

Playing their way to improved concentration

By Hiawatha Bray, Globe Staff | November 13, 2004

Two years ago, Brody Bowen was out of control. Impulsive, intense, inexhaustible, the 5-year-old boy would fling himself off the back porch, burn himself, slap his baby brother.

Brody is 7 now, and according to his mother, Joyce, of suburban Atlanta, he's a delight -- a well-behaved, popular second-grader. The attention deficit hyperactivity disorder that plagued his early years is under control, and without the aid of controversial drugs such as Ritalin. Joyce Bowen credits her son's recovery to a computer game.

She doesn't mean Doom 3 or the Sims or some other title purchased for \$50 at the local software emporium. Instead, Joyce and her husband invested \$1,800 in a special computer game system that Brody plays not by pressing buttons, but by thinking. The system, called Play Attention, captures the player's brain waves, using them to control events on the computer screen. In the process, it teaches children -- and adults -- how to control their own minds.

"Had we had this interview last year, when we first started, I'd tell you this was a piece of crap," said Bowen, a former telecommunications worker turned stay-at-home mom. "For the first five hours, nothing happened." But after 10 hours of Brody using Play Attention, she took him off his medication, and he hasn't used it since. Bowen said that Brody has been acting out recently, after a favorite teacher moved away, so she plans to give him a refresher course. Still, she said that since he began using Play Attention, Brody's grades have improved, and he's finally making friends. "Brody is having more fun being a kid now than he ever has in his life," Bowen said.

Not many parents would claim that playing video games improved their kids' behavior, but Play Attention isn't a standard video game. Peter Freer, who developed the product, used to teach school in West Virginia in the 1980s. Confronted with hyperactive students, Freer didn't know how to help them. "At that point, at university level, they didn't even teach anything about how to cope with these kids," he said.

Freer was trained in computer programming, and he wondered whether technology might help his hyperactive students. While researching the matter, he found that the National Aeronautics and Space Administration had developed computer systems for improving the concentration skills of astronauts and test pilots. NASA scientists attached electrodes to pilots' heads to capture their brain waves. They learned to identify the kind of brain activity that occurs when a person is concentrating on a task. Then they wrote software that lets pilots control images on a computer screen. The more they focused their minds, the better they performed. In the process, they learned how to set aside distractions and concentrate on the task at hand.

"I started working three jobs to get enough money to pay a programmer and an engineer to put this idea into some form that would be tangible," Freer said. In 1994, he founded Unique Logic and Technology Inc., the Asheville, N.C., company that sells Play Attention. Freer's company holds three US patents on the system. It comes with a software disk, a brain activity sensor -- a black box that plugs into a standard Windows-based personal computer -- and a cycling helmet that's been modified to contain the electrodes for detecting brain waves. A wire running from the helmet to the black box feeds brain data to the computer.

At first glance, the setup looks ridiculous, like something a con artist might sell a desperate, gullible parent. But the bizarre-looking rig performs as advertised. In one exercise, I saw a cartoon space alien cruising over a crudely-drawn landscape. The goal is to push the alien to the top of the screen by thinking about it. Sure enough, as I concentrated on the task, the spaceman rose higher; at the slightest distraction, he fell back.

In another exercise, I was to make a stack of yellow blocks. I managed this well enough, but then Freer told

me to forget about the blocks and read a book instead. After a few minutes of reading, the blocks continued to stack themselves, because reading generated the same kind of brain activity as thinking about the blocks. Hours of practice can teach a child what it feels like -- and looks like -- to pay attention. As Joyce Bowen put it, "after you do it a couple of times, you develop muscle memory in your brain."

The Play Attention games are primitive by the standards of today's flashy 3-D computer games. That's deliberate, according to Freer. Too much graphic sophistication would distract the user, breaking his concentration. "The graphics that we must use for this kind of training are only modestly stimulating," he said. "It's not like Grand Theft Auto."

There are no large-scale scientific studies that prove the value of Play Attention. Stephen Hinshaw, chairman of the psychology department at the University of California at Berkeley and an expert on hyperactivity disorders, said techniques that teach concentration may work in a doctor's office, but often stop working when the child reenters his home or classroom. "I'm not a cynic, but I'm a skeptic until things are proven pretty thoroughly," Hinshaw said.

Still, Freer has sold thousands of the devices to hundreds of schools in the United States. His company has set up 60 treatment centers worldwide, where parents who can't afford the machines can bring their children. Prices for the service vary from \$25 an hour in Phoenix to more than \$100 in Long Island. There isn't a Play Attention center in the Boston area, but Freer plans to open offices in Beijing and Singapore next year.

And the centers may not cater only to children. Freer foresees a time when grown-ups will regularly visit Play Attention centers for a mental tune-up. "This would be kind of like a coffee bar," he said, "but when you go in, you'd just be using these mind-control devices." Freer estimates that 8 to 10 percent of American children have attention deficit hyperactivity disorder, and almost the same percentage of adults. Which means millions of children and parents could benefit from learning to Play Attention. ■