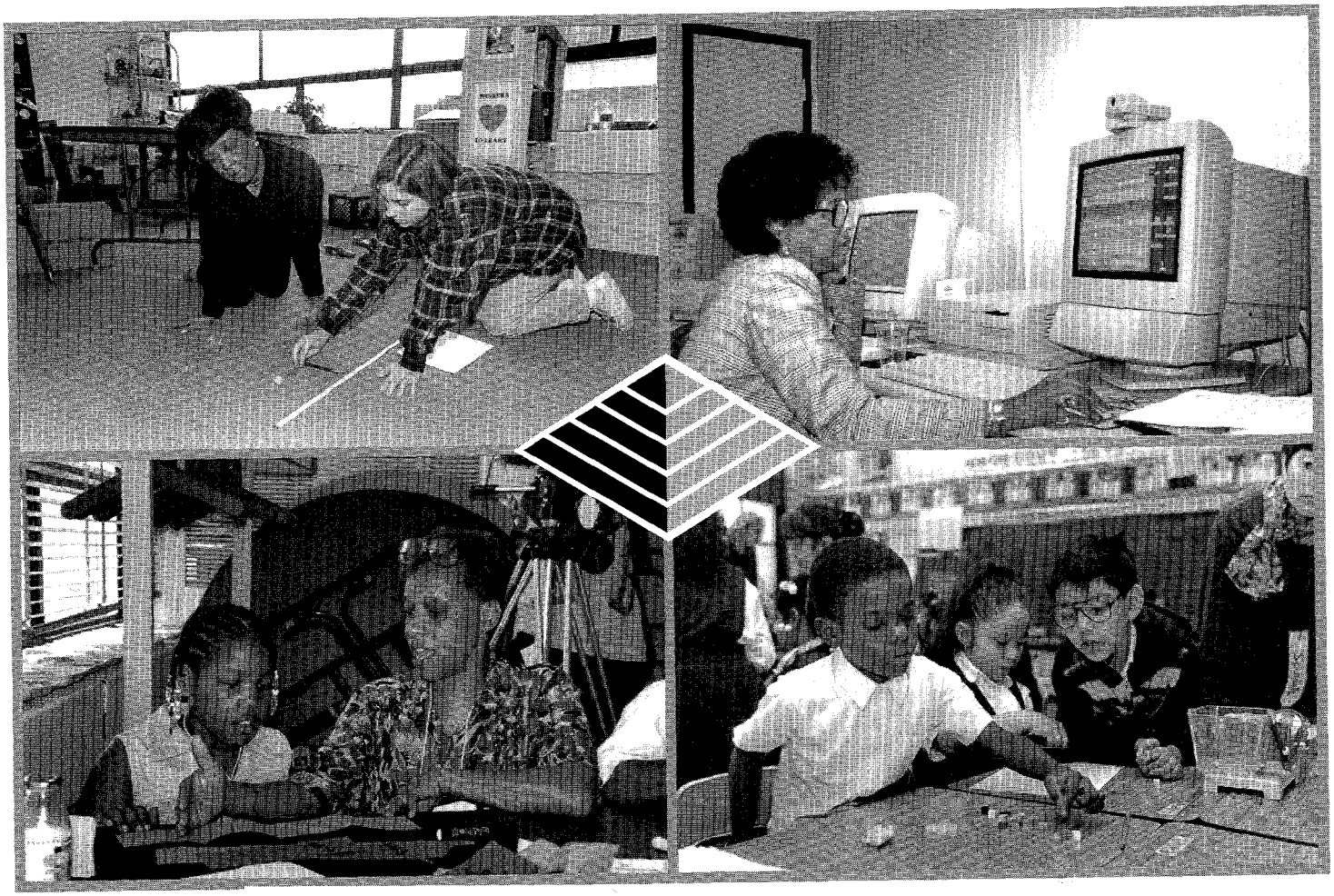
The Teachers Academy for Mathematics and Science

1996 Annual Report



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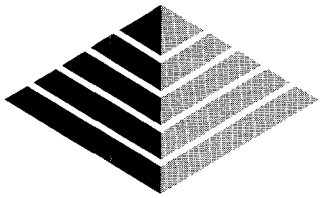
Mission Statement



The Teachers Academy for Mathematics and Science is an autonomous alliance of leaders in education, government, mathematics, science, business and community organizations. Our mission is to create and facilitate a continuous improvement process that ensures excellence in teaching and learning mathematics and science so that every graduate of Chicago's schools is equipped with the knowledge, skills and competencies to function in and contribute meaningfully to a global society.

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The Teachers Academy
for Mathematics and Science

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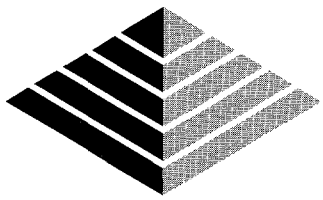

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To the Friends of the Academy

We're getting the word out.

Little by little, year by year, the work of the Teachers Academy is winning acceptance and recognition throughout the Chicago public schools and around the state of Illinois.

Teachers, parents and principals are embracing the idea that retooling the education work force can lead to consistent, sustainable improvements in the classroom.

We can trot out any number of teachers who will sing the Academy's praises. And we can show you reports from respected evaluators who say the Academy's approach is intellectually rigorous. You'll find some of that material in this annual report, and we encourage you to read it.

Lourdes Monteagudo

But these are mere platitudes if children are not benefiting directly from the Academy's work. And they are benefiting.

In an education environment driven by results, the Academy has produced them, not just for one year, but for the last six. In that time, schools whose teachers have completed the Academy's professional development program have recorded steady and consistent gains on standardized math and science tests.

And as happy as we are with those results, the Academy's success extends far beyond test scores. Many of our school partners are now talking about what's possible, instead of lamenting what's wrong. Teachers, principals and parents are working together to create comprehensive school plans that tackle real problems and promote innovative thinking.

They realize that with all the issues confronting their schools-and there are many-none is more important than the care and nurturing of a professional teaching work force that can get the job done. Even the hardest working, most committed teachers will fail in a system that glosses over their needs and does little to encourage their growth.

To the uninitiated, this approach at first can sound like an attack on the state of teaching. Let there be no mistake. The Academy is an institution devoted to teachers, with the moxie to say what our teachers already know: they need help and support. Good teachers hold the key to our children's success as adults. But teachers who have lost their way, or lost their competitive edge, will hamper progress in even the best schools.

We live in a society where teachers are presumed to know everything. This is understandable; we were all children once, and for most of us our teachers seemed invincible and omniscient.

But we must also understand history. Teaching always has been one of the few professions open to women, and women continue to dominate its ranks. When it was the only option, it attracted many good people who today are choosing to work in business and other occupations.

Yet women, including many minority women, historically have not enjoyed the same access to math and science. Many were not encouraged to take these subjects in school, or to pursue those fields at the university level.

Our teachers are the first to say they don't know it all, and they crave to know more. The Academy is there for them, supplying the latest research on these rapidly changing subjects, offering hands-on exercises and new teaching techniques that will make their lessons come alive, and providing technology training that can be directly applied to the classroom.

Earl L. Neal

A teacher's work is never done. The Academy sends coaches back to the schools to help teachers incorporate their new knowledge into the curriculum. And when they have completed their Academy program, teachers continue to use the Academy's resources and facilities.

We work with the entire school community to ensure that the environment is right to allow new and improved teaching to succeed.

The proof may be in the test scores, but the true success can only be seen in the faces of children and teachers engaged in the joy of learning.

For those of you who are longtime friends of the Academy, much of this is old news. But we must continue to push school officials and state policy makers to devote more time and resources to teacher development.

And if this is your first exposure to the Teachers Academy, take a good look at what we've done. We hope you'll join us in this important mission.

To our dedicated staff and wonderful funders and supporters, thank you for a great year of effort and accomplishment.

We look forward to another productive year. And wherever we go, we'll continue to spread the word.

Lourdes Monteagudo
Executive Director

Earl L. Neal
Executive Comm. Chairman

A Message from the Chairman

Science Matters

Reading is dominating our education agenda.

Nationally, it's a major focal point of President Clinton's education plan. And in Chicago, the public school system's management team placed 109 schools on academic probation last year because of low reading scores. For many schools, the pressure of being placed on academic probation has made them reactive, as they scrounge for programs and plans to help raise their reading scores.

