

*The Psych 101 Series*

# IQ TESTING

# 101

**Alan S. Kaufman**

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# The Psych 101 Series

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# IQ Testing

101

**Alan S. Kaufman, PhD**

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Springer Publishing Company, LLC  
11 West 42nd Street  
New York, NY 10036  
www.springerpub.com

*Acquisitions Editor: Philip Laughlin*

*Project Manager: Mark Frazier*

*Cover design: Mimi Flow*

*Composition: Apex CoVantage, LLC*

Ebook ISBN: 978-0-8261-2236-0

09 10 11 / 5 4 3 2 1

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Library of Congress Cataloging-in-Publication Data

Kaufman, Alan S., 1944-  
IQ testing 101 / Alan S. Kaufman.  
p. cm.

Includes bibliographical references and index.

ISBN 978-0-8261-0629-2 (alk. paper)

1. Intelligence tests. I. Title. II. Title: IQ testing one hundred one.  
III. Title: IQ testing one hundred and one.

BF431.K387 2009

153.9'3—dc22

2009014901

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Printed in the United States of America by Hamilton Printing

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# Contents

Acknowledgments ix

**Chapter 1** Why Would Anyone Want to Read a Book About IQ Testing? 1

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**Chapter 2** History, Part 1: Who Invented the IQ Test? 15

---

**Chapter 3** History, Part 2: At Long Last—Theory Meets Practice 55

---

**Chapter 4** The IQ Construct, Part 1: We All Know What IQs Are—Don't We? 103

---

**Chapter 5** The IQ Construct, Part 2: How Accurate Are IQ Tests? 137

---

**Chapter 6** Hot Topic: Is IQ Genetic? 171

---

**Chapter 7** Hot Topic: Are Our IQs “Fixed” or Are They “Malleable”? 201

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## CONTENTS

<b>Chapter 8</b>	Hot Topic—IQ and Aging: Do We Get Smarter or Dumber as We Reach Old Age?	223
<b>Chapter 9</b>	Hot Topic—IQ Tests in the Public Forum: Lead Level, Learning Disabilities, and IQ	249
<b>Chapter 10</b>	The Future of IQ Tests	287
	References	301
	Index	335

# Acknowledgments

I am extremely grateful to three psychologists, Dr. Ron Dumont, Dr. Darielle Greenberg, and Dr. John Willis, who read an earlier draft of the entire manuscript and who made dynamic contributions to *IQ Testing 101* with their incisive edits, their suggestions, their corrections, and their challenging questions. Their contributions were exceptional and highly valued, as was that of Dr. Linda Silverman, who provided historical insights into Guilford's theory and read carefully the sections on intelligence theories. I am also thankful to Ms. Cynthia Driscoll, an attorney with a specialty in lead litigation, for her helpful comments on the section about the effects of blood lead on children's IQs.

An enormous debt of gratitude is due to Pearson Assessments—especially to Mr. William Schryver, Dr. Larry Weiss, Dr. Mark Daniel, Dr. Susan Raiford, Dr. Aurelio Prifitera, and Dr. Carol Watson—for allowing me to include figures, numerous illustrative test items, and quotations from a variety of tests and products that they publish. The sample items helped bring to life the nature of the tasks that compose the individually administered clinical IQ tests designed for children and adults. The quotations contributed greatly to the portion of chapter 9 devoted to the assessment of specific learning disabilities. All Flanagan, Kaufman, Kaufman, and Lichtenberger (2008) quotations that appear in chapter 9 are from a videotaped training program devoted to the “Best Practices” for identifying children

## ACKNOWLEDGMENTS

with SLD: *Agora: The Marketplace of Ideas. Best Practices: Applying Response to Intervention (RTI) and Comprehensive Assessment for the Identification of Specific Learning Disabilities* [DVD]. Copyright © 2008 by NCS Pearson, Inc. Reproduced with permission. All rights reserved.

