Using Cross-Battery Assessment to Identify SLD when Considering Larry P.

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And

Co-Founder of

COMPREHENSIVE ASSESSMENT FOR INTERVENTION (CAI)
INNOVATIONS IN PSYCHOLOGICAL EVALUATION FOR INTERVENTION

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1

Overview

- To understand today's issues with intelligence tests, we must understand history
- What is Intelligence?
- Are intelligence tests biased, unfair, and discriminatory?
- Larry P. Decision – 1979 to present
- Are alternative assessments better than intelligence testing for minority groups?
- School psychologists do not test groups, they test one child at a time
- Fundamentals of cross-battery assessment
- The PSW method
- Is the C-LIM helpful in the evaluation of African Americans?
- X-BASS and the PSW Analyzer
- Global ability scores and SLD identification

2

History of Intelligence Testing

Sir Francis Galton

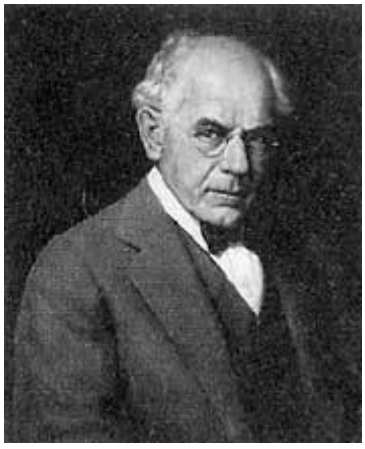
(1822 – 1911)

Eugenics – led to intelligence testing

- Half-cousin to Charles Darwin
- Believed heredity controlled the intellect
- Galton's definition of eugenics was broad and concerned with studying heredity to improve the "genetic stock" of the human race.
- Widely regarded as the originator of the early 20th century **Eugenics Movement**
- People become eminent in adulthood; wanted to test them as children, before they become eminent, so that they could be paired up appropriately.
- Tests of intelligence included assessing the senses: visual, auditory acuity, tactic sensitivity, and reaction time

4

History of Intelligence Testing



James McKeen Cattell

(1860 – 1944)

Studied Reaction Times; Coined term "mental tests"

- Student of Wundt at Leipzig (Wundt studied features of the mind) – assisted Wundt with conducting investigations directed toward scientific objectivity.
- Oriented U.S. psychology toward use of objective experimental methods, mental testing, and application of psychology to the fields of education, business, industry
- After earning his PhD from Leipzig, he went to London and met Galton and was very influenced by his work.
- **Coined the term "Mental Test" in 1890**
  - Tested intelligence through a series of **reaction time measurements**
- In 1921 he founded the Psychological Corporation for the purpose of making research in applied psychology available to industry and business.

5

History of Intelligence Testing

Alfred Binet

(1857 – 1911)

Published 1st Intelligence test to help students with special needs

- Began as a craniometrist
  - Studied head size in children, but results were inconclusive
- **Used Galton's methods of assessing intelligence, with his two daughters as subjects**
  - Noticed that when the girls were attentive their performance was equivalent to that of an adult
  - This led him to question Galton's procedures and set out to develop tests with more complex aspects of functioning, like language
- **Commissioned by the French government (1904) to figure out a way to identify students who were in need of special help with the school curriculum**
- Began working with **Theodore Simon**, a physician
- Binet wanted to make sure that he was not testing for information that could be gained as a result of formal schooling
  - Binet separated intelligence from formal schooling
- Tests assessed attention, memory, visual-motor abilities, attention to detail, social judgment, and logical absurdities.
- **Results were based on "mental age"**
- Binet CAUTIONED against the inappropriate use of the Binet Scales
  - He realized the importance of motivation and culture required for valid testing

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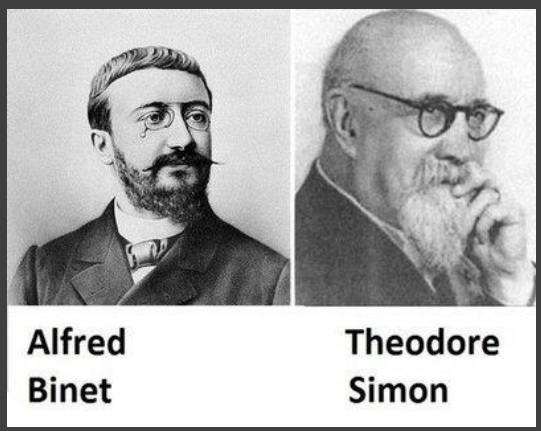

1905 – Publication of Binet-Simon Intelligence Test: An objective measure capable of diagnosing different degrees of mental retardation

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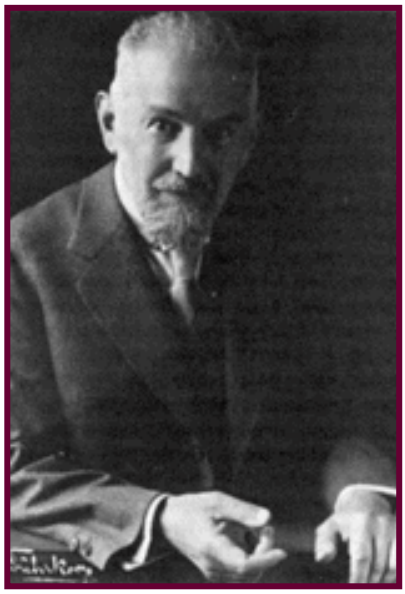
History of Intelligence Testing



William Stern

(1871 – 1938)

Coined the term Intelligence Quotient

- German psychologist
- **Saw problems with Binet's "mental age" on the Binet Scale**
- Stern **suggested the use of a ratio of mental age to chronological age** rather than the use of a discrepancy between mental age and chronological age.
  - **He coined the term "Intelligence Quotient"**
    - Term took, even though Binet was against the use of a single number to define intelligence
- Stern felt **IQ could be useful in sorting children into their proper stations in life**

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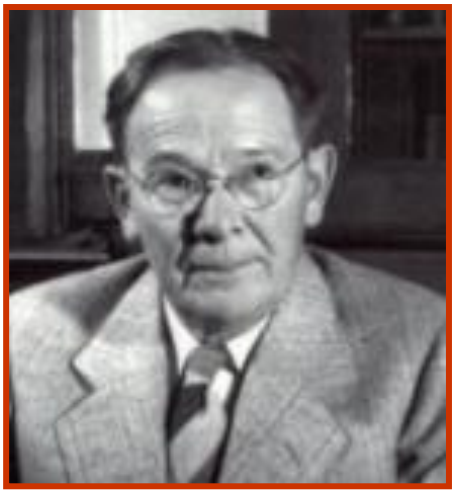
History of Intelligence Testing



Lewis M. Terman

(1877 – 1956)

Translated and Popularized Binet Scales in United States

"Stanford-Binet"

- Stanford University Psychologist
- 1st to argue for the use of the Binet Scales as a means of uncovering superior intelligence
- Adapted the Binet Scales for use in America
  - **Stanford-Binet (1916)**
- **Adapted Stern's intelligence quotient to interpret the test, by multiplying 100 to the ratio to eliminate the decimal**

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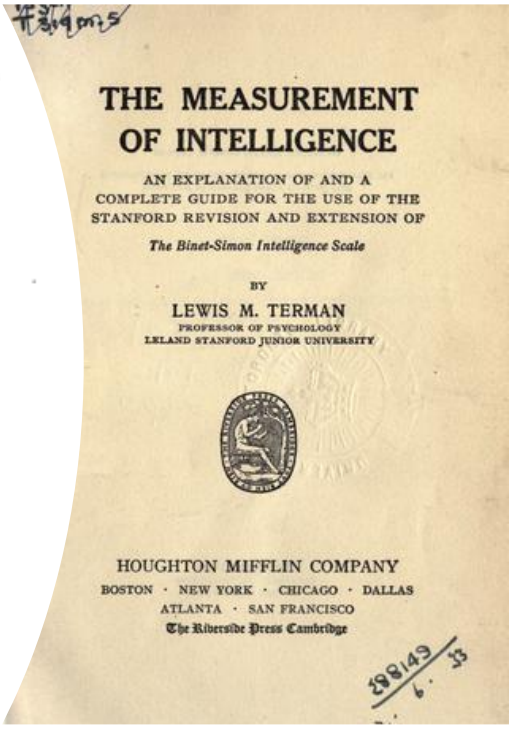
- **1916 – Lewis Terman published the Stanford Revision of the Binet-Simon Scale**
- **Translated and adapted French items and added new items (1904-1915)**



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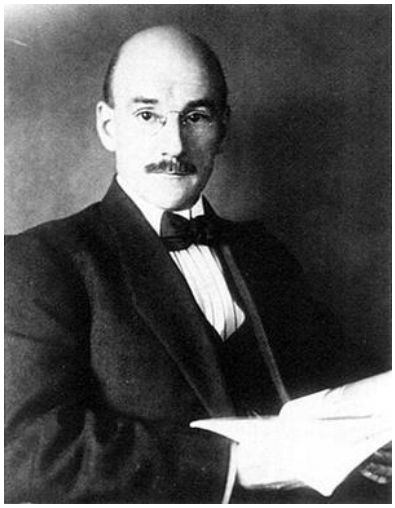
History of Intelligence Testing



H.H. Goddard (1866 – 1957)
Translated Binet Scales to English (in 1908), added his own tests, tested Immigrants on Ellis Island

- **Director of Research at the Training School for the Feebleminded in Vineland, NJ**
- Set out to meet Binet, but was not successful
- **Goddard was disappointed by Binet's work**
  - Came back to the US to create his own version of the Binet Scales
    - Translated the tests
    - Added subtests
      - Found that this adaptation worked well for classifying children at Vineland
- **Goddard believed that individuals at the lower end of intelligence should not be allowed to reproduce**
  - **Goddard turned this belief away from the feebleminded already in the US and turned his attention to the immigrants arriving on Ellis Island**
  - **Goddard wanted to identify individuals to segregate and control breeding to prevent the further deterioration of the endangered American stock threatened by immigration**
- Goddard takes credit for bringing the Binet scales to the attention of every American psychologist.
- Introduced the term "moron" to the field

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In testing Immigrants, Goddard and his Team Dismissed Language

A fog hung over New York harbor that day and no immigrants could land. But one hundred were about ready to leave, when Goddard intervened: "We picked out one young man whom we suspected was defective, and, through the interpreter, proceeded to give him the test. The boy tested 8 by the Binet scale. The interpreter said, 'I could not have done that when I came to this country,' and seemed to think the test unfair. We convinced him that the boy was defective"

- ***Goddard, 1913, p. 105***

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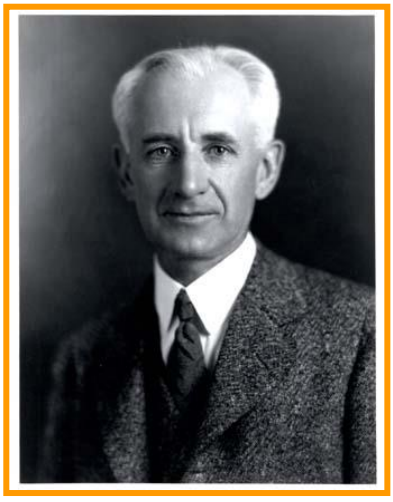
History of Intelligence Testing



Robert M. Yerkes
(1876 – 1956)
Tested 1.75 million army recruits

- **Was president of the APA when US entered WWI (1917)**
- **Army commissioned** Yerkes to develop two structured tests of human abilities for purposes of proper placement in the military
- Worked with Terman, Goddard, and Wechsler (among others)
- **Pioneered mass mental testing**
- Administered 3 tests:
  - Army Alpha = for literate recruits (mental age)
  - Army Beta = for illiterate recruits (mental age)
  - Binet scales = for those who failed the beta

- Ultimately, the U.S. Army did not use Goddard's information, but he was left with a lot of data.
  - Average army recruit had a mental age of about 13 (low)
  - Immigrants from northern Europe scored lower than native born American whites
  - Immigrants from southern and eastern Europe scored lower than those from northern Europe.
  - Blacks scored lower than whites
    - Blacks from the northern states scored higher than whites from the southern states.

