

ALAN S. KAUFMAN  
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DIANE L. COALSON

# INTELLIGENT TESTING

WITH THE

# WISC<sup>®</sup>-V

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*INTELLIGENT TESTING  
WITH THE WISC<sup>®</sup>-V*

Alan S. Kaufman, Susan Engi Raiford, and Diane L. Coalson

WILEY

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*For Nadeen, My Sweet Lady,  
Alan*

When you are old and grey and full of sleep,  
And nodding by the fire, take down this book,  
And slowly read, and dream of the soft look  
Your eyes had once, and of their shadows deep;  
How many loved your moments of glad grace,  
And loved your beauty with love false or true,  
But one man loved the pilgrim soul in you,  
And loved the sorrows of your changing face ...

From "When You Are Old"  
By William Butler Yeats

• • •

*For Robert, whose love is patient, kind, not envious, not boastful, not proud, not rude, not easily angered, keeps  
no record of wrongs, always protects, always trusts, always hopes, always perseveres, and never fails.*

*For George, my beloved son, with whom I am well pleased.*

*For God, I can do all this through you, you strengthen me.*

*Susie*

• • •

*For David,*

*We need one another, not to fill an emptiness, but to grow from our fullness together. We embrace but do not  
encircle the other. We succeed in all the important ways and do not fret about the small stuff. We have happiness  
and find it in making one another happy. We have love, and we find it in loving one another. As promised, now  
and forever.*

*Diane*



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# FOREWORD ON THE ORIGINS OF “INTELLIGENT TESTING”

ALAN S. KAUFMAN

When I started working at The Psychological Corporation in 1968, I was 24, a father of a 2-year-old girl, Jennie (and Nadeen was about to deliver number 2, David), and I was 2 years away from earning my PhD at Columbia. I was also 2 years away from starting a 4-year apprenticeship with David Wechsler that began with an item-by-item critique of the 1949 WISC and ended with the publication of the WISC-R in 1974. Post-Wechsler, I left The Psychological Corporation for the University of Georgia, where I began my academic career. (Paul Torrance was the chair of the department and, like Dr. Wechsler, was a mentor who had a profound influence on the direction my career would take.)

And 1968 was also when I met Dr. Alexander Wesman, director of Psych Corp’s Test Division. He was a gentle-speaking and humble man, in his mid-50s (who would never reach 60 because of a sudden heart attack), with a wealth of wisdom and a lifetime of experience working side by side with Dr. Wechsler and all other authors who published their tests with his beloved Psych Corp. His office lined the east wall, facing the UN Building, and he was my first real boss. The first time I entered his office he handed me a reprint of an article that he had just published in *American Psychologist*. He didn’t say much about it, just asked me to read it when I had the time. I was intrigued by the title —“Intelligent Testing”—and read it on the train ride home that night.

Dr. Wesman’s premise was that a test’s classification—as a test of aptitude, intelligence, or achievement—was unimportant. Every test was a measure of what each of us has learned, whether formally or informally, intentionally or by accident. What mattered was *how* the test was interpreted, how it was used to change people’s lives. Test scores must make a difference. If the test scores just sit inertly in someone’s file, then that is stupid testing. Intelligent testing became my credo, though I didn’t really know it at the time. It did not become apparent until I had served most of my clinical apprenticeship with Dr. Wechsler and finally had internalized his assertion—often said with exasperation—that his tests were *clinical* tools that went way beyond Terman’s psychometrics. The Wesman-Wechsler combination gave me a philosophy. But I still lacked a methodology.

The method came from Nadeen, courtesy of her doctoral program in the emerging field of learning disabilities at Columbia University. Nadeen had a brilliant mentor in the Special Education Department, Margaret Jo Shepherd. At the psychoeducational clinic the doctoral students would do an intake with parents in the morning, then test the child, come up with hypotheses and new strategies for assessment during lunchtime, continue the testing in the early afternoon, score and interpret the data in the late afternoon, and give the parents a feedback conference—with a list of intervention strategies—before the sun had set. But the interpretive approach was totally different from what I had learned in the neighboring Psychology Department. I was taught reliability, validity, norms, standard error of measurement, factor analysis by Robert Thorndike in one IQ course; in my other IQ course I was taught about the powerful influence of personality on test scores. What did they teach me? If you

see a higher backward span than forward span—that is undoubtedly due to “negativism.” If you observe a substantially higher P-IQ than V-IQ in a person of average or above-average intelligence—watch out for hysteria, narcissism, or psychopathic character disorder.

Nadeen was taught about strengths and weaknesses in the cognitive profile. About looking for consistencies across subtests to uncover hypotheses about a person’s *relative* assets and deficits and to focus on how to best capitalize on the assets to ameliorate deficits in cognition as well as in reading, math, and writing. She was taught to operate out of the “learning disabilities” model of input-integration-storage-output. To think in terms of various perceptual-motor and psycholinguistic models to pinpoint where the student’s learning was going wrong, and to try to fix it. To focus on the child’s or adult’s behaviors during the evaluation and to use those behaviors as linchpins for test interpretation and interventions.

It was not what I was taught. And I don’t think I gave her methods much credence while I was working with Dr. Wechsler to develop the WISC–R. But when I started training school psychologists at the University of Georgia, I suddenly realized that my background in IQ testing, even the articles I had published on WISC–R factor analysis and scatter, did not tell me how to teach profile interpretation or how to grade case reports. And Dr. Wechsler provided me with the knowledge that the WISC–R and Stanford-Binet were first and foremost clinical instruments, and I knew that *he* was a master clinician, who could gain great meaning from a person’s verbal responses to his Vocabulary or Comprehension items. But I didn’t know how to operationalize his philosophy. Nadeen did.

What became the “Kaufman method” of interpreting the WISC–R, the veritable backbone of the intelligent testing philosophy, was a merger of the psychometrics I had learned in my psychology courses and the clinical applications that Nadeen had internalized from her learning disabilities clinic with Jo Shepherd. The method indeed had problems, flaws that critics would enjoy pointing out over the next couple of decades. The “shared abilities” that emerged were not validated. They were based on theories that were popular at the time but didn’t have staying power. Sam Kirk’s psycholinguistics model, derived from Osgood’s theory of communication, yielded shared abilities like “visual perception of meaningful stimuli” and “verbal expression.”