Dr. Daniel also kindly provided me with data from the KABC-II to permit comparison of IQs earned by children on different tests and on separate scales within a test. I am also thankful to Dr. Emily Krohn and Dr. Robert Lamp for allowing me access to their data on young children tested twice on two different IQ tests to help demonstrate that IQs differ across tests and across time. I am grateful to John Wiley & Sons for giving me permission to include figures and quotations from various of their publications (I am especially grateful to Ms. Peggy Alexander of John Wiley & Sons), and to Drs. Dawn Flanagan, Jack Naglieri, and John Willis for providing me with slides of their figures. And I gratefully acknowledge the Publications Department of the National Association of School Psychologists (NASP) for allowing me to liberally use and adapt quotes from articles, based on my invited Legends of School Psychology address, that appeared in the *NASP Communiqué* in 2005 (I am especially grateful to Mr. Chris Goode and Dr. John Desrochers of the Publications Department). I am also thankful to Consulting Measurement Group, Inc., especially to Dr. Jason Cole and Ms. Jessica Lee of that organization, for developing many of the figures that appear in this book.

I would like to thank Philip Laughlin of Springer Publishing for inviting me to write this book, for giving me feedback on the manuscript, and for his unflagging support every step of the way to its publication.

Finally, I want to thank my family for their love and support throughout this project, and for their contributions to the content of the book (many of my family members are psychologists)—my wife and scholarly colleague, Dr. Nadeen L. Kaufman (the love of my life ever since we were teenagers); my children, Dr. Jennie L. Singer (a clinical psychologist and professor of criminal justice)

## ACKNOWLEDGMENTS

and Dr. James C. Kaufman (to whom I am also grateful for inviting me to write a book for the Psychology 101 series that he edits, and for his valuable insights and assistance with this project); and my adult granddaughters, Ms. Nicole Hendrix and Ms. Catherine Singleton.



# Why Would Anyone Want to Read a Book About IQ Testing?

It will be less painful if I just come right out and admit it: I develop IQ tests. I've been doing it for over 30 years and I even have a partner in crime—my wife, Nadeen. We have been successful. Our Kaufman Assessment Battery for Children or K-ABC (Kaufman & Kaufman, 1983) and its revision, the KABC-II (Kaufman & Kaufman, 2004a) have been translated into many languages and are used in schools and clinics around the world. We've also had glitches. Our Kaufman Adolescent and Adult Intelligence Test (KAIT; Kaufman & Kaufman, 1993), sadly, has been all but ignored in the United States. But neither success nor failure makes it easier telling people what we do.

When someone asks us about our jobs, we try to get away with a terse “psychologist” or “psychology professor,” but most want more information (probably because they're afraid we've

already begun to psychoanalyze them). Sometimes we have the courage to say, “We write IQ tests,” and just gear up for the range of emotions that awaits us—anything from curiosity to admiration to disgust. We’d like to answer the “What do you do for a living” question with the smug confidence of Faye Dunaway in the 1967 movie classic *Bonnie and Clyde* when she announces, “We rob banks,” but our words always come out as a timid apology.

Try not to hold my job against me and try to refrain from the knee-jerk response that IQ tests are unfair, maybe even dangerous, and require the label: WARNING—MAY BE HAZARDOUS TO YOUR CHILD’S HEALTH!! That’s myth, not reality. IQ tests had a difficult birth in England and France more than a century ago, had an accelerated childhood in the United States during World War I, and have experienced the turmoil of adolescence ever since. But they have improved, and aren’t simply one-dimensional villains. Maybe you’d like to put the IQ test in the place where you think it is best suited (and perhaps flush it). You would not be in bad company. In fact, in 1922, in a series of six essays that appeared in the magazine *New Republic*, Walter Lippmann, an influential political commentator and journalist, skewered one of the early incarnations of intelligence testing—the army intelligence tests (Block & Dworkin, 1976).

