

COMMUNICATING THE SOCIAL BENEFITS OF CHESS - ARGUMENTS AND IDEAS

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Many countries are discussing how learning performance can be improved. The digital world is proving to be both a blessing and a curse. In Europe, the realisation is beginning to take hold that smartphones are disruptive at school and should be locked away during lesson time. Unfortunately, as far as I know, there are no studies comparing the performance of pupils' working memory, e.g. 10 years ago and today. It is generally assumed that there is a connection between learning performance and memory performance and working memory. The better the working memory is developed, the better the learning performance can be expected, because the working memory is the bottleneck for storing information from the short-term memory in the long-term memory. Working memory is also a very good predictor of academic performance. A well-developed working memory allows several information processes to be processed simultaneously, e.g. mental arithmetic tasks. Working memory cannot simply be changed from the outside, as can be done with the working memory of a computer. In 2020, Joseph Ebenezer and his colleagues published a remarkable study showing that the performance of working memory can be improved by playing chess.

Joseph, E., Easvaradoss V., Abraham S. & Vaddadi, S. (2020), Malleability of Working Memory Through Chess in Schoolchildren—A Two-Year Intervention

<https://cognitivesciencesociety.org/cogsci20/papers/0493/0493.pdf>

More and more children at school have disabilities, behavioural problems and ADHD.

According to Russian researchers, chess is one of the games best suited to supporting children with social and educational maladjustment. In 2017, the 'Magic Chess' support programme was introduced to increase pupils' motivation to learn, make them more resilient and achieve positive behavioural changes. The strength of the report lies in the detailed description of the approach and the clear explanations

In Deutsch/ in German

<https://www.chess-science.com/moeglichkeiten-schach-in-der-arbeit-des-paedagogischen-psychologen-im-bereich-der-bildung-einzusetzen/>

Original article in Russian

https://psyjournals.ru/journals/bppe/archive/2017_n3/Krasilnikova

'DAMVAD Analytics', a Danish consulting company for advanced analytics and artificial intelligence, published their findings in December 2021 on how systematic school chess can impact children's life

trajectories as the children improve their maths skills. Damvad Analytics compared the results of the study by Rosholm et al. (2017), which highlights the link between systematic schooling and maths skills, with a study by Levin and Belfield (2009), which shows the link between maths skills and lifetime achievement. Important findings from these studies are:

- Economic analyses make it clear that investments in the most socially disadvantaged groups of children yield the highest returns. Levin and Belfield (2009),
- Our analyses show that improving maths skills brings significant economic benefits. Of the many different interventions to improve maths skills, only a few have been shown to be effective. Rosholm et al (2017)

The socio-economic benefits calculated by Damvad Analytics exceed the wildest expectations of all chess enthusiasts and chess teachers. According to the study, improving maths skills will generate DKK 1 billion (approx. 134 million euros) in profit for Denmark over a five-year period.

Study of DAMVAD Analytics in Danish

„En times skoleskak om ugen giver en stor samfundsøkonomisk gevinst“, <https://www.dans-kindustri.dk/lad-os-lose-det-sammen/cases/cases/damvad-analytics-x-dansk-skoleskak/> (2021)

Rosholm M, Mikkelsen MB, Gumedé K (2017) Your move: The effect of chess on mathematics test scores. PLoS ONE 12(5): e0177257. <https://doi.org/10.1371/journal.pone.0177257>

„Levin, Henry M. and Belfield, Clive R., (2009). „Some Economic Consequences of Improving Mathematics Performance“. Center for Benefit-Cost Studies of Education. 24. <https://repository.upenn.edu/cbcse/24>

The idea of the study by DAMVAD Analytics was applied to Germany in the article ‘Chess - the treasure chest of education policy makers’. Criminologists discovered a link between school education and criminal offences a long time ago. ‘Rising proportions of school leavers without a secondary school leaving certificate lead to a significant increase in homicide, robbery and theft offences in the federal states’. At the time, calculations were also made as to how the costs and consequential costs of criminal offences could be reduced by improving education. Every year, the high number of school dropouts who do not have a school-leaving certificate is lamented. There are also discussions about the high costs of repeating a school year. As a result, society incurs high costs that add up to billions for Germany every year - because the pupils concerned repeat the school year, because they are unable to learn a profession or a poorly paid profession due to a missing or poor school leaving certificate and are subsequently dependent on social benefits from the state, ... Allies can be found and financial resources tapped here.

In German ‘Chess - the treasure chest of education politicians’ [„Schach - die Schatzkiste der Bildungspolitiker“] (2022)

<https://www.chess-science.com/schach-die-schatzkiste-der-bildungspolitiker-update-zum-beitrag-vom-05-02-2022>

I contacted the professors advising the Conference of Ministers of Education and Cultural Affairs in Germany, emphasised the potential of chess for learning and received a strange response, which was along the lines of 'You're not looking for measures that help indirectly, but measures that help directly'. In response, I started thinking about the similarities between chess and maths and other school subjects. I started thinking about how thought processes take place. Both chess players and mathematicians think in images, they compare patterns and try to recognise patterns. To do this, you need a well-stocked library called long-term memory and a well-developed working memory to be able to recognise patterns.

In German: „Plädoyer für Schach in der Schule“ (Frank Bicker, 2023)

<https://www.chess-science.com/plaedoyer-fuer-schach-in-der-schule>

in English: „Why we should have chess at school“ (Frank Bicker, 2023)

<https://www.chess-science.com/en/why-we-should-have-chess-at-school/>

In 2022, the first long-term study covering a period of 18 years was published in Russia, demonstrating the long-lasting positive effect of chess on school careers and later life. The study emphasises that a special chess programme was developed for this purpose, based on the ideas of Lev Vygotsky. The initial results of this study and the working materials for the chess programme developed were presented at a congress in Canada in 2017. The study also shows the power of chess in the integration of disadvantaged people, who can lead a self-determined life thanks to the skills acquired through chess.

In Russian (with link zu automatic translation to English)

The Results of a Longitudinal Diagnostic Study on the Project «Chess for Overall Development» (2022)

https://psyjournals.ru/en/journals/cpp/archive/2022_n4/Glukhova_et_al

The main problem is how chess can be integrated into everyday life, e.g. school life. People around the world are thinking for different reasons about how the benefits of chess can be used in the classroom to achieve learning objectives and positive behavioural changes.

On my website www.chess-science.com there is a database where ideas and concepts from different countries and different subjects for different goals are compiled:

In English: <https://www.chess-science.com/en/chess-in-the-classroom-preschool/>

In German: <https://www.chess-science.com/schach-im-unterricht-kindergarten/>

The databases on my website are intended to show how attractive chess is as a research topic and to provide chess friends with arguments when it comes to finding supporters in politics or when potential sponsors are to be approached, ...