

# Working on your tot's memory now can help his high school success

November 3 2015

---



Credit: Ray Ordinario, CC by-nc-nd 2.0

Preschoolers who score lower on a working memory task are likely to

score higher on a dropout risk scale at the age of 13, researchers at Université Sainte-Anne and the University of Montreal revealed today. "Dropout risk is calculated from student engagement in school, their grade point average, and whether or not they previously repeated a year in school. Previous research has confirmed that this scale can successfully identify which 12 year olds will fail to complete high school by the age of 21," explained Caroline Fitzpatrick, who led the study as first author. "These findings underscore the importance of early intervention," added Linda Pagani, co-senior author. "Parents are able to help their children develop strong working memory skills in the home and this can have a positive impact."

The study was conducted with 1,824 [children](#) whose development has been followed over a number of years through the Quebec Longitudinal Study of Child Development. Their working memory was measured using an imitation sorting task with a trained research assistant. Students indicated their academic performance, prior grade retention, and [school](#) engagement - answering questions such as "do you like school?" and "how important is it for you to get good marks?" Children also completed tests of verbal and non-verbal intelligence. Their families were also interviewed to ascertain their socioeconomic status, a factor that the researchers took into account when analyzing their data.

Identifying students that are at risk of eventually dropping out of high school is an important step in preventing this social problem. Individual differences in executive functions are likely to play an important role in predicting later drop out risk because they contribute to academic success, engagement, and the achievement of long-term goals. The present results suggest that early individual differences in working memory may contribute to developmental risk for high school dropout.

The early detection of working memory problems in children is possible since such children generally show patterns of dysfunction in the

classroom and at home. "A child with inadequate working memory might experience difficulty completing tasks in the face of distractors, following sequential instructions, and keeping track of time in order to finish their work in a timely fashion," Fitzpatrick explained. "Poor self-control more generally is likely to result in disorganized living spaces, such as their room, desk, or locker. Providing parents, teachers, and support staff with basic training on cognitive control and working memory may be advantageous for at-risk children."

Parents can help their children develop strong working memory skills in the home. "Preschoolers can engage in pretend play with other children to help them practice their working memory since this activity involves remembering their own roles and the roles of others. Encouraging mindfulness in children by helping them focus on their moment-to-moment experiences also has a positive effect on cognitive control and working memory," Pagani said, noting that breathing exercises and guided meditation can be practiced with preschool and elementary school children.

In older children, vigorous aerobic activity such as soccer, basketball, and jumping rope have all been shown to have beneficial effects on concentration and working memory. "Traditional martial arts that place an important focus on respect, self-discipline, and humility have been shown to help children, especially boys build strong cognitive control and working memory skills," Fitzpatrick added. "Another promising strategy for improving [working memory](#) in children is to limit screen time - video games, smartphones, tablets, and television - which can undermine [cognitive control](#) and take time away from more enriching pursuits."

The researchers note that generalizing their conclusion to all school children with absolute certainty will require more research.

**More information:** Caroline Fitzpatrick et al. Early childhood working memory forecasts high school dropout risk, *Intelligence* (2015). [DOI: 10.1016/j.intell.2015.10.002](https://doi.org/10.1016/j.intell.2015.10.002)

Provided by University of Montreal

Citation: Working on your tot's memory now can help his high school success (2015, November 3) retrieved 19 April 2024 from <https://medicalxpress.com/news/2015-11-tot-memory-high-school-success.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.