

FROM QUALITATIVE TO QUANTITATIVE DATA

Dansk Skoleskak — skoleskak.dk

HOW WE DID IT

Previously published international research by Michael Rosholm, Mai Bjørnskov Mikkelsen, and Kamilla Gumedé (2017) demonstrated in the Aarhus study that the mathematics competencies of intervention classes were significantly improved through participation in Dansk Skoleskak's learning program SKAK+MAT¹.

In addition to improving students' mathematics competencies, there is unambiguous qualitative feedback from schools indicating that they experience a range of other positive effects from school chess. The most commonly highlighted are:

- Students form new social relationships
- More calm during lessons
- Fewer conflicts
- Less absenteeism

The key question is: by how much? That is — how many students form new relationships as a result of chess, how much less noise is experienced in classrooms, how many fewer conflicts occur, and to what extent can chess reduce absenteeism? This note represents a first attempt to illuminate these effects quantitatively. It will not stand alone, but will be followed up by subsequent quantitative effect measurements.

METHOD AND DATA

The analysis examines the effects of systematic school chess through a survey questionnaire sent to the chess coordinators at 553 schools with chess programs. The chess coordinators are the teachers and educators who have worked most extensively with chess at each individual school, and are therefore also expected to have the greatest knowledge of chess's effects.

The survey was conducted as an online questionnaire via the Enalyzer platform between 11 September and 28 September 2023. Two reminders were sent during this period, on 14 September and 16 September. A total of 116 responses were received, giving a response rate of 21.8%. For the final question regarding the effect of chess on student absenteeism, 114 responses were received, giving a response rate of 21.4%.

The survey used the following question formulations:

1. What proportion of your students do you estimate have formed new social bonds within the class or across classes and year groups? (We ask only for your best estimate.)
2. How much do you estimate that chess can reduce the noise level in the classroom? (We ask only for your best estimate.)
3. How much would you estimate that chess reduces the level of conflict? (We ask only for your best estimate.)
4. How much would you estimate that chess reduces absenteeism? (We ask only for your best estimate.)

Since qualitative feedback from schools over the years has consistently pointed to a positive effect, the following response scale was applied across all four survey questions: "0–20%", "21–40%", "41–60%", "61–80%", and "81–100%".

ANALYSIS

Assuming a normal distribution, the rounded average effects have been calculated and are presented below:

Finding	Average Effect
Students forming new social bonds	30%
More calm in the classroom	37%
Fewer conflicts	29%
Less absenteeism	20%

Additionally, minimum and maximum effects have been calculated by coding all responses of 0–20% as 0% (minimum) or 20% (maximum), responses of 21–40% as 21% (minimum) or 40% (maximum), and so on.

Table 1: Minimum and maximum effects (%)

	Minimum	Maximum
Proportion forming new social bonds	21%	41%
More calm in the classroom	28%	48%
Fewer conflicts	20%	39%
Less absenteeism	11%	31%

¹ Rosholm M, Mikkelsen MB, Gumedé K (2017) Your move: The effect of chess on mathematics test scores. *PLoS ONE* 12(5). See [Skoleskak.dk/dokumentation](https://skoleskak.dk/dokumentation).