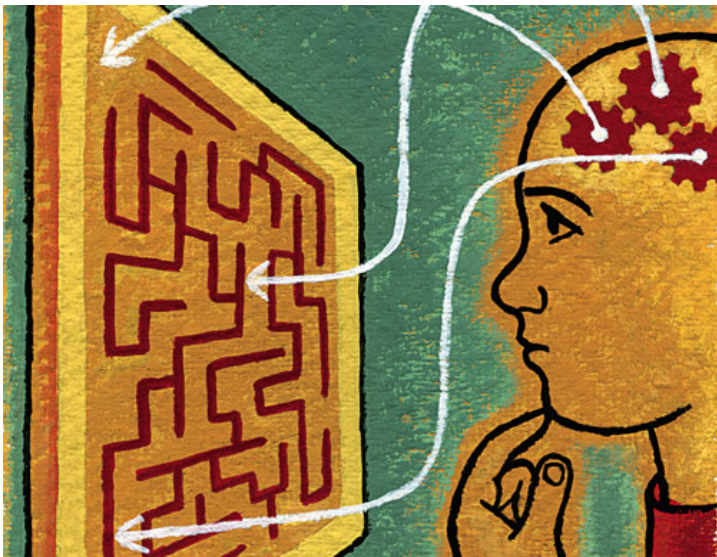


## Role-Playing



### Attention, Not Detention

HOW MUCH IMPROVEMENT CAN ADHD STUDENTS MAKE WITH BRAINWAVE-POWERED VIDEO GAMES?

BY JOHN GROSSMANN

THE DOORBELL RINGS and Stacey Morrison greets the arrival: Bobby, the seventh-grade son of family friends. She offers him an after-school snack, which he declines, and they both head to the small sunroom of the Morrisons' house in the central New Jersey town of Metuchen. As Bobby takes a seat in front of a computer, Morrison (at her request, the family name has been changed) reaches for a red bicycle helmet and a spray bottle containing a saline solution. Both bear the words "Play Attention."

Three contact pads in the helmet receive a quick, enabling spritz. Bobby dons the helmet, which is wired through a Play Attention control unit to the computer. He's now ready for another half-hour session of computer games and mental exercises that its creator calls a revolutionary breakthrough in treating a widespread disorder. It's not the games themselves that are so unusual, but the way that Bobby and other players control much of the activity. For instance, players make a frog hop on a lily pad, keep a bird aloft or build a tower using only their brainwaves, by focusing intently on the task at hand. That is to say, they're paying attention—a problem for Bobby and, according to various estimates, anywhere from 1.4 million to 3.5 million school-age children who struggle with ADHD (Attention Deficient Hyperactivity Disorder).

After a short procedure to establish a baseline attention level, Bobby selects Mind Maze for the first of his five-minute challenges. "Remember," says Morrison, who has taken a seat beside him to serve as his Play Attention coach, "you want to get less than two errors." Responding to brainwave patterns indicating that he's focused, the software empowering this short-term memory challenge—something like the 1980s game Simon—sets four colored blocks in a circle blinking in a sequence. Bobby repeats each sequence, in this case using the up, down and sideways arrows on the keyboard. In his 35 hours of Play Attention sessions to date, he has gone from three-block sequences to recalling the order of as many as seven blinking boxes. He has NASA, a boy named John and a former teacher named Peter Freer to thank for his progress.

Freer, founder of a company called Unique Logic + Technology, located in Asheville, North Carolina, invented Play Attention out of frustration. In the early 1990s, teaching fourth grade in a pod-style open classroom, he was assigned a notorious student named John. John's problems stemmed from ADHD and parents with an eighth-grade education who were even less able to cope with his behavior than the schools were. "I felt for John," says Freer. "He was not intentionally trying to act out or misbehave. He was just not wired the same as his peers."

Freer sat John at a desk right next to his own. Simplified instructions for him. Used behavioral shaping rewards. John made incremental progress at school, but not at home. "The parents are frustrated. Dad's hitting him. They medicate him. Some days he comes in so sleepy he just lays his head on the desk," Freer recalls. "Some days he's fairly normal. But it disturbed me—disturbed me that I was totally underequipped to help him."

Freer, whose graduate work included writing educational software programs, began what he now terms his "crusade" to devise a way to teach

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children with ADHD how to pay attention to classroom lessons, take tests and do homework. Also driving his quest: indications that as many as 60 percent of children with ADHD carry their condition into adulthood. Freer discovered that NASA, eager to keep pilots and astronauts focused on eye-glazing, low-stimulation control panels, had devised a brainwave biofeedback training system. So he hired an engineer and programmer, and the team made some enhancements to the apparatus to create Play Attention.

The noninvasive sensors in the helmet, he explains, "listen to what the brain is doing in real time. It's a physiological monitor, like grabbing a bar on a treadmill at the gym that displays your heart rate. When the neurons fire in the brain, they produce small electrical bursts. That's what's picked up."

