

# Those Most Likely to Succeed are also Most Likely to Fail Under Pressure

Performing tasks under pressure reduces the working memory of those otherwise most likely to succeed in math, a new report suggests. The study published in this month's Psychological Science indicates that high pressure tests like the SAT and MCAT will not accurately predict future academic performance.

Sian Beilock of Miami University and Thomas H. Carr of Michigan State analyzed 98 Michigan State undergraduates dividing them into low working memory (LWH) and high working memory (HWM) groups by their scores on memory tests. Then the students took three more exams: a practice problem test, a low-pressure test, and a high pressure test. The students were not told they were being tested on their ability to perform under pressure. The problems on each test were divided into low-demand, easier, problems and high-demand, more challenging.

Participants were told the first test, the low-pressure test, was another practice. After the low-pressure test participants were told that if they could improve their score on the second test, high-pressure, by 20% or more they and another participant would receive a cash bonus and that during the exam they were being video taped for review by local math teachers and professors. Both of these conditions increased the participants' pressure and anxiety.

Beilock and Carr compiled the results of the tests, comparing the ability of the HWM group to perform under pressure to that of the LWM group for both low and high demand problems.

"You expect the students that would normally do the best not to be the ones that fail under pressure," Beilock told the Cincinnati Enquirer in an interview with the paper.

In fact, the LWM group performed better than expected on the high-pressure test while the HWM performed worse. HWM participants normally have superior attentional allocation abilities, which provides an advantage on mathematical exams. When put under pressure, HWM participants' attentional capacity was compromised, according to Beilock and Carr's paper.

Beilock and Carr conclude by observing that if HWM individuals' abilities are compromised under pressure, high pressure examinations will not accurately predict future academic performance. That is, those students who should perform best on standardized tests lose their advantage under pressure which may change people's perceptions what SAT and GRE scores really demonstrate.

JYI is supported by: The National Science Foundation, The Burroughs Wellcome Fund, Glaxo Wellcome Inc., Science Magazine, Science's Next Wave, Swarthmore College, Duke University, Georgetown University, and many others.

Copyright ©1998-2004 The Journal of Young Investigators, Inc.