

This Week's Citation Classic

Sternberg R J. *Intelligence, information processing, and analogical reasoning: the componential analysis of human abilities.*
Hillsdale, NJ: Lawrence Erlbaum Associates, 1977. 348 p.
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A new theory of and method for studying human intelligence are presented. The theory—the componential theory of human intelligence—analyzes intelligence in terms of the underlying information-processing components that, in combination, give rise to intelligent behavior. The method—componential analysis—decomposes global performance on intellectual tasks into its constituent information-processing components. [The *SSCI*® indicates that this book has been cited in over 285 publications.]

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This book represents my first published work on the nature of intelligence and how to study it. The history of the book is a long one, starting in my elementary school years, when my abysmal performance on group intelligence tests motivated me to understand intelligence and how it is tested. My first serious attempt to achieve such understanding was in seventh grade, when I did a science project that involved creating my own group intelligence test and, for practice, administering an individual intelligence test, which I found in the "Adult" section of my town library, to my classmates. When the head school psychologist found out what I was doing, he rewarded me by threatening to burn my test material if I ever again brought it into the school. For obvious reasons, I went "underground," studying intelligence on my own and in secret for a number of years.

During those years, the field was a relatively inert one. My undergraduate adviser at Yale, Endel Tulving, persuaded me to study memory because there was limited interest in research on human intelligence. I began graduate work at Stanford, ostensibly planning to continue my study of memory under Gordon Bower, but secretly hoping to turn around the field of intelligence. I was discouraged by a remark of Lee Cronbach in the introductory lecture to a course on human abilities, in which he referred to intelligence as a "dead field," and by the end of my

first year of graduate school, it looked like my future would be in memory research.

My attempts to understand intelligence were going nowhere; but at this point, two fortuitous events occurred. First, I was asked by a publisher to prepare a book on *How to Prepare for the Miller Analogies Test*,¹ so I started thinking about analogies as a vehicle for studying intelligence. Second, I became aware of materials used for logic games with elementary-school children—*People Pieces*—that I realized could be used to form analogies with well-specified attributes. Thus, I began studying how people process information during analogical reasoning and how this information processing relates to intelligence. These studies gave birth to the componential theory of intelligence, according to which intelligence can be understood in terms of the existence and combination of elementary information-processing components, and to the method of componential analysis, which involves decomposition of tasks in order to isolate the elementary processing components.

The dissertation on which the book was based received the Sidney Siegel Memorial Award at Stanford, and the book was clearly influential in my later receiving the Early Career and McCandless Awards of the American Psychological Association. Although postpublication reviews of the book were very positive, the prepublication reviews were mixed, and I am grateful to the publisher, Lawrence Erlbaum, for publishing the book despite the mixed reviews he received.

The "componential theory" later showed itself to be incomplete, however, as I came to the realization that the theory did not explain the effects of experience on information processing, nor did it explain how information-processing components are applied in everyday contexts and how they are affected by those contexts. Consequently, the componential account later became one of three subtheories in my more nearly complete, "triarchic" theory of human intelligence.²

My theory and research, together with that of Earl Hunt³ and others, moved much of the field of intelligence research toward the study of information processing. Today, many of the researchers who, in the 1970s, studied information processing exclusively, have broadened their focus to include not just the study of mental processes, but also the study of the contexts in which these processes occur. A seemingly "dead" field has risen from the grave and is today one of the most active and exciting fields of study in psychology.

1. Sternberg R J. *How to prepare for the Miller Analogies Test*. Woodbury, NY: Barron's Educational Series, 1974. 148 p.
2. ———. *Beyond IQ: a triarchic theory of human intelligence*. New York: Cambridge University Press, 1985. 411 p. (Cited 55 times.)
3. Hunt E, Frost N & Lunneborg C. Individual differences in cognition: a new approach to intelligence. (Bower G, ed.) *The psychology of learning and motivation*. New York: Academic Press, 1973. Vol. 7. p. 87-122. (Cited 90 times.)

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