Alex Bannatyne’s system for reorganizing the WISC subtests (“sequential,” “spatial”) was enormously popular among reading disabilities specialists, but his categories would first drop out of sight completely and then be reincarnated into the more sophisticated model of Luria’s neuropsychological processing approach. And J. P. Guilford’s Structure of Intellect (SOI) model was embraced by gifted assessment in the 1970s and produced numerous shared abilities in the original WISC–R model such as convergent-production of figural implications. But Guilford’s popularity in the field of IQ testing plummeted with the rise of Horn’s expansion of the Horn-Cattell *Gf-Gc* theory in the 1980s and 1990s. Guilford had too many abilities to consider, well over 100, whereas the growing number of Horn abilities could be counted on the fingers of first one hand and then two. Dr. Wechsler was not overly impressed by the clinical or practical value of Guilford’s theory of intelligence. In 1958 he noted that some 40 different SOI factors had been identified. But Wechsler dismissed them as trivial because “most of these would hardly occur in any standard test of intelligence.”

So the building blocks of the first intelligent testing interpretive methodology were derived from popular theories in the 1970s, none of which had staying power. The multitude of shared abilities encouraged examiners to identify strengths and weaknesses that relied on statistical procedures (not just the popular “eyeballing” that characterized methodologies of the 1960s). They encouraged examiners to think of all of the possible reasons why a child or adolescent had an asset or deficit in a particular grouping of subtests, and whether that strong or weak area was due to a problem in taking in the stimuli, processing them, storing them, or expressing them manually or verbally.

But the shared abilities were based mostly on theories that would soon be outdated. They were not empirically validated or even relevant for the theories that would take the place of Kirk-Osgood, Guilford, Bannatyne, and others. In effect, they were *placeholders* until John Carroll, Raymond Cattell, J. P. Das, Dawn Flanagan, John Horn, Edith Kaplan, Marit Korkman, Alexander Luria, Kevin McGrew, Jack Naglieri, Richard Woodcock, and other notable clinician-theorists came along. Those placeholders allowed a generation of examiners to formulate hypotheses using the methodology that had its origins in Alan's psychometrics, Dr. Wechsler's clinical approach, Alexander Wesman's principles of intelligent testing, and Nadeen's clinically oriented psychoeducational training. The *process* of intelligent testing has remained virtually intact over generations, as is evident in all of the state-of-the-art chapters on clinical applications that comprise Part IV of this book. The intelligent testing process is evident in the 17 case reports that are featured in that part. But the unvalidated shared abilities from the original book on the WISC-R have given way to contemporary, theory-based, empirically validated abilities and processes. The field of intelligent testing has grown and evolved to the "genius" level, a level that I wasn't even close to being able to visualize in the late 1970s. I learned so much this past year by collaborating with Susie Raiford and Diane Coalson, each bringing special gifts to the task of moving intelligent testing into today and tomorrow. It makes me feel good to have been so wrong in some ways and so right in other ways, and to be awed by the interpretive acumen of the intelligent testers who pervade this book. They run rampant in the case reports in Part IV—all of which demonstrate detective work with  $n = 1$ ; all of which were written by innovative scientist-practitioners who bring theoretical, clinical, and research-based expertise to the table when translating clinical observations, referral information, and the child's profile of scores to real-life, empirically validated interventions. This elite group includes our daughter, Jennie Kaufman Singer, who has used her clinical psychology training to energize and add a new dimension to the field of criminal justice.

And intelligent testing is demonstrated just as effectively in the articulate independent reviews of the WISC-V in Part V of the book. It is simply daunting to read the incisive analyses of the pros and cons and clinical intricacies of the test from as many diverse perspectives as there are reviews. In 1979 I was sure I knew what intelligent testing was. Basically, it was interpretation the way I delineated it, illustrated in the various case reports, all written by Nadeen. I am now older and wiser. Intelligent testing is captured by diversity and eclectic perspectives. Gary Canivez and Marley Watkins, who review the WISC-V in Chapter 21, have spent a chunk of their careers disagreeing with my "intelligent testing" approach. I have argued back. Neither side will ever convince the other, but we won't stop trying!

Ultimately, I am so proud of the students I have touched as a mentor who have helped change the field of assessment. Their number is too great to list, but I will mention the international leaders who have truly changed the shape of intelligent testing: Jan Alm, Bruce Bracken, Jack Cummings, Abdalla El-Mneizel, Patti Harrison, Randy Kamphaus, Toshinori Ishikuma, Elizabeth Lichtenberger, R. Steve McCallum, Soo-Back Moon, Jack Naglieri, and Cecil Reynolds. And I am continually amazed by James Kaufman's application of intelligent testing principles to transform the field of creativity, worldwide, with his groundbreaking theories, research, and assessment tools. But I can't take credit as James's primary mentor; he had the wonderful mentors of John Horn and T. C. Boyle at the University of Southern California and Robert Sternberg at Yale University (and ever since). Thank you, James, for suggesting that I write this foreword.

And thanks also to the late Thomas Oakland for all of his vital contributions to the field of assessment. You are missed, Tom. There is a huge hole in the field of international school psychology that cannot be filled.

And to Nadeen Laurie, Jennie Lynn, James Corey (Jamie), and Nicole Alaina—without all of you, my world would cease to spin on its axis.





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# PREFACE

When *Intelligent Testing with the WISC–R* was published in 1979, the field of intellectual assessment was in its veritable infancy regarding the reliance on theory and sound psychometric practices for profile interpretation. The WISC–R had just established its supremacy over the Stanford–Binet as the children’s test of choice, thanks, in part, to the emergence of the fields of learning disabilities and neuropsychology. Both fields hit the ground running and transformed the assessment scene: Each demanded a profile of scores rather than a single intelligence score; and the one-score Binet didn’t help its chances when it opted to restandardize without revising its content (so the 6-year level was passed by the average 5 1/2-year-old).

Today the field of IQ testing is sophisticated, psychometrically and theoretically, and there are many theory-based intelligence tests available to clinicians. There are literally tens of thousands of empirical research investigations on the array of intelligence instruments, past and present, yet the Wechsler scales remain dominant worldwide. The WISC–V represents the greatest height to which any Wechsler scale has dared climb in the realms of psychometric foundation and theory-based development.