Sherwood Fohrman

Leon Lederman

We constantly hear from teachers that they don't have time to teach science, because they have to teach reading. They extend the time for reading while lessening the time spent teaching other subjects. But it doesn't have to be an either/or proposition. Science, math or any other subject can be taught through reading, and reading can be stimulated through science presented in a mind-provoking way.

We're not trying to downplay the importance of reading. The literacy rate in this country would make it hard for anyone to deny there is a problem that needs to be addressed. But reading should not be taught in isolation. People don't read for the sake of reading. They are motivated to read by their interests and curiosities. Reading is a tool to learning and it should be viewed as a means, not an end. Learning should not be delayed or held off until children are able to read.

We live in a world driven by science and technology. If there is one thing that will describe the 21st century, it will be the explosion in human knowledge and the technology of communications. Access to this knowledge must become a citizen's inalienable right, equivalent to "life, liberty and the pursuit of happiness." Making our children science literate is crucial to their future. It is becoming clear that the science literate will prosper and the illiterate will decline. Yet the Illinois legislature has decided that by the year 1999, science will be removed from the Illinois Goals Assessment Program test for elementary students. Teaching science is not about memorizing formulas or tables. Nor is it only about content. Science is a way of thinking. It's about understanding concepts and making the needed connections. Science is about questioning and doing. But reading plays a major role within science. The written word has always been the main vehicle by which scientists share their information.

Children are natural born scientists. The essence of science is more in the posing of questions than in the answering. Children are always asking: will I ever use up all my words? Why don't the clouds fall? Their curiosity is an inherent human trait and can be stimulated or suppressed by their environment. Books are a time tested and crucial component. The inquisitive nature of children and science incites reading. Students can read about the world, about nature and its marvels, about scientists and their experiments. A bit of research quickly shows that scientists become scientists because as children they read about scientists.

Whether taught through whole language or phonics, reading is a tool to learning. Science, as well as other subject areas, motivates children to read. With such a heavy concentration on reading as a subject area all its own, we run the risk of leaving gaps in other subject areas.

At the Teachers Academy, we're not about creating scientists. We're about helping teachers already working within the school system revisit their skills while at the same time staying current with the latest educational strategies. We believe in hands-on, inquiry-based learning, within which reading has always had a place.

By integrating reading throughout the curriculum, schools can provide a context for reading that makes sense. We can make the most of the current enthusiasm for reading by using it as the tool it was meant to be within science and other subjects.

Leon Lederman
Chairman of the Board

Evaluation

In 1996, test scores at Academy participating schools continued to rise for the sixth year in a row.

We have continued to work with some of the poorest schools in Chicago, helping teachers to retool their skills so they may provide their students with the skills and knowledge to function in a science- and technology-driven world. At the Teachers Academy, student learning isn't the by-product of our work with teachers, it's a driving force. One of the ways we measure learning is through the Illinois Goals Assessment Program test.

The Results

Making the Connection

Academy schools clearly are demonstrating the math and science connection. IGAP mathematics scores for Academy schools that have participated in both the science and mathematics professional development programs have consistently posted greater gains than those Academy schools where teachers have participated in only one discipline.

From 1992 to 1996, third-grade students at Academy schools where teachers participated in both math and science programs gained 60 points on the IGAP test in mathematics. By contrast, students in schools where teachers had participated in just one of the disciplines gained 41 points in the same period.

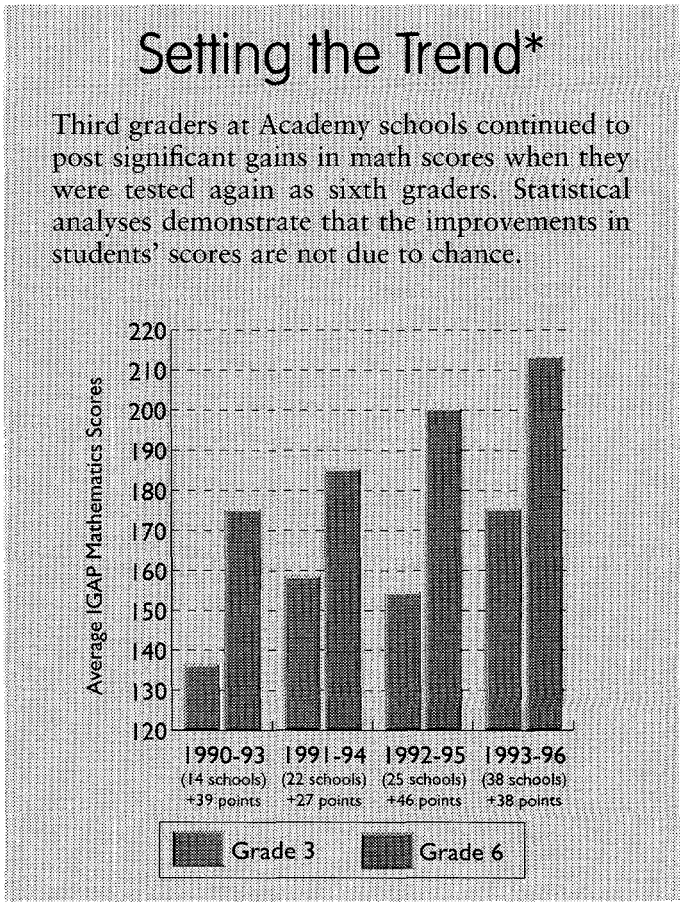
The difference also can be seen in sixth-grade scores. From 1992 to 1996, sixth-grade students at Academy schools where teachers participated in math and science training gained 34 points on the IGAP test in mathematics, compared to a 24-point gain in schools where teachers participated in one discipline.

Setting the Trend

Growth also can be tracked over time, even as new schools entered the Academy. In schools where teachers participated in the Academy's math and science programs, third graders continued to demonstrate gains in math when they were tested again as sixth graders.

Third graders at 14 Academy schools in 1990 averaged 136 points on the IGAP in mathematics, and averaged 175 points when tested again as sixth graders in 1993. In 1991, third graders at 22 Academy schools averaged 158 on the IGAP in mathematics, and averaged 185 points when tested again as sixth graders in 1994.

In 1992, third graders at 25 Academy schools averaged 154 points on the IGAP in mathematics, and averaged 200 points when tested again as sixth graders in 1995. And in 1993, third graders at 38 Academy schools averaged 175 points on the IGAP in mathematics, and averaged 213 points when tested again as sixth graders in 1996 *(see chart, this page)*.



Comparisons also were made between Academy schools that participated in our math and science professional development programs, the statewide averages, and other Chicago public schools.

Closing the Gap

Academy schools continue to close the gap with the state on the IGAP test. From 1992 to 1996, third graders at Academy schools gained 60 points on the IGAP in mathematics, while the statewide average increased 26 points *(see chart, page 7)*.

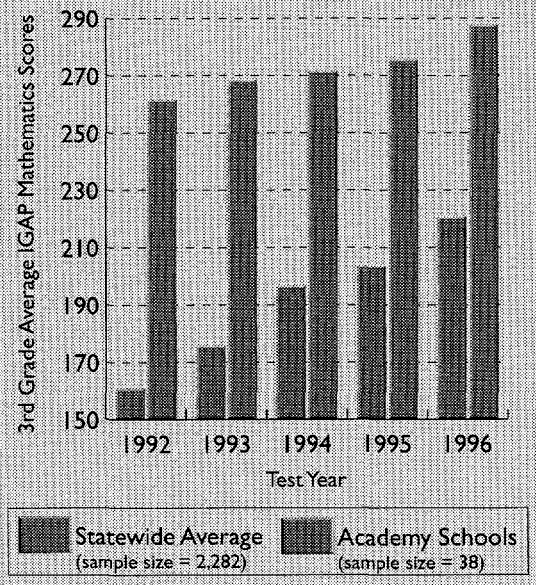
Maintaining Growth

Academy schools also continued to outgain the statewide average in sixth grade, when test scores tradi-

* *Academy schools represented in Setting the Trend, Closing the Gap and Maintaining Growth charts took part in both the Academy's math and science professional development programs.*

Closing the Gap*

Improvements in third-grade test scores at Teachers Academy schools have outpaced statewide improvement by more than 2 to 1 since 1992. Academy schools gained 60 points. The statewide average increased 26 points.



tionally dip. From 1992 to 1996, Academy schools posted a 34-point gain on the IGAP in mathematics. The statewide average increased 27 points in the same period *(see chart, page 7)*.

