

Test puts math prep on par with language

June 20 2014, by Paul Mayne

(Medical Xpress)—For some kids, numbers simply don't add up. But now, thanks to a test developed by Western researchers, teachers and parents will have an early warning that extra help may be needed.

"Numeracy is one of the most important early development skills that [children](#) learn," said Western Psychology professor Daniel Ansari.

"Individual differences in children's early numeracy skills are critical predictors of their later educational achievement – as strongly as literacy skills. Yet, we do not have very many good tools for assessing how well children are doing, early in their development."

Numeracy is defined as the ability to apply simple numerical concepts – addition, subtraction, multiplication and division. So if you understand what's going on in the equation $3+2$, then you possess basic numeric knowledge.

Ansari and former Western PhD student Nadia Nosworthy (now a professor at Michigan's Andrews University) created a two-minute Numeracy Screener to [test](#) children's ability to judge which of two numbers is larger. Numbers are presented symbolically (Arabic numerals) and non-symbolically (dot arrays).

The pencil-and-paper test is designed to identify children who might be at risk of falling behind in arithmetic early on, allowing educators to intervene earlier.

"In numeracy, we start testing kids only in school when they are doing

[arithmetic problems](#). We give them tests on arithmetic, but we don't look at what's underneath the arithmetic – what prepares them to become good math learners, to become good calculators," said Ansari, Canada Research Chair in Developmental Cognitive Neuroscience.

"It's a very quick tool that can be used to get a basic understanding of individual differences in one aspect of children's foundational numeracy skills."

The [numeracy](#) screener test can be printed for free at [numeracyscreener.org](#).

In constructing the tool, Ansari consulted school psychologists, who had been looking something to test "the underlying competency with the things that drive their abilities," as well as the World Bank's Education for All initiative, which suggested a test that could be used in low-income countries, thus the paper version.

"Even though we all have computers now, educators, I think deep down, still prefer something they can print out and access online," Ansari said. "It's old school, sure, but most of the testing in schools today is still paper and pencil."

Entering those scores online, however, allows students and parents to compare an individual child to children in the same grade. Currently, the majority of the data available is from the Thames Valley District and Toronto school boards.

"It's very important to say that this test is not diagnostic, it's just an indicator really," he said. "You shouldn't overreact if there are low numbers. And when we talk about intervention, it doesn't need to be anything complex. It could just be training in matching numerals to sets, playing number line games. If there are consistently low performances, it

should be a warning sign."

He continued, "By having educators and parents use this tool, they can think about how they can strengthen these abilities in children who might be falling behind. It's all about early identification and intervention and we are working hard to come up with those intervention tools."

Provided by University of Western Ontario

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