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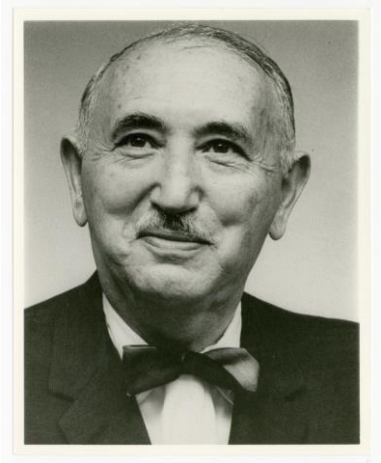
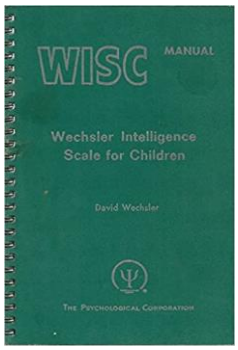
History of Intelligence Testing



David Wechsler
(1896-1981)
First to base scores on standardized normal distribution

- Studied at Columbia University and earned PhD in 1925
- **Chief psychologist at Bellevue Psychiatric Hospital from 1932-1967**
- **Developed the first intelligence test for adults in 1939, called Wechsler-Bellevue (WAIS)**
- Downward extension for children - **WISC**
  - 1st test to base scores on **standardized normal distribution** rather than age-based quotient
    - **Two ways to express "*g*"**
      - Verbally
      - Non-verbally
  - **Popularized IQ**



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The WISC was standardized on a sample of White children – 100 boys and 100 girls at each age from five through fifteen years.

15

History of Psychometric Theories of Intelligence

Charles Spearman

(1863 – 1945)

Discovered a general factor "g"

- Student of Wundt; Influenced by Galton
- **Examined correlations of various intelligence subtests and noticed that certain subtests tend to intercorrelate more than others.**
- Determined:
  - **All intelligence tests must entail the use of a single "g" factor, general intelligence – positive correlations among cognitive abilities account for most of intelligence**
  - And each individual type of item required an ability specific to itself "s" factor.
    - G factor = individual's overall mental energy
    - S factor = neurological engine for the performance of a specific task
  - Believed people who are bright in one area are usually bright in other areas
  - **His 1904 efforts to understand g led him to invent factor analysis**

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History of Psychometric Theories of Intelligence

L. L. Thurstone

(1887 – 1955)

"g" is a Statistical Artifact

- Was a critic of Spearman
- Analyzed his subjects on **seven clusters of primary mental abilities** rather than a single scale of general intelligence
  - Word Fluency
  - Verbal Comprehension
  - Spatial Ability
  - Perceptual Speed
  - Numerical Ability
  - Inductive Reasoning
  - Memory

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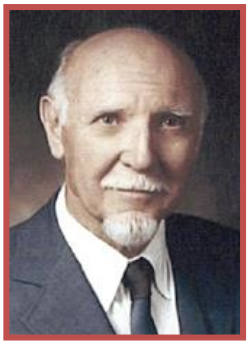
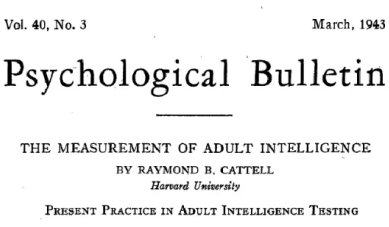
History of Psychometric Theories of Intelligence



Raymond Cattell
(1905-1998)
The Cattell-Horn Theory of Fluid and Crystallized Intelligences

- Was a student and research associate of Charles Spearman
- **Proposed Gf-Gc theory in 1941**



Vol. 40, No. 3 March, 1943

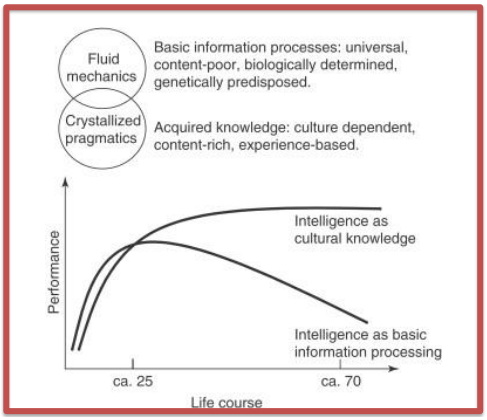
Psychological Bulletin

THE MEASUREMENT OF ADULT INTELLIGENCE

BY RAYMOND B. CATTELL

Harvard University

PRESENT PRACTICE IN ADULT INTELLIGENCE TESTING



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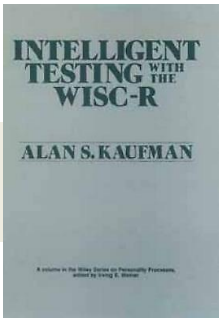
History of Intelligence Testing

Alan S. Kaufman
Born 1944
"Intelligent Testing"
Interpretation of scores is key



- Studied with Thorndike at Columbia University and was mentored by David Wechsler at The Psychological Corporation
- **Introduced "Intelligent Testing" (1979)**
  - Stressed that the psychologist's theoretical knowledge and experience are the primary ingredients to meaningful and appropriate testing
  - The key is the interpretation of scores within a broad, individual context
    - Kaufman recommended to interpret a wide range of behaviors, making direct inferences about observed problem solving strategies.
- **K-ABC was developed – published in 1983**
  - *Was the first test to incorporate theory of cognitive psychology into testing*

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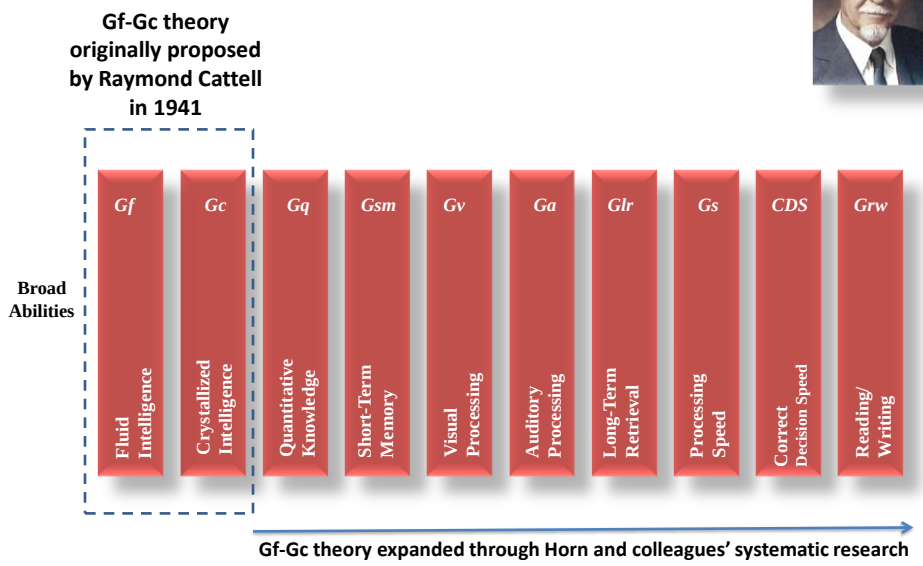
Cattell-Horn *Gf-Gc* Theory

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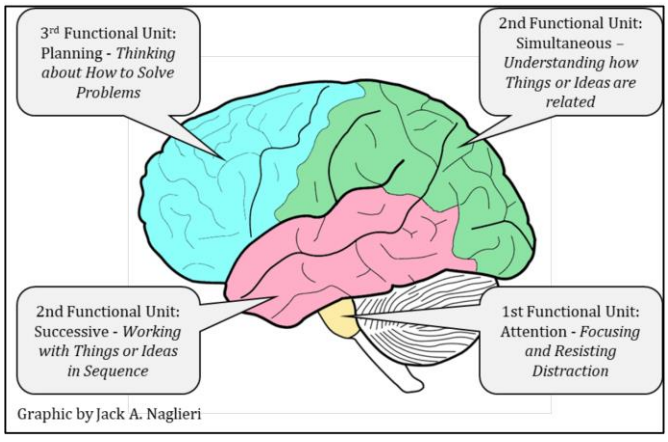
Luria's Three Functional Units of the Brain



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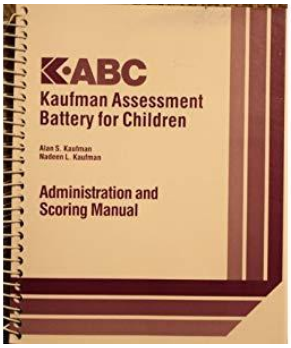
History of Intelligence Testing

Alan Kaufman taught by Thorndike at Columbia University and gained a solid background in psychometrics; he was mentored at the Psychological Corporation by David Wechsler and worked closely with him on the development of the 1974 WISC-R

Nadeen Kaufman taught by Margaret Jo Shepherd at Columbia University and gained a solid background in the emerging field of learning disabilities and special education; she focused on strengths and weaknesses and what they meant for the child's learning; input – integration – storage – output; what's going wrong? How can we fix it?



