

## SATURDAY MORNING PARENT AND CHILD EDUCATION (PACE)

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### **Introduction**

The Mathematics & Science Center, located in Richmond, Virginia, challenges and inspires thousands of students, teachers, and parents each year through its unique educational programs. The Center provides exemplary mathematics and science programs to support participating school divisions' development of 21st-century citizens who are productive, ethical, and responsible members of our global society. Seven Virginia school divisions make up the Center's consortium: the counties of Chesterfield, Goochland, Hanover, Henrico, King William, Powhatan, and the City of Richmond.

The Center has a longstanding tradition of providing children and parents with engaging educational lessons on Saturday mornings. This project, called the Parent-Child Program, began in the mid 1970s to provide opportunities for family exploration of the world of mathematics and science, as well as to develop an appreciation of the relevance of mathematics and science in daily living, for careers, and for society. Patricia Priestas has been the coordinator of the project since 1993.

Special one-day experiences are offered to students in kindergarten through fourth grade, and include parental participation. Typically, these lessons carry fees ranging from \$10.00 to \$14.00 per student and parent(s). These fees cover the materials for the lessons, primarily hands-on activities. In the past, these fees have prohibited many economically disadvantaged families from participating. For this reason, the Mathematics & Science Center's collaboration with the Title I Parent/Family Resource Center, located on the campus of George Mason Elementary School in Richmond, has been crucial to increasing the involvement of children at risk of failing courses in math and science.

Title I, the largest federal aid program for students, helps disadvantaged children meet challenging content and student-performance standards. It is the largest federal aid program for our nation's schools. Part A of Title I provides financial assistance to meet the educational needs

of children who are failing, or of those most at risk of failing, to meet state requirement standards. Of the 31 elementary schools in the Richmond Public Schools system, 26 currently meet the criteria of high poverty levels for Title I eligibility. The general rule for Title I eligibility is that at least 50% of the children enrolled in the school, or residing in the school attendance area, are from low-income families.

Presently, approximately 11,000 elementary students receive Title I services. Title I regulations specifically require sustained and meaningful involvement of all participating parents. The Title I Parent/Family Resource Center provides programs that are designed to encourage parental and family involvement in activities during regular school hours, evenings, and weekends. Also, the Title I Parent/Family Resource Center maintains a budget line-item that is designated specifically for parent and child activities.

Delores Bagby, the Title I Parent Liaison Specialist for Richmond Public Schools, recognized the powerful link between parental involvement and student achievement. Nearly four decades of research confirm a strong correlation between a child's academic success and the level of parental and family involvement in their education [1,2]. It was during a Richmond Public Schools staff development session, held at the Mathematics & Science Center, that Ms. Bagby approached Executive Director Dr. Julia Cothron about making the Parent-Child Program available to Richmond's Title I population. Thus, Parent And Child Education (PACE) was born.

PACE provides Title I students and their parents the opportunity to participate in the Mathematics & Science Center's Parent-Child Program at convenient locations and without cost to the participating families. In the past, this population has been underrepresented in the Parent-Child Program since the fees for the classes and the inaccessibility of the program locations prohibited many families from participating. Saturday Morning PACE classes are currently held at the Title I Parent/Family Resource Center or at George Mason Elementary School. Classes have also been held in the southside of Richmond at the Boys & Girls Club and at the Northside YMCA, located in Ginter Park.

The PACE program began in the spring of 1996 with two lessons offered: *Learning with Duplo Blocks* for kindergarteners and *Science from Toys* for first graders. The number of classes and participants has steadily increased since 1996. From school year 1997-1998 to school year 1998-1999, Richmond Public Schools' total participation in the Parent-Child Program rose from

364 to 667. This dramatic increase was surpassed by an enrollment of 840 children and parents for 1999-2000; this year's totals are nearly equal to last year's at 828. This increase in Richmond Public Schools' total participation in the Parent-Child Program can be attributed directly to the enrollment of students and their parents in the PACE Program: 25% of the participating families are served by PACE.