Watch List Schools

In 1995, the Chicago public schools released the first academic watch list of schools that failed to meet state standards on the Illinois Goals Assessment Program test for three consecutive years. These schools are eligible for intervention under school reform legislation. Twenty Academy schools were named to the original watch list. Since then, many Academy schools on the list have shown positive gains on the IGAP, and five schools have been removed from the list altogether.

From 1992 to 1996, IGAP scores at Academy participating schools showed consistent improvement, even outpacing averages by other Chicago schools on the watch list. In 1993, Academy schools that would eventually be put on the watch list averaged 139 points on the IGAP test in mathematics, six points behind other Chicago watch list schools.

By 1996, Academy schools on the original watch list averaged 192 points in third-grade math on the IGAP, surpassing other Chicago watch list schools, which averaged 183 points (see chart, page 8).

External Evaluations

School Improvement Unit

A yearlong evaluation of the Academy's School Improvement Unit, conducted by the Center for Instructional Research and Curriculum Evaluation at the University of Illinois in Champaign, came to the following conclusions:

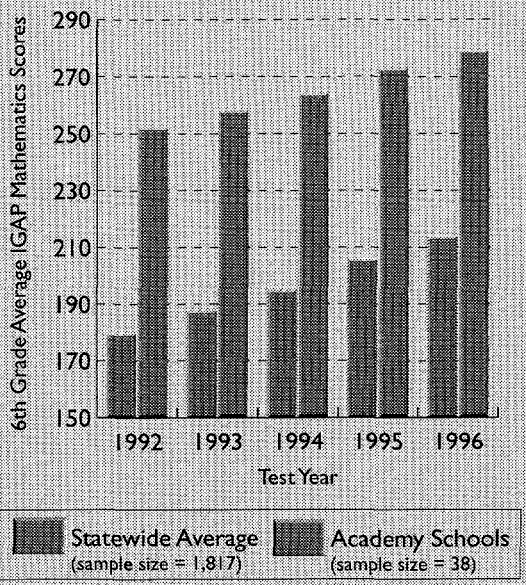
"This team (SIU) was highly effective at what it set out to do, particularly to act as professional liaison between the Academy and its participating schools, to assist school principals in their efforts to improve the school and to give technical assistance to Leadership (Development) Teams and others in matters of changing pedagogy and curricula."

"The School Improvement Unit works to create school climates that support change, particularly by increasing student-centered curricula and policies. Unit staff believe that change is best defined at the school level."

(Continued next page)

Maintaining Growth*

Academy schools also have outgained statewide scores in sixth grade, when test scores traditionally dip. Academy schools have gained 34 points since 1992. The statewide average has increased 27 points from 1992 to 1996.



(Continued from previous page)

"Across time and among specialists, we found a high degree of consistency in the vision and actions of the teams. The advice they gave was consistent, across time, among specialists, and from school to school. Intellectually, this was a highly disciplined team."

School Community Partnership Development

A year-three progress report on the Academy's School Community Partnership Development, prepared by evaluation consultant Dr. Patricia Hulsebosch of National-Louis University, stated:

"Two things set the SCPD apart from other efforts at school-community partnership development: 1.) The way in which they view parents and communities as necessary resources and sources of information for meaningful school reform; and 2.) Their use of "best practices" in staff development for capacity-building."

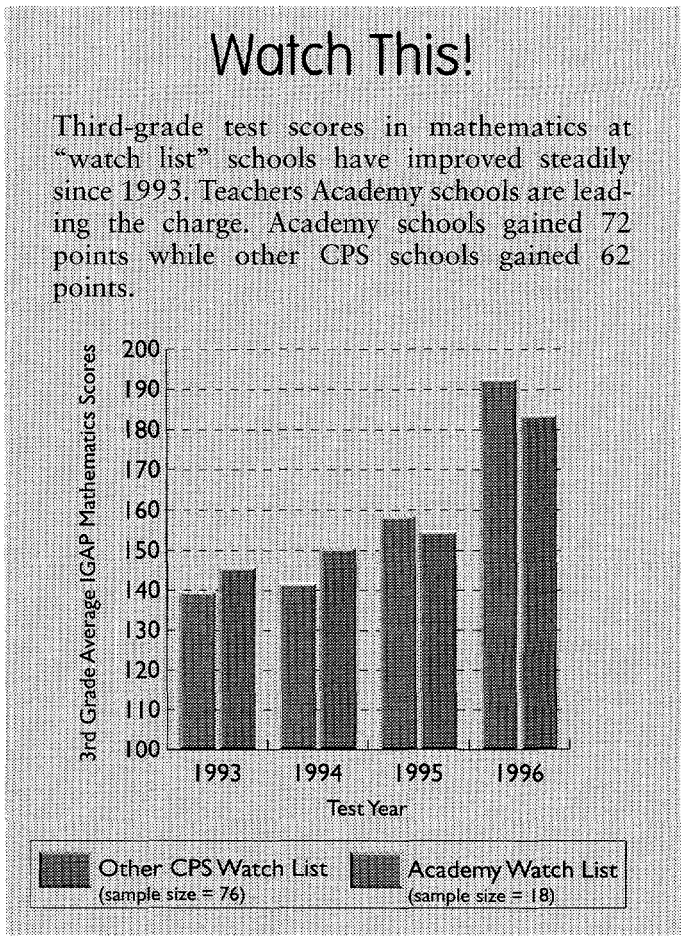
"SCPD's model for partnership development parallels current practice in teacher development for school reform. Their model is based on capacity-building through problem-solving and coaching with parents and by parents, and respects the difficulty of their work with schools, as well as the knowledge, understanding and perspectives which parents bring to their work."

Internal Evaluations

S.O.A.P.

The Academy continued to work with its School Organizational Assessment Profile instrument, which profiles a school along six major categories, including school climate, leadership, instruction/curriculum/assessment, professional development, teacher behavior/attitude and parent/community leadership.

Following interviews with teachers, administrators and parents, along with school and classroom observations and document review, the Academy staff provided final reports to four schools. The instrument was also field tested at two new schools. The process helps schools clarify the next steps to take as they work towards redefining and fulfilling their school improvement plans. Next year, external evaluators will conduct validity tests on the effectiveness of the S.O.A.P. instrument.



Focus Groups

Focus groups are routinely conducted as part of the Academy's internal evaluation efforts. The forums provide participant feedback that helps to distinguish program strengths and weaknesses as we strive for continuous improvement.

Teacher focus groups were conducted on the effectiveness of the Academy's mathematics and science programs, along with the Academy's alternative assessment program.

School Assessment Team Meetings

Staff members from the various Academy departments—math, science, school improvement, technology, and school community partnership development—meet regularly to share information on progress being made within Academy schools. The meetings help the Academy continue to improve the professional development process for schools.

Highlights

Exemplary Schools

The Chicago Board of Education recognized two Academy schools with Exemplary Mathematics Awards in 1996: the Richard Henry Lee School, 6448 S. Tripp Ave.; and the John C. Haines School, 838 W. Marquette Road.

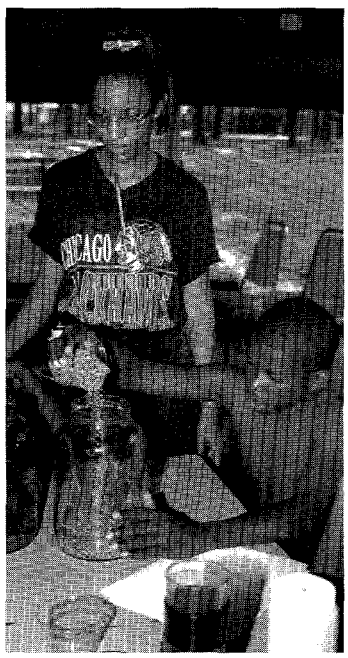
Chicago Scientific Literacy Network

Last year, the Teachers Academy and the Chicago Academy of Sciences took on the job of bringing together and coordinating organizations that provide scientific literacy programs to the Chicago public schools. The Chicago Scientific Literacy Network has developed a database of organizations, complete with program and site information and has established a page on the World Wide Web through the Fermilab Education home page at http://www-ed.fnal.gov.