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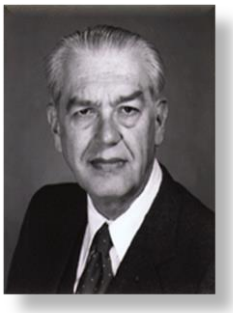
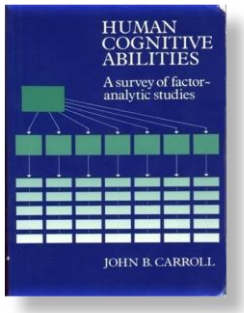
Progress in Psychometric Theories of Intelligence

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





A Landmark Event in Understanding the Structure of Intelligence

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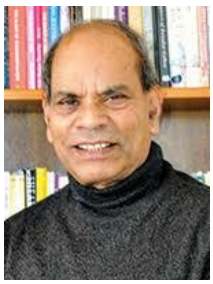
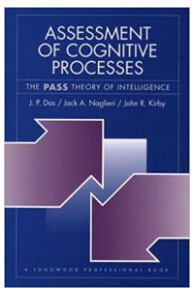
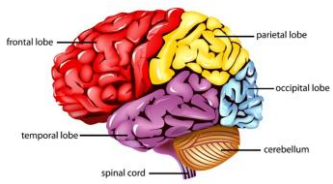
Cognitive Assessment System





Das and Naglieri wrote a book and developed a test, **Cognitive Assessment System (CAS)** based on Luria's Three Functional Units of the Brain

Planning
Attention
Simultaneous
Successive



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The WJ III (Woodcock, McGrew, & Mather, 2001)

The first in a flurry of test revisions that represented advances unprecedented in assessment fields (e.g., based on CHC)

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Current Cognitive Assessment

- SB5 (2003) – Based on CHC theory
- KABC-II (2004) – Based on CHC theory and Luria
- DAS-II (2007) – Based on CHC theory

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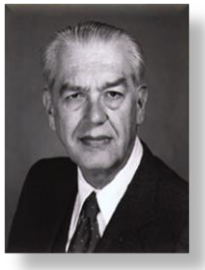
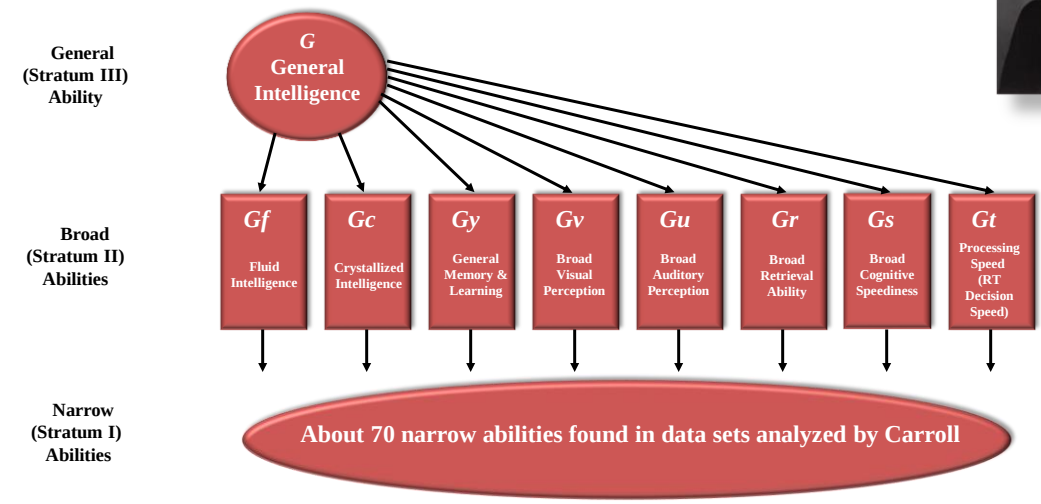
Carroll's (1993) Three-Stratum Theory of Cognitive Abilities





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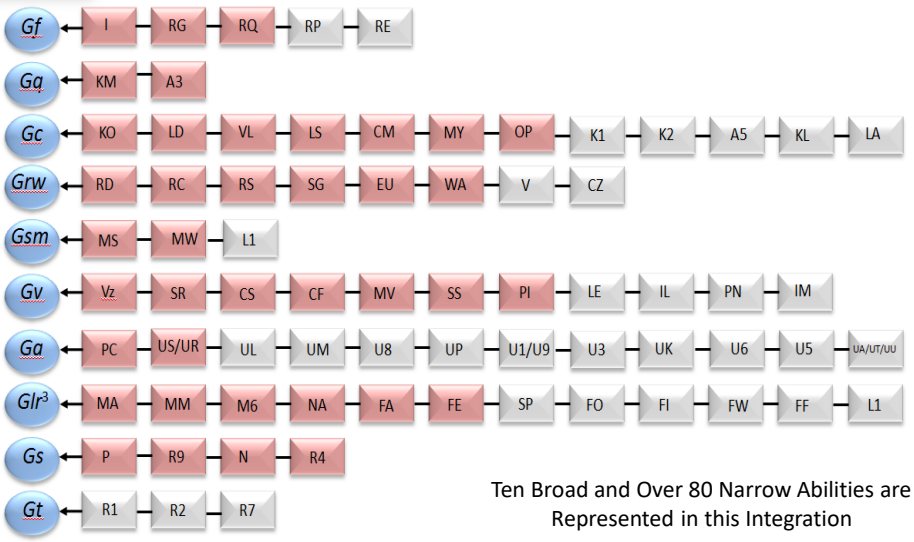
McGrew's (1997) **Integrated** Cattell-Horn and Carroll Gf-Gc Model



Ten Broad and Over 80 Narrow Abilities are Represented in this Integration

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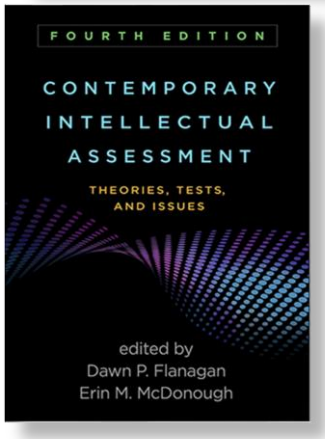
Refinements and Extensions to CHC Theory

Schneider and McGrew's 2018 Revision of CHC Theory



2018

Chapter by
Schneider and McGrew: Most significant revisions to CHC theory to date, including criteria for revisions to the CHC taxonomy

- Intermediate factors were added
- Facets were added
- New broad and narrow ability codes were introduced
- New narrow abilities were added

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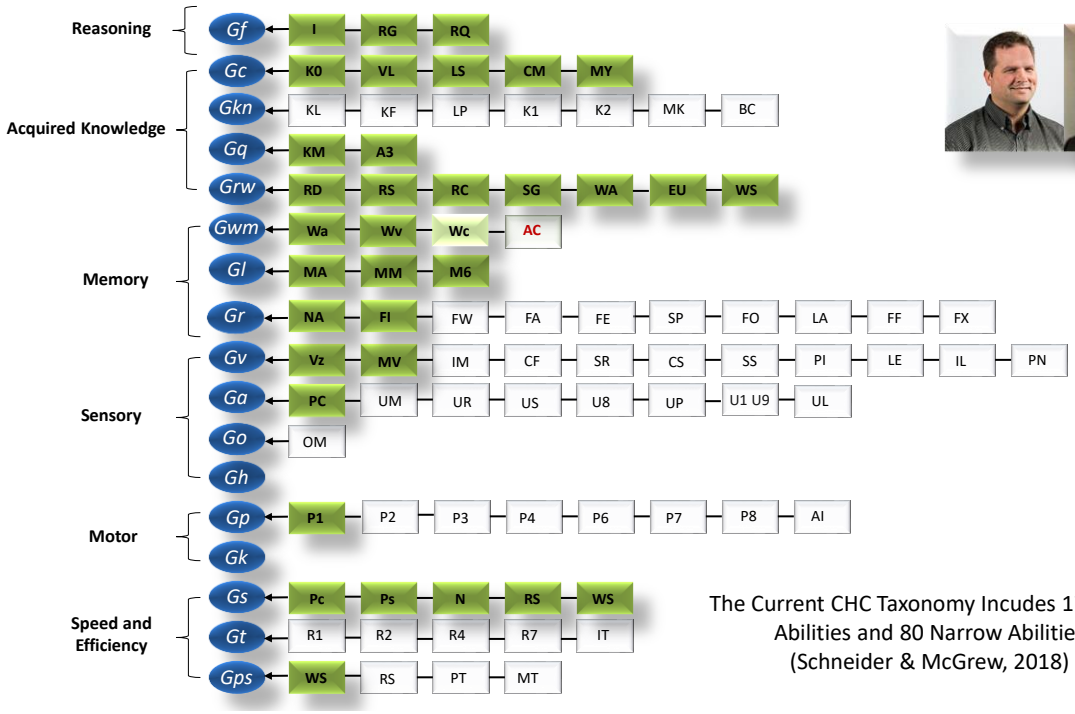

The Current CHC Taxonomy Incudes 17 Broad Abilities and 80 Narrow Abilities (Schneider & McGrew, 2018)

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1822 – Present

200+ years

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David Wechsler's Definition of Intelligence

David Wechsler

(1896-1981)

Psychologist

Definition of Intelligence

"Intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment (Wechsler, 1944, p. 3)."

Major Contributions

- Developed several assessments, including two widely-used intelligence scales:
  - Wechsler Intelligence Scale for Children (WISC)
  - Wechsler Adult Intelligence Scale (WAIS)
- Verbal and Performance Tasks
- Established the use of the deviation IQ, or "DQ" (1939)

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General Cognitive Ability

- Intelligence is a **very general mental capability** that, among other things, involves **the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience**. It is not merely book learning, a narrow academic skill, or test-taking smarts. Rather, it reflects a broader and deeper capability for comprehending our surroundings – **"catching on," "making sense" of things, or "figuring out" what to do.** (Gottfredson, 1997, p. 13)

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Intelligence

" . . . [T]he scientific study of intelligence is probably the greatest success story in psychology – possibly in all the social sciences" (Warne, 2020, p. 1).

"Intelligence testing may be psychology's greatest single achievement" (Gottfredson, 2009, p. 11)

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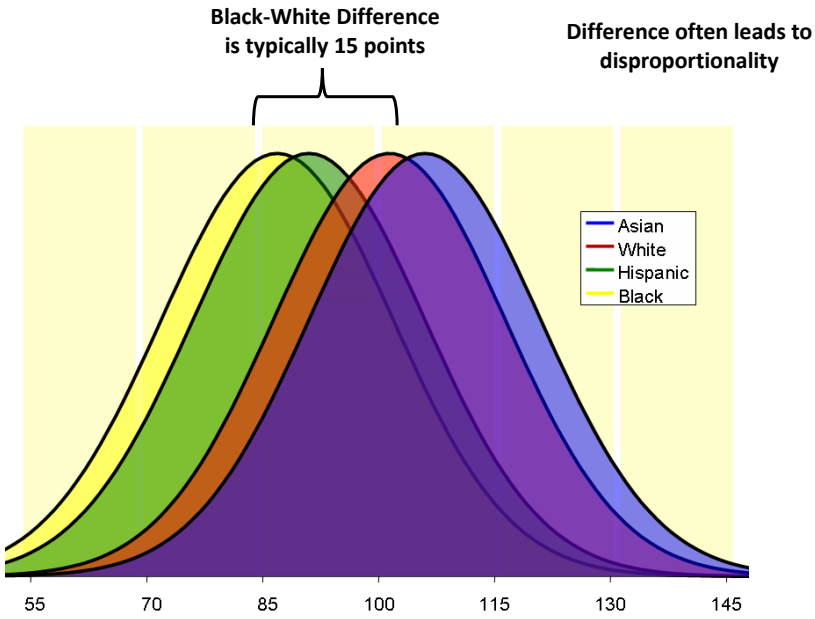
Yet we grapple with real issues related to intelligence tests and how they are developed, used, and interpreted



This NYT article refers to a quote from Dr Francis Collins saying that most experts on intelligence "*consider any black-white differences in I.Q. testing to arise primarily from environmental, not genetic, differences.*"

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These Terms Are Used in the Context of Intelligence Testing

- Test Bias
- Test Fairness
- Discrimination

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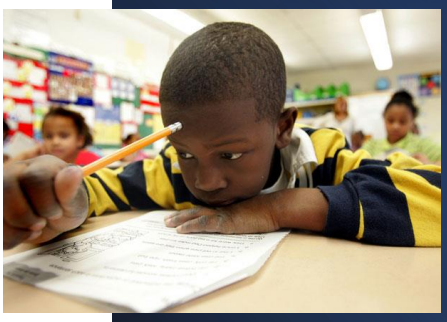
Bias in Psychological Assessment: An Empirical Review and Recommendations

Cecil R. Reynolds and Lisa A. Suzuki (2013; Chapter 4)



- Few issues in psychological assessment are as polarizing as the use of standardized tests with minority examinees.
- The central issue is one of the long-term consequences that may occur when mean test results differ from one ethnic group to another—Blacks, Hispanics, American Indians, Asian Americans, and so forth.
- One concern – students are disproportionately placed in special classes because of purported bias in standardized tests.

