



# The Sternberg Triarchic Abilities Test (STAT) as a measure of academic achievement and general intelligence

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## Abstract

The degree to which practical, creative, and analytical abilities, measured by the Sternberg Triarchic Abilities Test (STAT) (Sternberg, 1993), significantly contribute to the prediction of academic achievement, independent of general intelligence, was investigated. Although Sternberg et al. (2000) claim that the STAT is not related to, nor a measure of, general intelligence, data obtained by Sternberg, Ferrari, Clinkenbeard, and Grigorenko (1996), found that STAT scores were significantly correlated with measures of general intelligence. In the present study, introductory psychology midterm examination grades, STAT scores, and Wonderlic Personnel Test scores (as a measure of general intelligence), were obtained from undergraduate students at the University of Western Ontario ( $N = 150$ ). Total STAT scores and each of the STAT subsection scores were significantly related to Wonderlic test scores,  $P < 0.01$ , and the STAT subsections were significantly related to each other,  $P < 0.01$ . The partial correlations between midterm grades and creative, practical, analytical, and total STAT scores, with the variance due to the Wonderlic test removed, were also found to be significant for practical and for total STAT scores,  $P < 0.05$ , but non-significant for creative and analytical STAT scores. A factor analysis including midterm examination grades, the Wonderlic test, and each of the STAT subsections revealed a single general factor. Thus, some results supported Sternberg but others were contrary to his claims.

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## 1. Introduction

The present study investigated whether the triarchic abilities (practical, creative, and analytical) measured by the *Sternberg Triarchic Abilities Test (STAT) (1993)*, significantly contribute to the prediction of academic achievement, independent of general intelligence.

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Sternberg (1985) argued against the definition of intelligence as mainly a general, unified capacity, or dimension, along which individuals vary; instead, he proposed that there are three basic forms of intelligence (practical, creative, and analytical), which he referred to as the triarchic abilities. Practical, creative, and analytical intelligence were defined as the ability to solve everyday problems and adapt to new situations, insight and the ability to formulate new ideas, and the ability to think critically, respectively.

Sternberg et al. (2000) claimed that STAT is not a measure of general intelligence as assessed by conventional intelligence tests (e.g. IQ tests). Further, Sternberg et al. (2000) argue that STAT is independent of measures of general intelligence and also a more accurate predictor of academic achievement. However, as Gottfredson (in press) pointed out, data obtained to support this contention are, at best, sparse; in fact, data collected by Sternberg, Ferrari, Clinkenbeard, and Grigorenko (1996) support the conclusion that STAT is related to measures of intelligence, and may in fact be a measure of general intelligence. Sternberg et al. (1996) reported data indicating that the triarchic abilities are related to scores on four tests of intelligence: the Concept Mastery Test, The Watson-Glaser Critical Thinking Appraisal, the Cattell Culture-Fair test of *g*, and a test of creative insight constructed by Sternberg and his colleagues. The highest correlations were found with the Cattell Culture-Fair test of *g*, which has been used extensively as a measure of general intelligence: the estimated correlations between the Cattell Culture-Fair test of *g* and the analytical, creative, and practical subtests of STAT, are 0.68, 0.78, and 0.51, respectively. These are substantial correlations but they are likely underestimates because they were obtained from a sample of high school students who had been nominated as 'gifted' and who were therefore likely restricted in range on the administered tests (Brody, in press).

Thus, according to the findings of Sternberg et al. (1996), evidence exists that measures of general intelligence are quite strongly related to the triarchic abilities assessed by STAT. This finding supports the present study's contention that constructs measured by STAT overlap with those measured by tests of general intelligence, and that the contribution of STAT to the prediction of academic achievement may be due to these shared constructs. Specifically, it is hypothesized that neither the total STAT, nor the creative, practical, or analytical abilities measured by the STAT, will provide significant contributions to the prediction of academic achievement independent of general intelligence.

## 2. Method

### 2.1. Participants

Undergraduate students ( $N = 150$ ) at the University of Western Ontario participated in the study; each participant received credit for participation toward an introductory level Psychology class. Male ( $N = 62$ ) and female ( $N = 88$ ) participants' ages ranged from 18 to 26 ( $M = 19.53$ ,  $S.D. = 1.52$ ).

### 2.2. Materials

The Wonderlic Personnel Test is a 12-min, timed, 50-question test, designed to measure general intelligence. It is comprised of verbal, quantitative and visual rotation problem-solving questions.

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