

BENEFITS OF PLAYING CHESS AND ITS APPLICATIONS IN EDUCATION

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ABSTRACT

This article provides a review, and measures in chess and education. Chess has long been considered a way for children to increase their mental prowess, concentration, memory, and analytical skills. The author presents the benefits of playing chess for children and its applications in education. Finally it concludes that chess players become good decision makers by practicing the chess. The chess-playing students had become accustomed to looking for more and different alternatives, which resulted in higher scores in fluency and originality.

KEYWORDS: Chess and Education, Rational Thinking

INTRODUCTION

Chess is an especially effective teaching tool. It can equally challenge the minds of girls and boys, gifted and average, athletic and non-athletic, rich and poor. It can teach children the importance of planning and the consequences of decisions. Chess has a unique and strong brand attribute, in that it is generally perceived that playing chess and being smart are connected. This can be very positive driver for young children, who, rather than being intimidated as many adults are, embrace the notion. As children get older, a stigma, or nerd factor attaches to "being smart." But in the second and third grade, kids want to be thought of as smart. It is also an important age for developing an attachment to school.

If kids associate school and learning with fun, they will most likely develop a stronger attachment to school. 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. 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. Chess brings out latent abilities that have not been reached by traditional educational means. It promotes logical thinking, instills a sense of selfconfidence, and self-worth, improves communication and pattern recognition skills. It teaches the values of hard work, concentration, objectivity, and, commitment.

HISTORY

According to Murray, Chess originated at the end of sixth century in India. Chess is a classic game of strategy, invented more than 1500 years ago in India. Legend has it that the ruler of India asked his wise men to devise a way to teach the children of the royal family to become better thinkers and better generals on the battlefield.

Chess was the result. In the centuries since its invention, chess has spread to every country in the world. While countless other games have died out, chess lives on. In the United States, it has received endorsements by many

educators, ranging from Benjamin Franklin to former U.S. Secretary of Education, Terrell Bell. In Western Pennsylvania, more than 70 schools and a dozen libraries offer chess programs, reaching several thousand students each year. Chess has been challenging kids and adults all over the world for several centuries. Despite the game's image as a pastime for "brains," it is easy to learn.

REVIEW OF RELATED LITERATURE

In a 1973-74 Zaire Study: Conducted by Dr. Albert Frank, employing 92 students, age 16-18, the chess-playing experimental group showed a significant advancement in spatial, numerical and administrative-directional abilities, along with verbal aptitudes, compared to the control group. The improvements held true regardless of the final chess skill level attained.

In a 1974-1976 Belgium Study: A chess-playing experimental group of fifth graders experienced a statistically significant gain in cognitive development over a control group, using Piaget's tests for cognitive development. Perhaps more noteworthy, they also did significantly better in their regular school testing, as well as in standardized testing administered by an outside agency which did not know the identity of the two groups.

In a 1977-1979 Study: At the Chinese University in Hong Kong by Dr. Yee Wang Fung, chess players showed a 15% improvement in math and science test scores.

A four-year study: (1979-1983) in Pennsylvania found that the chess -playing experimental group consistently outperformed the control groups engaged in other thinking development programs, using measurements from the Watson-Glaser Critical Thinking Appraisal and the Torrance Tests of Creative Thinking.

The 1979-1983 Venezuela "Learning to Think Project": which trained 100,000 teachers to teach thinking skills and involved a sample of 4,266 second grade students, reached a general conclusion that chess, methodologically taught, is an incentive system sufficient to accelerate the increase of IQ in elementary age children of both sexes at all socio-economic levels.

During his Governor's Teacher Grant: From the New Jersey State Department of Education, William Levy found that chess consistently (1980-1987) promoted selfesteem after a year of exposure. Many students' self-images improved dramatically.

According to a Two-Year Study: Conducted in Kishinev under the supervision of N.F. Talisina, for young students taking part in the chess experiment increased in all subjects. Teachers noted improvement in memory, better organizational skills, and for many increased fantasy and imagination (Education Ministry of the Moldavian Republic, 1985).