Video Journal of Education

The Academy was highlighted in two video series produced by the Video Journal of Education. "Principals: Leaders of Change," which focuses on educational leadership styles, features two Academy school principals: Janice Preston of the William H. Ryder School, 8716 S. Wallace St., and Mary G. Goosby of George M. Pullman School, 11311 S. Forrestville Ave.

The series, "Results-Driven Staff Development," focuses on the correlation between the Academy's work in Chicago schools and the rising test scores at those schools.



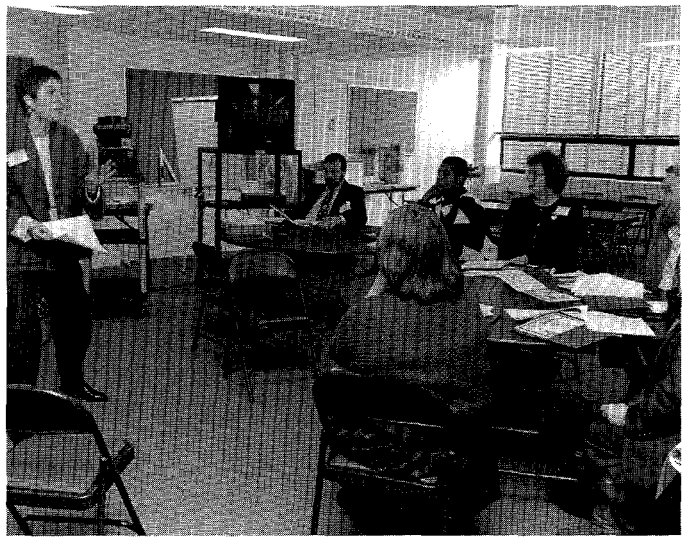
Rebecca M. Bushré

Summer camp participants prepare eco-jars.

Summer Camp

"Exploring Our World's Diversity Together" was the theme of the Academy's third annual summer science camp. More than 53 students, parents and teachers came together for the week-long event at Touch of Nature Environmental Center in Carbondale, Illinois.

Participants went caving, canoeing and took part in a pond ecology study that tested for organisms, such as snails, blood worms, clams and crayfish. Teachers designed their own hands-on nature curricula that they later tested with students at the camp. Some teachers created eco-jars that demonstrated both the elements needed for life and the limitations of population growth. Others took part in an animal migration activity that tracked monarch butterflies and birds across North America via the Internet and local observations.



Mary Hanlon

Meg Peterson of the Chicago Academy of Sciences leads a break-out session at a CSLN professional development meeting.

National Staff Development Council

Academy professional developers from our Math, Science, School Improvement Unit, School Community Partnership Development, Technology and Evaluation departments completed a two-year training program with the National Staff Development Council.

Presentations/Conferences

Staff members made presentations at the first annual Illinois Scientific Literacy Network Conference. Academy Executive Director Lourdes Monteagudo participated on a panel on Illinois School Reform/System Improvement at the Illinois State Board of Education's annual Business, Education and Partnership Conference. Monteagudo also participated in the state's Task Force for Professional Development.

Standards

The Academy submitted responses on drafts of the Illinois Academic Standards and the Chicago public schools' education standards.

Committees

Staff members also served on the Chicago Systemic Initiative Advisory Board, and were invited by the Illinois State Board of Education to evaluate scientific literacy proposals.

Mathematics

The Academy's mathematics professional development program is based on the standards of the National Council of Teachers of Mathematics. The hands-on intensive programs take a constructivist approach to mathematics that incorporates cooperative learning, the use of classroom manipulatives and technology. A variety of National Science Foundation-approved curricula is integrated into the program, including Everyday Mathematics from the University of Chicago, Teaching Integrated Mathematics and Science from University of Illinois at Chicago and the Addenda series from the NCTM. Teachers also receive and discuss research material on the latest mathematical strategies. The program helps teachers engage students in critical thinking and problem solving tied to solid math content.

1996 was a year of change for the mathematics department, from the design of a 4-6 program to the introduction of a 7-8 program.

K-3 Mathematics

The Academy's K-3 program continued to focus on the concepts of numeration and counting, geometry, measurement, data collection and graphing, fractions and calculator activities. Concepts are not taught in isolation, but are continuously weaved together throughout instruction.

One activity examines estimation, measurement, data collection and graphing as teachers measure out equal amounts of three brands of popcorn and estimate which brand will produce more when popped. After popping, the popcorn is measured again and the results are graphed and reviewed. The instruction also builds in time for teachers to confer with each other following activities, to talk about what worked and what didn't and how they would adapt the exercises to their students.

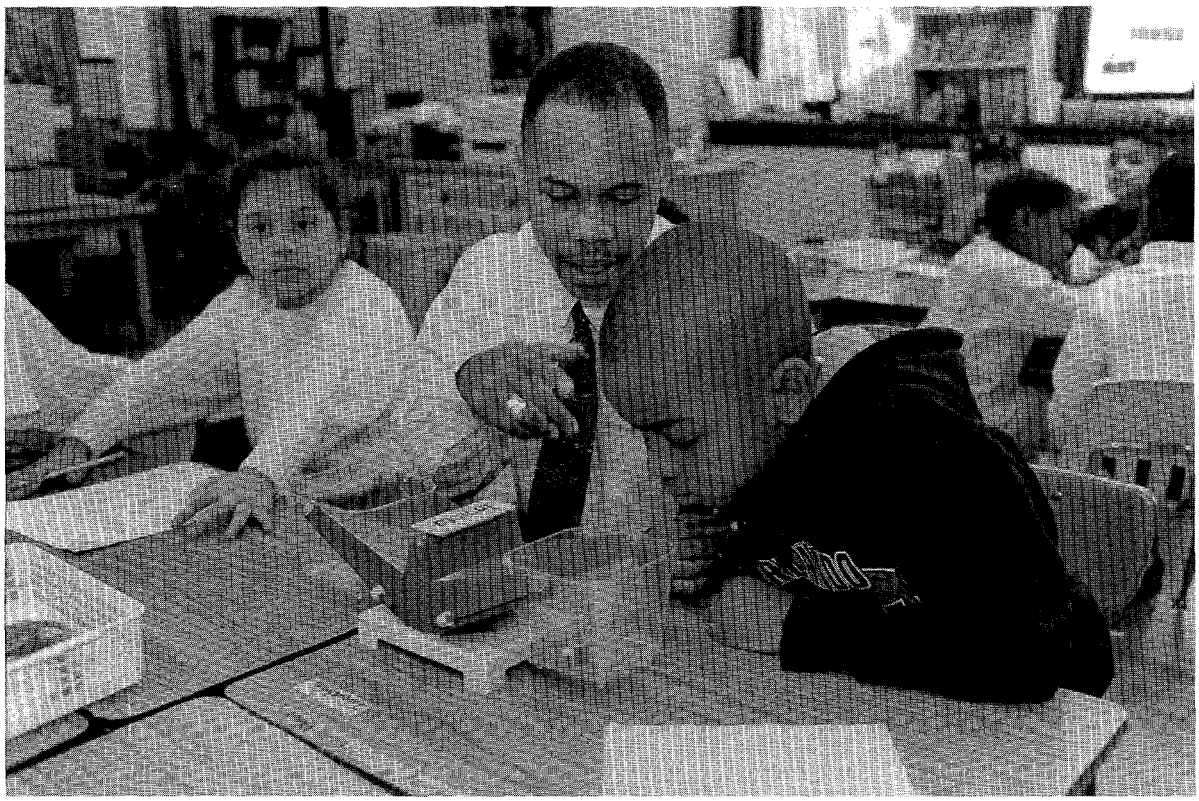
4-6 Mathematics

When the Academy opened its doors in 1991, K-3 math was the sole focus of the mathematics program. This past summer, as teachers began to move through the program, staff began to outline a 4-6 component.

The 4-6 program was designed with the help of consultant Dr. Melfried Olson of Western Illinois University. As with the K-3 and 7-8 programs, the 4-6 component links the NCTM standards of communication, connections, reasoning and problem solving to the content areas of number sense, algebraic thinking, geometry, measurement, data collection and probability.

