Brain Building

Article By PEGGY KREIMER of the Kentucky Post; May 12, 2003

Michelle Hancock doesn't need to read brain research books. She reads her children. One got in on the start of an experimental brain-building program in Owensboro, Ky., and one only experienced part of it.

Eleven-year-old Adam Hancock is in the first target class of 2010, which started in kindergarten with brain research programs in foreign language, music, art, exercise and chess. He knows some Spanish words, he reads music, he plays chess - and his brain just works differently from his older sister Tori's, says Hancock.

"Adam is much more of a planner than his sister. He has got to know what he's doing ahead of time. He thinks things over, then makes his move," his mother says.

"It could be just a difference in personalities, but I have to think the chess has something to do with it.

"He's getting things that Tori wasn't exposed to. When kids are younger, that's when their brains supposedly absorb like sponges."

They're not only absorbing, say brain research experts. New evidence shows that children's brains are still forming well into elementary and middle school.

Experiences in those years wire the brain, creating the connections that will be the brain's pathways to learning and behavior for the rest of the child's life.

That research is infused into the Daviess County school system, creating what internationally recognized author and brain-based education consultant David Sousa calls "a lighthouse district" among the nation's schools.

Sousa, author of "How the Brain Learns," was one of the school system's research consultants. He spoke at community meetings, helped train teachers and has watched the program progress.

"It's a well-organized, well-thought-out plan that's been working for six years now," he says. "We're beginning to see more schools changing their programs (to reflect brain research), but Daviess County was one of the first."

The use of challenging games and methods… The program emphasizes major research areas in brain/education science: the well-accepted "window of opportunity" for foreign-language learning that closes around age 12; the connection between making music and ability in mathematics; and the development of what Sousa calls higher-order problem solving using chess and other challenging games and teaching methods.

It also incorporates a fitness program and expanded arts programs including dance and professional performances.

There's a strong emphasis on parent involvement and a community-sponsor program where corporations adopt a class for those students' full 13 years in school, acting as mentors and participating in classroom and community projects.

In the halls of Daviess County schools, the most used word may be "brain."

Every Daviess County teacher has received brain-based training. From kindergarten on, children are exposed to non-graded Spanish language lessons; music and keyboard labs; dance lessons; and chess to encourage critical thinking skills.

In second- and third-grade teacher Stacy Harper's classroom, chairs, coat racks, computers, soap dispensers and maps are labeled with their English and Spanish names to reinforce language skills.

Her students arrive early to play Chess Mates on the computer - pitting their chess skills against an animated wizard.

The value of sport stacking At Highland Elementary School, student teams go head-to-head in stacking exercises - a fast-moving routine that looks like a shell game played in triple-time as students stack and collapse pyramids of plastic cups.

"They're using both sides of the brain - eye-hand coordination and problem solving," says physical education teacher Connie Harper. "It's forcing them to cross the midline in their brain."

"I see a difference in the way these children respond to learning, and children 10 years ago," Stacy Harper says. "These students are much more involved in their learning process."

Harper has read about the brain research findings, but her students prove it every day.

"You can see, they're developing those connections. We do Spanish videos two or three times a week, and we're learning together. It's so much easier for the kids to learn Spanish than for me as an adult. Now is the opportunity for them."

Children who learn early don't just follow a different timetable for acquiring facts, says Daviess County Superintendent Stu Silberman. They increase their learning capacity forever.

That's a staggering concept that educators can't afford to ignore, says Silberman, who took the information and preached it to his community with the zeal of a prophet and the savvy of a politician.

The program is called Graduation 2010 because it was started with the 1997 kindergarten class, which will graduate in 2010. The brain-based components are phased in as the class proceeds through the system.

That is one of the secrets of Daviess County's success, says Silberman.

Phasing in the program makes it easier to afford and reinforces the flexibility of the program.

"When we started, this program did not exist anywhere in the country," says Marilyn Mills, Graduation 2010 coordinator and curriculum director for Daviess County Schools. "We are constantly evaluating, adding, expanding, deleting."

The school system did not start out pursuing a brain-based curriculum. That followed a simple decision to make a good thing better.

Silberman came to Daviess County in 1995 to take over a school district that already had solid achievement levels and a good academic record.

In a state where many school districts were struggling to bring students to an acceptable level, Daviess County was already beyond acceptable - which gave Silberman the luxury to take what some may perceive as chances.