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Know Thy Instruments

- School psychologists must have confidence in the integrity of the tests they use to have confidence in the decisions they make regarding special education eligibility.
  - Are tests of intelligence/global mental ability culturally biased?
  - Are tests of intelligence/global mental ability "unfair"?
  - Are alternatives to intelligence/global mental ability better?

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General Categories of Test Bias

- Construct-validity bias: Whether a test assesses what it was designed to assess. For example, English learners will likely hear words they have not learned (e.g., on the WISC Comprehension subtest), and consequently, the test results might reflect their lack of exposure to English (relative to same-age peers) instead of their verbal abilities (Gc).
- Content-validity bias: When a test's content is comparatively more difficult for one group of students than for other groups.
- Predictive-validity bias: The accuracy of a test in predicting how well a particular group will do in the future. For instance, a test would be recognized as "unbiased" if it predicted future test and academic performance equally well for all groups.

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Unfairness and Bias Should Not be Conflated

Cited in Cecil R. Reynolds and Lisa A. Suzuki (2013; p. 87)

- "The presence (or absence) of differences in mean score between groups, or of differences in variability, tells us nothing directly about fairness" (Thorndike, 1971; p. 64). The concepts of test bias and unfairness are distinct…
- A test may have very little bias, but a clinician could still use it unfairly to minority examinees' disadvantage. Conversely, a test may be biased, but clinicians need not—and must not—use it to unfairly penalize minorities or others whose scores may be affected.
- Little is gained by anyone when concepts are conflated or when, in any other respect, professionals operate from a base of misinformation."

Handbook of Psychology, Second Edition, edited by Irving B. Weiner. Copyright © 2013 John Wiley & Sons, Inc.

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Unfairness and Bias Should Not be Conflated

Cited in Cecil R. Reynolds and Lisa A. Suzuki (2013; p. 87)

- "…the findings [group differences] are highly reliable from study to study, even when study participants identify their own race.
- The existence of these differences has gained wide acceptance.
- The differences are real and undoubtedly complex.
- The tasks remaining are to describe them thoroughly (Reynolds, Lowe et al., 1999) and, more difficult, to ***explain them in a causal sense*** (Ramsay, 1998a, 2000). Both the lower scores of some groups and the higher scores of others must be explained, and not necessarily in the same way.

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Bias in Psychological Assessment: An Empirical Review and Recommendations

Cecil R. Reynolds and Lisa A. Suzuki (2013; Chapter 4)

- Jensen (1980) was the author who first argued cogently that fairness and bias are separable concepts.
- As noted by Brown et al. (1999), **fairness is a moral, philosophical, or legal issue** on which reasonable people can legitimately disagree.
- By contrast, **bias is an empirical property of a test**, as used with two or more specified groups. Bias is a statistically estimated quantity rather than a principle established through debate and opinion.

44

Because of the Success of the Scientific Study of Intelligence (or in spite of it)…

- …intelligence and intelligence testing are subject to virulent hostility, aggressive promotion of misinformation from the popular press and media, and attempts to have their use curtailed or banned outright
- ***Larry P. v. Riles***, 495 F. Supp. 926 (N.D. Cal. 1979)
- (see Frisby & Henry, 2016)

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Contemp School Psychol (2016) 20:46–62
DOI 10.1007/s40688-015-0069-3

ESSAY

Science, Politics, and Best Practice: 35 Years After Larry P.

Craig L. Frisby[1] · Betty Henry[2]

School psychologists who work with African-American students in California work under a mandate that is clear, simple, and wrong (i.e., "Don't use IQ tests"). Alternative assessment proposals vary between California school districts; however, they have not been validated for the purposes in which they are used, and they do not allow for flexibility in individual circumstances or need. Standardized assessment has been replaced by non-standardized methods in many contexts, and the disproportionate placement of African-American students into select special education categories has not gone away.

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ESSAY

Science, Politics, and Best Practice: 35 Years After Larry P.

Craig L. Frisby[1] · Betty Henry[2]

Every time a psychologist makes a practice decision that does not reflect best practice for the welfare of the individual client, there is a loss to the individual and to the profession. The primary lesson of *Larry P.* for school psychologists is to be cognizant in considering how the tools that are used in professional practice impact the welfare of all clients we serve. School psychology was a relatively young profession in the 1970s, and a well-orchestrated effort to eliminate a valuable tool caught many skilled professionals unprepared. Great care needs to be taken to ensure that this does not happen again.

48

Larry P v. Riles

- A class action lawsuit that claimed that black children in the state of CA were being disproportionately placed into "Educable Mentally Retarded" (EMR) classes, primarily because of "racial bias" in the intelligence tests used for special education placement decisions.
- Original Larry P. Decision: Judge Robert Peckham's 1979 prohibited the use of intelligence tests for placing African-American students in classes for EMR or their "substantial equivalent."
- Defendants were ordered to "monitor and eliminate disproportionate placement of African-American students in special education." Any further use of IQ tests with African-American students would require formal approval by the State Board of Education (including open hearings) to document specifically their validity for use with these students.

*Wilson Riles (1917 – 1999) – Former California State Superintendent of Public Instruction

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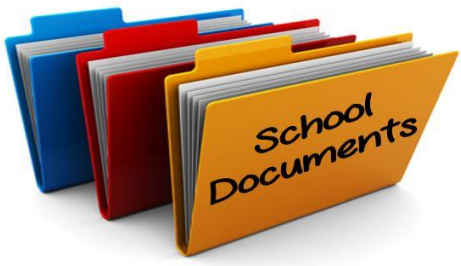
In 1986 the Larry P. Ban was Expanded

- By this year, the EMR category had been eliminated from the California special education system.
- How could Peckham's IQ test ban be applied in school districts since the ban dealt only with placement in EMR classes?
- The California State Department of Education (CDE) and the Larry P. plaintiffs presented a proposed modification of the 1979 injunction to the court.
  - This resulted in a more expansive ban that prohibited the use of intelligence tests with African-American students for any special education purpose.
  - This ban stipulated that IQ tests may not be given to a black student even with parental consent.

50

The Ban Further Stipulated…

- that IQ scores of black students contained in records that a school district receives from other agencies shall not become a part of the pupil's current school record.



51

Memorandum from the Director of Special Education

This memorandum is intended to provide guidance on special education assessment of African American students for identification and placement and the Larry P. court decision.

- **Interpretation and application of "guidance"**
  - The Larry P. injunction is still in place
  - The Larry P. injunction applies only to one special education category: Intellectual Disability (ID)
  - The special education category of ID is the "substantial equivalent" of EMR
  - School psychologists should use their judgment regarding which assessment tools and data-gathering methods to use for all other special education categories

52

Memorandum from the Director of Special Education

This memorandum is intended to provide guidance on special education assessment of African American students for identification and placement and the Larry P. court decision.

- **Interpretation and application of "guidance"**
  - If ID is not suspected, school psychologists may use intelligence tests and tests of cognitive abilities and processes with African American students for the identification of SLD and any other disability category

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54

Memorandum from the Director of Special Education

This memorandum is intended to provide guidance on special education assessment of African American students for identification and placement and the Larry P. court decision.

1. No single measure or assessment may be used as the **sole** criterion for determining whether the child has a disability or for determining an appropriate educational program for the child. (20 *United States Code* [*U.S.C.*] § 1414[b][2][B]; 34 *Code of Federal Regulations* [*C.F.R.*] part 300.304[b][2]; *Education Code* [*EC*] §§ 56001[j] and 56320[e]; California Code of Regulations [Cal. Code Regs.], Title 5, § 3030[j][4].)

2. Assessments and other evaluation materials must include those tailored to assess specific areas of educational need and not merely those that are designed to provide a single general intelligence quotient. (34 *C.F.R.* part 300.304[c][2]; *EC* § 56320[c].)

3. A variety of assessment tools and strategies must be used, in order to gather relevant functional, developmental and academic information about the child. (20 *U.S.C.* § 1414[b][2][A]; 34 *C.F.R.* part 300.304[b][1]; *EC* § 56320[b][1].)

4. Assessments and other evaluation materials must be valid and reliable for the purpose for which they are used. (20 *U.S.C.* § 1414[b][3][A][iii]; 34 *C.F.R.* part300.304[c][1][iii]; *EC* § 56320[b][2].)

5. Assessments and other evaluation materials must be selected and administered so as not to be discriminatory on a racial or cultural basis. (20 *U.S.C.* § 1414[b][3][A][i]; 34 *C.F.R.* part 300.304[c][1][i]; *EC* §§ 56001[j]; 56320[a].)

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Alternatives to IQ Tests in the Aftermath of Larry P.

- SOMPA – System of Multicultural Pluralistic Assessment (Jane Mercer)
- Altering the American Dialect of Tests
- Learning Potential Assessment (Test-teach-test; Dynamic Assessment)
- Assessment of Nonverbal Intelligence
- Bio-cultural Assessment
- Portfolio, Performance, or Authentic Assessment

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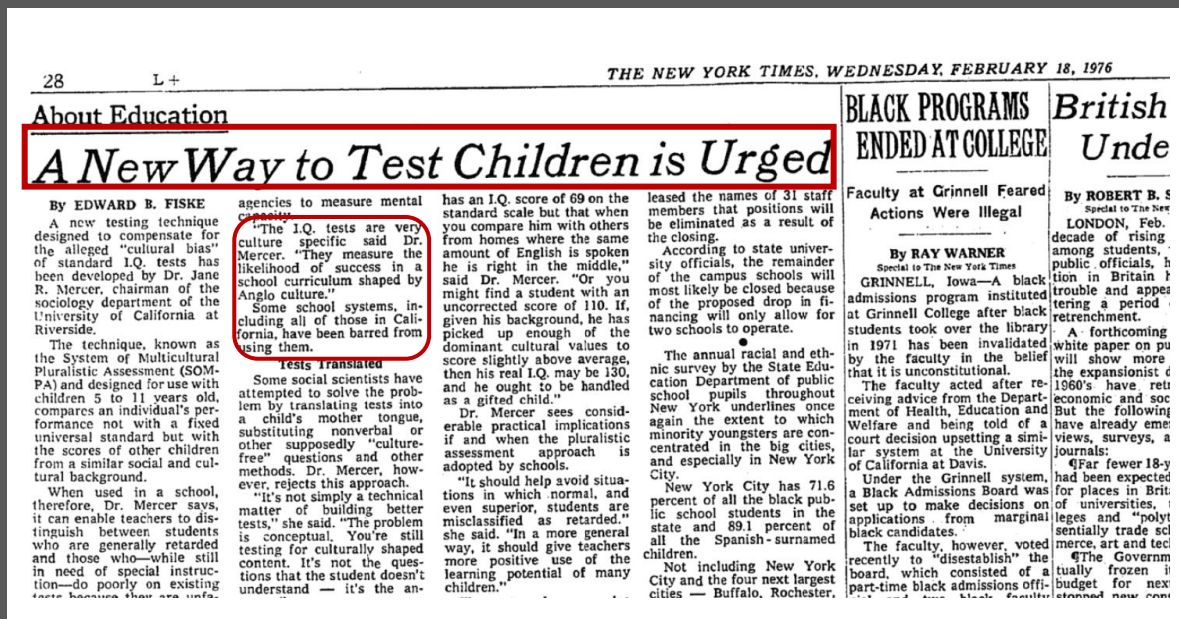

28 L+ THE NEW YORK TIMES, WEDNESDAY, FEBRUARY 18, 1976

About Education

A New Way to Test Children is Urged

By EDWARD B. FISKE

A new testing technique designed to compensate for the alleged "cultural bias" of standard I.Q. tests has been developed by Dr. Jane R. Mercer, chairman of the sociology department of the University of California at Riverside.