But before you adopt the extremist position that IQ tests can do no good, first learn about these tests and the mysterious IQs they yield, and then make an informed decision. You may still think the world can easily do without them, but you may come away with more insight about your own intelligence and what’s likely to happen to your mental abilities as you approach old age. At the least, you’ll have a better idea why some people think the tests are of little or no value; or maybe you’ll even start to like them, warts and all, and reach a grudging acceptance of how they can actually benefit society. I hope so. That is one of the reasons why I wrote this book.

But it’s not the only reason. IQ is a prevalent concept within society and is part of the vernacular of professionals and

laypersons alike. U.S. culture is steeped in the IQ tradition, and one is apt to hear the question "What's your IQ?" when overhearing the casual conversation of adolescents or adults or simply watching a TV sitcom. IQ is often used to mean nothing more than "background knowledge," as in magazine quizzes intended to test your "Professional Football IQ" or "Classic Movies IQ."

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## "I FOUND OUT MY IQ"

"My IQ's 144; what's yours?" someone might ask. "I saw it on my transcript." "Just 121," you reply, trying to hide your blend of embarrassment and envy. And fury that you could possibly be dumber than the cabbagehead with proof positive that she's smarter than you.

Though people often criticize IQ tests, and may call them biased or invalid, the IQ test still possesses an aura of mystery and fear when it comes to your own IQ. "I peeked at my school record," or "I overheard my mom and dad talking when they thought I was sleeping," or "My therapist told me," or "I saw it on the vocational counselor's desk when she looked away," or "I just took an IQ test on the Internet." There's always some secrecy involved, and a little ingenuity on the part of those who desperately want affirmation of what they already know (that they're brilliant). And there's the accompanying panic that they will score lower than anyone in the history of the world.

Some people believe in the magical IQ, the single number that sums up a person's mental ability, a number that is imprinted perhaps somewhere inside the skull or in a cranial crease, immutable and eternal. Well, it's a crock, a common misconception. There's no such thing as a person's IQ. It varies. Change the IQ test and you change the IQ. Change the examiner, the day of the test, the person's mood, or the examiner's alertness, and you change the IQ. Test the person 12 times and you might get a dozen different IQs.

Much of the lore around IQ and the tests that measure IQ is steeped in misconceptions or half-truths. Some people have a stimulus-response reaction (“IQ tests? They’re biased.”), but most have no real conception of what an IQ test looks like or what it measures. A simple aim of this book, on a nuts-and-bolts level, is to present a commonsense approach to what IQ is and what it is not, and to the nature of IQ tests. A deeper goal is to clear up misconceptions about IQ and IQ tests and to educate readers about this controversial topic that belongs not just to psychologists or educators but to all of society. The bottom line? To excite readers about a topic that has inspired and thrilled me for more than 40 years, and to offer answers to such real-life questions as “Do we get smarter or dumber as we get older?” “Is IQ genetic?” “What is a learning disability?” and “Will a little bit of lead in our preschool children’s blood lower their IQs forever (and maybe turn them into delinquents)?”

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## INDIVIDUALLY ADMINISTERED VERSUS GROUP-ADMINISTERED IQ TESTS

You’ve all taken IQ tests, or at least think you have. In school, maybe, or when applying for a job, or some other time you’re not quite sure of. You’ve sat in your chair next to dozens of others taking the same test. You’ve stared at the string of inane multiple-choice items, most ending with “All of the Above” or “None of the Above” or even “A and C, but not B.” The most dreaded items always include one answer you absolutely know is right. But just before you blacken in the box for Response A, you notice that the next-to-last choice is tempting (“Both A and C are correct”), while the last choice instantly moistens your armpits (“A is always correct, B is sometimes correct, and C is partially correct during tornadoes or earthquakes”).

Most people think of IQ tests as multiple-choice affairs that require as much skill as Pin the Tail on the Donkey. They’re not.