"The question was how to take a good district and make it a great district," he says.

One of his principals, Pat Ashley, co-chaired a committee of what Ashley calls "creative problem solvers" from the school district and the community, holding 6 a.m. discussions on ways to improve the schools

"We quickly began to focus on the new brain research," says Ashley, who now is director of instruction for the nearby Owensboro Board of Education.

The group called for a community forum.

"Two hundred people showed up," Silberman says. "And 165 signed up to be part of the committees."

From the beginning, the school curriculum changes were a community project.

Sousa spoke at several community meetings, answering questions about the research and its connection to education. Committees investigated ways to stimulate brain development using music, arts, language and critical thinking tools.

"We didn't talk about what we can afford to do. We talked about what we need to do to help the kids," Silberman says.

By the time the committees presented recommendations, most of the community leaders were already sold on the ideas.

Silberman became the program's top salesman.

"He believed in that more than I've ever seen anybody believe in anything," said Larry Hager, president of the Hager Foundation, a local family trust that donated $136,000 to buy the video-based Spanish program for all the elementary schools.

The health department and local hospitals agreed to donate nurses and health workers for the schools. The local health system put up 50-50 matching funds to buy fitness equipment _ a program the hospital and the health system's Foundation for Health offers to all school systems in the area.

The fitness program has changed typical gym classes.

"I was worried the physical education techers might not be interested. But they loved the idea," says Silberman. "Now a kid might not be the fastest kid in class, but he might get an ‘A' because he kept his heart in the target zone for the right amount of time on the fitness machines."

The fitness rooms in Daviess County schools look like high-priced health clubs.

"The first reaction people have is that we must be an affluent school system," Silberman says. "But 35 percent of our kids are on the free or reduced lunch program (for low-income families). We're not a wealthy district. Our funding (from the state) was 135th out of 176 school districts, in revenue per student.

"It's not a matter of dollars. It a matter of how you prioritize."

The school board made a major commitment to help launch the program. Part of that included using an end-of-year allocation of state funds that hadn't been budgeted. Instead of plugging that into rainy-day funds, it went into the 2010 programs.

The Daviess County music teachers were due to receive their every-seven-year funding for new music textbooks in 1996. Instead, they allocated their money toward keyboard equipment in the new music labs that cost about $15,000 per school for 12 elementaries and three middle schools. The textbook money covered about half the cost of the labs and teacher instruction and the school board matched that - a small portion of its $70 million budget.

Most of the costs were one-time expenses.

"We looked at practical things we could really do," said Ashley. "We couldn't afford to hire 12 Spanish teachers for all the elementary schools, but we could buy a Spanish video program that we could use for years."

As part of the arts enhancements, the school board spent $35,000 for artists-in-residence who would visit the schools for the 2010 program. Today, that program has grown to $105,000 as it covers more students.

The Spanish program also is growing. The school system recently won a $188,000 state grant recognizing creativity in education. That will be used to augment the Spanish lessons with new software.

And in a cost-saving move, the school system adjusted its class-size ratios, adding a few students to the class limits. The change allowed the school system to forgo hiring a few teachers who would have been required in some schools with growing enrollment.

The changes came in the midst of state education reform mandates that changed the way Kentucky teachers teach, encouraging a team approach and teaching themes across disciplines.

"We were laying a lot of things on our teachers all at once," says Silberman.

So how did Daviess County avoid a teacher revolt?

"We did not mandate any of it," Silberman said. "We decided to make it good enough that every school wants to be part of it. And that's what happened."

Schools that did not sign on in the early days were persuaded by results and by parents asking why other students got the special programs. Within a year, every school had active 2010 programs.

There is no hard proof that the program is changing brains or making kids smarter, Silberman says. But there are indications that something good is going on.

National achievement scores for Daviess County schools have jumped since the program started. In 1997, Daviess County's third-graders, who had not participated in the new program, scored in the 60th percentile, which means they scored better than 60 percent of third-graders in the country. In 2002, third-graders who by then had been in the program since kindergarten scored in the 76th percentile.

Silberman anticipates a continued rise as the 2010 class takes the sixth-grade national achievement test next year.

Those tests, however, measure different students. Later this year the same students who were tested for IQ in 1998 will be tested again. IQ usually doesn't change as students progress through school.

"We expect to see some dramatic differences," Silberman says.