Like the 1979 and 1994 version of this book, we have targeted this 2016 text to psychologists, special educators, educational diagnosticians, and graduate students everywhere in diverse disciplines—in short, to anyone who administers and interprets the WISC–V and to anyone who is required to understand the case reports they write and to apply the results to the real world. As with earlier versions of *Intelligent Testing*, this edition emphasizes simplicity in the interpretive approach. The WISC–V yields a wealth of scores, and the test manual’s approach to interpretation has been criticized by some as cumbersome. (See the test reviews in Part V of this book.) To assist examiners in the task of profile interpretation, we provide a system that is built on rules of thumb and simple arithmetic (Chapter 8) and that revisits the clinical application of scatter (Chapter 7, with Troy Courville as first author).

Intelligent testing in the 21st century depends on the examiner being as sharp as a tack—no less important to theory-based profile assessment than the tools themselves. However, with the increased maturity of intellectual ability theories and testing approaches, we believe that there are multiple paths to becoming an intelligent tester and numerous methodologies that can be employed successfully. There is no single step-by-step interpretive approach that is best. We invited many experts to contribute to this book—including some who disagree strongly with each other and, often, with us—to allow readers the opportunity to embrace divergent perspectives and decide for themselves which one or two work best for them or best for a particular referral or a child of a particular age. We achieved this diversity of perspective in ways such as the following:

- **Case reports:** *Intelligent Testing with the WISC–V* includes 17 clinical case reports of children and adolescents with a variety of disorders, written by international leaders in the field of assessment (Part IV of this book). These reports reflect an incredible variety of theoretical perspectives, writing styles, and clinical approaches to understanding children—with every report focused on the translation of test scores and behaviors to effective educational and clinical interventions. These reports demonstrate the multifaceted real-life ways that intelligent testing can impact the lives of children and their families.

- **Independent test reviews:** Prominent experts in the field of intellectual assessment contributed objective, unedited reviews of the WISC–V, written to be comparable to Buros reviews in terms of thoroughness and scope. Like the case reports, these reviews represent a huge diversity of theoretical and clinical perspectives and contribute to the understanding and application of intelligent testing principles to psychoeducational and neuropsychological evaluations.
- **Theory-based interpretation:** Consistent with earlier editions of *intelligence testing*, the interpretive system is built on theory. Whereas the math for interpreting the scores remains simple, the theories that underlie interpretation reflect the breadth and depth of state-of-the-art approaches to intelligence. These approaches include cognitive neuroscience models, neuropsychological processing theory, and Cattell-Horn-Carroll (CHC) theory. Chapter 10 on cognitive neuroscience reflects the theory that guided the development of the WISC–V, just as it guided the development of the WISC–IV and WAIS–IV. This chapter highlights the impressive research results and speculations about brain functioning that are springing from laboratories around the world. In addition, separate neuropsychological chapters written by Dan Miller (Chapter 12), George McCloskey (Chapter 13), and their colleagues hammer home the message that intelligent testing embraces multiple technologies and takes many forms.
- **Development of rating scales:** To diversify the tools discussed in this book, we developed two new home-environment rating scales, based on questions administered to the parents of the children and adolescents in the WISC–V standardization samples that dealt with topics like the child’s homework and TV habits, the number of high-tech devices in the home, types of discipline, and the nature of family activities. One scale was designed to predict academic failure, the other to predict delinquency (Chapter 6, with Jennie Kaufman Singer as first author).

The very first chapter, on the intelligent testing philosophy, includes thoughtful quotes from about a dozen experts on what contemporary intelligent testing means to each of them. From the first chapter to the next-to-last chapter—an independent review of the WISC–V by Gary Canivez and Marley Watkins, who champion *g* and are generally opposed to profile interpretation—the book gives a clear message: Intelligent testing can best be understood by being exposed to strikingly different theory-based, clinical, and psychometric perspectives espoused by an array of experts. For experienced clinicians, gravitate to the perspectives that match your ideology. For new psychologists and graduate students, learn what is out there by studying the array of theories and clinical methodologies that are presented throughout this book. Try them out. See what works and what doesn’t. Then decide which approach is the most intelligent for you.

Alan S. Kaufman, Susan Engi Raiford, and Diane L. Coalson

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The preparation, organization, statistical analyses, writing, and editing of *Intelligent Testing with the WISC-V* was a massive effort that could not have been accomplished without the collaboration of a dedicated, amazing, brilliant team of professionals throughout the United States who helped us understand the true and multifaceted meaning of intelligent testing, as it exists in real time on the contemporary assessment scene in schools, clinics, school psychology and clinical neuropsychology training programs, hospitals, and private practices.

We are hugely indebted to many psychologists, special educators, and graduate students.

Nadeen Kaufman worked closely with us at every stage of this project, providing essential commentary on each chapter and, especially, making vital contributions to the 17 case reports that appear in Part IV of the book. Nadeen coauthored, with Diane, two sections of Chapter 14, one that introduces the chapter and the other that integrates all of the case reports, with a special focus on the reports in that chapter that emphasized children with reading or language problems.

Kristina Breaux was Janie-on-the-spot throughout the book writing and editing process. Whenever we ran into a snag, one of us suggested, “Ask Kristina.” And she always delivered, especially with her expertise on the KTEA-3, WIAT-III, and translating cognitive profiles to educational interventions.

Jennie Kaufman Singer (Chapter 6, on two new rating scales), Troy Courville (Chapter 7, on scatter), Dan Miller (Chapter 12), and George McCloskey (Chapter 13) were all lead authors of brilliant chapters that expanded the scope, breadth, and context of our intelligent testing message. They each brought unique areas of expertise to the table, as did Dan’s coauthor, Alicia Jones, and George’s coauthors, Emily Hartz and Jaime Slonim; we are the lucky beneficiaries.

The following master clinicians provide remarkable case reports from divergent theoretical and clinical perspectives: Joan Axelrod, Kristina Breaux, Carlea Dries, Ron Dumont, Katie Eklund, Dawn Flanagan, Elaine Fletcher-Janzen, Jill Hartmann, Alicia Jones, Elizabeth Lichtenberger, Michelle Lurie, Jennifer Mascolo, Nancy Mather, George McCloskey, Dan Miller, Elizabeth Power, Joel Schneider, Jennie Kaufman Singer, Marsha Vasserman, and John Willis. Collectively, they illustrated intelligent testing from almost as many vantage points as there are reports. Joel Schneider and the team of Robert Lichtenstein and Joan Axelrod articulated their intelligent report-writing philosophies with clarity and insight. Michelle Lurie, Marsha Vasserman, and George McCloskey contributed multiple reports. It is not possible to overstate the value of these 17 case reports as hands-on illustrations of the intricacies and far-reaching boundaries of the intelligent testing approach.

