East Baton Rouge Parish, Louisiana

Corporate Partnership and an Emphasis on Strong Professional Development Spearhead Reform Efforts

The East Baton Rouge Parish School System includes 64 K-5 elementary schools. There are approximately 40,000 students and 1,200 teachers in those schools. East Baton Rouge's science program has focused on professional development and devising effective assessments of student learning. The program has been strengthened by a corporate partnership with the Dow Chemical Company.

Sheila Emonet, a fourth-grade teacher at Lanier Elementary School, is a 1995 Presidential Award recipient who has earned national recognition for excellence in teaching science. Around East Baton Rouge, however, she's best known as the teacher who "does those bones."

A second-grade unit on bones and skeletons may be Emonet's greatest claim to local fame, but her interest in inquiry-based science is broad and long-standing. Mignon Morgan, science specialist for the parish, cites Emonet as a pioneer in science education reform in the area. Long before science kits became available, Emonet was bringing materials into her science classroom to spark students' interest. Asked to describe the strength of hands-on learning, she says, "It's not just me giving you information. Instead, the idea is 'Let's learn together.' I make the learning mine as well."

Emonet has taught for 10 years. Across the parish at Tanglewood Elementary School, Clydette Rispone, who has taught for five years, was also a hands-on science teacher in the days when enterprising teachers made their own science kits. She found teaching materials just about everywhere; for example, she collected seashells at neighborhood garage sales. On her first day as a student teacher, she prompted a brainstorming activity for a new module on *Water, Air, and Weather* by bringing a fighting fist to class. Why take the trouble? "Hands-on activities," she states with conviction, "bring science to life."

Good Teachers: Born or Made?

The enterprising spirit of Emonet and Rispone might make it appear that good teachers are born, not made. While some traits may be innate, every teacher needs support and ongoing learning opportunities. For this reason, Morgan speaks with special pride of the parish's staff development program. All teachers must have at least three hours of experiential training with a new science module before they can check the kit out of the Science Resource Center. That training is provided by master teachers from the system's own staff.

"For the first two years that we used the kits," Morgan recalls, "we invited in company representatives or other professionals. They made wonderful presentations. The teachers were enthusiastic. But three weeks later, they'd come to me and say, 'Mignon, I'm not sure I can do it myself.'"

As a result, the training for each module in East Baton Rouge today is done by teachers who have used the kit at least once in their own classrooms. Approximately 10 teachers attend each of the day-long sessions. It's a thorough process. "We start," Morgan notes, "by opening the box." Working in pairs or groups, the teachers go through every activity in the module. They not only learn about the kits, they also have an opportunity to network with other teachers in their school system. Equally important, they meet a local resource person to whom they can turn when questions arise.

Another component of staff development is provided through a five-year Teacher Enhancement Grant from the National Science Foundation (NSF). The grant, awarded in 1993, targets teachers in kindergarten through third grade and focuses on the physical sciences. Through this program, the parish has developed a cadre of 32 mentor teachers in 16 schools. During the summer of 1993, the mentor candidates, which included Rispone, earned graduate credit in physical science. Once the school year began, a team of science specialists, including a consultant in assessment, visited their classrooms weekly to model effective teaching and to provide feedback to the mentors-in-training. The teachers also attended monthly seminars at the Science Resource Center. The same basic framework, consisting of summer graduate work and training during the school year, continued in 1993-94.

To launch the second phase of this capacity-building effort, the system selected 34 lead teachers in 1995. After two weeks of summer training, each lead teacher was paired with a mentor teacher at the same grade level in another school. The two teachers then continued to work together for an entire year. The mentors model effective teaching practices; the lead teachers try out new techniques and receive feedback.

"Our Whole Thinking Has Changed"

For Rispone, participation in the mentoring program was an irreplaceable experience. "Our minds work differently," she says. "Our whole thinking has changed."

Student assessment is one area where changes in thinking are most evident. Although hard data on student achievement are still being collected and analyzed for purposes of the NSF grant, teachers see the advantages of hands-on learning almost daily.

