THE NATURE OF HUMAN INTELLIGENCE

The study of human intelligence features many points of consensus, but there are also many different perspectives. In this unique book Robert J. Sternberg invites the 19 most highly cited psychological scientists in the leading textbooks on human intelligence to share their research programs and findings. Each chapter answers a standardized set of questions on the measurement, investigation, and development of intelligence – and the outcome represents a wide range of substantive and methodological emphases including psychometric, cognitive, expertise-based, developmental, neuropsychological, genetic, cultural, systems, and group-difference approaches. This is an exciting and valuable course book for upper-level students to learn from the originators of the key contemporary ideas in intelligence research about how they think about their work and about the field.

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This book is dedicated to the memory of Earl Hunt, a pioneer in the field of intelligence and a scholar whose influence only will become stronger in the years to come.

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Preface

"The field of intelligence is dead." So said one of my graduate-school mentors, Lee Cronbach, himself an expert on intelligence, in 1972. I had just started as a graduate student at Stanford and had gone to see him about possibly doing some work with him in the field of intelligence; but he displayed no optimism about the field. Perhaps I should not have been surprised. About a decade earlier, one of his colleagues at Stanford, Quinn McNemar, had written a paper published under the title "Lost: Our Intelligence? Why?" (McNemar, 1964).

The collaboration with Cronbach never happened, and it was not until my second year as a graduate student that I started working in the field of intelligence under the mentorship of my primary adviser, Gordon Bower. But the year that I started working on intelligence, unbeknownst to me, the field that McNemar suggested was lost was found again – or, to put it in terms of Cronbach's metaphor, it became undead and resurrected. Earl Hunt, to whom this volume is dedicated, and two of his colleagues had just published a book chapter that, in some respects, would bring intelligence to life (Hunt, Lunneborg, & Lewis, 1975). Hunt and his colleagues showed that a productive path to understanding intelligence would be through the cognitive analysis of intellectual functioning. Hunt and colleagues followed up two years later with a cognitive analysis specifically of verbal ability (Hunt, Lunneborg, & Lewis, 1975). Two years after that, I proposed a related although in some respects competing approach to studying intelligence (Sternberg, 1977). The rest, as they say, is history. Today, the field of intelligence research is about as active as any field could be. Indeed, its form seems to change every few years, or, arguably, every few months!

Once upon a time, recognizing that the field of intelligence was thriving, I edited a series that updated advances in the field on a regular basis. The series started in 1982 and was called *Advances in the Psychology of Human Intelligence* (Sternberg, 1982a). But that series lasted only through

five volumes. A few years after my first edited volume, Douglas Detterman (1985) started a related series, *Current Topics in Human Intelligence.* But that series too is long gone. The field continued to be updated through a series of handbooks edited by myself (e.g., Sternberg, 1982b, 2000; Sternberg & Kaufman, 2011) and others (e.g., Goldstein, Princiotta, & Naglieri, 2015; Wolman, 1985), but these handbooks were intended to be comprehensive reviews rather than updates regarding current research on particular topics. Yet, the field continued to advance rapidly.

So I recently decided to edit a volume of updates on intelligence research. In the past, I had just chosen colleagues to write whose work I admired because of its impact on the field. But at the same time, I realized that my selections were always colored by my own biases about what kinds of research were worthwhile to the field. Those biases led to some kinds of work being included, but not others. This time I wanted to do things a bit differently.

When I started this volume, I recently had coedited a volume of essays by eminent psychologists who were chosen in an objective (statistically based) way (Sternberg, Fiske, & Foss, 2016), and I decided to try an analog to this approach for the current volume. I started with what I considered to be the three principal contemporary textbooks on intelligence – ones by Hunt (2011), Mackintosh (2011), and Sternberg and Kaufman (2011) – and tabulated citations in these volumes to the various authors whose work was mentioned. I then chose as my potential authors the scholars whose work was most frequently cited. Almost everyone I wrote to then agreed to write. Earl Hunt was an exception, and I later realized that the reason was that he was in the last months of his life. It therefore is fitting that this volume is dedicated to him. (I have written elsewhere about his landmark contributions to the field – Sternberg, 2017). This volume thus represents the contributions of the most-cited authors in the field of intelligence, at least as represented in three textbooks published in 2011. Because one of the textbooks, the *Cambridge Handbook of Intelligence*, is edited, I believe it fair to say that the authors have been chosen to represent those scholars who the field believes to have made the highest-impact contributions to the study of intelligence.