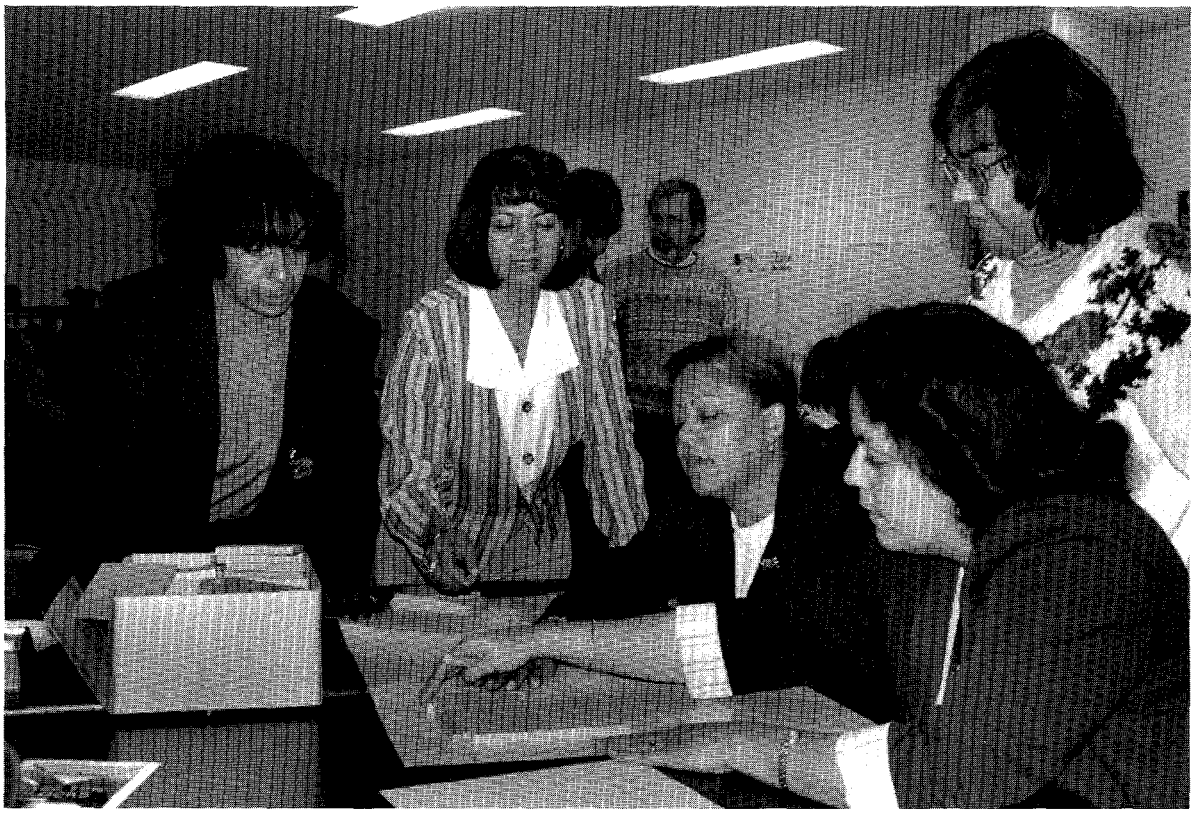
The program also integrates the pedagogical concepts of student assessment, technology integration, and equity issues such as gender and language. It also incorporates the concept of education-to-careers; connecting math to the workplace and the outside world.

Throughout the program, teachers examine various math curricula. As with all Academy programs, instruction is followed by classroom coaching to help teachers



Mary Hanlon

Academy mathematics professional developer Samuel Hall works with students during the implementation phase of the Academy program.



Nancy A. Thiel

Teachers Angelita Melendez-Green, Maria Navis, Maria Melendez, Sara Avelar and Margarita Ampudia use base-10 blocks to work through an activity in subtraction during an Academy mathematics session.

make a smooth transition with their new skills. And teachers return the following summer to work in school teams as they design a curriculum framework for the school.

7-8 Mathematics

Traditionally, in the United States, algebra is introduced to students in high school. For many students, the transition from arithmetic to algebra can be difficult.

Last year, the Teachers Academy launched a new seventh- and eighth-grade professional development component to help ease the transition. The program focuses on algebraic thinking that builds on the foundation for high school mathematics by introducing algebra concepts.

Teachers are encouraged to take a hands-on approach to algebra through the use of more manipulatives and less reliance on formula memorization, textbooks and worksheets filled with endless problems.

Through algebraic thinking and manipulatives, concepts become more concrete. Children can learn to make connections between content areas, such as geometry and number sense using discovery blocks.

As students work with manipulatives, problem solving takes a visual approach, making math less abstract. They also learn to conceptualize through the use of drawings and tables and to realize that not everyone comes to the same solution in the same way.

Program Information

In 1996, the Academy provided mathematics instruction to 216 teachers, and classroom implementation to 233 teachers. Staff members made presentations at the Illinois Council of Teachers of Mathematics Conference and the Illinois Staff Development Council Conference.

Science

For some, the subject of science can carry a stigma. The Academy's professional developers work to help teachers break down those barriers and become comfortable with science concepts and content.

The Academy's science professional development program is based on the National Research Council's newly released National Science Education Standards and incorporates Biological Sciences Curriculum Studies' Five-E constructivist model: engage, explore, explain, elaborate and evaluate.

Last year was the second year for the staff-designed program, which introduces teachers to a variety of curricula and helps them make educated decisions about what is best for their students.

Primary Science

Children are filled with a natural curiosity about the world around them. Academy professional developers work with teachers to build on that curiosity while providing a solid content base for learning. The unifying concepts of diversity and change were the focus for primary-level teachers last year.

During a field trip to the Lincoln Park Zoo, teachers examined how animals physically adapt to their environment for survival. They looked at why ducks have webbed feet and why certain birds have special claws for gripping trees.

Teachers also focused on the concepts of systems, models and patterns of change through a study of the phases of the moon. Taking a constructivist approach, teachers observed the moon for a month, keeping a journal of drawings from their observations, as they watched the change from full moon to new moon.

Following the teachers' observations, Academy staff then provided connectivity to the project by giving names to the various phases.

The activity culminated with a classroom simulation of the moon phases through the use of a spotlight and Styrofoam balls.

Intermediate Science

Intermediate instruction focused on the unifying concept of systems, as they addressed life, physical and earth/space sciences. Teachers explored the content areas of plants, animals and the environment. The sessions also modeled the concept of integrating technology into the science classroom.

Teachers explored authentic assessment first-hand as they constructed personalized portfolios with selected session work and instruction reflections. At the end of the course, they evaluated their portfolios and used a scale to rate them. Academy instructors then provided feedback on the portfolios using the same scale.

Science-centered field trips took teachers to the Chicago Botanic Gardens, where they went on observational scavenger hunts, collecting data on specific plants during visits to three greenhouse habitats. Applying what they learned from their professional development sessions, the teachers worked in teams to construct three-dimensional, model flowers. The activity integrated science with art and served as a lesson in performance assessment, which demonstrated understanding of flower parts and function, relations to habitat, and the role of a pollinator.

Mary Hanlon

Teachers Carolyn Smith of Benjamin E. Mays Academy and Susan Jolie of St. Martin De Porres participate in an exercise on variables and measuring length.

Upper Science

Physical science was the main focus for upper grade-level teachers last year. Teachers explored the concepts of mass, force, velocity, acceleration, and kinetic and potential energy. They put to use their newly acquired knowledge of Newton's laws of motion to make and launch model rockets. The rockets were tested for stability, and teachers used proportional reasoning to estimate the maximum altitude of the rockets' flight.

Teachers also were introduced to the Internet during a trip to the Academy's CyberSpace Learning Center at the Adler Planetarium and Astronomy Museum.

Rebecca M. Bushré

Nancy A. Thorf

Academy staff members Dr. David Fazzini and Dr. Ethan Allen pose with Slick, a boa constrictor. At right is a slider turtle.

Call of the Wild

Now teachers can experience a little bit of the outdoors during Academy professional development sessions. This past year, a six-foot boa constrictor, two slider turtles, a leather back turtle, and numerous land and aquatic snails took up residence in the science department.

Program Information

Last year, 144 teachers received instruction as part of the Academy's intensive science program, and 122 teachers received classroom coaching back at their schools. Staff members made presentations at the Association for the Education of Teachers in Science, the National Staff Development Council and the National Science Teachers Association.