We sought and received objective, thorough, incisive, state-of-the-art, Buros-like, independent test reviews of the WISC-V. The content of these reviews was completely unedited by us, other than routine grammatical changes or typos. We considered these objective reviews an essential component of the book: (a) in view of the prominent roles that Susie and Diane played in the development, standardization, and validation of the WISC-V and numerous other Wechsler scales (Susie was the primary author of the WISC-V manuals and continues to serve as a senior research director at Pearson, publisher of Wechsler’s scales); and (b) to avoid the customary time lag between publication and independent reviews of major tests of intelligence. We are deeply indebted to the thoughtful and innovative approaches that the following assessment leaders brought to the task of reviewing the WISC-V: Matt Reynolds and

Megan Hadorn (Chapter 15), Ron Dumont and John Willis (Chapter 16), Dan Miller and Ryan McGill (Chapter 17), Jack Naglieri (Chapter 18), George McCloskey (Chapter 19), Gary Canivez and Marley Watkins (Chapter 20), and Joel Schneider (a “mini-review” appended to his case report in Chapter 9).

We are inordinately grateful to the insightful and generous responses about the meaning of “intelligent testing” in 2015, all of which were incorporated into Chapter 1. Thank you: Ron Dumont, Elaine Fletcher-Janzen, Nadeen Kaufman, Jennifer Mascolo, George McCloskey, Jack Naglieri, Nancy Mather, Kevin McGrew, Dan Miller, Cecil Reynolds, Joel Schneider, and John Willis. All comments were far-reaching and insightful, with a special note of thanks to Jennifer Mascolo and Nancy Mather, whose extensive commentary added an extra dimension to the intelligent translation of test scores and behaviors to educational interventions.

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We are also indebted to the Italian psychologist Professor Arturo Orsini for his contributions to the field of Wechsler interpretation. His publications in Italy have been extremely influential in promoting intelligent testing worldwide. In January 2014 he emailed Alan regarding the rule Alan and his colleagues had used in several books to determine whether IQs had too much variability to be interpreted. Alan and colleagues had stipulated that if the range between a person’s highest and lowest index scores was 1.5 standard deviations (23 points) or greater, then the global score should not be interpreted. Professor Orsini sent Alan analyses that demonstrated that about 50% of normal individuals in Italy and the United States had differences of 23 points or greater; therefore, such differences are “normal” and should not denote uninterpretable IQs. In part because of Professor Orsini’s contributions (Orsini, Pezzuti, & Hulbert, 2014), we do not use a child’s Index variability to declare any WISC-V global scores uninterpretable. Sadly, Arturo Orsini died at age 67 in 2014. His death is a huge loss to the field.

On another personal note, we wish to thank our loving spouses—Nadeen Kaufman, Robert Raiford, and David Shafer—for their enduring support. Susie is especially grateful to Robert for the many evenings and weekends he cared for their son, George, so Susie could work on the book.

Finally, we wish to thank Dr. David Wechsler. We hope that he would be proud of this book and of his enduring legacy, living on in all of us who seek to use the Wechsler scales intelligently.

# INTRODUCTION TO INTELLIGENT TESTING AND THE WISC-V

## TWO VERSIONS OF THE WISC-V

The Wechsler Intelligence Scale for Children-Fifth Edition (WISC-V; Wechsler, 2014) comes in two formats: the traditional “test kit” format and the Q-interactive iPad to iPad format (digital). In Part II of the book, Chapter 2 and Chapter 3 deal with administration and scoring of the traditional test kit format. Chapter 4 tackles both topics, with numerous illustrations of the digital format. For both formats, the structure of the test is the same. The first chapter of the book, on intelligent testing, applies to both versions of the WISC-V, and to all clinical tests everywhere.

### WISC-V Test Structure

The WISC-V subtests are grouped at four levels of interpretation: Full, Primary Index, Ancillary Index, and Complementary Index. The levels each contain one or more scales. Each scale (e.g., Full, Verbal Comprehension, Nonverbal, Symbol Translation) consists of a combination of subtests that are used to obtain a composite score. Figure 1.1 shows the WISC-V test structure.

#### **Full Scale**

Five domains containing the 16 primary and secondary subtests are included at the Full scale level: Verbal Comprehension, Visual Spatial, Fluid Reasoning, Working Memory, and Processing Speed. There are seven Full Scale

