

# The Brainy Benefits of Chess

How this classic game of strategy makes kids smarter.

By Beth Weinhouse

On Manhattan's Upper East Side, 18 kindergartners are staring at a large vinyl screen at the front of their classroom. But it's not a video they're watching -- it's a chess game. Amazingly for a group of energetic 5-year-olds, the kids sit still and listen raptly as a dapper gentleman with an eastern European accent points at the magnetic pieces on the hanging board, explaining excitedly that "chess is an art, a struggle, a science, a war!"

This is the Dalton School, a private academy in New York City, which has one of the country's first -- and best -- chess programs. Its director, Svetozar Jovanovic, started the program 18 years ago, and today all the school's students begin chess instruction in kindergarten. Those who remain interested after first grade join Dalton's after-school Chess Academy, whose team regularly wins local and national championships.

Barely three miles uptown, a classroom of equally attentive kindergartners is also transfixed by a vinyl chessboard. These are students at P.S. 194, a public school in Harlem. There, Nikki Church, an instructor from Chess-in-the-Schools, a New York City-based nonprofit organization, is greeted with applause at her weekly visit. "Let's put on our chess faces," Church says, helping kids find the calm they'll need to play. The students watch the board, and each time they see a piece captured, they shout, "Splat!" This school, too, has a winning chess team -- the Renaissance Warriors.

What the elite private academy and the inner-city public school both know is that "Chess makes you smart," a slogan of the U.S. Chess Federation (USCF). A growing body of research is showing that chess improves kids' thinking and problem-solving skills as well as their math and reading test scores. Accordingly, communities across the country are racing to create after-school chess programs and start local chess clubs, and some states -- New Jersey, for one -- have written chess into official school curricula.

The USCF has seen the number of scholastic members ages 14 and under soar in the last decade, from just over 3,000 in 1990 to more than 35,000 today. The game's image is changing too: It's going from geeky to groovy, thanks in part to pop-culture icons like rock star Sting and New York Knicks forward Larry Johnson, who boast of their chess prowess in interviews.

## Chess Makes the Grade

Schools that encourage chess are reacting to studies like that of New York City-based educational psychologist Stuart Margulies, Ph.D., who in 1996 found that elementary school students in Los Angeles and New York who played chess scored approximately 10 percentage

points higher on reading tests than their peers who didn't play. James M. Liptrap, a teacher and chess sponsor at Klein High School in Spring, TX, conducted a similar study in 1997. He found that fifth-graders who played chess scored 4.3 points higher on state reading assessments and 6.4 points higher on math tests than their non-chess-playing peers.

Further proof comes from the doctoral dissertation of Robert Ferguson, executive director of the American Chess School in Bradford, PA. He studied junior-high students, each of whom was enrolled in an activity -- either working with computers, playing chess, taking a creative writing workshop, or playing Dungeons and Dragons -- that was designed to develop critical and creative thinking skills. By the time the students had spent about 60 hours on their chosen activities, the chess players were well ahead of the others in several psychological tests, scoring almost 13 percentage points higher in critical thinking and 35 percentage points higher in creative thinking.

Experts attribute chess players' higher scores to the rigorous workout chess gives the brain. Studies by Dianne Horgan, Ph.D., dean of the graduate school of counseling, educational psychology, and research at the University of Memphis, has found that chess improves a child's visual memory, attention span, and spatial-reasoning ability. And because it requires players to make a series of decisions, each move helps kids learn to plan ahead, evaluate alternatives, and use logic to make sound choices.

Science aside, anecdotal evidence is enough to convince some teachers and parents of chess's benefits -- behavioral as well as cognitive. In 1990, for instance, the principal at Russell Elementary School in Brownsville, TX, had become concerned about some boys who were being dropped off at school early and getting into mischief. But when she visited J. J. Guajardo's fifth-grade classroom one day, she was surprised to see some of those boys quietly engrossed in chess games. So she asked Guajardo to start a before-school chess program. Soon kids from kindergarten through sixth grade had signed up to play, and by 1993 the Russell team was winning state championships.

"We were a public school with a lot of students from low-income families, but we were beating magnet schools with gifted students," says Guajardo, who's now a high school teacher. "And I noticed that every one of our kids who played chess was also passing the state assessment tests in reading, writing, and math."

### When to Begin

Not all experts agree on the optimal age for children to start learning to play chess. Some simply say the earlier the better. "I believe the younger the child, the greater the impact," says the American Chess School's Dr. Ferguson, who has taught the game to kindergartners. "These kids have brains like sponges."