## WHY WOULD ANYONE WANT TO READ A BOOK ABOUT IQ TESTING?

Some IQ tests are given to groups and are composed of questions with four or five choices, but these are not the IQ tests that are used for the clinical evaluation of children, adolescents, or adults who are referred for diverse reasons, such as possible brain damage, emotional disturbance, giftedness, or learning disabilities. Neither are the kinds of IQ tests you can take on your computer, by clicking on a Web site that promises to present you with your IQ in a matter of minutes. (Those IQ tests are practically worthless in every way, which will become evident as you read the next few chapters.)

Wechsler's tests (such as the WISC and WAIS), the Stanford-Binet, the Kaufman tests, and the Woodcock-Johnson tests (all discussed in the chapters that follow) are *individual* tests, administered one-on-one by an expert in clinical assessment. These are the kinds of IQ tests that form the focus of this book. The particular IQ tests just listed, and a handful of others, are the tests that are used to help make real-life decisions: Is an elderly man competent to manage his own affairs? Does a 9-year-old girl have a specific learning disability? Is a nurse who poisoned 20 patients mentally ill, brain damaged, or at least a little quirky? Is Daryl Atkins, a convicted murderer, smart enough to be executed for his crime?

I'm not finding fault with group IQ tests. It's simply that group IQ tests, the kind most of us are familiar with, are quite different from individual IQ tests. Even people who have heard of Wechsler's tests have a preconception that they are paper-and-pencil tests, and I want to break that association. Try to start thinking of IQ tests as personal experiences, where the examiner has met you and calls you by name, not as a no-win encounter between you and a computer-scored answer sheet. In fact, most individual IQ tests require little, if any, reading and writing.

I've seen misconceptions in unlikely places, such as the *Sporting News*, that jokingly proposed to settle an IQ dispute between a basketball coach and a player by having the two men "placed in glass-enclosed booths and scribble furiously as they plow through the Wechsler Adult Intelligence Scale" ("Keeping Score," 1988).

What are individual tests of intelligence *really* like? What kinds of open-ended questions are included in the verbal and nonverbal portions of IQ tests? If you let your imagination and anxiety run wild, you might conjure up the following kinds of “IQ” items:

### Verbal Intelligence

- Describe the history of the Papacy from its origins to the present day, concentrating especially (but not exclusively) on its social, political, economic, religious, and philosophical impact on civilization. Be brief, concise, and specific.
- Take a position for or against truth. Prove the validity of your position.
- Develop a realistic plan for refinancing the national debt. Trace the possible effects of your plan in the following areas: cubism, the Donatist controversy, the 1969 World Series, and the wave theory of light.

### Nonverbal Intelligence

- You have been provided with a razor blade, a piece of gauze, and a bottle of vodka. Remove your appendix. Do not suture until your work has been inspected. You have 20 minutes.
- Write a piano concerto. Orchestrate and perform it with flute and drum. You will find a piano under your seat.
- The disassembled parts of a high-powered rifle are in a box in your desk. In 10 minutes, a hungry Bengal tiger will be admitted to your room. Begin!

But these test questions, which I’ve borrowed from a highly creative but anonymous source from a generation ago, appear as IQ items only in our nightmares. The open-ended questions in individually administered IQ tests are challenging but not outlandish, as will become clear in the next two chapters, which deal with the history and development of the array of exceptional IQ tests on today’s testing scene.

## WHY WOULD ANYONE WANT TO READ A BOOK ABOUT IQ TESTING?

When I first learned to give IQ tests back in 1967 during my clinical training at Columbia University, I was eager to try out this new toy. And it is a toy. The test kits for individually administered clinical IQ tests are filled with concrete, toy-like materials like blocks and pictures and puzzles and verbal games.

So I was eager to play with my new toy. I administered the IQ tests to more children and adults than I was required to, because my neighbors in Baldwin, New York, seemed so interested in what I was doing and I was caught up in the power I felt when I walked into someone's home holding my Wechsler Intelligence Scale for Children (WISC) kit in its maroon carrying case. One Saturday morning, I spent nearly two hours testing Tommy, an athletic child of about 8. When we were done, we walked upstairs from the basement of his house. My mind was somewhere in space, as I was planning my afternoon's work of scoring Tommy's test protocol, obtaining his IQs, and preparing the feedback conference that I had promised each neighbor.