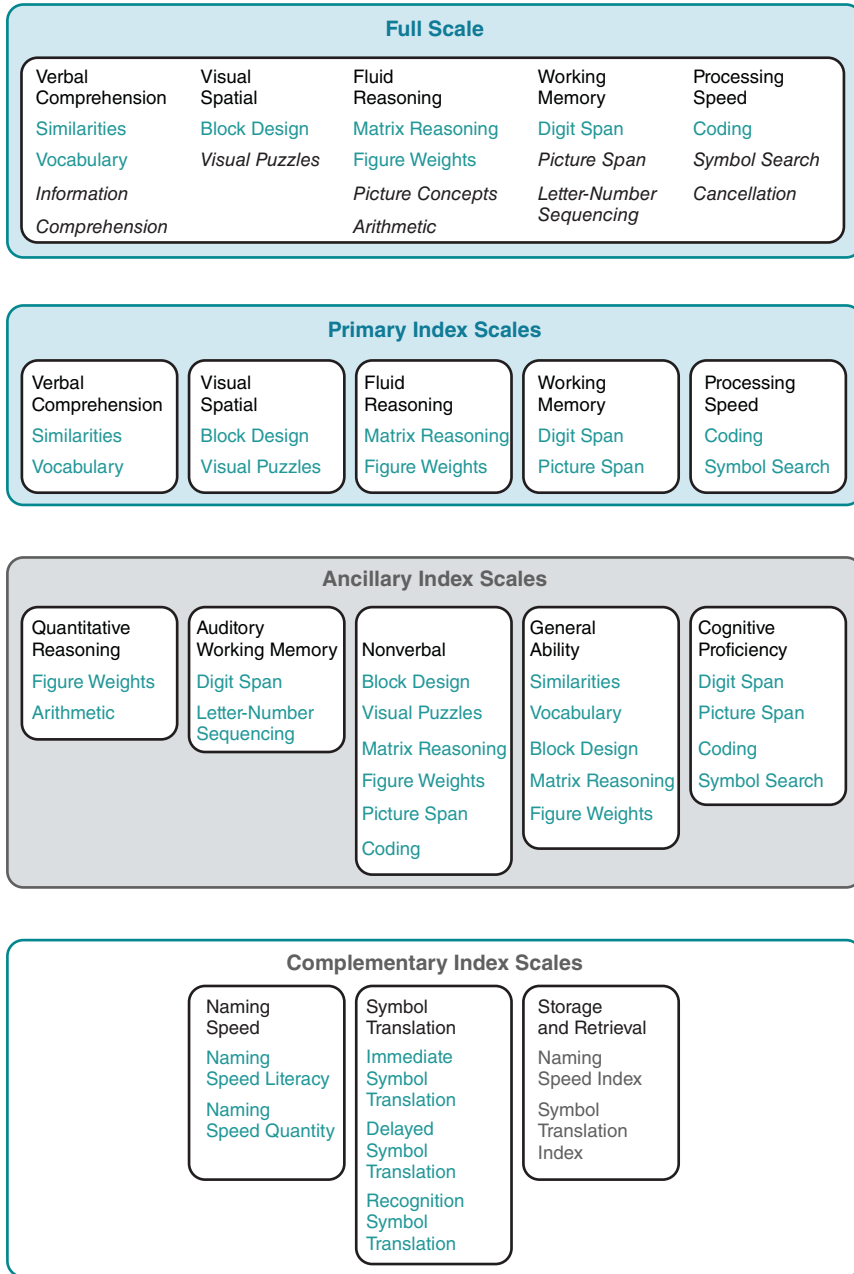
IQ (FSIQ) subtests (shown in Figure 1.1). The subtests that may be used as substitutes are shown in black italics.

#### **Primary Index Scales**

Five scales exist at the primary index scale level: Verbal Comprehension, Visual Spatial, Fluid Reasoning, Working Memory, and Processing Speed. The five primary index scores obtained from each scale at the primary index scale level are the Verbal Comprehension Index, Visual Spatial Index, Fluid Reasoning Index, Working Memory Index, and Processing Speed Index. Figure 1.1 indicates the primary subtests that are required to obtain each primary index score. Most evaluations include the primary index scores and the FSIQ. *Subtest substitution is no longer permitted for any index score.*

#### **Ancillary Index Scales**

Five scales make up the ancillary index scale level: Quantitative Reasoning, Auditory Working Memory, Nonverbal, General Ability, and Cognitive Proficiency. The ancillary index scores obtained from each scale at the Ancillary Index scale level are the Quantitative Reasoning Index, Auditory Working Memory, Nonverbal Index, General Ability Index, and Cognitive Proficiency Index, respectively. The five ancillary index scores are obtained by summing the scaled scores from primary subtests or primary and secondary subtests. They are designed to provide additional information about the child’s cognitive abilities and performance on the WISC-V. Figure 1.1 indicates the subtests that are required to obtain each ancillary index score.



**Figure 1.1** WISC-V Test Structure *Wechsler Intelligence Scale for Children, Fifth Edition (WISC-V)*. Copyright © 2014 NCS Pearson, Inc. Reproduced with permission. All rights reserved. "Wechsler Intelligence Scale for Children" and "WISC" are trademarks, in the US and/or other countries, of Pearson Education, Inc. or its affiliates(s).

### **Complementary Index Scales**

Three scales make up the complementary index scale level: Naming Speed, Symbol Translation, and Storage and Retrieval. The complementary index scores obtained from each scale at the Complementary Index scale level are the Naming Speed Index, Symbol Translation Index, and Storage and Retrieval Index. Figure 1.1 indicates the subtests that are required to obtain the Naming Speed Index and the Symbol Translation Index. The Naming Speed Index and the Symbol Translation Index are required to derive the Storage and Retrieval Index. The Storage and Retrieval Index is derived from index scores rather than subtest scores.

### **Scores**

The WISC-V consists of a variety of scores on different metrics. The primary and secondary subtests are on a scaled score metric (1–19) with a mean of 10 and a standard deviation of 3. The complementary subtests are on a standard score metric (45–155) with a mean of 100 and a standard deviation of 15.

All composite scores are on a standard score metric. The range for the Full Scale IQ, Nonverbal Index, General Ability Index, and Cognitive Proficiency Index is 40 to 160; the range for all other index scores is 45 to 155.

There are various process scores included in the WISC-V, and many are new. A total of 10 scaled or standard process scores (e.g., Block Design No Time Bonus, Block Design Partial, Digit Span Forward, Backward, and Sequencing, Naming Speed Letter–Number) are available to examine performance more closely for four subtests: Block Design, Digit Span, Cancellation, and Naming Speed Literacy. Several raw process scores for which base rates can be obtained are also included. These consist of longest span and sequence scores (e.g., Longest Digit Span Forward, Longest Picture Span), error scores (e.g., Block Design rotations), and process observations (e.g., the number of times the child said “Don’t know” as a response to Comprehension items).

New experimental scores called contrast scores that provide information about performance on a task given their performance on a related task are available. For example, the child’s performance on Digit Span Backward, given his or her performance on Digit Span Backward, can be examined. These are on a scaled score metric. An appendix in the *WISC-V Technical and Interpretive Manual* describes the proposed use and interpretation of the contrast scores.





# INTELLIGENT TESTING

This is a book about the Wechsler Intelligence Scale for Children–Fifth Edition (WISC–V; Wechsler, 2014), which, as almost any graduate student in education or psychology knows, is an IQ-yielding intelligence test. But neither the IQ nor the concept of intelligence is the focus of the chapters that follow. The focus is the child, with interpretation of the WISC–V and communication of the test results in the context of the child’s particular background, behaviors, and approach to the test items as the main goals. Global scores are deemphasized, flexibility and insight on the part of the examiner are demanded, and the test is perceived as a dynamic helping agent rather than as an instrument for placement, labeling, or other types of academic oppression. In short, *intelligent testing* is the key, and the WISC–V is the vehicle.

