

It All Adds Up: Early Achievement in Math May Identify Future Scientists and Engineers

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New research published in the October issue of *Psychological Science*, a journal of the Association for Psychological Science, suggests that there may be a way to identify budding scientists and engineers and thus be able to guide them, from a young age, to careers that will enable them to make the most of their abilities.

Vanderbilt University psychologists Gregory Park, David Lubinski and Camilla P. Benbow wanted to see if early mathematical reasoning ability would be predictive of future accomplishments in scientific and technical fields. The researchers identified 1500 young adolescents who had scored in the top 1% on the math portion of the SAT. Twenty-five years later, the researchers looked to see how many of those youths had gone on to publish articles in peer-reviewed journals, receive advanced degrees and earn patents. The researchers grouped the participants according to the degrees they had earned, then examined within each group the relationship between SAT math scores and scientific creativity (as determined by journal publications and patents earned).

The researchers found that there were more peer-reviewed journal authors and patent holders in the doctorate group compared to the bachelor's and master's degree groups. However, more interesting was the finding that *within* each advanced degree group, adolescents who had scored highest on the SAT math test were most likely as adults to author a peer-reviewed scientific publication or earn a patent. Also, when the researchers looked only at participants who earned graduate degrees from schools ranked in the top 15 for Science, Technology, Engineering and Mathematics graduate programs, the participants who scored highest on the SAT math test still achieved more scientific accomplishments as adults.

The authors note that “educational credentials are clearly important, as are educational opportunities at outstanding universities, but that they cannot fully substitute for ability. Our results suggest that, among other things, individual differences in cognitive ability (even when measured in early adolescence) are important to take into account when identifying and modeling exceptional scientific and technical human capital.”

The authors conclude that these findings are relevant because they “come at a time when national initiatives and industries are searching for new methods to identify and harness creative potential, particularly in science and technology.”