The technique, known as the System of Multicultural Pluralistic Assessment (SOMPA) and designed for use with children 5 to 11 years old, compares an individual's performance not with a fixed universal standard but with the scores of other children from a similar social and cultural background.

When used in a school, therefore, Dr. Mercer says, it can enable teachers to distinguish between students who are generally retarded and those who—while still in need of special instruction—do poorly on existing tests because they are unfa-

agencies to measure mental capacity.

"The I.Q. tests are very culture specific said Dr. Mercer. "They measure the likelihood of success in a school curriculum shaped by Anglo culture."

Some school systems, including all of those in California, have been barred from using them.

Tests Translated

Some social scientists have attempted to solve the problem by translating tests into a child's mother tongue, substituting nonverbal or other supposedly "culture-free" questions and other methods. Dr. Mercer, however, rejects this approach.

"It's not simply a technical matter of building better tests," she said. "The problem is conceptual. You're still testing for culturally shaped content. It's not the questions that the student doesn't understand — it's the answers.

has an I.Q. score of 69 on the standard scale but that when you compare him with others from homes where the same amount of English is spoken he is right in the middle," said Dr. Mercer. "Or you might find a student with an uncorrected score of 110. If, given his background, he has picked up enough of the dominant cultural values to score slightly above average, then his real I.Q. may be 130, and he ought to be handled as a gifted child."

Dr. Mercer sees considerable practical implications if and when the pluralistic assessment approach is adopted by schools.

"It should help avoid situations in which normal, and even superior, students are misclassified as retarded," she said. "In a more general way, it should give teachers more positive use of the learning potential of many children."

leased the names of 31 staff members that positions will be eliminated as a result of the closing.

According to state university officials, the remainder of the campus schools will most likely be closed because of the proposed drop in financing will only allow for two schools to operate.

•

The annual racial and ethnic survey by the State Education Department of public school pupils throughout New York underlines once again the extent to which minority youngsters are concentrated in the big cities, and especially in New York City.

New York City has 71.6 percent of all the black public school students in the state and 89.1 percent of all the Spanish-surnamed children.

Not including New York City and the four next largest cities — Buffalo, Rochester,

BLACK PROGRAMS ENDED AT COLLEGE

Faculty at Grinnell Feared Actions Were Illegal

By RAY WARNER

Special to The New York Times

GRINNELL, Iowa—A black admissions program instituted at Grinnell College after black students took over the library in 1971 has been invalidated by the faculty in the belief that it is unconstitutional.

The faculty acted after receiving advice from the Department of Health, Education and Welfare and being told of a court decision upsetting a similar system at the University of California at Davis.

Under the Grinnell system, a Black Admissions Board was set up to make decisions on applications from marginal black candidates.

The faculty, however, voted recently to "disestablish" the board, which consisted of a part-time black admissions offi-

British Unde

By ROBERT B. S

Special to The New

LONDON, Feb.

decade of rising among students, public officials, h tion in Britain h trouble and appea tering a period retrenchment.

A forthcoming white paper on pu will show more the expansionist d 1960's have ret economic and soc But the following have already eme views, surveys, a journals:

¶Far fewer 18-y had been expected for places in Brit of universities, leges and "polyt sentially trade sc merce, art and tec

¶The Governm tually frozen budget for nex stopped new con

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SOMPA Philosophical Rationale

- *"SOMPA is philosophically committed to a pluralistic view of American society. It sees American society as composed of a dominant Anglo core culture and many identifiable unique cultural groups that vary in their degree of identification with Anglo values. Language, lifestyles, habits, and social systems. The more distinct and homogeneous the ethnic group, the greater the difference in the life experiences of the children and the greater the need to look at the child within the context of his or her experiences. SOMPA does this by providing assessment with norms appropriate to a child's sociocultural group. The procedure is not only equitable for youngsters, but it also reflects cultural pluralism, or the belief that all cultures have equal worth and value, and that social strength comes from the continuance of diversity (Figueroa, 1979, p. 30).*

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Jane Mercer Brought to the Forefront Variables That Are Not Included in Standardization Samples

- Language Difference (bilingual/not bilingual is insufficient)
- Culture Difference
- Degrees of Low Income and Poverty
- Difference in Access to Resources (presumably b/c this is inherent in "low-income"

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What We All Know and Have Seen and Agree With

- English learners (EL) generally score lower on cognitive tests than monolingual English speakers (ES).
- The larger the difference between the EL exposure to language as compared to ES, the wider the difference in test performance.
- Cognitive test scores for EL decline as the influences of culture and language become more prominent in the test.
- If this pattern of decline emerges, then test scores should be considered invalid for the EL and therefore should not be used in special education eligibility decisions.

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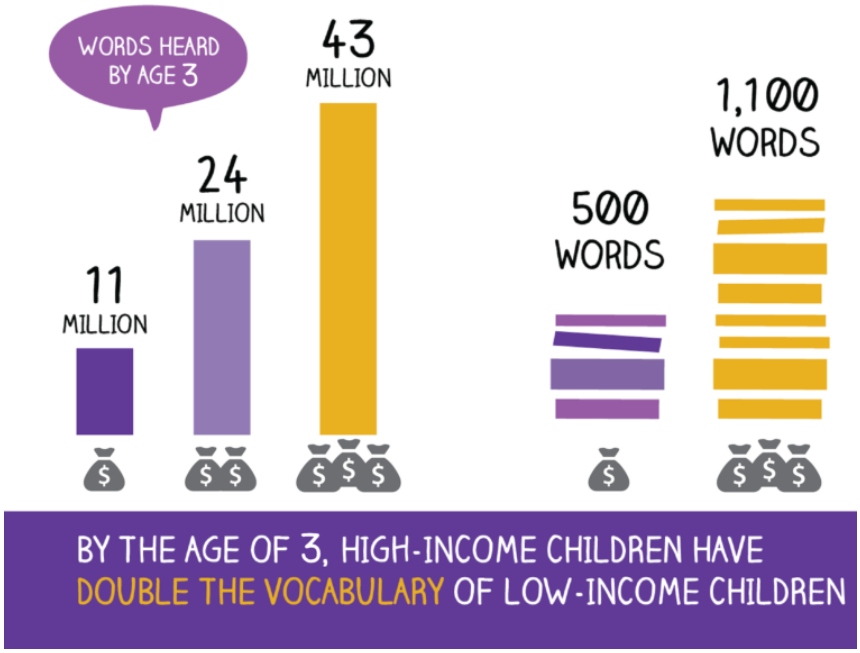
Language Exposure and Language Usage

Parent Level of Education, Income, Access to Resources

- 30-million-word gap
- Many criticisms of this study
- To date, it has not been replicated
- The study has been cited over 8,000 times (which doesn't make the findings any more valid than they were after one citation)
- 30 million is likely an exaggeration – perhaps closer to 4 million, depending on the research
- Are poor children not ready for school or are schools and teachers not ready for these children?

61



Exposure to Language and Language Usage

The "30-million-word gap" refers to a research study conducted by psychologists Betty Hart and Todd Risley. Their study showed that children from lower-income families hear a staggering 30 million fewer words than children from higher-income families by the time they are 4 years old. Not surprisingly, this word gap puts children from lower-income families at a significant disadvantage. Their vocabularies are approximately half the size of their higher-income counterparts, and they are unprepared for the early years of school curriculum. What's more, the word gap also has long-term effects on education, career, and family.

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Let's Stop Talking About The '30 Million Word Gap' June 1, 2018

(Heard on "All Things Considered" by Anya Kamenetz)

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“Word Wealth”

- Dr. Marjorie Faulstich Orellana, a professor of education at the University of California, Los Angeles, has called attention to the "word wealth" experienced by children who grow up learning a different language or even a different dialect than the dominant standard English spoken in school. This would describe not only recent immigrants, but also anyone whose background is not white, educated, and middle or upper-class.
- When they get to school, they must learn to "code switch" between two ways of speaking.
- She does not disagree that "there's variation in how much adults speak to children," but she tells NPR, there should not necessarily be a value judgment placed on that.
- "Should adults direct lots of questions to children in ways that prepare them to answer questions in school?" she asks, calling that a "middle-class, mostly white practice.“
- "There are other values, like using language to entertain or connect, rather than just have children perform their knowledge. How do we honor different families rather than have families change their values to align with school?"

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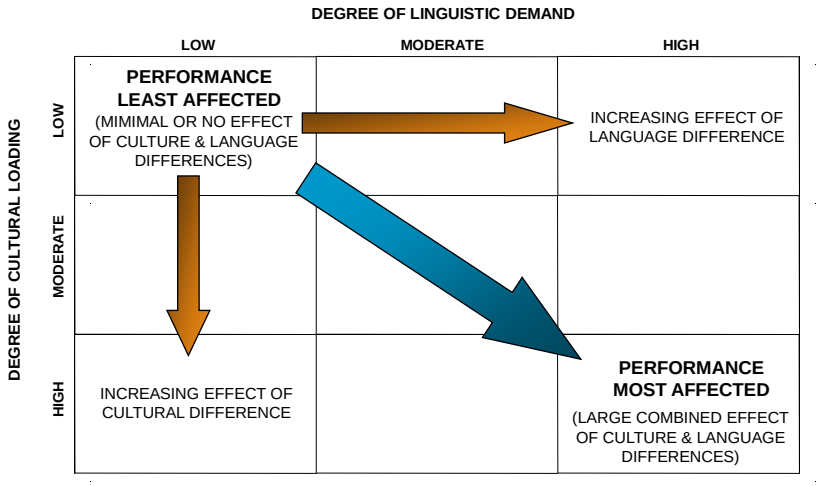
Cognitive Tests Classified According to Degree of Cultural Loading and Degree of Linguistic Demand

- In the Intelligence Test Desk Reference (ITDR; co-authored with McGrew), Flanagan classified all the major cognitive test according cultural loading and language demands. In the late 1990s, presented at NASP, and evolved through collaboration with Ortiz thereafter
- C-L test classifications were arranged in a matrix – based on these classifications and actual test performance, is there a declining pattern?