In his 1986 Pilot Study: Dr. Ferguson found that it is possible to enhance achievement by focusing on individuals' modality strengths, creating an individualized thinking plan, analyzing and reflecting upon one's own problem solving processes, sharing his/her thinking system with peers, and modifying the system to integrate other modalities.

During the 1987-88 "Development of Reasoning and Memory through Chess,": All students in a rural Pennsylvania sixth grade self-contained classroom were required to participate in chess lessons and play games. None of the pupils had previously played chess. The pupils significantly improved in both memory and verbal reasoning. These results suggest that transfer of the skills fostered through the chess curriculum did occur.

A 1989-92 New Brunswick, Canada Study: Using 437 fifth graders split into three groups, experimenting with the addition of chess to the math curriculum, found increased gains in math problem-solving and comprehension proportionate to the amount of chess in the curriculum.

A 1990-92 Study: Using a sub-set of the New York City Schools Chess Program produced statistically significant results concluding that chess participation enhances reading performance.

Playing Chess: A Study of Problem-Solving Skills in Students with Average and Above Average Intelligence," a study by Philip Rifner, was conducted during the 1991-1992 school term. The study sought to determine whether middle school students who learned general problem solving skills in one domain could apply them in a different domain. Data indicated that inter-domain transfer can be achieved if teaching for transfer is an instructional goal.

During the 1995-1996 School Year: two classrooms were selected in each of five schools. Students (N = 112) were given instruction in chess and reasoning in one classroom in each school. Pupils in the chess program obtained significantly higher reading scores at the end of the year. It should be noted that while students in the chess group took chess lessons, the control group (N = 127) had additional classroom instruction in basic education. The control group teacher was free to use the "chess period" any way he/she wanted, but the period was usually used for reading, math or social studies instruction. The control groups thus had more reading instruction than the chess groups. Even so, the chess groups did better on the reading post-test; therefore, the gains in the chess groups were particularly impressive.

In a 1994-97 Texas Study: Regular (non-honors) elementary students who participated in a school chess club showed twice the improvement of non-chess players in Reading and Mathematics between third and fifth grades on the Texas Assessment of Academic Skills. Researchers and educators have questioned what causes this growth. The Venezuelan study claimed: "Chess develops a new form of thinking, and this exercise is what contributes to increase the intelligence quotient." More recent researchers speculate that it is the growth of new synaptic connections. Chess promotes the growth of dendrites.

Benefits of Playing Chess

Dr. Calvin F. Deyermond, Assistant Superintendent for Curriculum and Instruction for the North Tonawanda City School District, wrote: "Chess develops intellectual, esthetic, sporting, decision making, concentration, and perseverance skills. Not only is it mentally challenging but it attracts not only gifted pupils but also students at all levels of learning. Many students who have been experiencing problems, particularly in mathematics and reading, sometimes demonstrate remarkable progress after learning chess. Chess makes kids smarter."

Focusing - Children are taught the benefits of observing carefully and concentrating. If they don't watch what is happening, they can't respond to it, no matter how smart they are.

Visualizing - Children are prompted to imagine a sequence of actions before it happens. We actually strengthen the ability to visualize by training them to shift the pieces in their mind, first one, then several moves ahead.

Thinking Ahead - Children are taught to think first, then act. We teach them to ask themselves "If I do this, what might happen then, and how can I respond?" Over time, chess helps develop patience and thoughtfulness.

Weighing Options - Children are taught that they don't have to do the first thing that pops into their mind. They learn to identify alternatives and consider the pros and cons of various actions. **Analyzing Concretely** - Children learn to evaluate the results of specific actions and sequences.

Thinking Abstractly - Children are taught to step back periodically from details and consider the bigger picture. They also learn to take patterns used in one context and apply them to different, but related situations.

Planning - Children are taught to develop longer range goals and take steps toward bringing them about. They are also taught of the need to reevaluate their plans as new developments change the situation. **Juggling Multiple Considerations Simultaneously**.

