

BENEFITS of CHESS for ACADEMIC PERFORMANCE and CREATIVE THINKING

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Chess is widely believed to increase “mental muscle”. The academic benefits of the game appear to be extensive. There are a number of studies, which support the contention that exposure to chess enhances memory, boosts spatial and numerical skills, increases problem-solving capabilities, and strengthens logical thinking. [2] Many schools all over the world encourage chess play to enhance academic performance. [10] Studying chess systematically has also shown to raise students’ IQ and exam scores (Dullea 1982; Palm 1990; Ferguson 2000), as well as strengthen mathematical, language, and reading skills (Margulies 1991; Liptrap 1998; Ferguson 2000). Chess is a fun way to teach children how to think and solve an ever-changing and diverse array of difficult problems. [3] More and more schools around the world are recognizing the value of **chess**, with instruction **now becoming part of standard curriculums**. [3]

Chess around the globe

A 1973 –74 study in Zaire by Dr. Albert Frank found that good teenage chess players had strong spatial, numerical, administrative directional, and paperwork abilities. [4] Dr. Robert Ferguson notes that “this findings tends to show that ability in chess is not due to the presence in an individual of only one or two abilities but that a large number of aptitudes all work together in chess.” Dr. Frank’s study found that *learning chess strengthened both numerical and verbal aptitudes*. This occurred for the majority of students (not just the strong players) who took a chess course for two hours each week for one school year. Other studies have added that playing chess can strengthen a child’s memory (Artise). [3]

A 1990 – 92 study in New Brunswick, Canada, further shows the value of chess for developing problem solving skills among young children (Gaudreau 1992). Using chess in grades 2 to 7 as part of the mathematics curriculum demonstrated that the average problem solving score of pupils in the province increased from 62% to 81%. [9]

Benefits of Chess

Chess has shown to raise students' overall IQ scores. Using the Wechsler Intelligence Scale for Children a Venezuelan study of over 4000 second grade students found a significant increase in most students' IQ scores after only 4.5 months of systematically studying chess. This occurred across all socio-economic groups and for both males and females. *The Venezuelan government was so impressed that all Venezuelan schools introduced chess lessons starting in 1988/89.* [3]

Chess in the USA

Chess has long been recognized throughout the world as a builder of strong intellects, but only recently has the United States begun to recognize chess's ability to improve the cognitive abilities, rational thinking, and reasoning of even the least promising children. [2]

Robert Ferguson of the Bradford, **PA** School District tested students from seventh to ninth grades, (1979 – 1983), as part of the ESEA Title IV – C Explore program, and found that after spending 60 –64 hours playing and studying chess over 32 weeks [period] students demonstrated significant progress in critical thinking. His study showed that A Watson-Glaser Thinking Appraisal test scores improved 17.3% for students regularly engaged in chess classes, compared with only 4.6% for children participating in other forms of "enrichment activities" including Future Problem Solving, Dungeons and Dragons, Problem Solving with Computers, independent study, and creative writing. He concluded that chess improves critical thinking skills more than the other methods of enrichment. [13]

During a program run by Dr. Ferguson from September 1987 to May 1988 all *members of a standard six-grade class in rural Pennsylvania were required to take chess lessons*. Significantly, at the conclusion of the study tests showed a significant increase in both memory and verbal reasoning skills. [3]

In 1993, the study conducted by Professor Stuart Margulies investigated an effect of chess playing on reading scores. Two classrooms were selected in each of five **NY** and **LA** schools. Students in grades three to six were given instruction in chess and reasoning in one classroom of each school. Reading scores of chess players and control classroom students were approximately equal at the beginning of the school

year. Students in the chess program obtained significantly higher reading scores at the end of the year. [10]

In Marina, **CA**, an experiment with chess indicated that after only 20 days of instruction, students' academic performance improved dramatically. George L. Stephenson, chairman of the Marina JHS math department, reported that 55% of the students showed significant improvement in academic performance after this brief smattering of chess instruction. [13]

Regular (non-honor) Elementary students who participated in a school chess programs showed twice the improvement of non-chess players in Reading and Mathematics between third and fifth grades on the **Texas** Assessment of Academic Skills. Reports concerning Special Education chess players stress increased self-esteem and confidence, primary objectives for these students. [9]

Reports from schools

Recognizing that chess brings out latent abilities that have not been reached by traditional education means, *several school districts across the country are beginning to incorporate chess into the standard curriculum.* [2] Reports from students, teachers, and parents not only extol the academic benefits of chess on math problem-solving skills and reading comprehension, but also report increased self-confidence, patience, memory, logic, critical thinking, observation, analysis, creativity, concentration, persistence, self-control, sportsmanship, responsibility, respect for others, self esteem, coping with frustration, and many other positive influences which are difficult to measure but can make a great difference in student attitude, motivation, and achievement. [9]

Amori says analyzing game situations teaches children better decision-making skills and helps to make them more aware of the consequences of their actions. It also strengthens their ability to think about long term gains instead of just immediate gratification. [2]

In **New York**, a handful of suburban schools are now making chess compulsory in some elementary school grades. And less affluent school districts are also discovering that *chess makes an excellent low-budget contribution to learning*, in that it requires little equipment and no facilities beyond tables and chairs. [2] For example, Mott Hall school

Benefits of Chess

implemented chess as a required course just like math and English for kids in grades 4 through 6. [4]