Principal Involvement

For professional development to be truly sustaining, it must involve the entire school staff.

That's exactly what happened at the Martha M. Ruggles Elementary School on Chicago's South Side. When the school signed up for K-8 science professional development, the entire teaching staff participated, including the principal and assistant principal.

Mary Hanlon

Principal Almeda Feimster and teacher Wynona Young of Martha M. Ruggles School.

"I wanted to really know what the teachers were learning," said Almeda Feimster, principal and a former science teacher. "When I go to evaluate the teachers I will see if they are putting the program into fruition; otherwise it isn't worth going through."

According to Dr. David Fazzini, Academy science professional developer who co-taught the sessions, the principal enthusiastically joined in on activities—there was no hierarchy. "Her participation demonstrated her commitment to both her teachers and to the program."

Before joining the Academy, teachers at Ruggles worked independently on curriculum, and most teachers simply worked from the front of the textbook to the back, Feimster said.

"They opened up a textbook and thought, 'I know this and this, and maybe I'm not as strong in this, so I'll skip it," she said. "It gave me a better understanding of some teachers who may have been having problems before."

Going through staff development with the principal wasn't intimidating, but it did put things in a slightly different light, said teacher Wynona Young.

"She was a student just as we were. She participated just as we did," Young said. "You want to be on your toes because she knows the specifics of the program."

The program also gave Feimster a chance to become reacquainted with her teaching skills.

"I enjoyed the program because teaching methods have changed. There is so much more hands-on now," she said. "Before I had a laboratory, but I didn't have the materials or resources that are now available.

"The material wasn't presented in difficult concepts, but in ways you can take and move on from," she said. "The staff development sessions weren't something we wanted to let go of in June."

School Improvement Unit

When schools commit to professional development, change is inevitable. It requires time and understanding from all the stakeholders involved, from principals to the larger school community. The Academy's School Improvement Unit works with school administrators to help support the professional development process.

Leadership Development Teams

Professional development extends beyond the classroom. It involves aligning the school culture with curricular changes. To address issues of leadership and change, Academy schools form leadership development teams consisting of the principal, teachers, non-classroom personnel and parents.

Teams examine how elements of time, space and human resources can support math, science and other instructional programs through such things as restructuring the school day to build more classroom preparation time for teachers or by reassessing school-wide programs.

As teams move through the three-year Academy process, they take on more independent roles within their schools, relying less on Academy School Improvement professional developers as they work through school leadership issues. Currently, some 25 Academy schools have active teams that meet regularly.

School Improvement Planning

Leadership development teams analyzed school data to look at both problems and successes at their schools as they revised their school improvement plans.

Guided by School Improvement professional developers, the teams examined a multitude of issues, including attendance, safety and security issues, test scores, dropout and graduation rates, socioeconomic factors, student mobility and teacher retention.

School staff should constantly be looking at data and asking questions: What is causing truancy to rise? Why has the graduation rate declined in recent years?

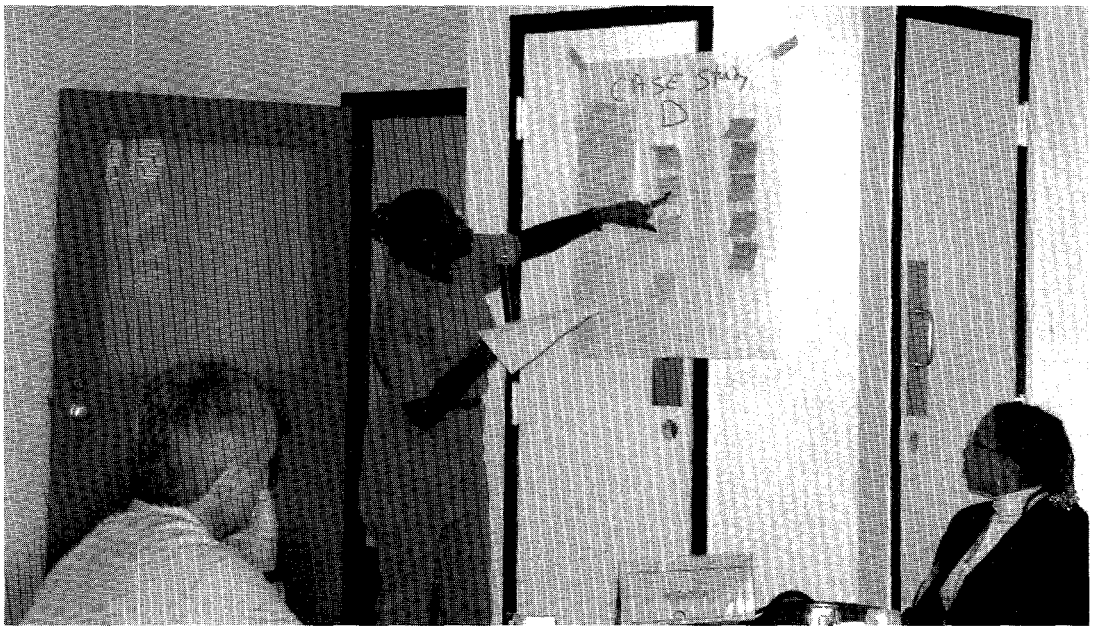
In some cases, it means looking at what went right: Why are science test scores rising? Why is attendance up? Academy School Improvement professional developers are constantly challenging school staff to dig deeper and look beyond the obvious assumptions.

By breaking down school data, teams can see the potential causes behind areas of concern and begin working toward a solution. By looking at the successes within their schools, teams can begin to ask the right questions to ensure that the success continues.

Student Assessment

The School Improvement Unit continued to support schools in the area of student assessment. Academy-trained assessment coordinators met regularly to explore ways to measure student learning in math and science that do not rely solely on year-end standardized tests. Coordinators focus on both forced choice (true and false, multiple choice) and alternative assessment (student portfolios and performance) in math and science along with issues of validity, reliability and fairness.

SIU staff also work with coordinators to ensure that various means of assessment are embedded within the school improvement plan. As teachers gain a better understanding of assessment, they can better understand how students learn and how much they are learning.



Nancy A. Tharf

A leadership development team member reports on a brainstorming activity at a team meeting held at the Academy.

Principal Leadership

The success of the math and science program depends on principals understanding the crucial role they play in supporting professional development efforts. Academy Principal Leadership Symposiums examine the complex role of principals by exploring leadership roles and organizational strategies. A two-day leadership symposium kicked off the year by focusing on the role of the principal at school and within the context of the Academy program.

Participants explored leadership styles, problem solving, team-building strategies, systems thinking and other strategies to enhance professional development. Other meetings focused on linking math and science to national, state and local standards, and integrating technology into the curriculum.

Education-to-Careers

Preparing children for the future means helping them make the necessary choices and connections to the world of work. Last year, the School Improvement Unit introduced Leadership Development Teams to the ideas and concepts behind the Illinois State Board of Education's Education-to-Careers program.

The teams began to look at how to integrate the program with math and science instruction by designating career awareness days. Follow-up classroom activities that incorporate real-life work applications help students understand the connections between career and academic development.

Presentations and Conferences

Staff members made presentations at several conferences throughout the year, including the Chicago Leadership Collaborative Conference, the National Staff Development Council Conference, the Association of Science-Technology Centers Conference and the Illinois Staff Development Council Conference.

Nancy A. Thiel

Walter Q. Gresham Leadership Development team members, teachers Sharon Herring and Euneva Acker, along with SCR Green Moore, take part in a leadership team meeting at the Teachers Academy.

Teamwork

Last year, Academy Leadership Development Teams implemented many schoolwide changes that affected issues of time, space and human resources as a result of their work with Academy School Improvement professional developers.