Children are encouraged not to become overly absorbed in any one consideration, but to try to weigh various factors all at once. 1) Chess accommodates all modality strengths. 2) Chess provides a far greater quantity of problems for practice. 3) Chess offers immediate punishments and rewards for problem solving. 4) Chess creates a pattern or thinking system that, when used faithfully, breeds success. The beauty of chess as a teaching tool is that it stimulates children's minds and helps them to build these skills while enjoying themselves. As a result, children become more critical thinkers, better problem solvers, and more independent decision makers.

Chess is a Game for People of all Ages: Age is also not a factor when We 're looking for an opponent --young can play old and old can play young.

Chess Develops Memory: The chess theory is complicated and many players memorize different opening variations. Players will also learn to recognize various patterns and remember lengthy variations.

Chess Improves Concentration: During the game players are focused on only one main goal -- to checkmate and become the victor.

Chess Develops Logical Thinking: Chess requires some understanding of logical strategy. Mistakes are inevitable and chess, like life, is a never-ending learning process.

Chess Promotes Imagination and Creativity: It encourages players to be inventive. There are an indefinite amount of beautiful combinations yet to be constructed.

Chess Teaches Independence: Players are forced to make important decisions influenced only by their own judgment.

Chess Develops the Capability: To predict and foresee consequences of actions. It teaches them to look both ways before crossing the street.

Chess Inspires Self-Motivation: It encourages the search of the best move, the best plan, and the most beautiful continuation out of the endless possibilities. It encourages the everlasting aim towards progress, always steering to ignite the flame of victory.

Chess and Science: Chess develops the scientific way of thinking. While playing, players generate numerous variations in their mind. They explore new ideas, try to predict their outcomes and interpret surprising revelations.

Chess and Technology What do chess players do during the game? Just like computers they engage in a search for the better move in a limited amount of time. They are using a computer as a tool for learning.

Chess and Mathematics: players don't have to be a genius to figure this one out. Chess involves an infinite number of calculations, anything from counting the number of attackers and defenders in the event of a simple exchange to calculating lengthy continuations. And players use their head to calculate, not some little machine.

Chess and Research: There are millions of chess resources out there for every aspect of the game. players can even collect their own chess library. In life, is it important to know how to find, organize and use boundless amounts of information? Chess gives players a perfect example and opportunity to do just that.

Chess and Art: In the Great Soviet Encyclopedia chess is defined as "an art appearing in the form of a game." Chess enables the artist hiding within you to come out. Your imagination will run wild with endless possibilities on the 64 squares. Players will paint pictures in their mind of ideal positions and perfect outposts for players' soldiers. As a chess artist players will have an original style and personality.

Chess and Psychology: Chess is a test of patience, nerves, will power and concentration. It enhances their ability to interact with other people. It tests your sportsmanship in a competitive environment.

Chess Improves Schoolwork and Grades: Numerous studies have proven that kids obtain a higher reading level, math level and a greater learning ability overall as a result of playing chess. For all those reasons mentioned above and more, chess playing kids do better at school and therefore have a better chance to succeed in life.

Chess Opens up the World for you: You don't need to be a high ranked player to enter big important competitions. Even tournaments such as the US Open and the World Open welcome players of all strengths. Chess provides you with plenty of opportunities to travel not only all around the country but also around the world. Chess is a universal language and you can communicate with anyone over the checkered plain.

CONCLUSIONS

Chess is a new way of solving the old problem of poor education. Many schools have after-school chess clubs that create a mix of fun, competition and learning. Predominantly the members are boys. An unintended consequence of these programs is that they often leave some kids behind who are not drawn to the competitive aspect of the game. In the schools, chess often serves as a bridge, bringing together children of different ages, races and genders in an activity they can all enjoy. Chess helps build individual friendships and also school spirit when children compete together as teams against other schools. Chess also teaches children about sportsmanship - how to win graciously and not give up when encountering defeat. For children with adjustment issues, there are many examples where chess has led to increased motivation, improved behavior, better self-image, and even improved attendance. Chess provides a positive social outlet, a wholesome recreational activity that can be easily learned and enjoyed at any age. By integrating chess into the classroom, we are able to reach all children and provide them with the benefits of learning through the game of chess. These benefits include the fact that students, who wouldn't have thought to join the chess club on their own, are more apt to join after having been exposed to chess in their classroom.

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