We did the largest & most comprehensive systematic review of approaches to improving executive functions (EFs). It includes all types of approaches & all ages (179 studies reported in 193 papers from all over the world).

All studies evaluated had ≥ 1 objective behavioral EF measure besides the trained task, had a control group, & were not correlation.

4 Metrics were used for judging a Method’s Efficacy in Improving EFs

1) % of Studies showing Suggestive Evidence of EF Benefits more EF improvement or better EF post-test performance than the control group on ≥ 50% of measures

2) % of Studies showing CLEAR Evidence of EF Benefits more EF improvement and better EF post-test performance than the control group on ≥ 67% of measures

3) % of EF Measures Across all Studies where Experimental Grp showed More Improvement than the Control Grp

4) % of EF Measures Across all Studies where Experimental Grp Performed Better at Post-test than the Control Grp

The 3 Approaches with the Best Results for Improving EFs all involve Trainer-Trainee In-Person Interaction

- Mindfulness Practices involving Movement
- Promising School Programs
- Non-Computerized Cognitive Training


The trainer-trainee relationship — especially a trainer who cares deeply about the trainees & believes fervently in their ability to succeed — seems a particularly potent driver of benefits.

The 3 approaches that produced the best EF results (mindful movement practices, promising school programs, & non-computerized cognitive training) involve more in-person interaction than computerized cognitive training. NO computerized cognitive training produced EF benefits as good as those 3 approaches.

Other findings consistent with that include:

- A recent study indicates that the in-person mentoring component of Cogmed might account for more of its benefits than the computer games (de Jong & Smit, submitted).
- When Cogmed has been compared to other programs with significant trainer-interaction, Cogmed & the other programs produced similar benefits (Gray et al., 2012; van der Donk et al., 2015).
- Infants exposed to 12 sessions of a person speaking a foreign language to them or seeing a video of the same person saying exactly the same things learned phonemes through the live, but not the recorded, presentation (Kuhl et al., 2003).
- Across all early childhood program worldwide, the variable most predictive of success is the caring relationship between the adults and the children (Melhuish, 2004).