65

Application of Research as Foundations for the Cultural and Linguistic Classification of Tests and Culture-Language Interpretive Matrix

Matrix arrangement of expected subtest level performance for ELs vs. ES



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Based on a Century of Testing Els with Intelligence Tests Administered in English

Research-based subtest means regarding expected test performance EL vs. EL

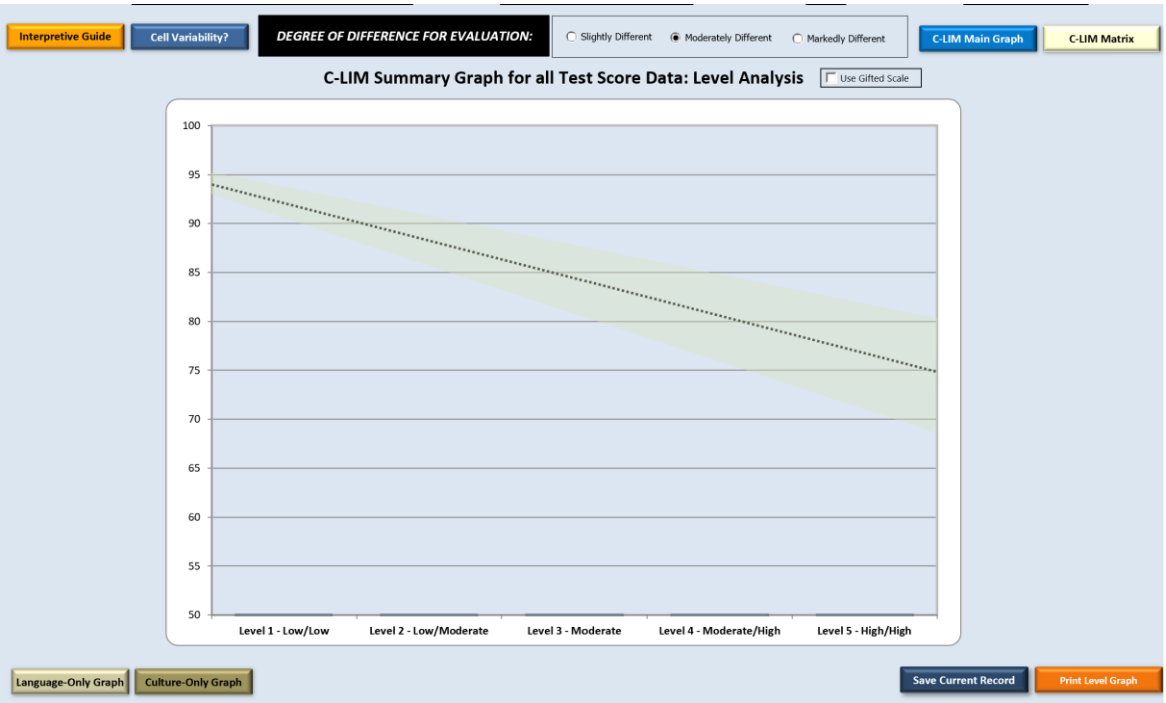
Degree of Cultural Loading	Degree of Linguistic Demand: Low	Moderate	High
Low	Slightly Different: 3-5 points Moderately Different: 5-7 points Markedly Different: 7-10 points	Slightly Different: 5-7 points Moderately Different: 7-10 points Markedly Different: 10-15 points	Slightly Different: 7-10 points Moderately Different: 10-15 points Markedly Different: 15-20 points
Moderate	Slightly Different: 5-7 points Moderately Different: 7-10 points Markedly Different: 10-15 points	Slightly Different: 7-10 points Moderately Different: 10-15 points Markedly Different: 15-20 points	Slightly Different: 10-15 points Moderately Different: 15-20 points Markedly Different: 20-25 points
High	Slightly Different: 7-10 points Moderately Different: 10-15 points Markedly Different: 15-20 points	Slightly Different: 10-15 points Moderately Different: 15-20 points Markedly Different: 20-25 points	Slightly Different: 15-20 points Moderately Different: 20-25 points Markedly Different: 25-35 points

***Slightly Different**: Includes individuals with very high levels of English language proficiency (e.g., CALP) and high acculturation, but still not entirely comparable to mainstream U.S. English speakers. Examples include individuals who are third generation in the U.S., have well educated/higher SES parents, have attended dual-language program for at least 6-7 years, or demonstrate native or near native-like proficiency in English language conversation and solid literacy skills. (Not a common category)*

***Moderately Different**: Includes individuals with moderate to higher levels of English language proficiency (e.g., advanced BICS/emerging CALP) and typical EL acculturative learning experiences. Examples include individuals who were born or came early to the U.S. with limited English-speaking parents, usually from low to very low SES with parent's having low or limited literacy even in their own language, generally received formal education in English only or primarily in English since starting school.*

***Markedly Different**: Includes individuals with low to very low levels of English language proficiency (e.g., early BICS) or very limited acculturative learning experiences due to unusual influences on development. Examples include extremely low and limited parental SES and education, recently arrival in the U.S. or residence for in the U.S. 3 years or less, lack of prior formal education, exposure to trauma, violence, abuse, neglect, time spent in refugee or resettlement camps, changes in or multiple early languages.*

67



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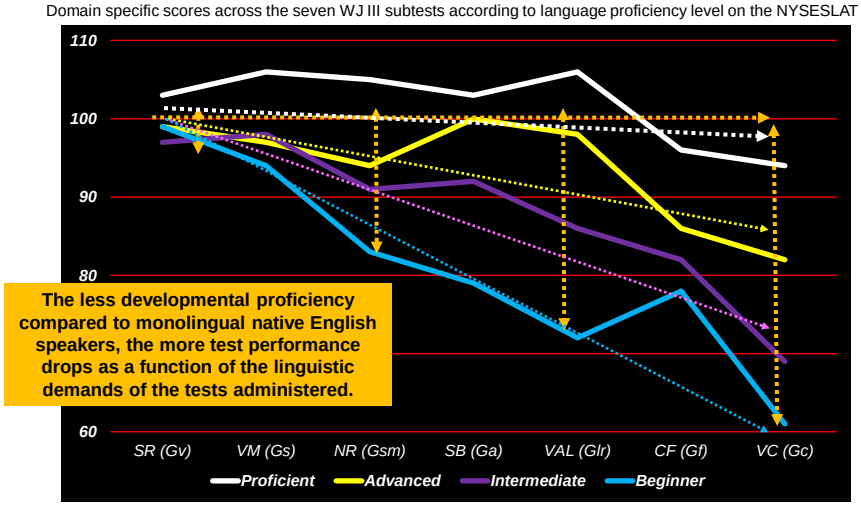
Research Foundations for EL Evaluation: EL to EL

Subtest level performance as compared to other English Learners

Domain specific scores across the seven WJ III subtests according to language proficiency level on the NYSESLAT



The less developmental proficiency compared to monolingual native English speakers, the more test performance drops as a function of the linguistic demands of the tests administered.

Source: Sotelo-Dynega, M., Ortiz, S.O., Flanagan, D.P., Chaplin, W. (2013). English Language Proficiency and Test Performance: Evaluation of bilinguals with the Woodcock-Johnson III Tests of Cognitive Ability. Psychology in the Schools, Vol 50(8), pp. 781-797.

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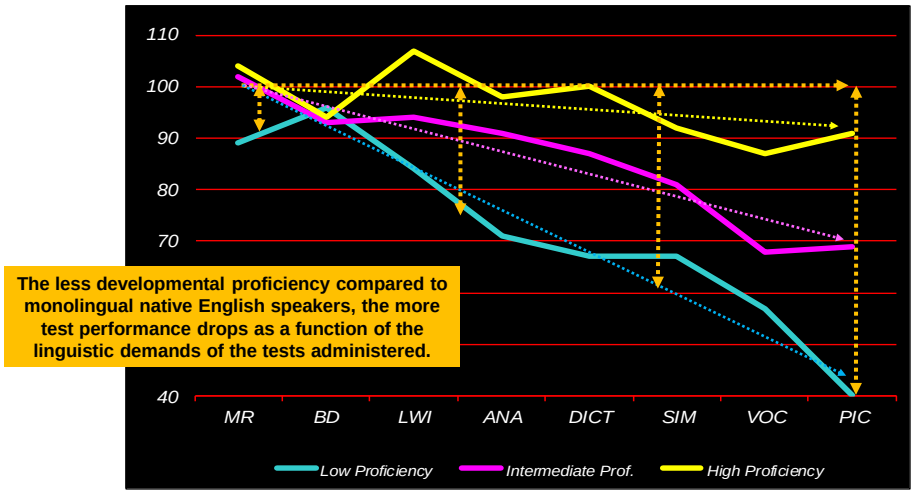
Research Foundations for EL Evaluation: EL to EL

Subtest level performance as compared to other English Learners

Mean subtest scores across the four WASI subtests and four WMLS-R subtests according to language proficiency level



Source: Dynda, A. M. (2008). The relation between language proficiency and IQ test performance. Unpublished manuscript. St. John's University, NY.

70

For ELs the Main Problem in Testing is Test Score Validity

"although a student's conversational level of English language proficiency could be perceived to be relatively consistent with their peers', their level of academic language proficiency may not be sufficient to fully benefit from classroom instruction or ***understand test directions to the same extent of a native English language speaker***" (p. 10)

"Some practitioners may have concerns regarding the additional testing time required to administer, score, and interpret performance on language ability tests. Flanagan, Ortiz, and Alfonso (2013) addressed this concern well, as they explained: Irrespective of whether test scores ultimately prove to have utility or not, ***practitioners must endeavor to ascertain the extent to which the validity of any obtained test scores may have been compromised prior to and before any interpretation is offered or any meaning assigned to them***. (p. 309)…Therefore, not only would this process be consistent with the aforementioned standards, but it would also lead to recommendations that are better informed and tailored to individual examinee characteristics." (p. 10)

Source: Cormier, D. C., Bulut, O., McGrew, K. S. & Kennedy, K. (2022). Linguistic Influences on Cognitive Test Performance: Examinee Characteristics Are More Important than Test Characteristics, Journal of Intelligence, Volume 10, Issue 1.

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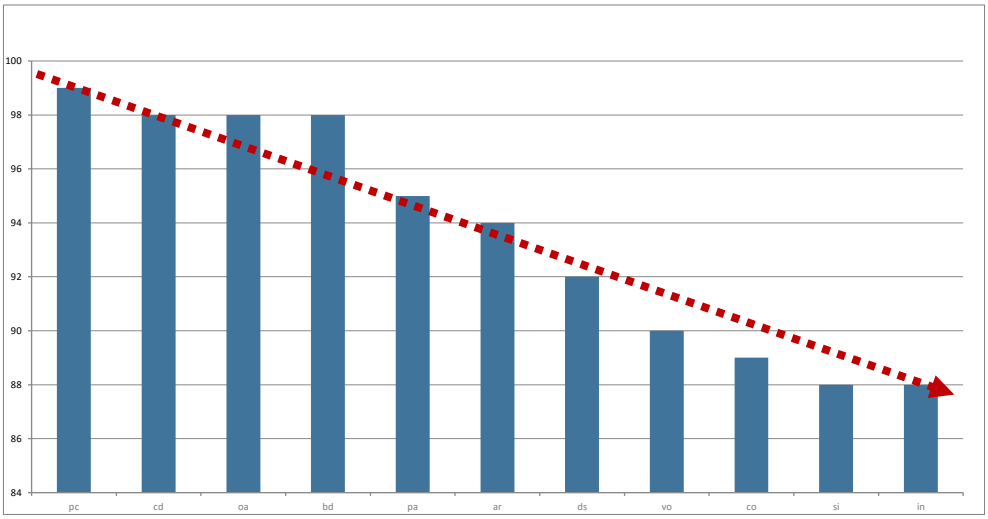
Data from Jane Mercer in 1972 for WISC-R



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Research Foundations for EL Evaluation: EL to EL

Language development and subtest level performance

"*the influence of language ability, **particularly receptive language ability**, is more influential than age on cognitive test performance*. This last point highlights the importance of considering language abilities when assessing students' cognitive abilities." (p. 9)

"One such challenge is assessing the cognitive abilities of the growing number of students who are considered ELs; ***limited English proficiency can lead to linguistically biased test results, which would lead to a misrepresentation of the examinee's true cognitive abilities. To eliminate this potential source of bias, psychologists testing EL students could consider examinee characteristics before administering a standardized measure of cognitive ability***. This idea is not new. More than a decade ago, Flanagan et al. (2007) noted the critical need for psychologists to collect information regarding students' level of English proficiency, and the level of English required for the student to be able to comprehend test directions, formulate and communicate responses, or otherwise use their English language abilities within the testing process. Nonetheless, the results of our study provide an empirical basis in support of this broad recommendation." (p. 9)

Source: Cormier, D. C., Bulut, O., McGrew, K. S. & Kennedy, K. (2022). Linguistic Influences on Cognitive Test Performance: Examinee Characteristics Are More Important than Test Characteristics, Journal of Intelligence, Volume 10, Issue 1.