The preceding paragraph introduced Alan’s 1979 *Intelligent Testing with the WISC–R* (A. S. Kaufman, 1979), with the single change being the substitution of WISC–V for WISC–R. That paragraph also summarized Alan’s beliefs about the value of intelligence tests in the 1990s when he wrote *Intelligent Testing with the WISC–III* (A. S. Kaufman, 1994a), even though the field of intellectual assessment had undergone turbulent changes during the 1980s and the “Kaufman method” had been the target of direct attack (e.g., McDermott, Fantuzzo, & Glutting, 1990). And it continues to summarize Alan’s current views, even while staring in the face of the post–Individuals with Disabilities Education Act (IDEA) tsunami of anti-IQ-testing sentiment that makes the controversies of the 1980s and 1990s seem like a mild family feud.

Further, that first paragraph is endorsed by Susie Raiford and Diane Coalson, even though these coauthors of *Intelligent Testing with the*

*WISC–V* were in elementary school when Alan first formulated the philosophy and they cut their teeth as fledgling psychologists on the 1994 edition. For over 15 years, Susie and Diane have been on the firing line and in the trenches as the heirs apparent to David Wechsler, with one or both serving as research directors for every U.S. publication of a Wechsler intelligence scale since 2000, including the WPPSI–III, WISC–IV, WISC–IV Integrated, WAIS–IV, WPPSI–IV, WISC–V, and WISC–V Integrated. Thus, they have weathered the variety of IQ storms as teammates and close colleagues throughout this time. At the core of Susie’s and Diane’s approaches to cognitive assessment (Raiford & Coalson, 2014) is an intelligent testing philosophy that extends back to David Wechsler, the clinician, but is simultaneously mindful of what assessment is all about in the middle of the second decade of the 21st century:

**Diane:** With every revision, my appreciation of Wechsler’s genius is again renewed. By distinguishing his definition of intelligence from the cognitive abilities he used to measure it, he avoided all of the pitfalls so many of us seem to experience when we align too closely with this theory or that assessment method. He knew his tests were, most importantly, *clinical* instruments, designed to measure key, but not all, aspects of an individual’s intelligence. Only in the hands of a skilled clinician (i.e., an intelligent tester), does the instrument become a powerful tool, yielding much more than a handful of scores. This is still true today.

**Susie:** Intelligent testers answer the question that is asked and, where necessary, provide the referral source with the answers to some other questions maybe they should have asked. They select measures that are engaging

to the child, efficient, and reliable; they assess all relevant areas of the child's functioning and avoid the irrelevant. Intelligent testers stay current on issues in the field (listservs), adapt on the fly as the picture of results become clearer, and use the most relevant and current theoretical models, neurocognitive research, and clinical research findings to understand the data as a whole.

**Diane:** Regardless of your choice of test kit or digital administration, your theoretical orientation to assessment and interpretation, or your approach to intervention, intelligent testing is an ongoing, dynamic process. It involves an active interchange between examiner and child, yielding rich, clinical information as it progresses. Modifications or additions to the assessment plan should be expected and welcomed, as clinical hypotheses are accepted or rejected.

**Susie:** Perhaps most importantly, intelligent testers present results as a clear description of the living, breathing child—as opposed to providing tables full of scores that are of no use in the real world—and translate results into recommendations that parents, teachers, and other associated professionals can use and that are effective.

**Diane:** Isn't Wechsler's way still the best way for intelligent testing? I think he would have been so interested in everything going on but quickly gotten back to how it helps the child (or adult).

In fact, David Wechsler—one of the first American clinical psychologists and among the first to open up a private practice—was likely the first intelligent tester within the field of clinical assessment. (Actually, there wasn't even a field of clinical assessment until Wechsler, single-handedly, converted the Binet-Terman tradition of *psychometric testing* to the field that still reigns supreme more than 75 years later.) Witness Wechsler's (1939) caution to clinicians when the first form of the Wechsler-Bellevue was published:

The kind of life one lives is itself a pretty good test of a person's intelligence. When a life

history (assuming it to be accurate) is in disagreement with the "psychometric," it is well to pause before attempting a classification on the basis of tests alone. Generally it will be found that the former is a more reliable criterion of the individual's intelligence. (p. 48)

Wechsler's elegant wisdom embodies clinical insight, humanism, and, without question, the epitome of *intelligent testing*.

Importantly, Wechsler viewed intelligence as a component of personality, as something inseparable from a person's affect. Drawing from Aristotle's perception of mental faculties, popularized by Kant, Lohman (1989) stated:

By this account, a complete theory of mind must explain not only the cognitive dimension but also the emotional and intentional dimensions as well. . . . Thus, one direction research on intelligence seems to be taking is to expand its horizons to include affective dimensions long recognized as central to intelligence (e.g., Wechsler, 1939) but rarely combined with the systematic study of the cognitive dimensions. (p. 360)

Putting that concept in simple structure is Dr. Wechsler's credo, spoken to Alan with various degrees of exasperation when he had to deal with Alan's psychometric tendencies: "The Wechsler scales are, first and foremost, *clinical instruments*."

But Dr. Wechsler was far more than a clinician who interpreted intelligence as an aspect of personality. As Alan wrote a few years ago:

Though I worked with Dr. Wechsler for nearly 5 years in the early 1970s during the process of revising the 1949 WISC and developing and standardizing the WISC-R—which was called the WISC (Rev.) in the manual's page proofs until a last-minute decision by an executive rewrote history—I never knew of his psychometric background. To me, Dr. Wechsler was the consummate clinician who deferred to my statistical expertise because I trained at Columbia with Robert Thorndike, Edward's son. I found out a few years later

about his work with psychometric pioneers just after World War I, but during the time Dr. Wechsler mentored me, he never let on about his statistical savvy. I wanted to include, directly in the 1974 WISC–R test manual (Wechsler, 1974a), the exploratory factor analyses of the WISC–R that I later published for normal children (Kaufman, 1975) and individuals with mental retardation (Van Hagen & Kaufman, 1975), and to have examiners compute three factor scores in addition to the three IQs, but he calmly said, “No, not yet; it isn’t time.” (A. S. Kaufman, 2013a, p. 225)

Our continued advocacy of an intelligent testing approach to IQ assessment—even tracing it back to the methods that David Wechsler favored almost a century ago—does not imply that we haven’t changed, because we have, and it doesn’t suggest that the field is static because it is as volatile and energetic and innovative as ever. The three of us retain our beliefs about how to assess intelligence in general and how to interpret the WISC–V in specific. The key is still intelligent testing, as opposed to the mindless testing that never quite disappears. But the context of the IQ construct, both societally and professionally, has altered with time.