Furthermore, our enrollment data shows that, once a parent and child attend one of the lessons, they usually return for additional lessons during the school year. This past year, our *What's What Up There?* lesson was so well-received that seventeen students and eighteen parents from the PACE Program attended the follow-up lesson at the Virginia Air & Space Museum in Hampton. Title I funds paid the fees for these attendees. Involvement in this popular trip was surpassed in March 2001 when 54 parents and children participated. Also, parents who are familiar with PACE classes through the attendance of one child frequently come back in future years with their other children.

### **Program Details**

Currently, ten parent-child lessons are offered by the Mathematics & Science Center throughout the school year: four of these lessons are offered to Title I PACE students at George Mason Elementary; and, the other six lessons are either field trip experiences or are only offered on site at the Center. As a result of participation in the four PACE lessons, parents may elect to attend the other Mathematics & Science Center parent-child lessons with funding provided by the Title I Parent/Family Resource Center.

The first PACE lesson in the sequence, offered in December for third and fourth graders, is *Calculator Capers*. Each student is given a hand-held calculator, which they may then keep after the class is over. This lesson is made up of lively activities and games that engage both the students and their parents. Parents are provided with printed instructions of all the activities and games covered in class, as well as additional activities for use at home. Students are encouraged to make their calculators "talk" by entering numbers on the display that appear as letters in a word when the calculator is inverted. Using their calculators, parents and children play games, such as "The Greatest Sum," that emphasize place-value. During "The Greatest Sum," children are placed in groups of four. The children each take a turn at rolling four cubes that are numbered. Each child places the cubes to form two two-digit numerals, which when added

together form the greatest sum possible. This sum is recorded on a score sheet and the player with the greatest total score at the end of five rounds is the winner.

“Wipe-Out!” another place-value activity, encourages the students to “wipe-out,” or change to zero, a specific digit in a number. For example, the student is instructed to enter 98541 on their calculator and then told to “wipe-out” the 8. The student must subtract 8000 in order to replace the 8 in this number with a zero. This game focuses on learning, as well as reinforcing, mathematical concepts and on reviewing the SOLs. At the same time, it encourages interaction between parents and children as they play together.

Our second lesson, *What's What Up There?* held in February, deals with the night sky, covering the properties of the planets, stars, and constellations. Numerous activities help second graders relate to the universe. Students use the knowledge they have acquired about the planets to create, with their parents, a creature that is adapted to exist on a particular planet. While spinning and twirling, the children sing “The Planets Go Spinning” to the tune of “When Johnny Comes Marching Home” in order to learn about the rotation and revolution of the planets around the sun. As mentioned before, this class has the added bonus of a follow-up trip in March to the Virginia Air & Space Center in Hampton, Virginia.

The third in our series of lessons is for first graders, *Science from Toys*. This very popular lesson allows the students to interact with their parents as they investigate and make low-technology toys that illustrate the fundamentals of physical science. Students make a balancing robot that they place on their finger or tip of their nose. When weighted properly with pennies, the robot balances.

Making an electrical circuit, one of the final activities of this lesson, is another favorite. Parent and child are supplied with a template, motor with leads, baseboard, paper clips, and brad fasteners and are asked to create a closed circuit. While parents tend to do most of the construction of this “toy,” the children work with them to complete the project successfully, usually by making a propeller or color wheel to mount on the end of their motor shaft.

The fourth lesson in our sequence is *Learning with Duplo Blocks* for kindergartners, which utilizes the large Lego blocks called Duplos to illustrate and develop many elementary math concepts. Concepts include color, size, shape, and symmetry. One activity involves a parent and their child sitting back-to-back, each with five of the same Duplo blocks. The child

constructs a model and then communicates the block location to the parent. The parent attempts to construct an identical model. SOL correlations are provided to the parents and the students may keep a small set of Duplo blocks.

### **Budget and Funding**

The seven participating school divisions provide the operating budget for the Mathematics & Science Center. Other school divisions, including the counties of Prince George and Charles City, the City of Hopewell, the Stewart School, and St. Bridget's School, also participate through institutional membership. The Mathematics & Science Center establishes costs for each parent-child lesson, including materials, teacher-training expenses, and a stipend for the instructor.