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Research Foundations for EL Evaluation: EL to ES

The influence of language on subtest level performance in English speakers and English learners.

Table 3. Variance Explained by Exogenous Variables (Individual Test Performance) by Age Group.

		Variance explained			
	Individual test	7-10	11-14	15-18	
Highest Language Demands	Verbal Comprehension	.79[c]	.86[c]	.81[c]	C-LIM Level 5
	General Information	.71[c]	.85[c]	.86[c]	
	Concept Formation	.67[c]	.71[c]	.67[c]	
	Visual–Auditory Learning	.40[b]	.37[b]	.41[b]	C-LIM Level 4
	Delayed Recall Visual–Auditory Learning	.39[b]	.32[b]	.37[b]	
	Analysis Synthesis	.29[b]	.44[b]	.47[b]	
	Sound Blending	.25[b]	.32[b]	.35[b]	
	Auditory Working Memory	.22[b]	.44[b]	.32[b]	
	Retrieval Fluency	.22[b]	.22[b]	.28[b]	
	Memory for Words	.18[b]	.32[b]	.23[b]	C-LIM Level 3
	Numbers Reversed	.17[b]	.26[b]	.30[b]	
	Pair Cancelation	.17[b]	.11[b]	.11[b]	
	Rapid Picture Naming	.16[b]	.07[a]	.16[b]	
	Incomplete Words	.13[b]	.31[b]	.23[b]	
	Visual Matching	.13[b]	.15[b]	.16[b]	C-LIM Level 2
	Decision Speed	.12[b]	.15[b]	.19[b]	
	Auditory Attention	.10[b]	.20[b]	.15[b]	
Lowest Language Demands	Spatial Relations	.08[a]	.16[b]	.16[b]	C-LIM Level 1
	Planning	.07[a]	.12[b]	.11[b]	
	Picture Recall	.02[a]	.06[a]	.10[b]	

*Source: Cormier, D.C., McGrew, K.S. & Ysseldyke, J. E. (2014). The Influences of Linguistic Demand and Cultural Loading on Cognitive Test Scores. Journal of Psychoeducational Assessment, 32(7), 610-623.

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AAD	RtI	PSW
Requires a **discrepancy** between ability and achievement	Requires **discrepancies** in rate and level of learning	Requires **discrepancies** between cognitive strengths and cognitive and academic weaknesses
Does not clarify the reason for academic failure despite a consideration of exclusionary factors	**Does not clarify** the reason for academic failure despite a consideration of exclusionary factors, most notably inadequate instruction and intellectual disability	**Clarifies** the reason for academic failure as part of a comprehensive evaluation that includes evaluation of exclusionary factors
Unexpected underachievement **relative to overall cognitive ability (e.g., FSIQ)**	Unexpected underachievement **relative to evidence-based instruction and intervention (e.g., Tiers 1 and 2)**	Unexpected underachievement **relative to the individual's cognitive capabilities (strengths)**
Weaknesses/deficits **within the individual (primary)**	Weaknesses/deficits **within the environment (primary)**	Weaknesses/deficits **within the individual (primary) and the environment (contributory)**
Link to intervention **not apparent**	Link to intervention **based on academic skill deficits only**; Limited to no new data to inform intervention after failure to respond	Link to intervention **based on academic skill deficits as well as knowledge of how cognitive deficits manifest for the individual in real-world settings** (e.g., classroom)
Insufficient information to individualize instruction and intervention	**Insufficient** information to individualize instruction and intervention beyond Tier 2 and/or Tier 3	**Sufficient** information to individualize instruction and intervention (particularly when combined with RtI/MTSS)
Diagnostic errors (false positives and false negatives) are inevitable	**Diagnostic errors** (false positives and false negatives) are inevitable	**Diagnostic errors** (false positives and false negatives) are inevitable

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How are Ability-Achievement Discrepancy and RTI Alike?

- ***They both involve circular logic***
- Why is Johnny LD?
- Because he has an ability-achievement discrepancy
- Why does he have an ability-achievement discrepancy?
- ***Because he's LD***
- Why is Sally LD?
- Because she failed to respond to scientifically-based intervention
- Why didn't she respond to the scientifically-based intervention?
- ***Because she's LD***

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PSW Methods

PSW methods combine standardized tests with other date sources to document whether a student demonstrates a pattern of cognitive and academic strengths and weaknesses that is consistent with the SLD construct as defined in IDEA.

After ruling out a general ability deficit and other exclusionary factors, evaluators identify a specific deficit in one or more basic psychological processes that plausibly interfere with the development of academic skills.

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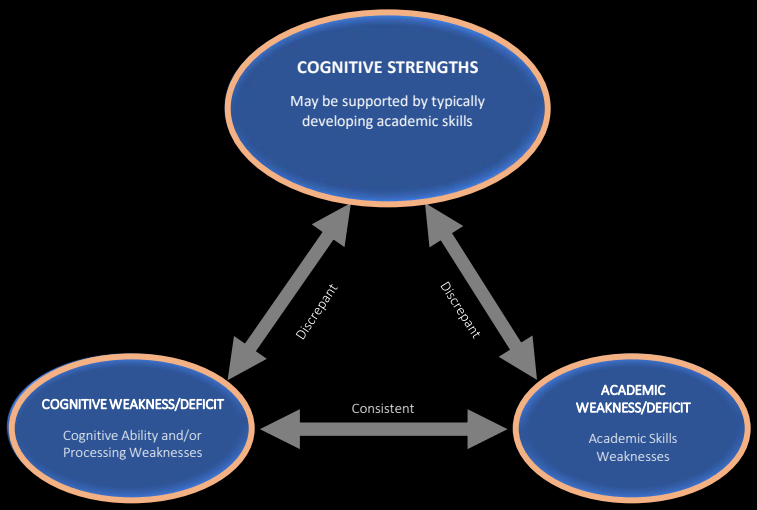
Conceptual Understanding of the PSW Procedure



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Alternative Research-Based Procedure for SLD Identification

Five PSW Methods

(listed in publication order)

- *Naglieri, (1999, 2013); Naglieri and Feifer (2018)*
  - *Discrepancy/Consistency (**CAS2 D/C**; used only with the CAS2; PASS score analyzers)*
- *Flanagan, Ortiz, & Alfonso (2002-Present)*
  - *Dual-Discrepancy/Consistency (**DD/C**; automated by the PSW component of the Cross-Battery Assessment Software System – X-BASS)*
- *Hale & Fiorello, (2004, 2011)*
  - *Concordance-discordance model (**CDM**; not automated)*
- *Dehn & Szasz (2018)*
  - *Psychological Processing Analyzer (**PPA**)*
- *Schultz & Stephens (2018)*
  - *Core-Selective Evaluation Process (**C-SEP**; not automated)*

***Orange** = Name of Method*
***Green** = Automation Available*

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RESEARCH ARTICLE

WILEY

The cognitive assessment course: Two decades later

Adam B. Lockwood[1] | Ryan L. Farmer[2]

Overall Interpretation Framework	Percentage of Instructors Teaching
Cattell-Horn-Carroll	92.9
Patterns of Strengths & Weaknesses, General	68.5
Cross-Battery Assessment	60.6
Intelligent Testing	38.6
Dual Discrepancy/Consistency	23.6
General intelligence only	21.3
Cognitive Hypothesis Testing	16.5
Concordance Disconcordance Model	11.8
School Neuropsychology	11.8

Nearly 70% of Cognitive Assessment Course Syllabi Include Coverage of the PSW Method

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Clarification of Concepts and Terms

- **Pattern of Strengths and Weaknesses** or **PSW** is the third option in the federal regulations. It is an alternative researched based procedure.
- One PSW method is **Dual Discrepancy/Consistency** or **DD/C**

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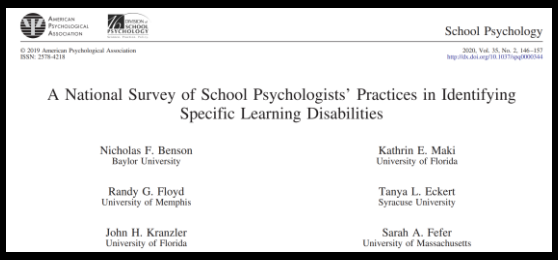
Nearly 75% of practicing school psychologists using the PSW method use DD/C

2020



School Psychology

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A National Survey of School Psychologists' Practices in Identifying Specific Learning Disabilities

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Kathrin E. Maki, University of Florida
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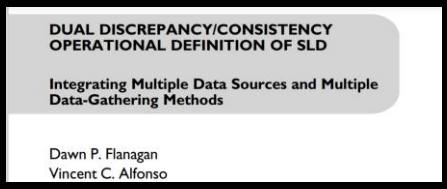
Tanya L. Eckert, Syracuse University
John H. Kranzler, University of Florida
Sarah A. Fefer, University of Massachusetts

Table 4
Models Used by School Psychologists Who Report Using Pattern of Strengths and Weaknesses Methods for SLD Identification Purposes

PSW Model	Percent using
Dual Discrepancy/Consistency Model (DD/C)	66.6%
Discrepancy/Consistency Model (D/CM)	8.6%
Concordance-Discordance Model (C/DM)	4.4%
DD/C and D/CM Models	5.3%
DD/C and C/DM Models	2.1%
Other	13.0%

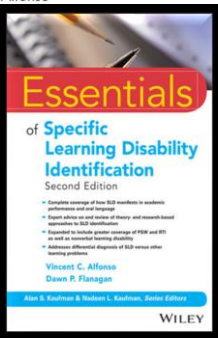
Note. PSW = pattern of strengths and weaknesses; SLD = specific learning disability.



