

## *A Broader Assessment of Ability*

**Capsule:** In the modern era, IQ and assessment tests have served to identify talented students coming from all walks of life; however, an expansion of this evaluation to include common sense, creativity, and social aptitude serves as a better indicator of long term educational and career success.

**Summary:** Assessment tests have been a valuable tool in identifying talented students across the board, especially considering a century ago gender, ethnicity, and socioeconomic status predetermined opportunities. While these biases are not yet completely eradicated, much progress has been made to level the playing field in terms of college admissions, scholarships, etc. Even with this being the case, assessment tests remain focused on small pockets of knowledge, and do not address other skill sets such as creativity and social aptitude. Cognitive psychologist Robert Gardner coined the phrase “multiple intelligences” when responding to concerns of cultural and ethnic biases in assessment testing, in which modified IQ tests evaluate musical, mechanical, creative, and practical intelligence in addition to math and verbal skills. An interesting aspect of this assessment is the test of practical intelligence, or common sense, which is not currently evaluated in any form of IQ tests, although methods exist to quantify. One psychologist, Robert Sternberg, asserts that “practical intelligence predicts people’s future job success at least as well as, if not better than, people’s scores on traditional IQ tests.” Sternberg carried out a research study to validate this hypothesis in which the SAT was supplemented with measures of creativity and practical intelligence. Results of this study showed the supplemented SAT scores more accurately predicted actual college success than traditional tests. Additionally, ethnic differences observed in traditional SAT testing were greatly reduced when including results of supplemental portions.

**Implications in Engineering Education:** What does this mean for education and engineering education? These results highlight the need to evaluate student performance in the classroom using a wide variety of methods, for example, implementing oral presentations/examinations, tests of intuition through short Q & A, and creative problem solving. While teaching practical intelligence is an opaque concept, giving students an opportunity to hone skills in several different testing methods can both help the student success in the long run, and help the instructor more accurately rate and evaluate students. With a broader form of education including nontraditional measures of intelligence, opportunities can be maximized for engineers.

**References:** Sternberg, R.J., Wagner, R.K., Williams, W.M., and Horvath, J.A. (1995) “Testing Common Sense” *American Psychologist* 50: 912-927

APA Psychology Matters, <http://www.psychologymatters.org/iqtesting.html>

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