The team at **Langston Hughes** restructured the school day to allow teachers more classroom preparation and collaboration time. Team members have also taken the initiative in seeking out new programs to enhance the curricula... **Lillian R. Nicholson School** began operating three science labs previously not being used. Teachers also received professional development on the science lab equipment and procedures... **Jesse Owens Community Academy** coordinated teacher preparation time among grade-levels and implemented monthly meetings designed specifically to provide teachers with collaboration time for school improvement planning... **Edward H. White School** has arranged team meetings so that all organizations providing services to the school, such as the Teachers Academy, meet together... **Fernwood School** has gone to a restructured day schedule giving teachers more time to meet for classroom preparation and professional development... Teachers at **Walter Q. Gresham School** are collaborating more within and among grade-levels and teachers are doing more performance assessment in math and science as a result of their work with the Academy... The team at **William H. Ryder Math/Science School** distributed surveys asking community members their opinions on how to improve the school. They also developed an assessment plan that aligns curricula and assessment... **Charles P. Caldwell School** has developed a technology plan that includes teachers taking part in technology professional development through the Academy... The **Medgar Evers School** team has recommended that the math/science resource center, initiated by the Teachers Academy, become a part of the regular school budget... **Mary McLeod Bethune School** decided to departmentalize grades four through eight to accommodate student needs.

School Community Partnership Development

A child's first teachers are his or her parents. And the role of the parent as teacher takes on new meaning within the context of the school setting. The Academy's School Community Partnership Development program encourages parents to become leaders within their school communities. During the three-year program, parents become partners in schools as they work alongside educators to make the educational process successful for all children.

Parent Consultants

For some parents, getting involved in their child's education is easier said than done. Last year, the Academy's SCPD unit designed a process for parents in or having completed the program to serve as consultants to other parents.

Consultants provide assistance, encouragement and support for other parents, such as trouble-shooting on a school issue or providing support for school-based or community activities. The consultants take on the role of coach and problem solver, visiting schools on a regular basis.

By working with these parent consultants, other parents learn they are not alone, and that they have something valuable to add. Consultants play an important role in ensuring the effectiveness of the partnership program. And as parents come to the end of their intensive work with the Academy, the role of the consultant becomes crucial in maintaining the work of parents within their schools.

Voice of Parents

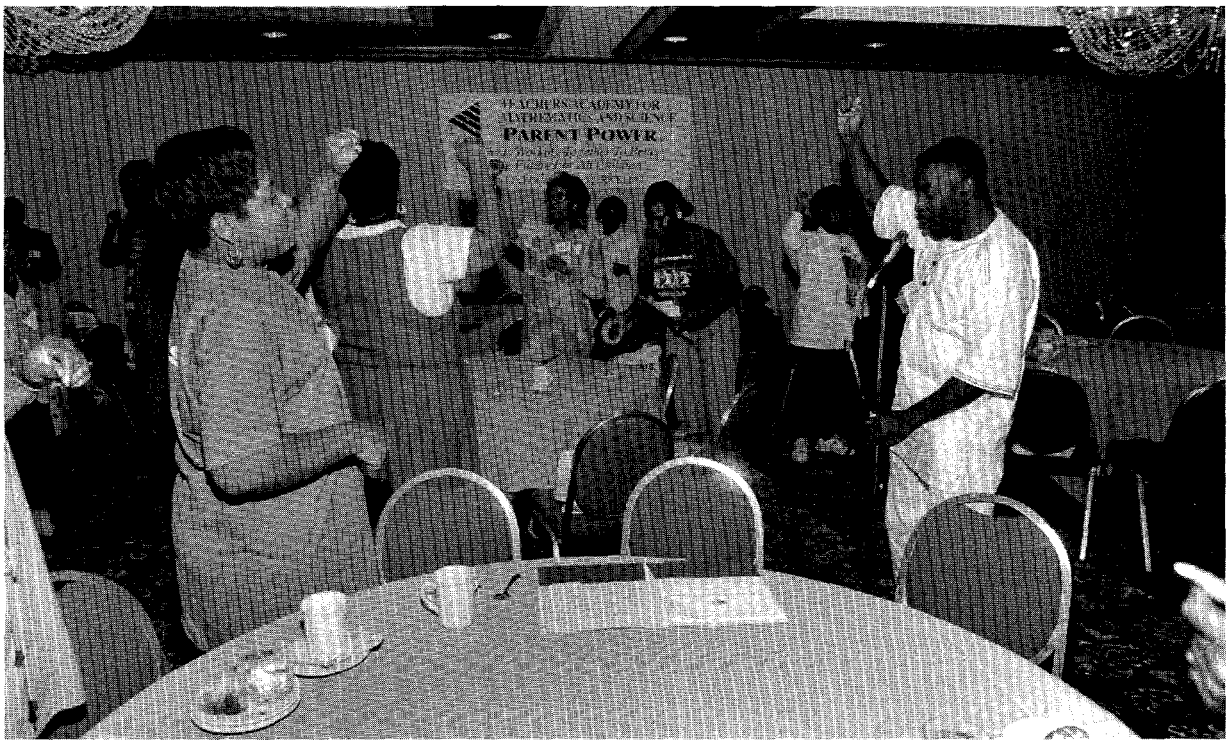
Last spring, parents from Academy participating schools produced their second edition of *"La Voz de los Padres / Voice of Parents,"* the official parent newsletter of the Teachers Academy.

The bilingual newsletter is distributed throughout the Chicago school system. The publication helps parents tackle such issues as how to become more effectively involved in their child's education and why that involvement needs to continue in high school. The newsletter also helps to keep parents current with school events and includes math and science activities families can do together.

Assessing Parent Team Effectiveness

Last year, the Academy held an assessment training session designed to help parents examine the progress of their Academy parent teams. Parents looked at issues of communication, focus and leadership to identify criteria and develop a scale for assessing team effectiveness.

They also looked at the importance of selecting one person, called a "process observer," who does not actively participate on the team, but observes and provides feedback using the scale designed by the group. The session gave parents first-hand experience with authentic assessment.



Parents and community members gather for the Academy's annual Parent Institute.

Mary Hanlon

Local School Councils

Through their work with the Academy, parents have taken up leadership roles within their schools and communities. In last year's local school council elections, several parents from Academy schools not only ran for office, but won. Parents are encouraged to attend council meetings to share in decision making.

Parent Institute

Parents from Academy participating schools planned and carried out the SCPD's third-annual Parent Institute in July. The event provided a rare opportunity for parents to network with other parents from around the city, discuss school issues and participate in hands-on science and math activities. More than 80 parents attended the Institute.

Family Math and Science

Families came together to explore hands-on science and math activities at the third-annual Family Math and Family Science summer workshop in August. The week-long workshop was organized by Academy parent consultants and attended by 57 people from 14 non-Academy schools and five Academy schools. Families took part in activities on fractions, graphing, fossil hunting, as well as discussions on math and science in the workplace and a field trip to the Motorola Museum of Electronics.

The SCPD unit also hosted Family Math and Family Science leadership training weekends, where parents, teachers and community members receive instruction on how to hold their own workshops.

Presentations/Conferences

Parents from Academy schools made a presentation on behalf of the Academy at the Headstart Literacy Fair. Parents, along with Academy staff members, made presentations at two Cabrini Connections Tutor/Mentor Conferences, and the Chicago Association of Local School Councils Convention.

Parent Facilitators

When Patricia Williams isn't at the Lillian R. Nicholson School on Chicago's South Side, where five of her eight children are enrolled, she can most often be found at the Teachers Academy.

She represents Nicholson as the school's Academy parent facilitator. Williams has come a long way from the days when she would walk her children to school, hoping to avoid the School Community Representative who was always trying to recruit her.

"When I first started to work with the Academy I was afraid," Williams said. "I would sit in a meeting and the only person I would tell my real feelings to was the [representative]," she said.

Nancy A. Thart

Parent facilitator Patricia Williams works with Shayla Hitchcock on a fractions activity at the Academy's Family Math and Family Science summer workshop.

As a parent facilitator, Williams, along with parents from other Academy schools, is part of the Academy's School Community Partnership Development program. Parents in the program work side-by-side with educators in the pursuit of better education for all children.

According to Williams, working with the program gave her more confidence. She received a lot of encouragement from the Academy, Nicholson's other parent facilitator and the school representative.

"They made it clear I had a choice and a voice in the SCPD process and at Nicholson," she said.

Through the Academy, the parent facilitators learn to sharpen their communication, planning and critical thinking skills. To promote awareness of math and science, they go through the Academy's Family Math and Family Science training, then hold workshops in their school communities. Last year, Nicholson held four Family Science workshops. Next year, the school will focus on Family Math.

Williams recently finished a year-long training program to become a parent consultant (*see story, page 16),* where she will work with parents from other Academy schools, helping them move through the program. Consultants provide encouragement and support to other parents as they work through school issues and activities.