Educators at the **Roberto Clemente School** (C.I.S. 166) in New York report that chess has improved not only academic scores, but social performance as well. “The effects have been remarkable,” says Joyce Brown, an assistant principal and the supervisor of the special education department. “Not only have the reading and math skills of children soared, their ability to socialize has increased substantially, too. Our studies have shown that incidents of suspension and the outside altercations have decreased by at least 60% since these children became interested in chess.” [13]

Connie Wingate, Principal, **P.S. 123** in New York, says of a New York City school chess program. “This is wonderful! This is marvelous! This is stupendous! It’s the finest thing that ever happened to this school. I am most sincere. It has been an absolute plus for the students who were directly involved as well as for the rest of the school... [Children] are trying, through chess, to apply themselves and do something to better themselves. And that filters into the entire school and community... More than anything else, chess makes a difference... what it has done for these children is simply beyond anything that I can describe. The highest scoring student in our school is a member of the chess team. Academically, they are doing much better in class, and it’s in no small part because of chess. Just how they feel about themselves, their self-esteem, makes them all winners.” [13]

Jo Bruno, Principal, **P.S. 189**, Brooklyn, NY: “In chess tournaments the child gets the opportunity of seeing more variety and diversity. They are all equal on the chessboard. I believe it is connected academically and to the intellectual development of children. I see them able to attend to something for more than an hour and a half. I am stunned. Some of them could not attend to things for more than 20 minutes.” [13]

Jerome Fishman, Guidance Counselor, **C.J.H.S. 231**, Queens, NY: “I like the aspect of socialization. You get into a friendly, competitive meeting of two minds. Aside from being good for the cognitive development of these youngsters, chess develops their social skills, too. It makes them feel they belong. Whenever we get a child transferred from another school who may have maladaptive behavior, our principal (Dr. Wilton Anderson) suggests chess as a way of helping him find his niche. It also helps kids

Benefits of Chess

learn how to be better friends. They analyze the game and talk it over afterwards. I even had a couple of kids who never had much in common start going to each other's houses to play chess and swap Chess Life magazines. *We've got kids literally lining up in front of the school at 6:45 am to get a little chess in before classes start.* [13]

Roosevelt School in Santa Ana, **California**, has caught "the chess bug" in 1998. The school principal, Mr. Nadine Rodrigues, said that chess does enforce a lot of what we ask of our students in schools. [19]

In 1999 El Toro School in Morgan Hill, **CA** started a chess program for third-grade students. "Was chess appropriate for my third graders? Did I want them to develop thinking and reasoning skills by playing a game they continue to learn from and grow with their entire lives? Did they deserve a world-class education? The answer to all three questions: 'Yes'," Steve Peterson, the third-grade teacher. [14]

In 1990 William Frantz Elementary School and Charles Colton Junior High School in New Orleans, **Louisiana** introduced chess programs. Mr. Perez, the chess administrator, said that he sees a difference in how his chess-playing students deal with their environments. Pupils don't seem as frustrated with unfamiliar concepts. The game teaches self-restraint, which he said makes children more self-disciplined in the classroom. [8]

"Any educator who had already used chess did not have any reservations about its value and success... [S]chool counselors showed interest in knowing more about the Chess for Success Program that I'm implementing in **Maryland** with the Montgomery County Public Schools," wrote Mr. Moreno, a school counselor. [11]

"Chess is perhaps the world's best-kept secret in terms of how to improve a kid academically and provide a lifelong pursuit," says Aremin Hacobian, executive director of the international Academy of Chess in **Boston, MA** And childhood is the time to begin, he insists. "The capacity of kids to learn this game far exceeds that of any adult," he says. "It's like learning a foreign language. A five- or six- year-old kid is open to anything, far more willing to absorb the endless possibilities that the world affords." [2]

The Princeton Charter School in **New Jersey** started a chess program in 1999. The goal is for children to learn to think logically and sequentially, skills that can help in other subjects. [12]

Susan Hall, a third-grade teacher at Fort Worth Academy in **Texas**, wrote that in the process of learning chess her pupils learned about mathematics, logic, and spatial relationships. The lessons they learned about planning ahead, taking turns, and good sportsmanship carry over into other areas of their lives. And in making new friends, they develop interpersonal skills while their self-esteem and confidence soar. [7]

Chess popularity and recognition

Schools across the U.S. are incorporating the game into their curriculums. Chess-in-the –Schools, the largest program, teaches the game that had its 16th anniversary celebration last month and that now encompasses 19 cities, more than 300 schools and 20,000 students in New York. In New York 118 schools participate up from 45 just three years ago. [17] U.S. Chess Federation enjoyed an eleven fold increase in junior membership since 1989. [4] Out of 2,200 chess clubs around the country affiliated with the federation, more than half are school clubs. [17]

“While there were only four or five chess camps in the entire country 10 years ago, there are now four or five in each state,” Says Beatriz Marinello, scholastic director of the US Chess Federation in **New Windsor**. [2]

In June 1999 the International Olympic Committee officially recognized chess as a sport. With such recognition hopefully even more of our children will turn to chess, striving for sporting dreams that will leave them smarter, and ultimately able to cope better in the real world of perpetual problems. [3]

Universities of **Texas** and **Maryland** offer full scholarships for students-chess players.

Financing

Funding for chess activity is available under the “Educate America Act” (goals 2000), Public Law 103 – 227, Section 308.b.2.E: “*Supporting innovative and proven methods of enhancing a teacher’s ability to identify student learning needs and motivating students to develop higher order thinking skills, discipline, and creative resolution methods.*” The original wording of this section included “*such as chess*” and passed both houses of Congress that way. But the phrase was deleted later in Conference Committee. [9]

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