Alive and Well, Intelligence Research on the Move

A Review of *The Nature of Human Intelligence*, edited by Robert J. Sternberg

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Abstract

Robert Sternberg’s latest edited book surveys key topics in intelligence research and updates the field. The 19 contributors were selected for being highly cited in three recent textbooks on intelligence. All contributors have written cogent essays about their work and its place in the broader field. All are accessible to undergraduates for upper division courses on intelligence. The book conveys fundamental discoveries and new ideas that attest to the vitality of intelligence research.
An email from Bob Sternberg often is an invitation to write a chapter for one of his edited books. No one has edited more books about intelligence or does a better job updating the field.

In 2016 and early 2017, I received three invitations from Bob to contribute different chapters for three books (including this one), all about biological aspects of intelligence and each aimed at a specific level of student. This was a challenge.

Few researchers enjoy writing book chapters but it is difficult to turn down these invitations. Sternberg’s edited books typically are broad summaries of the field and one naturally wants to be included. This volume had a unique hook---the 19 contributors were selected because they were highly cited researchers in three widely used textbooks about intelligence (Hunt, 2011; Mackintosh, 2011; Sternberg & Kaufman, 2011). In fact, this volume is dedicated to the memory of Earl (Buz) Hunt who passed away in 2016 and was to be the 20th contributor. In the Preface, Sternberg explains how he was influenced early in his career by Hunt’s work at a time when Sternberg’s mentor, Lee Cronbach, had declared in 1972 that “the field of intelligence research was dead”.

We don’t get an explanation about this pronouncement in the Preface, but it may have been related to the infamous 1969 paper by Arthur Jensen (Jensen, 1969), which in my view made intelligence research radioactive overnight with ramifications lasting to this day. In any case, like Mark Twain wryly noted that reports of his demise were greatly exaggerated, this volume attests that intelligence research is alive and well and moreover, there is exciting progress. It is hard to imagine advanced undergraduates, the intended target group for this volume, working
through the 19 contributions and not getting a sense of that excitement. Given that many undergraduate introductory psychology textbooks contain cursory or factually inaccurate accounts of intelligence research (Warne, Astle, & Hill, 2018), an upper division course using this volume will be a revelation to many students.

The 19 chapters actually are better characterized as essays. Sternberg asked each author to address the same set of general questions about intelligence so there is some structural similarity among the contributions. These questions were aimed at: definitions, measurement, development, important empirical results from one’s own research, policy issues for the field, and research questions for the future. All the essays are clear, interesting, and accessible to undergraduates. As an editor, Sternberg has an experienced eye for these qualities.

Importantly, each author was asked to focus on his/her own contributions rather than survey a particular topic. The result is a diverse collection of perspectives from leaders in the field on a broad range of intelligence topics. These include (shorthand for actual titles): What measures of intelligence mean (Ackerman), heritability of $g$ and experience (Bouchard), culture and sex (Ceci, Ginther, Kahn and Williams), the nature of $g$ (Conway and Kovacs), findings from the Edinburgh studies (Deary and Ritchie), expert performance (Ericsson), an overview of the Flynn Effect (Flynn), multiple intelligences (Gardner, Kornhaber, and Chen), what $g$ variation means for social policies (Gottfredson), the role of epigenetics (Grigorenko), neuroscience approaches (Haier), critical thinking (Halpern and Butler), equitable assessments (A. Kaufman), a personal view (S.B. Kaufman), individual differences at the upper end (Lubinski), national differences
(Lynn), things and people (Mayer), working memory and executive attention (Shipstead and Engle), and successful intelligence (Sternberg).

All these essays will be of interest to undergraduates who have even the slightest curiosity about the nature of intelligence. Here are some sample conversation starters for student readers (one from each essay; discover the context on your own): From Ackerman (page 12), “A high proportion of an adult’s day-to-day intellectual life is simply unaccounted for by modern IQ assessments...Current Gc [crystalized intelligence] is essentially equivalent to the ‘dark matter’ hypothesized by physicists. From Bouchard on his general view (page 23), “...that the mind has been shaped by the environment, via evolution [i.e. genes], and that the content of individual minds is shaped to an important extent by the content of the environment.” From Ceci and colleagues (page 44) who conclude, “... in addition to stereotypes and math ability differences (that may or may not be due to biology), there are gender differences in interests, with females more interested in people-related careers and males more interested in nonsocial things.

