

# Highly accomplished people more prone to failure than others when under stress

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Talented people often choke under pressure because the distraction caused by stress consumes their working memory, research in Psychology has found.

Highly accomplished people tend to heavily rely on their abundant supply of working memory and are therefore disadvantaged when challenged to solve difficult problems, such as mathematical ones, under pressure, according to research by Sian Beilock, Assistant Professor in Psychology.

Her findings were presented Saturday, Feb. 17 at the annual meeting of the American Association for the Advancement of Science in San Francisco.

People with less adequate supplies of working memory learn other ways of problem solving to compensate for their deficiencies, and although these alternative problem-solving strategies are not highly accurate, they are not impacted additionally by working under pressure, the research found.

Beilock found that when put under pressure, the talented people with larger amounts of working memory began using short-cuts to solve problems, such as guessing and estimation, strategies similar to those used by individuals with less adequate working memories. As a result of taking those shortcuts, the accuracy of the talented people was undermined.

“These findings suggest that performance pressure harms higher working memory individuals by consuming the cognitive resources that they rely on for their superior performance — and as a result, higher working memory individuals respond by switching to the less accurate problem-solving strategies normally used by lower working memory students,” Beilock said.

The results have implications for the evaluation of performance on high stakes tests, such as those needed to advance in school and college entrance examinations, she said.

Working memory is a short-term memory system that maintains a limited amount of information in an active state. It functions by providing information of immediate relevance while preventing distractions and irrelevant thoughts from interfering with the task at hand.

People with a high level of working memory depend on it heavily during problem solving. “If you’ve got it, flaunt it” Beilock said.

However, that same advantage makes them particularly susceptible to the dangers of stress.

“In essence, feelings of pressure introduce an intrusion that eats up available working memory for talented people,” Beilock said.

In order to study the impact of stress on working memory, Beilock and her colleagues tested roughly 100 college undergraduates. They gave them tests to determine the strength of their working memory and then subjected them to a series of complicated, unfamiliar mathematics problems.

Students were given pressure by being told they would be paid for their

correct answers, but that they would only receive the money if a partner, chosen randomly who they did not know, would also win. Then they were told that their partner had solved the problem correctly, thus increasing the pressure.

The study showed that as a result of the pressure, the performance of students with strong working memory declined to the same level as those with more limited working memory. Those with more limited working memory performed as well under added pressure as they did without the stress.

Source: University of Chicago

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