## **IQ TESTING IN THE 1970s**

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The field of intelligence testing is nearly unrecognizable as the field that Alan entered nearly a half century ago as a student of the brilliant-but-distant Robert L. Thorndike at Columbia University. Alan was hired by the Psychological Corporation’s Test Division in late 1968 as a young, idealistic, not-yet-dissertationed, psychologist. Sure the IQ test was at the center of heated controversy—hasn’t it always been?—but the issues and the antagonists were different, and the arguments were more emotional than empirical. When Alan was getting his feet wet in the early 1970s as Dorothea McCarthy’s and David Wechsler’s

right-hand person (though he is left-handed), he began to understand the depth of the feelings of the anti-testing people. At that time, the opponents of the IQ, and of the tests that served this unholy purpose, were mostly enraged about test bias, especially against African American children. They were social psychologists and African American psychologists and sociologists and civic leaders. Some words were tossed around—like “biased,” “unfair,” “middle class,” “discriminatory,” and “racist”—while other words were best tossed away, like “immutable,” “innate,” and “Jensen.”

Within the field of the clinical assessment of intelligence in the late 1970s, the WISC–R was virtually the *only* well-normed, psychometrically sound IQ test for children. “Stupid testing” was rampant at that time. Clinicians interpreted small differences between scaled scores as meaningful and tended to interpret “high” and “low” scores in isolation: A scaled score of 8 on Picture Completion meant that the child had trouble distinguishing essential from nonessential details, an 11 on Comprehension meant good social maturity. Psychoanalytic overinterpretation of Wechsler profiles was popular in the early 1950s: Failing easy Comprehension items conceivably reflected schizophrenia or psychotic depression; decrements in Information, contrasted with adequate Comprehension, indicated a hysterical reaction; increments in Picture Completion suggested a possible paranoid trend (Mayman, Schafer, & Rapaport, 1951; Rapaport, Gill, & Schafer, 1945–1946). Yet this type of nonsensical interpretation remained popular throughout the 1970s: Allison, Blatt, and Zimet (1968), for example, claimed that high Digit Symbol (Coding) and low Digit Span characterizes a person

who seems to be controlling strong and pressing anxiety by excessive activity. . . . When we find the reverse pattern, a high Digit Span and a low Digit Symbol, we are usually confronted with an essentially depressed person who is attempting to ward

off recognition of depressive affect perhaps in a hypomanic way, usually via denial, but not necessarily through acting and acting out behavior. (p. 32)

A major purpose of *Intelligent Testing with the WISC-R*—and of other landmark 1970s texts written by special educators (Bannatyne, 1971; Bush & Waugh, 1976; Myers & Hammill, 1976) and psychologists (Lutey, 1977; Matarazzo, 1972; Sattler, 1974)—was to impose some empirical order on profile interpretation; to make sensible inferences from the data with full awareness of errors of measurement; and to steer the field away from the psychiatric couch.

## **IQ TESTING IN THE 1980s AND EARLY 1990s**

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When Alan revised his 1979 text on the WISC-R and wrote *Intelligent Testing with the WISC-III* (A. S. Kaufman, 1994a), the opposition to IQ tests was no longer so intensely focused on the unfairness of the tests to ethnic minorities. In the 1970s there was talk of “black intellectual genocide” and “the silent mugging of the black community” (R. L. Williams, 1974a, 1974b). In the 1980s and 1990s, the IQ testing opponents were no longer primarily from outside the field. Now many resided within the field: trainers of school psychologists, developers of new approaches to intellectual assessment, cognitive theorists, psychometricians, and neuropsychologists. The people who viewed the IQ test as an instrument of torture for minority group members were still around, but they spoke with quieter voices. By the early 1990s—and still true today—the critics offered few concessions, and the venom applied to everyone, regardless of socioeconomic or ethnic background.

Whereas the 1970s produced an array of innovative textbooks on IQ assessment, such as Matarazzo’s, Bannatyne’s, Sattler’s, and Kaufman’s original *Intelligent Testing*, the 1980s

witnessed the first group of individually administered tests built from the foundation of *theory*. Theory-based test construction started in the 1980s with the split-brain/Luria foundation of the Kaufman Assessment Battery for Children (K-ABC; A. S. Kaufman & Kaufman, 1983), the Cattell-Horn fluid-crystallized framework of the Stanford Binet Intelligence Scale–Fourth Edition (SB IV; Thorndike, Hagen, & Sattler, 1986) and the Woodcock-Johnson Tests of Cognitive Ability–Revised (WJ-R; Woodcock & Johnson, 1989). These newcomers on the block aroused both interest and controversy, but they did not knock the king of the hill—Wechsler’s scales—off the front pages.

There were two specific key targets of the 1980s and 1990s anti-IQ forces: subtest profile interpretation (especially the “Kaufman method”) and Wechsler’s children’s scales, notably the 1991 Wechsler Intelligence Scale for Children (WISC-III; Wechsler, 1991).

### **Criticisms of Subtest Profile Interpretation**

Some researchers and clinicians argued that using any type of subtest or profile interpretation was like taking illegal drugs: “Such approaches essentially violate primary principles guiding valid test interpretation” (McDermott, Fantuzzo, Glutting, Watkins, & Baggaley, 1992, p. 522); “we are compelled to advise that psychologists just say ‘no’ to subtest analysis” (McDermott et al., 1990, p. 299). These psychologists based their conclusions on a variety of psychometric analyses that they believed proved their points beyond dispute. They represented the new breed of anti-IQ testing professionals—with a link to the past—Hirshoren and Kavale (1976); but despite their strong words, they were perhaps the mildest of the species. They wanted to kick out subtest interpretation (a practice that Wechsler was devoted to and that the so-called Kaufman method endorsed), but they were okay

with keeping the IQ test and even Wechsler's three IQs.