From Conway and Kovacs (page 58-59), “... we all should be teaching a course on intelligence. We argue that such courses should be taught not only in psychology departments, but also in schools of education... if g is nothing but a summary statistic [as our theory notes], then the search for the neural basis of g is meaningless.” From Deary and Ritchie (page 77), “The validating evidence for the concept of intelligence, its measurement, its foundations, and its practical importance is colossal, and still accumulating. So why are there still so many anti-IQ critics...? The idea of intelligence differences just pushes too many moral hot buttons...”
From Ericsson (page 97), “Students should be taught and trained to attain an advanced level of performance in at least one domain, so they will know how to improve performance in their future profession and how expert performance can be attained with appropriate practice and feedback under the guidance of teachers.” From Flynn (page 101), “As recently as 10 years ago, a steel chain of ideas dominated the minds of those who studied and measured intelligence. Much of my own contribution has been to break its links...Science progresses not by labeling some ideas as too wicked to be true, but by debating their truth.” From Gardner and colleagues (page 128), “We are left with the question of what the visitor from another galaxy might conclude about human cognitive capacities...Perhaps, indeed, she might reveal some intelligences that we earthlings cannot even imagine.”

From Gottfredson (page 131-132), “Intelligence is no longer a scientifically useful concept...The phenomenon in question is now best identified as g ... and is best described by evidence converging from different levels of analysis.” From Grigorenko (page 158-159), “The realization that early-life environmental stimuli... can cause measurable and stable changes in the epigenome that contribute to... maturation in intelligence... has numerous implications.” From Haier (page 178), “Once we understand how genes [related to intelligence] work, there is every reason to believe that sooner or later, we can change ... intelligence... Wouldn’t we have a moral obligation to offer this if we knew how to do it?” From Halpern and Butler (page 185), “…we assert that scores on a critical thinking assessment have real-world validity and when
used along with IQ scores they can increase predictive validity for real-life events that require good thinking.”

From A. Kaufman (page 197), “I entered the field at a time when IQ tests were largely unchallenged and enjoyed wide acceptance... I exit the field at a time when IQ tests have the potential to build off of a supernova of new ideas, research, theory, and technological capability – yet may be slowly sinking into irrelevance.” From S.B. Kaufman (page 226), “...I... define(personal) intelligence as the ability to adapt to the environment in pursuit of personal goals. What I want to do is put the whole person back into the intelligence picture.” From Lubinski (page 247), “Unfortunately, approximately half of young adolescents in the top 1% in spatial ability are missed by modern talent searches restricted exclusively to mathematical and verbal reasoning ability.”

From Lynn (page 256), “Our publication of IQs for all nations in the world...has generated a research program that has established substantial correlations between national IQs and a wide range of...variables. From Mayer (page 281), “The research on people-centered intelligences has been eye-opening... To succeed in life doesn’t depend just on “who you know” or “what you know,” but also on “what you know about who you know”. From Shipstead and Engle (page 301), “From our perspective, the root of effective problem-solving ability is the working memory system itself.” And from Sternberg (page 308), “Successful intelligence is one’s ability to choose, reevaluate, and to the extent possible, attain one’s goals in life, within one’s sociocultural context.”
For the record, and for the sake of pedagogy, I could take issue with many of these views. Any good instructor would have a delightful time assigning students to present a chapter summary at each class and then guiding discussion of the issues raised and the supporting data.

Intelligence research is rich for discussion based on empirical data, although the PC/Social Justice Warrior atmosphere in some colleges and universities might require courage and patience to engage and educate students (and some faculty) who believe with absolute certainty that intelligence research is somewhere between pseudo-science and evil. They are demonstrably wrong, as abundantly apparent in this volume (and many others). Intelligence is among the most important topics in scientific psychology. Although much remains to learn, there is no replication crisis about key empirical findings, and no lack of enthusiasm either among young researchers or the older ones represented in this volume.

The field is growing slowly but surely. I know from editing the journal *Intelligence* (https://www.sciencedirect.com/journal/intelligence?sdc=1), and from my participation in the International Society for Intelligence Research (ISIR; http://www.isironline.org) that the next generation of intelligence researchers is superbly trained and well versed in data from well-designed studies they publish. They understand the challenges of the field and are eager to take them on. Books like *The Nature of Human Intelligence* play an important role supplementing undergraduate education beyond introductory textbooks. Important books are available for all levels, including a revised edition of Hunt’s 2011 textbook (by Haier and Colom, expected 2019 or 2020) and others in the works. We need more courses about intelligence in all its facets to
reach more students, and that is a contribution every academic psychologist can make whether an intelligence researcher or not.

At the editor’s request, Bob and I are writing parallel reviews of our respective books for this journal. This is a bit odd. My single-authored book (Haier, 2017) focuses on my particular point-of-view on one aspect of intelligence research---neuroscience, especially brain imaging and genetic studies using high g-loaded measures (the overwhelming majority of measures used in these studies). His edited book paints a broad view of the current state of almost the entire field. Both books, however, have the same goal of conveying the importance and vitality of intelligence research. I hope students get to read each one as a prelude to venturing even further and deeper into this most fundamental aspect of human nature.

References


