Benefits of Chess for Children

By Dean J. Ippolito

Chess has long been considered a way for children to increase their mental prowess, concentration, memory, and analytical skills. To anyone who has known the game, it comes as no surprise that these assumptions were actually proven in several studies on how chess can improve the grades of students.

Although chess has been shown to increase the mental abilities of persons of all ages, the main studies have been done with children. This is first for the obvious reason that students are constantly tested anyway, and therefore the data need only be analyzed, and secondly because children's mental development is more rapid and can be more easily measured than persons at a later life stage.

Early Conclusions

After several informal studies were done in the early 20th century on the effect that chess has on logical thinking and other such functions, a primary conclusion was drawn that chess does in fact not only demand such characteristics, but develops and promotes them as well. John Artise in Chess and Education wrote "Visual stimuli tend to improve memory more than any other stimuli; chess is definitely an excellent memory exerciser the effects of which are transferable to other subjects where memory is necessary."

Improved memory is just the tip of the iceberg. Reports from students, teachers, and parents noticed the academic benefits of chess on math problem solving skills and reading comprehension, an increase in self-confidence, patience, logic, critical thinking, observation, pattern recognition, analysis, creativity, concentration, persistence, self-control, sportsmanship, responsibility, respect for others, self esteem, coping with frustration, and many other influences which are difficult to measure but can make a difference in student attitude, motivation, and achievement.

With this in mind, legislation in the U.S. in 1992 promoting and encouraging the incorporation of chess into the curriculum of schools was passed. The U.S. joined the more than 30 countries that already had chess included in some form in their school curricula. Today it is estimated that that number has more than doubled.

In part due to the educational community, which has noted the increased academic performance of students participating in chess, there has been an explosion in the number of children playing chess in the U.S. This popularity can be seen in the record number of players competing in National Scholastic Events. Scholastic chess players are increasing in numbers more rapidly than adult chess players; scholastic chess membership within the United States Chess Federation now represents more than 50% of the total members. An estimated 250,000 children in the U.S. are introduced every year through the school system to the basics of the game. As the number of children playing chess grows, it has become necessary for actual tests to be performed to determine the benefits of chess. Luckily, these studies have already been done to confirm the hypothesis that chess is linked to increased grades in school; far too

many to be listed here. I will touch on some of the more outstanding, thorough studies, all of which have similar findings.

Case Studies

As reported in Developing Critical Thinking Through Chess, Dr. Robert Ferguson tested students from seventh to ninth grades from the years 1979-1983 as part of the ESEA Title IV-C Explore Program. He found that non-chess students increased their critical thinking skills an average of 4.6% annually, while students who were members of a chess club improved their analytical skills an average of 17.3% annually. Three separate tests to determine how chess affects creative thinking were also done as part of the same study. It concluded that on average, different aspects of creative thinking had improved at a rate two to three times faster for chess playing students, as opposed to their non-chess playing counterparts.

Subsequent studies by Dr. Ferguson further supported these original conclusions. In the Tri-State Area School Pilot Study conducted in 1986 and Development of Reasoning and Memory Through Chess (1987-88) chess playing students showed more rapid increased gains in memory, organizational skills, and logic.

In Zaire the study Chess and Aptitudes, was conducted by Dr. Albert Frank at the Uni Protestant School, during the 1973-74 school year. Using sufficiently large experimental and control groups, Dr. Frank wanted to confirm if the ability to learn chess is a function of special aptitude, perceptive speed, reasoning, creativity, or general intelligence. He hypothesized that in order to learn chess well one must have a high level of one or several of these abilities. He also wanted to see to what extent learning chess could influence the development of these abilities. His results were astonishing, yet predictable. There was a significant correlation between the ability to play chess well, and spatial, numerical, administrative-directional, and paperwork abilities. It showed that the ability in chess is not due to the presence of only one or two abilities but that a large number of talents all work together in chess. The conclusion was that students participating in the chess course show a marked development of their verbal and numerical aptitudes. Furthermore, this was noticed in the majority of chess students and not only those who were better players.

A study conducted in four large elementary schools in Texas in 1997 further demonstrated the positivism of chess. Through the Texas Assessment of Academic Skills (TAAS), the study was done to test the difference that chess club had on standardized tests. These schools were selected since all had a chess program in existence for a minimum of two years. The chess clubs met for one hour after school one day per week. Since a few thousand total students took the test and all types of students were tested from special education students to gifted and talented students, the sample was large and diverse enough to make a concrete conclusion. There were significant improvements in both reading and math for all grade levels and all classes of students (regular, gifted and talented, special education, academically able, etc.). Through the Texas Learning Index, or TLI, it was determined that on average the students who played chess improved in reading and mathematics at a rate between 1.5 and two times faster than non-chess playing students.

In terms of verbal improvement specifically, a study by Dr. Stuart Margulies from 1991 addressed this. The study conclusively proved that students who learned chess enjoyed a

significant increase in their reading skills. "Margulies Study is one of the strongest arguments to finally prove what hundreds of teachers knew all along-chess is a learning tool. (Inside Chess, February 1994).

"Can chess promote earlier intellectual maturation" was the question posed in the Chess and Cognitive Development study directed by Johan Christiaen from the 1974-76 school years in Belgium. The results again clearly confirmed that the group of chess playing students showed significantly more improvement then the non chess playing students. In 1982, Dr. Gerard Dullea mentioned this study and proclaimed "…we have scientific support for what we have known all along-chess makes kids smarter! (Chess Life, November 1982) In a similar study done in a test series in New Brunswick, Canada called Challenging Mathematics, the mathematics curriculum used chess to teach logic from grades 2 to 7. The average problem solving score in the province increased from 62% to 81%. In Playing Chess: A Study of Problem-Solving Skills in Students with Average and Above Average Intelligence by Philip Rifner from the 1991-92 school term, the hypothesis that learning general problem solving skills in chess could then be applied to other domains was affirmed.

Conclusions

We can now say with full confidence that chess has been PROVEN to enhance creativity, problem solving, memory, concentration, intellectual maturity, self esteem, and many other abilities that a parent or teacher would desire. This proves what all of us involved in chess have been saying for years…chess makes you smart!

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www.letsplaychess.com

www.chessclub.com

www.chessforchildren.com