



Algebra program offers some `real-life' solutions / Hastings teacher to be featured on PBS

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When about 400 students at Alief Hastings High School failed or became "repeaters" in algebra classes last year, it was a problem.

Now, Tremain Nelson, a former NASA electrical engineer, is providing a solution.

Nelson is teaching a student-interactive algebra program at Hastings. The program was created by Carnegie Learning Inc.

And it's one the Public Broadcasting Service television network plans to introduce as one of the country's best examples in effectively teaching the subject.

"Instead of being introduced to math in the traditional way - solve this or fill out a table without any relevant information tied to that equation - they have real-life applications," said Nelson, 28, who teaches about 30 students in each of five classes each school day at Hastings.

Naomi Edelson, producer at Thirteen/WNET, New York's PBS television station, and a film crew were in Nelson's classroom last week to film the teacher in action for a documentary in which he and seven other teachers throughout the nation provide - as the documentary's title suggests - Insight into Algebra I: Teaching from Learning.

"The idea is to look at 16 different topics in the algebra curriculum and show ways of teaching it more effectively," Edelson said. "Mr. Nelson is a fabulous teacher . . . he's done a great job in getting these kids motivated and communicating with each other."

In Nelson's classes, students actually teach each other, she said.

What makes the Carnegie Learning algebra different are three aspects, one of which is that students learn in small cooperative groups.

"You start with a base group of two students sitting together and they learn the social skills needed to work through the problem, then we increase up to a group of four. Then stop, because larger groups impede conversation," Nelson said.

A second aspect allows students to present the material to the class, teaching the group and then the whole class how to work the algebra concepts.

"They share their thought processes, what they went through to solve the problem, which gets the kids to talk to one another," Nelson said.

Along the way, the students learn an algebra vocabulary they also communicate with one another, he said.

The third component is a computer laboratory, where students work at their own pace in problem solving and determining areas of difficulty for each individual student.

"Every key stroke they make is monitored. The computer keeps track of every mistake they are making, the number of times they have to ask for help. Then the computer offers a tutorial just for that student," Nelson said.

The computers also allow the teacher the time to work with the students who have the most difficulty, he said.

Brenda Rogde, math teacher and an associate principal in charge of the math department at Hastings, said she remembers Nelson coming to her last fall before the beginning of the school year, saying he wanted to teach math.

When she discovered he was a NASA engineer, she asked him if he would become certified in the Carnegie program, a method she and other math teachers saw as a way to end the frustration they were having in teaching beginning Algebra to the same students again and again.

"The program had been 15 years in research at Carnegie-Mellon," she said. "It was a one-site license, \$24,000, and once we bought it, we just had to have the yearly upgrades."

The cost was inexpensive compared to other programs that, unlike the Carnegie algebra, seemed to "bore the kids after six weeks," she said.

Part of why the kids stay focused, she said, is because they help teach the program.

"They don't tune the teacher out, because they are the teacher," Rogde said. "It's a diagnostic program that builds skills as it builds self-confidence."

Nelson, an Atlanta-born Richmond resident who has bachelor's degrees in both math and in electrical engineering from Moorehouse College and the Georgia Institute of Technology, spent his time at NASA trouble-shooting computers that collected and analyzed information sent from orbiting space stations and shuttles before coming to Hastings.

"It's a combination of a solid program and the teachers who use the math program, all of whom are trained. Together, it gives us the success we are seeing," he said.

Since Nelson and 21 other math teachers at Hastings have experienced the Carnegie program's success among students, the school has purchased the learning center's Algebra II and geometry programs, Rogde said.

For Nelson, that success is sweeter than anything space had to offer.

"I knew, though, when I was working at NASA that this was the true calling of my life," Nelson said. "I wanted to have a greater impact with children. Because of financial reasons, I boxed with God for awhile, but I decided to follow my heart."