Emonet's experience with assessment has revealed "obvious differences" between hands-on science and traditional textbook science. Students who have engaged in hands-on learning are more enthusiastic and have more positive attitudes toward science. Differences in written test results are less dramatic. Nonetheless, hands-on science is miles ahead of the game. "We're doing more writing," Emonet explains, "and the students have to record results and write in their journals when they study electricity. In a hands-on classroom," she quickly adds, "the students *also* have to construct an electric switch."

Cooperation with the Dow Chemical Company

The Dow Chemical Company, a major employer in East Baton Rouge, has been instrumental in the progress achieved in the system in both science and mathematics. As Morgan puts it, "They've been tremendous." Dow offered an initial $15,000 grant to East Baton Rouge in 1992. The company made a commitment to provide $40,000 annually for the next five years to purchase and refurbish science kits and to provide other learning resources. Sue Blanchard, Dow's training coordinator for human resources, was a member of the four-person team that attended the National Science Resources Center (NSRC) Elementary Leadership Institute in 1992, and she remains actively involved in the program. Accountability is an important feature of the successful relationship that has been established between Dow and school district leaders, she notes. The school submits an activity report to the corporate offices yearly, and progress is jointly evaluated.

The groundwork for such collaboration began in the early 1990s, when Dow, Exxon Corporation, and Louisiana State University (LSU) formed a public-private alliance for the purpose of preventing overlap in corporate support for school programs. Representatives of Shell Oil Company, Ethyl Corporation, and the local chamber of commerce soon joined the alliance. Today, the alliance is working with 10 of the state's 64 parishes. Alliance members meet with science and math supervisors monthly. The result, Blanchard notes with satisfaction, is that "we're beginning to see much more cooperation among the school districts." If, for example, there are one or two unfilled spots in a training program offered by East Baton Rouge, teachers from West Baton Rouge and Iberville Parishes are invited to fill them. These "win-win" arrangements ensure that staff development is as cost-effective as possible. The alliance is also exploring the use of the Internet and America Online for staff training.

LSU's Louisiana Energy and Environmental Resources and Information Center (LEERIC) has played an active role in science education reform in the system and throughout the state. LEERIC staff member Emily Young was a member of the 1992 NSRC Leadership Institute team. LEERIC functioned as the materials center for three parishes during the first year of the program, and it continues to serve West Baton Rouge and Iberville. LEERIC staff provide supplementary teaching materials on request. They also provide a custom-made list of resource books, trade books, and videotapes in each science kit.

A Balancing Act

Maintaining a large and rapidly growing program with multiple funding sources requires the creative use of resources. For example, the NSF grant provides training for teachers in grades K-3 only, so the system must find additional support for training of a similarly high caliber for fourth- and fifth-grade teachers. Moreover, the NSF grant covers only the physical sciences, yet the science curriculum already includes earth and life sciences.

Having a major role in ensuring that resources are well allocated and gaps are overcome is Lola Soileau, science supervisor and principal investigator for the NSF grant. Soileau is an advocate for elementary school

science with the board of education, which allocates funds to cover the cost of kits and supplies that exceed the resources provided by Dow. In a time of fiscal constraints, Soileau and her staff must balance science education reform goals with a dose of realism. "It may not happen in five years," she admits.

But it *will* happen. Signs of progress are everywhere. One in four elementary school teachers has been trained in at least one science module, and four different hands-on modules are being used at each grade level. The Science Resource Center is swamped with requests; each kit is used four or five times yearly. At the halfway point of its five year plan, the East Baton Rouge system has made major strides in implementing elementary science education reform.

Lessons Learned

- Local teachers understand their colleagues' needs. Appropriately trained, they are often more effective in leading staff development programs than are publishers' sales representatives.

- Mentoring programs that match a lead teacher with a less-experienced teacher in the same school are a practical and effective means of promoting individual teacher development.

- Alliances between the public and private sectors, especially when they benefit from a strong corporate presence, can be instrumental in promoting science education reform.