While some children will be ready to learn the game by age 4, the consensus among chess teachers seems to be that second grade -- meaning age 7 or 8 -- is the ideal time to start. "I've had mixed results when teaching kindergartners and first-graders, but by second grade, they're all ready," says Tom Brownscombe, scholastic director of the U.S. Chess Federation.

As for gender, most agree that many more boys than girls become interested in the game and continue playing. "I don't think there's any reason for it other than society seems to think chess is a boys' thing," Brownscombe says. "Obviously, females are perfectly capable of competing with males in chess."

Though Jovanovic admits there aren't many girls in Dalton School's chess academy, he says that girls who do play are extremely good. "I have one sixth-grade girl, Katharine Pelletier, who's the highest-rated middle school player in the United States," he says proudly. "She's not intimidated by anybody."

As chess's popularity rises among children, experts who've been involved with chess for years say that more girls are playing -- and winning. "My older daughter, who's now 21, started playing when she was in elementary school, but she quit after a year and a half because there just weren't any other girls doing it," says Susan Breeding, director of instruction for the Dallas Area Chess-in-the-Schools program. "For my younger daughter, who's 10, it's a whole other ball game now."

### Beware the Pushy Parent

For some, the thought of children playing chess conjures up images of the 1993 film *Searching for Bobby Fischer*, which chronicles the exhausting training and competition schedule of 7-year-old chess prodigy Joshua Waitzkin, a former Dalton student. Experts warn that for the average kid, such intense pressure can cause more harm than good. For one thing, tournament play can be extremely taxing to the body: A Temple University study found that chess players can expend as much energy during a tournament as a boxer.

What's more, chess's effect on the brain will be undermined if kids feel forced to play, says Dr. Nelson. "It has to be fun. A parent who wants to make a child into the next Bobby Fischer is as bad as one who pressures a child to be a star football player or neurosurgeon. Children have to want to play to derive the benefits."

The key to making chess fun, say the instructors, is how you teach the game. Dalton's Jovanovic spices his lessons with all kinds of cultural and literary references as well as dramatic battles between chess pieces. At P.S. 194, Church's students take breaks from learning game strategy to design their own chess pieces with crayons and paper. They get up from their seats to perform

dances that help them remember moves: In the Rook Dance, for example, kids move up, down, and side to side.

Students of Keith Halonen, a chess teacher in Santa Rosa, CA, learn about the history of the game. He'll ask the kids if they've seen the Disney movie Aladdin, for instance. "Then I tell them the real Aladdin was an adviser in the 15th-century Persian court. He was such a good chess player that he could conduct four games of chess simultaneously while blindfolded and at the same time carry on conversations with his friends!"

And Yakov Hirsch, a Chess-in-the-Schools instructor who teaches in New York City's Chinatown, enlivens his instruction with banter designed to make the kids giggle. "The king is naked!" he exclaims, showing an unprotected monarch. "The pawns were the king's clothing, and the white queen took them away," he explains as the class dissolves in general second-grade hilarity. The lesson is about when to let a piece to be captured -- a "sacrifice" -- instead of losing it because of bad moves.

### Calling All Kids

Teachers say that anyone can play chess and almost anyone can play well. For kids who aren't interested in entering tournaments, just playing for fun still confers all of the game's cognitive benefits. "It's a misconception that chess is only for nerdy, gifted kids," Guajardo says. "I've found that chess helps all students, whether they're bilingual, special-ed, dyslexic, or economically disadvantaged."

For parents who still aren't convinced, consider that a child who's playing chess is sitting quietly and concentrating, not needing to be entertained by anything loud, violent, or silly. I discovered this benefit firsthand on a flight home from Paris with my son last summer. Though my bag was filled with books and toys, I dreaded trying to keep a squirmy 5-year-old occupied for seven hours.

Shortly after takeoff, a fellow passenger -- an older man -- walked down the aisle with a portable chess set. "Chess, anyone?" he inquired. No one took him up on his offer, so I nudged Daniel. "Would you like to play?" I asked. Daniel bounded over to the man's seat.

The gentleman turned out to be a retired high school teacher who had coached his school's chess team. He and Daniel played for hours, with my son returning to his seat only when the "fasten seat belts" sign lit up. As for me, I actually got to relax and read the book I'd optimistically carried aboard -- a first for me when traveling with my son. I really love this game!

Check out the U.S. Chess Federation's Web site, below, where players -- including kids -- can register to play online with others at their level.

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