"Play Attention made sense to me," says Morrison, who'd consulted with numerous doctors and tried various treatments and mental exercises for her own son Jack, who was the same age as Bobby and suffering from ADHD. (Bobby himself has not received a formal diagnosis of ADHD.) "It's like having a weak muscle in your body and they send you to physical therapy and you gradually strengthen that muscle. Except, when you tell a kid, 'Pay attention. Pay attention,' what does that mean? Attention is not something you can hold in your hand and see."

That, she stresses, is the beauty of Play Attention. It shows you instantly when your attention begins to waver. "You have to pay attention," Morrison says. "You can't just stare at what's on the screen. It knows the difference. You really have to be concentrating on that bird [to make it fly]. If you stop concentrating, the bird starts to drop."

Morrison started her son Jack on Play Attention at the very end of his fifth-grade year, continuing his twice-weekly sessions throughout the summer. (Full-featured, professionally supported home versions of the program start at \$100 a month. Open-site licenses for schools and organizations are also available.) In early September, Jack's sixth-grade math teacher, who'd taught him the year before, called Morrison. "He's like a different kid," said the teacher. "He's participating. He's taking notes. He's paying attention."

One strength of Play Attention, explains Morrison, is its ability to target unwanted behaviors. Sitting beside Jack, she noticed that his eyes wandered all over when he first started playing Play Attention. "There's chair-tipping or, like we're working with Bobby now, fiddling with things on the desk," she says. Now, with visible manifestations of behavioral drags on performance appearing on-screen, and with cues from the coach as well, Play Attention users can more easily understand the roots of inattention and begin to rewire their brains. "I know I'm just a mom, and I sound like an infomercial," says Morrison, "but I'd like to see Play Attention in the school system."

According to Freer (whose small business received a badly needed \$100,000 in 1998 from an "angel" investor who herself suffered from ADHD), Play Attention is being used by some 450 American school systems and in various learning centers in England, Saudi Arabia, China and other countries. It's also being used to address attention issues beyond ADHD.

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While looking on with interest, some professionals remain cautious about Play Attention's claims. "I think the jury is still out," says Dr. Andrew Adesman, chief of developmental and behavioral pediatrics at Schneider Children's Hospital in New Hyde Park, New York, who notes that the promise of Play Attention still awaits the critical eye of scientifically designed studies.

One such study is being conducted under Dr. Ellen Perrin and Dr. Naomi Steiner at The Floating Hospital for Children at Tufts–New England Medical Center in Boston. "We're intrigued that [Play Attention] could be a helpful treatment for children with ADHD, either by itself or in conjunction with medication," says Perrin, director of the hospital's Division of Developmental-Behavioral Pediatrics and The Center for Children with Special Needs. The pilot study, which followed about 50 Boston area middle-school students through the 2006-07 school year, randomly assigned each child to one of three groups: those attending Play Attention sessions in school, those using another computer-based program and those receiving no special in-school program. The data collected laid the groundwork for the second phase of the study, now in progress.

By the time you read this, Bobby will have been weaned off his twice-weekly sessions at the Morrison house. Stacey Morrison, who is not being paid to coach Bobby, describes him as a bright kid who was getting B's in his accelerated math class when he could have earned A's: "His mother told me whenever he'd take a test, he'd always get the first problem wrong even though it was invariably the easiest question. I said, 'Aha!' Because when he first sat down to do Play Attention, whatever game he chose to do, at first he would always have trouble. But once he got started, he was fine.

"When Bobby started with me and I asked him for his goals, he told me, 'I don't want to spend so much time doing homework and getting yelled at all the time.' He's now getting A's in that math class, stopped getting those first problems wrong, and his mother tells me, 'You know what, Bobby is doing his homework on his own. He's getting it done, and he's having more free time.'"

Bobby's mother has noticed something else, too—something that would please Peter Freer just as much, and an added benefit of Play Attention. "Bobby now looks people in the eye when he talks to them," Morrison says. "He never used to do that before."

## **Not Just for Kids**

Other groups and individuals with interests beyond ADHD (Attention Deficient Hyperactivity Disorder) are also getting good results from **Play Attention** (800-788-6786 or 828-225-5522; [www.playattention.com](http://www.playattention.com)).

Harriet Eskildsen, director of the High Tech Center for the Disabled at the College of Marin, in Kentfield, California, has found it has helped **adult stroke victims** regain lost quality of life. "My

students tell me it's helped them remain focused for a longer period of time," she says. "They can go to the movies again and follow a story line. They can return to reading books, and can again take part in conversations, which requires listening skills we take for granted."

Among those looking to Play Attention for an edge in **athletic performance** is Bill Tavares, coach of the U.S. Women's Olympic Bobsled Team. Not only is Tavares impressed by the early improvements made by some of his bobsled drivers, for whom focus on the proper line down the course is paramount, he's also enthusiastic about what his own Play Attention sessions have done for his golf game—helping him lower his handicap from 9 to a 4 or 5.—J.G.

*John Grossmann is a Sky contributing editor living in Mountain Lakes, New Jersey.*

ILLUSTRATION BY JAMES STEINBERG