The Title I Parent/Family Resource Center covers the entire cost for each family in the PACE program. School divisions receiving Title I funds in excess of \$5,000 must have an educational program with parental involvement at its core. The structure of such programs varies by school division. The decision on whether or not to set up a program based on the Title I Parent/Family Resource Center will depend on a number of factors; such as, available funding, personnel, program goals, and learning objectives.

### **Challenges**

One of the initial challenges for this program was getting the targeted audience to attend classes through PACE. Delores Bagby promotes the program by meeting with principals and teachers of Title I schools and discussing program initiatives, as well as providing detailed information on how to enroll. Brochures are designed and printed by the Title I Parent/Family Resource Center and distributed only to Title I schools. The brochures highlight descriptions of lessons, dates, times, locations, and include an application form that, when completed by interested families, must be returned to the Title I office for processing. PACE is well received by participating schools as evidenced by the cooperation from administrators, teachers, and staff.

Another challenge has been the failure on the part of some parents to follow through on their initial commitment to attend these classes. Title I staff sends acceptance and confirmation letters, as well as class reminders, in an effort to encourage attendance. These letters serve as a motivational tool, as well as help the staff to determine expected enrollment in order to provide adequate materials, space, and refreshments. The Title I Parent/Family Resource Center is

considering surveying all parents in order to further understand the reasons that some fail to attend after registering.

### **Details of Evaluation**

At the end of every class, evaluation forms are given out to the parents who have attended. Many positive responses have been received: “Very enjoyable!” and, “I believe these activities are good stepping stones for preparing for the SOL assessment. I know now what I can do to help my son achieve his goals. Thank you for a very interesting morning.”

The PACE Program cannot take full credit for the gradual improvement in the mathematics and science SOL test scores for Richmond Public Schools, but we can be sure that these activities enrich and enhance the conceptual understanding, problem-solving, and math and science skill sets of the students who attend. Parents frequently tell us that they and their children have learned so much: “I believe that I enjoyed this program more than my son. I look forward to the very next program with Title I”; and, “Thank you for providing a fun and educational workshop to promote reasoning skills. My child really enjoyed working with me in this setting.” In addition to the qualitative assessments, we intend to measure the possible quantitative impact made by the program by comparing the third grade SOL scores of the PACE participants to those of their peers.

### **Conclusion**

PACE certainly may be adapted for use in alternative settings. The model could be used for other subject matter with targeted groups, such as special-needs students. The following components should be considered when developing a similar program: creative lesson development; recruitment and training of dedicated, caring, and competent teachers; procurement of appropriate materials; logistical arrangements; advertising; and, enrollment of the targeted population. It should also be noted that if Title I funds are used for the program, it must be in accordance with Title I guidelines.

PACE lessons are designed to develop the curiosity and enthusiasm that motivates students and parents to become lifelong learners. We’ve been pleased to watch students and parents leave the lessons with a sense of accomplishment and satisfaction. ■

**References**

- [1] J.L. Epstein, "Paths to Partnership: What We can Learn from Federal, State, District and School Initiatives," *Phi Delta Kappan* **72**(5) (1991) 344-349.
  
- [2] A.T. Henderson and N. Berla, *A New Generation of Evidence: the Family is Critical to Student Achievement*. National Committee for Citizens in Education, Washington, DC. 1994.

**INTERVIEW WITH DELORES J. BAGBY**

**Q: What career path did you follow to reach your present position? Is this what you originally aimed for, or were there a few twists and turns that brought you here?**

**A:** This position was not on the career path that I planned. I began working in the Richmond Public Schools (RPS) system as a fifth grade teacher; my first teaching assignment had been in the Washington, D.C. Public Schools system. After enrolling in a summer teacher in-service program on elementary mathematics, I was asked to take a position as a Title I mathematics teacher. I remained in that position for ten years. My interest in computers led me to a summer assignment teaching parents basic computer skills. After that particular experience, the director of Grant Programs for RPS invited me to coordinate the parent-involvement component for their Title I program.

