D.C.’s Bruce-Monroe school faces challenges as it tries Singapore math method

By Bill Turque, Published: June 6

It’s 9,688 miles to Singapore from Katrina Abdussalaam’s third-grade classroom in Bruce-Monroe Elementary School @ Park View. Each morning, she tries to edge her students closer to those from the Asian city-state known as a world leader in math.

She begins one spring day with “the sprint.”

Students at the Northwest Washington school get one minute to work on a sheet with 30 basic multiplication and division problems. They’re told to get through as many as they can. After a short break, there’s a new sheet and another 30 problems. Later, they stand and clap, counting by fours to 40. After a strong start, some hesitate as the numbers get higher.

“We need some practice,” Abdussalaam said.

Bruce-Monroe is one of about 2,000 U.S. schools in the past decade that have adopted the Singapore approach to math, which stresses mastery of basic skills and a few essential ideas, such as place value and part-whole relationships.

A close look at the D.C. school points up the challenges involved in transplanting a “math miracle” from Asia. These include high levels of student mobility, instructor turnover and a curriculum that proponents say requires a depth of understanding most U.S. elementary teachers don’t acquire in their math training.

In the most recent Trends in International Mathematics and Science Study, Singapore ranked second in the world in fourth-grade math, just behind Hong Kong. The United States placed 11th. Singapore also has excelled on other international tests.

Even though the Singapore method has won acclaim from researchers, no large urban or suburban school system in the United States has fully embraced it.

Montgomery County and Baltimore have tried the Singapore approach in selected schools. Sidwell Friends uses pieces of it. Bruce-Monroe is the only D.C. public school to integrate it into its academic programs.

Although Bruce-Monroe staff members say the Singapore system has generated enthusiasm among students, those heightened spirits aren’t yet reflected in the data. Standardized test scores are lower than they were before the new curriculum was adopted. On the 2009 D.C.
Comprehensive Assessment System, the first citywide test after the changeover, pass rates remained virtually unchanged, with 49 percent of students achieving proficiency. Last year, the pass rate at the school plunged to 23 percent. That decline was steeper than a citywide drop.

“The scores were very disappointing,” said Nuhad Jamal, Bruce-Monroe’s instructional coach.

D.C. officials regard elementary math as a bright spot in their school reform efforts. The National Assessment of Educational Progress, given to fourth- and eighth-graders every two years, showed that the D.C. public school system was the only one of 11 urban systems tested that made significant gains in math at both grade levels from 2007 to 2009.

But Jamal said she was troubled by the number of students who seemed to enter fourth grade with a poor grasp of basic number operations. The city’s standard text, “Everyday Mathematics,” places heavy emphasis on games and conceptual understanding — a good fit for kids with strong fundamental skills, Jamal believed, but not for those with weak foundations.

“It seemed to me that ‘Everyday Math,’ as much as I liked it, wasn’t working for the kids,” she said.

At a 2007 conference in Atlanta, she said she was “blown away” by a presentation on Singapore math. She liked the austere simplicity of the slender textbooks, which used bar diagrams to show students how visual images can help solve challenging two-step word problems, laying the groundwork for algebra:

*Mr. Anderson gave two-fifths of his money to his wife and spent one-half of the remainder. If he had $300 left, how much money did he have at first? (Answer: $1,000)*

And unlike “Everyday Mathematics,” which “spirals” through subjects — covering them and then returning later — Singapore goes slow and deep, requiring mastery before moving on.

Jamal and Bruce-Monroe Principal Marta Palacios received clearance from then-Chancellor Michelle A. Rhee to make the switch in the 2008-09 school year. A foundation grant helped pay for training teachers.

But in 2008 Rhee also decided to close Bruce-Monroe — citing the poor condition of the campus on Georgia Avenue NW — and merge it with nearby Park View Elementary on Warder Street NW. The move was deeply disruptive, engendering bitter community opposition. It meant that Palacios and her teachers were implementing a new curriculum while striving to establish what was effectively a new school.

“It was a nightmare,” Palacios said.

Other factors complicated the rollout. The District’s student population is highly mobile, but the Singapore curriculum builds carefully from year to year, making it more difficult for new arrivals in the upper elementary grades or at mid-year.
The school, where nearly 60 percent of the 400 students are Hispanic, uses a dual-language program. Classrooms have a mix of English- and Spanish-dominant students who split time between the two languages. But without Spanish versions of the Singapore textbooks, teachers had difficulty getting ideas across. Spanish workbooks will be available next school year, Palacios said.

Even in English, Singapore math does not come easily to many American teachers. Experts say it takes one to two years to really learn the system. The no-frills textbooks lack teacher editions and other aids that are part of U.S. math packages such as “Everyday Mathematics.” Singapore’s elementary instructors receive significantly more math than their U.S. counterparts, who are often generalists.

“The books themselves are very demanding of the teachers and of the system in terms of professional development,” said Yoram Sagher, a professor of mathematics at Florida Atlantic University who ran Singapore workshops at Bruce-Monroe during its first year of implementation. Although a foundation has defrayed some development costs, the District provides no extra support.

Professional development and staff buy-in were key to Montgomery’s experiment with the Singapore program. While revamping the county math curriculum in 2000, Superintendent Jerry D. Weast launched a pilot in four elementary schools. Teachers received summer and after-school training, along with mini-sessions during school hours. But the American Institutes for Research found in a review that staff members in two of the schools “took extensive advantage” of the training, while those in others did not. The schools with more training in the Singapore method performed at a higher level. All four discontinued the curriculum within five years, but county officials said research, not wholesale adoption of the system, was the objective.

Finally, there is the challenge of teacher retention. Like many urban systems, the District churns through teachers. One study of payroll records found that 76 percent of D.C. teachers leave in five years or less. Many who come through alternative programs such as Teach for America and D.C. Teaching Fellows leave after two years.

Palacios estimated that a third of her faculty has turned over since she installed Singapore Math. “It affects us tremendously,” she said.

D.C. school officials said they are unsure about the future of the experiment. “We want to look at the data,” said Brian Pick, chief of staff to the deputy chief academic officer.

Some Singapore advocates said the method nevertheless has made an impact. Montgomery incorporated bar diagrams in its math curriculum. The emerging Common Core national standards, to which the District and 44 states are committed, also echoes Singapore’s emphasis on mastery of fewer subjects at greater depth.

For years, schools have purchased American versions of the Singapore textbooks from Oregon-based SingaporeMath.com. Now, major U.S. publishers are starting to roll out their own Singapore-themed books.
Jamal said she has no regrets about bringing Singapore to Bruce-Monroe. “It’s been a strength of our school,” she said.