First they put the Kaufman method securely under the blade of the guillotine:

Perhaps most popular among contemporary practices is the method of ipsative ability assessment advocated by Kaufman (1979)... He cautioned practitioners not to overvalue IQ scores.... A major aspect of this interpretation process is the discovery of children's intellectual strengths and weaknesses by studying the magnitude and direction of each subtest score's deviation from a child's average subtest score. (McDermott et al., 1992, p. 506)

Then they damned his method with faint praise:

The Kaufman method is presently a common element in university curricula for preparing professional psychologists, with the ipsative procedure now generalized to many other ability tests. (p. 506)

And, finally, they interpreted their data with no mercy, letting the blade drop:

Thus we cannot recommend either ipsative or normative approaches for subtest interpretation. Such approaches essentially violate primary principles guiding valid test interpretation. (p. 522)

The *ipsative* interpretation that they criticized refers to an axiom that is implicit in any interpretive system that Kaufman has advocated from 1977 (A. S. Kaufman & Kaufman, 1977) through the present (A. S. Kaufman, 2013a; Lichtenberger & Kaufman, 2013): Identify the child's or adult's *relative* strengths and weaknesses (relative to the person's own level of ability, whether high or average or low).

The McDermott-Glutting critique of the Kaufman method was harsh, but you did not need to look too far to find stronger opposition. D. W. Macmann and Barnett (1994) shared the same psychometric tree as the McDermott-Glutting team, but they went farther out on the

limb. They used exploratory and confirmatory factor analysis to conclude that the Wechsler scales measured little more than *g*, or general intelligence. They weren't content to toss out subtest profile interpretation; Macmann and Barnett (1994) also wanted to discard the Verbal and Performance IQs because the separate factors that underlie these IQs were really nothing more than degraded versions of *g*. They then rode the steam of their empirical argument a little further and decided to chunk the Full Scale IQ (FSIQ) as well. They sought alternative types of assessment but saw no useful role for the measurement of *g* within their system.

McDermott and his colleagues shunned subtest analysis in favor of the global IQs. Macmann and Barnett first flushed the Verbal and Performance IQs and then tossed the FSIQ into the bowl for good measure. In fact, these traditions live on today in the middle of the second decade of the 21st century, with passionate fervor. Gary Canivez, Marley Watkins, and Joe Kush continue to argue that clinicians must say no to profile interpretation (Canivez & Kush, 2013; Canivez & Watkins, 2010a), including interpretation of the factor indexes that have replaced the Verbal and Performance IQs; but they show great respect for FSIQ and the *g* that it measures. Regarding WAIS-IV interpretation, for example, Canivez and Watkins (2010a) concluded from their analyses "that the WAIS-IV provides strong measurement of general intelligence, and clinical interpretation should be primarily at that level" (p. 827). By contrast, advocates of Response to Intervention (RTI) as the sole method for identifying children with specific learning disabilities (e.g., Gresham, 2002; VanDerHeyden & Burns, 2010) are entirely comfortable in relegating IQ tests to the historical relic section of museums.

Not all that much has changed since the early 1990s regarding antagonism against Kaufman's method of profile interpretation. Also contemporary in its flavor is the hold-no-prisoners approach to reviewing IQ tests. Wechsler's 1974 and 1991 versions of the WISC were not exempt.

## Criticisms of the WISC–R and the WISC–III

Witt and Gresham (1985) spoke metaphorically in their Buros test review:

The WISC–R is an anachronistic albatross which hangs gamely around the necks of applied psychologists . . . . Using the WISC–R to assess intelligence in light of the surge of information in [the fields of cognitive psychology and neuroscience] is analogous to applying Newtonian formulae to modern physics problems . . . . The WISC–R lacks treatment validity in that its use does not enhance remedial interventions for children who show specific academic skill deficiencies. In this sense, the WISC–R is biased for all children and for this reason should be replaced with assessment procedures which have greater treatment validity. (pp. 1716–1717)

Edwards and Edwards (1993) ended their very favorable WISC–III review by extending the metaphor: “Individuals who viewed the WISC–R as burdening our profession (Witt & Gresham, 1985) will probably see the WISC–III as nothing more than an albatross that has molted and grown a few new feathers” (p. 149).

Neuropsychologist Muriel Lezak (1988) also took her own potshots at IQ tests, especially Wechsler’s scales (“IQ: R.I.P.”). But she was not concerned about treatment validity and argued the opposite perspective of the proponents of *g*:

When the many and various neuropsychological observations elicited by so-called “intelligence” tests are lumped and leveled into a single IQ score—or even three—the product of this unholy conversion is a number that, in referring to everything, represents nothing . . . [W]e need to conceptualize [mental abilities] in all their multivariate complexity and report our examination findings in a profile of test scores. (pp. 352, 358)

From the vantage point of cognitive psychology, the news still wasn’t so good. John Carroll

(1993b) reviewed the WISC–III and rejected it on empirical grounds. Carroll resurrected Frank’s (1983) diatribe against “the Wechsler enterprise” and did not dispute Frank’s proclamation that it is time for Wechsler’s scales “to become extinct.” Carroll (1993b) concluded, “One can raise the question of whether the revisions and improvements introduced in the WISC–III justify a more favorable judgment of the validity and usefulness of this test” (p. 142). But Carroll was not condemning just the WISC–III; like many cognitive psychologists, he’d vote for extinction of all conventional intelligence tests.

Sternberg (1993) was kinder in his WISC–III review, stating “I do not share the view of some contemporary theorists that the conventional tests are worthless or worse” (p. 163). But he criticized the WISC–III for remaining too static (“Recycling is no longer the exclusive province of environmentalists,” p. 162). And, in his analogy of the WISC to *Rocky*, Sternberg said, “Eventually, we hope, Hollywood will stop recycling material and instead will retire Rocky in favor of a new shining light. Let’s also hope the same happens with the WISC series” (p. 164).

Directly within the field of clinical assessment, the theory-based Kaufman Assessment Battery for Children—Second Edition (KABC–II; A. S. Kaufman & Kaufman, 2004), WJ–R, and the SB–4 began to find supporters, but, on the whole, IQ testing remained a Wechsler establishment. Naglieri (1993) said, “[S]chool psychology in particular, and psychology in general, has relied too much on the Wechsler series and techniques that encourage overinterpretation of scale and subtest variation[;] . . . traditional IQ measures will need to be replaced by more modern ones” (pp. 14–15). The seriousness of these rumblings within the field of school psychology prompted Shaw, Swerdlik, and Laurent (1993) to warn that “the WISC–III could be rendered irrelevant in the schools in a short time” (p. 158).

Where do we stand today regarding the criticisms of 25 years ago leveled at Kaufman’s method of subtest profile interpretation and at