Tommy's parents greeted me at the top of the stairs, looking visibly shaken, perhaps grief-stricken. Neither parent was able to speak, and Tommy's mother seemed to be fighting back tears, when she was finally able to blurt out: "We can't take the suspense any longer. Will he get into Harvard or not?!?" Well, no IQ tests are *that* valid.

---

## VALIDITY AND RELIABILITY OF IQ TESTS

IQ tests predict pretty well, but not with pinpoint accuracy, not in isolation, and not 10 years down the road. And IQ tests sometimes yield high scores for people who act dumb; no one denies that. *The Book of Lists #3* (Wallace, Wallechinsky, & Wallace, 1983, p. 409) tells us that a 29-year-old Florida woman named Tina had an IQ of 189. She became obsessed that she was dying from stomach cancer, the illness that had killed her mother, and vowed to cleanse her body. Her method: eating no food for days

at a time, but drinking as much as four gallons of water a day. The result: Tina actually drowned herself from the inside out, overwhelming her kidneys and lungs with fluid. Not too bright for a genius.

IQ tests make mistakes, but they have been shown to be valid for over a century. They correlate substantially with children's achievement in school (Naglieri & Bornstein, 2003), and they have "high validity predicting performance ratings and training success in all jobs" (Hunter, 1986, p. 359), especially complex jobs such as those of managers, clerks, and salespersons (Ghiselli, 1966, 1973). IQs are much higher, on average, for highly educated adults than for those with only a few years of formal schooling, and that is true whether one is evaluating language ability (related to schooling) or the ability to solve novel problems that are not taught in school (see chapter 4).

But, rather like the best opinion polls, IQ tests (even the most accurate and reliable tests) contain errors of measurement, and different tests yield different IQs for the same person; so do different examiners; and so do different IQ scales within the same test. I cover all of these issues in chapter 5 ("The IQ Construct, Part 2: How Accurate Are IQ Tests?"). In that chapter, I let you in on some trade secrets to make sure that you abandon, once and for all, the idea that a person has a single IQ. Actually, I take the risk in chapter 5 that maybe you'll stop reading the book and toss it in the waste basket because the darned IQ is too wishy-washy to be anything but worthless.

It's not. But I can't try to package the IQ as a magical elixir and disguise it as an unblemished tool used by pure scientists in a sterile laboratory. It's not that either. In chapter 2 on the history of IQ tests, the answer to the question posed in the title ("Who Invented the IQ Test?") is a Frenchman by the name of Alfred Binet. But he did more than invent the first IQ test. He taught us that to measure something as complex as human intelligence, you must be able to live with a margin of error. If Binet was able to accept error when he invented the test, then I think we ought to be able to tolerate imperfection more than a century later,

when IQ tests have been improved and refined beyond Binet's imagination (chapter 3). I'm hoping you will agree.