**Q: Have you been involved in similar programs before? Was there a particular moment or stimulus that caused you to begin this project?**

**A:** I am always interested in organizing and providing educational experiences that involve parent and child interaction. PACE is unique in that it has a strong hands-on emphasis with specific objectives correlated to state standards, which, of course, makes it especially attractive as a program that also satisfies Title I parental involvement requirements.

**Q: Have there been any unique, or unexpected, consequences for you resulting from your project?**

**A:** I can truthfully say that there have been no unexpected consequences. This continues to have only positive results. I am not only fortunate to have the opportunity to provide a valuable service to our parents and children, but working with Pat Priestas has been a delight.

**Q: Are you able to identify the greatest lesson you have learned and rewards you have gained through working on Saturday Morning PACE? What is the greatest benefit you see coming to students, and to teachers, through their engagement with this project?**

**A:** The greatest lesson learned is that it takes time to grow as a program. As we noted in the article, the number of participants has gradually increased, and this has been a wonderful reward.

Schools now recognize PACE as one of our signature programs, with the result that administrators and teachers are more actively encouraging parents to participate. When children see that their parents are interested, and willing, to spend a Saturday morning with them participating in this project, this is certainly a benefit. Too, PACE supports what the classroom teacher is doing, so that is another benefit. Ironically, several teachers and their own children have participated in PACE. The overwhelming response from participants is that PACE is a program that must be maintained.

**INTERVIEW WITH PAT A. PRIESTAS**

**Q: What career path did you follow to reach your present position? Is this what you originally aimed for, or were there a few twists and turns that brought you here?**

**A:** My career in education began after graduation from the University of Maryland in College Park. I was hired to teach sixth grade in Prince Georges County, Maryland. When my husband finished his graduate degree in 1975, we relocated to Richmond. Once again, I was hired to teach sixth grade, first at Laburnum Elementary and then at Hermitage Middle School, which is now Moody Middle. With my daughter's birth in 1978, followed by my son's arrival in 1981, I became a full-time mother and part-time educator at the Mathematics & Science Center. At first, I taught only on Saturdays for the Parent-Child Programs and, later, in the Saturday Discoverers and Questers Program. Eventually, I added weekday instruction to my schedule. In 1993, I took over Parent-Child Programs and have continued leading this program to the present. I also hold a second part-time contract as a math educator for grades 4-8.

**Q: Have you been involved in similar programs before? Was there a particular moment or stimulus that caused you to begin this project?**

**A:** Delores Bagby and I began this program after meeting at the Mathematics & Science Center. Dr. Julia Cothron, the Executive Director of the Center, was the catalyst in this area. Her suggestion that we look at ways of increasing attendance from Richmond Public Schools in our Parent-Child Programs stimulated discussions that eventually led to the development of the Saturday Morning PACE Program.

**Q: Have there been any unique, or unexpected, consequences for you resulting from the project?**

**A:** I suppose the most unexpected consequence was how successful we became after the first two years. Large numbers of families returned for additional classes the next year. I expected our numbers to increase, but not as rapidly as they did. My planning for materials and the number of teachers had to be reevaluated. Ultimately, additional materials needed to be ordered and a Title I teacher had to be hired and trained just for the Saturday Morning PACE Program.

**Q: Are you able to identify the greatest lesson you have learned and the rewards you have gained through working with Saturday Morning PACE? What is the greatest benefit you see coming to students, and to teachers, through their engagement with this project?**

A: The greatest lesson I have learned from this project is that if you expect to succeed, you will. Delores and I realized from the start that this was a good program. We kept the faith even when our numbers were disappointing at the beginning. It took a couple of years to mature, but now it is rolling along. When I visit the PACE program site on a Saturday, I see parents and children engaged in working together with a caring teacher on a positive educational experience, and they are succeeding. That, in and of itself, is a great reward. I've also learned that Delores is a fantastic educational partner, someone with whom I hope to continue working for a long time.