"I like the way the Academy encourages parents to be open and express their opinions. They tell us things about the school system that I wouldn't have known otherwise," Williams said.

Williams says she has a better understanding of the school system, including her local school council, where she now regularly attends meetings. She explored the school improvement planing process firsthand as she and other parents worked with the administration to outline a vision for parent involvement at Nicholson.

"It's not that I think I know as much as the teachers, but now I'm not afraid to ask questions," she said. "Working with the Academy has helped me to understand the importance of parent involvement in education," she said. "If more parents are involved, our children will get a better education."

Technology

In a society increasingly dominated by technology, preparing our children for the future means providing their teachers with the knowledge and skills to lead the way. The Academy's Instructional Technology Department is committed to helping educators meet the demands of the future through instruction and services that extend beyond the classroom.

Administrators Technology Workshop

Hardware, software, the World Wide Web. Understanding technology can be challenging for anyone, but for educators it's a real necessity. To help administrators become the technological leaders in their schools, the Academy designed and hosted a first-ever course: Technology Leadership for School Administrators.

The week-long class, funded by a grant from the Amoco Foundation, gave administrators a basic understanding of computers and their capabilities through hands-on exploration. Participants sharpened their basic computer skills and examined software applications for learning, along with classroom management, assessment and lesson planning.

The workshop also focused on integrating technology into the curriculum. Among the hardware issues examined: hooking up a school to the Internet; installing local area networks within schools; and tapping into wide area networks that extend beyond the classroom.

Administrators also got a chance to surf the Internet, discuss its uses for the classroom, and received an e-mail account giving them free Internet access. Participants examined local, state and national technology guidelines, as well as technology efforts by the Chicago public schools.

Because of the overwhelming response to the class, the Academy has added the workshop to its regular technology schedule.

Integrating Technology into the Classroom

These days, technology seems to be breaking out of the computer lab and showing up in the classroom. So we've added computers to our math and science classrooms to demonstrate how technology can be incorporated into the curriculum on a daily basis rather then as an add-on component.

Distance Learning

The Academy has expanded its professional development resources with two distance learning rooms featuring video, computer and fax capabilities. With distance learning rooms on-site, teachers can connect with other sites throughout the city or around the world.

The first event was in the fall, as teachers took part in "The 21st Century: Classroom Technology for Every Teacher." The distance learning conference linked sites nationwide for a two-hour live broadcast that profiled school communities on the cutting edge of technology.

Headstart

Last year, the Teachers Academy and the Headstart program set out to make the future better for children—by helping their parents. Headstart contracted with the Academy to provide parents of children enrolled in the federally funded program with technology training. Parents received computer training that focused on such skills as word processing, resume writing, and using the Internet to find a job. Parents also examined ways their children can use the Internet as a learning tool.

The World Wide Web

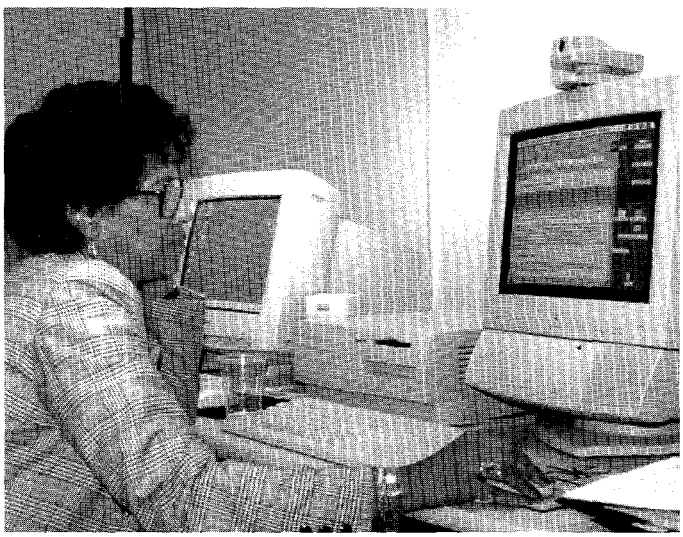
In 1996, the Teachers Academy took up new residence at http://www.iit.edu/~tams. Web surfers can stay current with Academy news and events, check class schedules, or read the latest issue of the Academy newsletter, *The Pyramid.*

Local Area Network

The Academy has installed a local area network that allows teachers to experience enhanced professional development via the Internet, e-mail and file sharing.

School-Based Technology

The growing demand for technology in schools has kept the Academy's technology department in high demand. Last year, more than 11 schools—including those not previously involved with the Academy—signed up



Nancy A. Thart

George M. Pullman School Principal Mary Goosby participates in a technology exercise at the Academy's Technology Leadership for School Administrators workshop.

Edgebrook School

Diane Maciejewski had a problem. As principal of Edgebrook Elementary School on Chicago's North Side, her school had the beginnings of a technology plan, but only a few teachers with basic technology skills and very limited funds.

Then she received a brochure for technology professional development from the Teachers Academy. This, she thought, was something her school could afford.

"We didn't want computer education for the sake of computer education," Maciejewski said. "We wanted to look upon the computers as tools-how could they help us in the classroom?"

In the spring of 1996, Maciejewski and her entire teaching staff participated in a three-hour technology class that explored telecommunications in the classroom.

The training took place at the school, where they had a learning resource center with research materials and 18 computers. With only one Internet connection at the school, Academy professional developers gave the teachers a live demonstration of how the Internet works and then allowed teachers to explore for themselves by pre-loading selected sites on the lab computers. Teachers took part in an Internet treasure hunt, where they searched for information and answered questions at the Busch Gardens and Sea World sites. The exercise demonstrated how the teachers could engage their students by integrating the Internet into their classroom curriculum.

According to Maciejewski, the brief professional development session was long enough for the staff to realize they needed more professional development and helped them to shape and define their school's technology plan.

The staff was so enthusiastic after the training that several staff members got Internet connections for their homes. "It brought about a shift from people thinking, 'This is something I should do,' to 'This is something I'd like to try,' " Maciejewski said.

The following summer, Maciejewski participated in the Academy's Technology Leadership for School Administrators course *(see story, page 18)*. The week-long workshop allows administrators to examine hardware and software first-hand as they explore concepts for integrating technology into their schools and classrooms.

Mary Hanlon

Edgebrook staff (from left), Roberta Hilliard, Annette Price, Diane Maciejewski, Vivian Torres and Elaine Kaneshiro in the school's Learning Resource Center.

"Being able to experiment with software and hardware has made me feel at ease when I have to deal with something new at school," Maciejewski said. "It also helped me tremendously with my file management. I came back and put all my daily operations in order."

The vision for the school is for all classrooms to have a minimum of three computer stations for students and one for the teacher, two printers, a video laserdisc machine, a VCR and a large screen television. They are currently awaiting the installation of a local area network that will connect all classrooms via computers and a T1 line that will provide Internet access without the use of modems.

In the meantime, the school has contracted with the Academy for more technology professional development. Teachers will receive training in Basic Learning Technologies as they explore word processing, spreadsheets, curriculum software, lesson planning and assessment.

Recently, Maciejewski has been working with an engineering consulting firm to install phone lines and an electrical wiring system for the LAN. "Before I wouldn't have known if they were giving me a song and dance. Now I know better," she said.

for school-based training, requesting everything from basic computer training to multimedia and telecommunications classes.

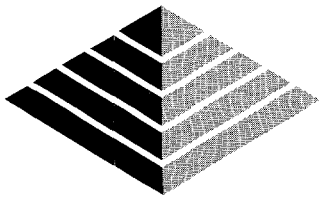
Internet Training

In 1996, 61 teachers received Internet training through the Academy as part of the Educational Networking Consortium, a collection of educators dedicated to providing Internet skills and access to all Chicago public school teachers.

Program Information

Last year, more than 790 teachers, administrators and parents participated in 123 different Academy technology classes. Academy staff participated in Illinois State Board of Education technology meetings, and were invited by the State Board to read and make recommendations on technology funding proposals for K-12 curriculum. Staff members also participated in the state's Joint Technology Coalition and Infrastructure Planning Committee.

budget remained.



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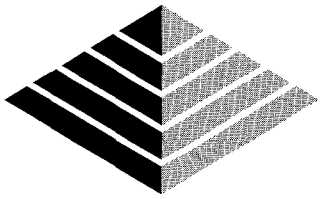

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