---

## IQ TESTS AND CONTROVERSY

I have been on the firing line of IQ controversy since 1968 when I worked for the test publisher that created the leading IQ tests in the world—Wechsler's tests. I worked directly with Dr. David Wechsler in the early 1970s, helping him develop the revision of the Wechsler Intelligence Scale for Children—the WISC-R (Wechsler, 1974). My book, *Intelligent Testing With the WISC-R* (Kaufman, 1979b), presented a psychometric and clinical method of profile analysis that "had a profound effect on intelligence test interpretation" (Kamphaus, Winsor, Rowe, & Kim, 2005, p. 28). I knew the title would be misspelled in most reference lists as "intelligence testing" (the title was misspelled in my contract with the book publisher, John Wiley & Sons). But I loved the term *intelligent testing*—which was coined by one of my mentors, Alexander Wesman (1968)—because in my experiences as test developer, researcher, and trainer of school and clinical psychologists, I had seen so much *stupid* testing. In fact, the interpretive approach that I termed the intelligent testing philosophy has been the source of past and current controversy by critics who don't think it's so smart at all (e.g., McDermott, Fantuzzo, Glutting, Watkins, & Baggaley, 1992; Watkins & Canivez, 2004). So, too, has been the theory-based test that my wife and I developed in 1983, the K-ABC, which took a new perspective on how intelligence should be measured and which greatly reduced IQ differences among ethnic groups. Approaches that deviate from the traditional produce emotional responses, and I have always had one foot firmly planted in the hotbed of controversy (see Miller & Reynolds, 1984, for the full flavor of the emotional controversies surrounding the K-ABC).

Even now, apart from my role as IQ test developer, I am in the midst of IQ controversies. I have published articles during the

last half-dozen years that have been frankly critical of the research studies that have implicated low blood lead level and other toxins as the cause of serious neuropsychiatric deficits, much to the anger of the researchers who have used their findings to change public policy and to generate huge amounts of federal funding (Cicchetti, Kaufman, & Sparrow, 2004a, 2004b; Kaufman, 2001a, 2001b). I have also published articles on the provocative new legislation (“IDEA 2004”) on revised guidelines for learning disabilities assessment and have incurred the wrath of those who insist that we should “Just say no” to the use of IQ tests for identifying and diagnosing children with learning disabilities (Hale, Naglieri, Kaufman, & Kavale, 2004; Kavale, Kaufman, Naglieri, & Hale, 2005).

I don’t mind being at the center of these controversies. Actually, I must admit that I rather enjoy it. I believe in the value of IQ tests if they are used appropriately and are intended to help children and adults. I am aware, however, that many people use and interpret IQ tests stupidly. Stupid testing, for example, occurs when a boy with an IQ of 132 is called *intellectually gifted* and accepted into an accelerated class, while one scoring 127 is left to feel like a loser. Dumb testing is labeling an adolescent girl with an IQ of 64 as having an *intellectual disability*—the same girl who comes home every day after school to prepare dinner for the family and help supervise her eight siblings while Mom and Dad are at work. (Intellectual disability is a new, official, politically correct term for mental retardation. But it’s defined the same way, so it doesn’t change anything.)

The only ways that I know of to combat the stupidity is to improve the measurement of IQ, challenge traditional approaches, and put myself in the line of fire. That, I believe, is the best way to reach out and effect change. And that is one of the reasons I wrote *IQ Testing 101*. I’d like to reach out to students, professionals, and anyone in society with an interest in IQ and help shape them into intelligent testers (even if figuratively and not literally) who understand what IQ tests are and how they can be used as instruments of help rather than pain.

## EXCITING IQ RESEARCH

But it is not only controversies that are at the root of *IQ Testing 101*. I also want to share the results of the exciting research on aging and IQ that I have been conducting for the past 20 years with my colleagues (Kaufman, 2001c; Kaufman, Reynolds, & McLean, 1989), including the fascinating study recently published on the growth and decline in reading, writing, math, and IQ from young adulthood to old age (Kaufman, Johnson, & Liu, 2008). And I want readers to understand the *Flynn Effect*, the notion that our American society gets smarter at the constant rate of 3 IQ points per decade (Flynn, 1987, 2007)—an optimistic-sounding result until one realizes that the United States trails nearly all other developed nations in IQ gain. This array of studies tells us where we are heading, as individuals who are aging and as a society. When buttressed with the chapters on the history of IQ testing and the meaning of IQ, the several chapters on current IQ controversies, and a final chapter on where I believe the field of IQ testing is heading, this book presents snapshots of the past, present, and future of the fascinating field of IQ testing.

