

Chess as a subject in primary school

Chapter A5.1 from the book 'Developing Chess Talent'. To be published for free if mentioning the site www.chesstalent.com

Author: Karel van Delft: karel@kvdc.nl

Are there good arguments for the introduction of chess as a (facultative) subject in primary school? This question was the occasion for a terminal project by Karel van Delft at the faculty of psychology of the Amsterdam University in 1992. Research was done on six primary schools in Apeldoorn. Among others, 77 chess players from the 7th grade were compared with 201 non-chess players. The research clearly showed that the chess players performed significantly better in the Dutch CITO school test end test on arithmetics, reading and writing, and data processing. Significantly, when a distinction in gender was made the boys showed the same pattern, whereas with the girls the chess players only performed better at arithmetics. After a correction on children with an extremely low score (below the 15th percentile score – mainly non-chess players), the picture remained the same. The graph below illustrates this. At a school where half of the 34 children began to play chess in the 3rd grade, the chess players already turned out to be better pupils from the start. However, this group turned out to be too small to draw any clear conclusions.

Next, it was presupposed that the better children play chess, the better they will perform at arithmetics and data processing. This hypothesis was tested with 106 pupils from the 6th grade (three school classes), half of whom played chess. With boys there turned out to be little or no connection between their level of arithmetics and their chess-playing. With girls a certain connection was found between arithmetics and chess skills. This group also showed that boys are better at chess and arithmetics than girls. We should add that the fact that hardly any connection was found, may have been because lots of other factors, like motivation and the effects of training, had blurred the image. Incidentally, no difference in intelligence was found between the chess players and the non-chess players (Raven-test). The chess abilities were measured with an especially designed chess skills test consisting of a number of exercise diagrams. We deliberately opted against rating lists of school competitions, since in that setting features like impulsivity, self-consciousness, fighting spirit, etcetera, may easily be of influence.

This research also showed that the connection between competition results and theoretical chess knowledge was significant, but not very strong. In any case a differentiation in gender has turned out to be advisable for this type of research. This had not been done in earlier research. It also turned out that there are clearly less girls who play chess than boys. Apparently there is a mechanism of (self-)selection at work here.

This research was especially aimed at finding out if so-called cognitive effects of passing on knowledge exist in chess teaching. As Prof. A.D. de Groot already claimed a number of years ago, in a memorandum called 'Chess instruction in school?' for the benefit of the Dutch Chess Federation KNSB, it cannot be excluded that chess teaching also has a number of non-cognitive learning effects. We can think of things like: learning to accept defeat, learning that progress can be made by study, etcetera. De Groot also supposes that chess can be related to a productive and creative way of thinking: distinguishing alternatives, systematically going through options, making your own decisions, learning to think conditionally and think ahead, and critical reality-testing. However, these suppositions are based on research that has been done on adults (retrospective interviews with, among others, Boris Spassky and the Dutch writer Godfried Bomans).

TABLE - Average percentile scores of chess players and non-chess players for the CITO school test at a primary school in Apeldoorn. Data of eight successive school years.

Boys	Chess players (56)	Non-chess players (82)
Linguistic skill	63.1 %	46.8 %
Arithmetic skill	72.9 %	59.7 %
Data processing	68.8 %	52.3 %

Girls	Chess players (21)	Non-chess players (119)
Linguistic skill	62.4 %	60.6 %
Arithmetic skill	72.6 %	56.3 %
Data processing	65.0 %	59.4 %