Regrettably, some of the most highly cited scholars in the field of human intelligence have died in recent years, not just Hunt but also John B. Carroll (e.g., Carroll, 1993), John Horn (e.g., Horn, Donaldson, & Engstrom, 1981), and Arthur Jensen (e.g., Jensen, 1998), among others. This book would have been enriched greatly had these scholars lived and been willing to contribute.

The scholars who have written for this volume represent diverse perspectives, or "metaphors of mind" (Sternberg, 1990). These perspectives include primarily biological (including behavior-genetic), cognitive, cultural, developmental, psychometric, and group-difference approaches. This book does not include all possible approaches, and there are many excellent scholars, especially ones early in their careers, who have not written for it. But this certainly will not be the last edited book of advances in the field of human intelligence, and later volumes (edited by others) doubtless will include approaches that may be underrepresented here.

Although intelligence always has been important to society, one might argue that, in some respects, it is more important now than ever before. On the one hand, intelligence as measured by IQ tests increased greatly in the 20th century (Flynn, 2009). On the other hand, we are seeing in the 21st century more stupid behavior than one might have believed possible, given these rising IQs (Sternberg, 2002). Earl Hunt (1995) asked, before the dawn of the 21st century, "Will we be smart enough?" It was a good question to ask. I hope the essays in this book provide some enlightenment as to the answer!

References

Carroll, J. B. (1993). *Human cognitive abilities: A survey of factor-analytic studies*. New York: Cambridge University Press.

Detterman, D. K. (Ed.) (1985). *Current topics in human intelligence* (Vol. 1). Norwood, NJ: Ablex.

Flynn, J. R. (2009). *What is intelligence? Beyond the Flynn effect*. Cambridge: Cambridge University Press.

Goldstein, S., Princiotta, D., & Naglieri, J. (Eds.) (2015). *Handbook of intelligence: Evolutionary theory, historical perspective, and current concepts*. New York: Springer.

Horn, J. L., Donaldson, G., & Engstrom, R. (1981). Apprehension, memory, and fluid intelligence decline in adulthood. *Research on Aging*, 3(1), 33–84.

Hunt, E. B. (1995). *Will we be smart enough? Cognitive capabilities of the coming workforce*. New York: The Russell Sage Foundation.

(2011). *Human intelligence*. New York: Cambridge University Press.

Hunt, E. B., Lunneborg, C., & Lewis, J. (1975). What does it mean to be high verbal? *Cognitive Psychology*, 1, 194–227.

Jensen, A. R. (1998). *The g factor: The science of mental ability*. Westport, CT: Praeger.

Mackintosh, N. J. (2011). *IQ and human intelligence*. New York: Oxford University Press.

McNemar, Q. (1964). Lost: Our intelligence? Why? *American Psychologist*, 19, 871–882.

Sternberg, R. J. (1977). *Intelligence, information processing, and analogical reasoning: The componential analysis of human abilities*. Hillsdale, NJ: Lawrence Erlbaum Associates.

(Ed.) (1982a). *Advances in the psychology of human intelligence* (Vol. 1). Hillsdale, NJ: Erlbaum.

(Ed.). (1982b). *Handbook of human intelligence*. New York: Cambridge University Press.

(1990). *Metaphors of mind: Conceptions of the nature of intelligence*. New York: Cambridge University Press.

(Ed.). (2000). *Handbook of intelligence*. New York: Cambridge University Press.

(Ed.). (2002). *Why smart people can be so stupid*. New Haven, CT: Yale University Press.

(2017). Acute angles: Parallels and near-parallels in two careers studying human intelligence. *Intelligence*. https://doi.org/10.1016/j.intell.2017.09.003. http://www.sciencedirect.com/science/article/pii/S016028961730274X.

Sternberg, R. J., Fiske, S. T., & Foss, D. J. (Eds.) (2016). *Scientists making a difference: One hundred eminent behavioral and brain scientists talk about their most important contributions* New York: Cambridge University Press.

Sternberg, R. J., & Kaufman, S. B. (Eds.) (2011). *Cambridge handbook of intelligence*. New York: Cambridge University Press.

Wolman, B. (Ed.) (1985). *Handbook of intelligence*. New York: Wiley.