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## THERE'S REALLY NO SUCH THING AS IQ TESTING

I need to end this introduction with a small disclaimer. This book is called *IQ Testing 101* and I will be using the term *IQ testing* from start to finish. But there is really no longer an IQ, much less an IQ test. IQs are, literally, Intelligence Quotients, but the so-called IQ tests haven't yielded actual quotients for a few generations, as discussed in more detail in chapter 4.

Originally, IQ was thought of as a ratio of Mental Age (MA) divided by Chronological Age (CA) and multiplied by 100. Mental age was the age at which a person was functioning intellectually

according to the test. So if a person of any age scores as well as the average child of 8 on an intelligence test, then that person's MA = 8 years. For an 8-year-old, an MA of 8 yields an IQ of 100. At age 6, MA = 8 corresponds to an IQ of 133 (great performance), and at age 16, the IQ of 50 is not so good. The idea was clever, but it didn't work too well, because one year's growth in mental ability or height has very different meanings across the age range—it corresponds to a great deal of growth from age 3 to 4, for example, but not so much from age 16 to 17. And what do you do with adults who are 25 or 40 or 80 years old? The whole notion of the ratio IQ falls apart.

So back in 1939, David Wechsler (more about him later) got rid of the quotient and replaced it with standard scores, a terrific statistic. But he continued to call the overall scores IQs. The Stanford-Binet replaced the traditional quotient with standard scores in 1962, begrudgingly following Wechsler's lead. But like Wechsler (1939), Terman and Merrill (1960) retained the anachronistic term IQ for the Stanford-Binet. Wechsler's (2003, 2008) scales still yield Full Scale IQs, but the Binet gave up the term in its fourth edition, replacing it with the euphemistic Standard Age Score Composite (Thorndike, Hagen, & Sattler, 1986). And a plethora of labels abound for other tests, such as the Mental Processing Composite, General Cognitive Index, General Conceptual Ability, Broad Cognitive Ability Composite, Fluid-Crystallized Index, and on and on.

The IQ as a ratio or quotient is long gone, and the IQ test label should be a thing of the past. Today's tests are referred to as cognitive ability tests, mental processing tests, or tests of multiple cognitive abilities by the professionals who develop the tests and by those who interpret them. But "IQ test" remains in the public's vernacular and is alive and well in the professional community as well. So I will be using the terms IQ and IQ test throughout, even though I know quite well that neither label is technically correct. But they do communicate. And they are much quicker to write and say than "Broad Cognitive Ability Composite" or "standard-score-yielding-multiple-cognitive-abilities test."

## THE VALUE OF IQ TEST DEVELOPERS

I'll end this chapter with an anecdote I told a few years ago at an invited address at the National Association of School Psychologists (NASP) convention in Atlanta, a talk that was reprinted in the *NASP Communiqué* (Kaufman, 2005a, 2005b).

When the K-ABC was first published in 1983, there was a lot of media coverage, which made us think that maybe we were important or, at least, doing something important. One morning, just before we had to fly to Philadelphia for a TV interview, we were at the University of California campus in San Diego, about to be interviewed for a Canadian radio show called *Quirks and Quarks*. They had invited three different groups of researchers to be interviewed. The interviewer knew nothing about the research topics, and, just before the program started, asked the first group of researchers what they did. A male professor of astronomy said, "We are physicists and astronomers and we feel that we have come up with a theory that makes the big bang theory obsolete. We think that we truly know how the world got started." The interviewer found that very interesting and asked the next group. A female professor at the UCSD medical school said, "We're working on cancer research and finally, last week, we think we have this breakthrough, a cure for six kinds of cancer." The interviewer was impressed and then looked at us and asked, "What do you two do?" I said in a small whisper, "We write tests." He said, "Sorry, could you speak up?" I said a little louder, "We write IQ tests." His jaw dropped and he said in a too-loud voice, "IQ tests! Why are they important?" And Nadeen and I looked at each other and we said in one voice, "We have no idea." In our field it helps to keep perspective and maintain a sense of humor.<sup>1</sup>

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