DUAL DISCREPANCY/CONSISTENCY OPERATIONAL DEFINITION OF SLD

Integrating Multiple Data Sources and Multiple Data-Gathering Methods

Dawn P. Flanagan
Vincent C. Alfonso



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Foundational Information That Informs Interpretation of Strengths and Weaknesses

- **CHC theory**
- **Theoretical constructs measured by cognitive, neuropsychological, achievement, language, and special purpose batteries**
- **Relations between cognitive abilities, processes, and academic skills**
- **How cognitive weaknesses manifest in real-world performances**

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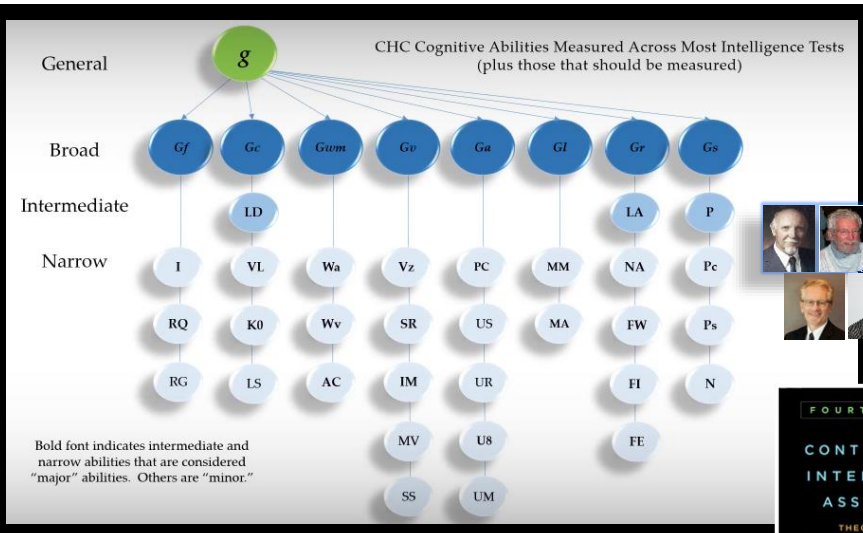
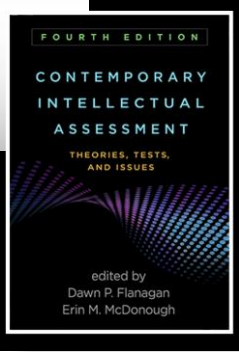
Foundational Information Necessary to Inform Interpretation of Strengths and Weaknesses

- **CHC theory**
- **Theoretical constructs measured by cognitive, neuropsychological, achievement, language, and special purpose batteries**

85





CHC Theory Revised: A Visual Graphic Summary of **Schneider and McGrew's** 2018 Chapter in Flanagan & McDonough's (Eds.) ***Contemporary Intellectual Assessment***, fourth edition. NY: Guilford. Posted on McGrew's MindHub May 11, 2018

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	Broad Ability	Definition
Reasoning	Fluid Reasoning (Gf)	The use of deliberate and controlled procedures (often requiring focused attention) to solve novel, "on-the-spot" problems that cannot be solved by using previously learned habits, schemas, and scripts.
Acquired Knowledge	Comprehension-Knowledge (Gc)	The ability to comprehend and communicate culturally valued knowledge.
	Domain-Specific Knowledge (Gkn) *	The depth, breadth and mastery of specialized declarative and procedural knowledge (knowledge not all members of society are expected to have).
	Quantitative Knowledge (Gq)	The depth and breadth of declarative and procedural knowledge related to mathematics.
	Reading and Writing (Grw)	The depth and breadth of declarative and procedural knowledge and skills related to written language.
Memory	Working Memory Capacity (Gwm)	The ability to maintain and manipulate information in active attention.
	Learning Efficiency (Gl)	The ability to learn, store, and consolidate new information over periods of time measured in minutes, hours, days, and years.
	Retrieval Fluency (Gr)	The rate and fluency with which individuals can produce and selectively and strategically retrieval verbal and nonverbal information and ideas stored in long-term memory.
Sensory	Visual Processing (Gv)	The ability to perceive complex patterns and mentally simulate how they might look when transformed.
	Auditory Processing (Ga)	The ability to discriminate, remember, reason, and work creatively (on) auditory stimuli, which may consist of tones, environmental sounds, and speech units.
	Olfactory Abilities (Go) *	The abilities to detect and process meaningful information in odors.
	Tactile Abilities (Gh) *	The abilities to detect and process meaningful information in haptic (touch) sensations.
Motor	Psychomotor Abilities (Gp) *	The abilities to perform physical body motor movements (e.g., movement of fingers, hands, legs) with precision, coordination, or strength.
	Kinesthetic Abilities (Gk) *	The abilities to detect and process meaningful information in proprioceptive sensations.
Speed and Efficiency	Processing Speed (Gs)	The ability to control attention to automatically, quickly, and fluently perform relatively simple repetitive cognitive tasks.
	Reaction and Decision Speed (Gt) *	The speed of making very simple decisions or judgments when items are presented one at a time.
	Psychomotor Speed (Gps) *	The speed and fluidity with which physical body movements can be made.

***These broad abilities appear infrequently or not at all on cognitive and neuropsychological batteries**

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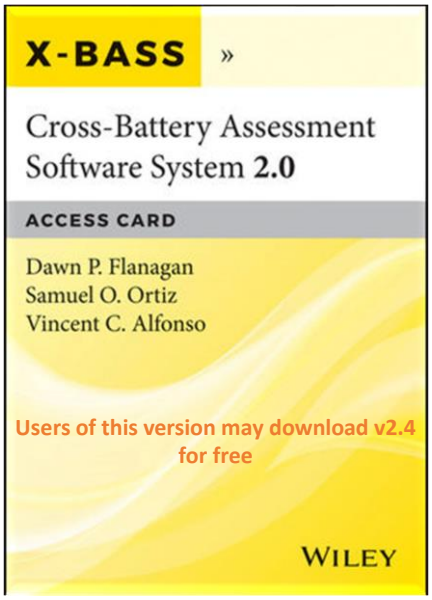

X-BASS Includes Test Classification for Over 1,200 Subtests

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Foundational Information Necessary to Inform Interpretation of Strengths and Weaknesses

The relations between CHC cognitive abilities, processes, and academic skills

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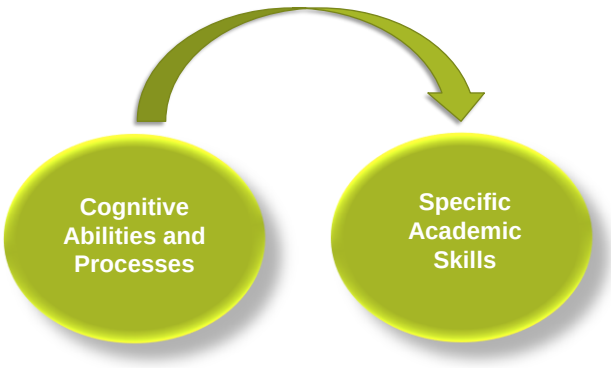
FOUNDATIONAL INFORMATION NECESSARY TO INFORM INTERPRETATION OF STRENGTHS AND WEAKNESSES



- **Relations between cognitive abilities and processes, and academic skills are supported by research**

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RELATIONS BETWEEN COGNITIVE ABILITIES AND PROCESSES, AND SPECIFIC READING SKILLS

SLD Specifier	Subskill	Associated Impairments/Cognitive Correlates	CHC Abilities and Processes
With Impairment in Reading	Word Reading Accuracy	**Phonological awareness** – primary cognitive correlate; the metacognitive understanding that words have internal structures based on phonemes (Fletcher et al., 2007; Kudo, Lussier, & Swanson, 2015; Melby-Lervåg, Lyster, & Hulme, 2012; Willcutt et al., 2013). When this awareness is impaired, word recognition is delayed and fluency and comprehension skills are consequently affected.	Ga:PC Phonetic Coding
		Rapid naming – some researchers have found that phonological awareness and rapid letter naming both uniquely predict word recognition skills (Schatschneider, Fletcher, Francis, Carlson, & Foorman, 2004; Wagner, Torgesen, & Rashotte, 1994; Wagner, Torgesen, Rashotte, & Hecht, 1997). However, a meta-analysis of studies examining the relationship between rapid naming and dyslexia found little evidence to support a central and persistent deficit in naming speed in individuals with the disorder (Vukovic & Siegel, 2006). On the other hand, there are findings to suggest that phonological awareness and rapid naming, although correlated, are distinct variables and contribute uniquely to word recognition (Petrill, Deater-Deckard, Thompson, DeThorne, & Schatschneider, 2006).	Gr:NA Naming Facility
		Phonological memory – working memory for verbal and sound-based information has also been found to be significantly related to word recognition, although it may not uniquely contribute when phonological processing is accounted for (Melby-Lervag, Lyster, & Hulme, 2012; Schatschneider et al., 2004; Wagner et al., 1997; Willcutt et al., 2013).	Ga:UM Memory for Sound Patterns

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RELATIONS BETWEEN COGNITIVE ABILITIES AND PROCESSES, AND SPECIFIC READING SKILLS

SLD Specifier	Subskill	Associated Impairments/Cognitive Correlates	CHC Abilities and Processes
With Impairment in Reading	Reading Rate or Fluency	**Rapid automatized naming (RAN)** – while the exact relationship between RAN and reading remains unclear, RAN is believed to be one of the best predictors of reading fluency (Georgiou et al., 2008, Tan et al., 2005). The automaticity required to complete RAN tasks is related to the ability to synthesize and automatize letter sequences / words when reading (Norton & Wolf, 2012). There are also a variety of cognitive processes implicated in rapid naming. These include attention, executive functions (i.e., response inhibition, set shifting), lexical retrieval, and processing speed (Moll, Gobel, & Snowling, 2015).	Gr:NA Naming Facility
		Orthographic processing – processing of orthographic information (i.e., the ability to process units of words based on visual long-term memory representations) is considered critical in automatic word recognition and consequently plays a crucial role in fluency (O'Brien et al., 2011). This ability is often impaired or underdeveloped in some reading disabled individuals.	Gs:Pc With Orthographic Units as Stimuli

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RELATIONS BETWEEN COGNITIVE ABILITIES AND PROCESSES, AND SPECIFIC READING SKILLS

SLD Specifier	Subskill	Associated Impairments/Cognitive Correlates	CHC Abilities and Processes
With Impairment in Reading	Reading Comprehension	**Oral language** – difficulties in reading comprehension are frequently associated with deficits oral language in general, including areas such as vocabulary, morphology, and syntax (Catts et al., 1999; Cutting & Scarborough, 2006; Share & Leikin, 2004; Torgesen, 2000; Willcutt et al., 2013).	Gc:VL, MY, CM — Vocabulary Knowledge; Grammatical Sensitivity; Communication Ability
		Listening comprehension – several studies have demonstrated that a unique portion of the variance in reading comprehension can be explained by listening comprehension (Cutting & Scarborough, 2006; Kendeou, van den Broek, White, & Lynch, 2009).	Gc:LS — Listening Abilities
		Working memory – comprehension involves holding words and sentences in awareness, while integrating prior knowledge with incoming information (Carretti et al., 2009). Poor comprehenders may have particular difficulty updating / revising information already in working memory (Pelegrina et al., 2014; Peng et al., 2018; Peng & Fuchs, 2016).	Gwm — Working Memory Capacity
		Executive functioning – several executive functions are involved in reading comprehension, including planning, organization, and self-monitoring (Cutting et al., 2009; Locascio, et al., 2010; Sesma et al., 2008). Weaknesses in these executive functions result in difficulties with higher-order comprehension skills such as inferencing, integrating prior knowledge, monitoring comprehension, and adapting to text structure or genre (Fletcher et al., 2007; Kendeou, van den Broek, Helder & Karlsson, 2014).	Gf:I,RG — Inductive Reasoning; General Sequential (Deductive) Reasoning

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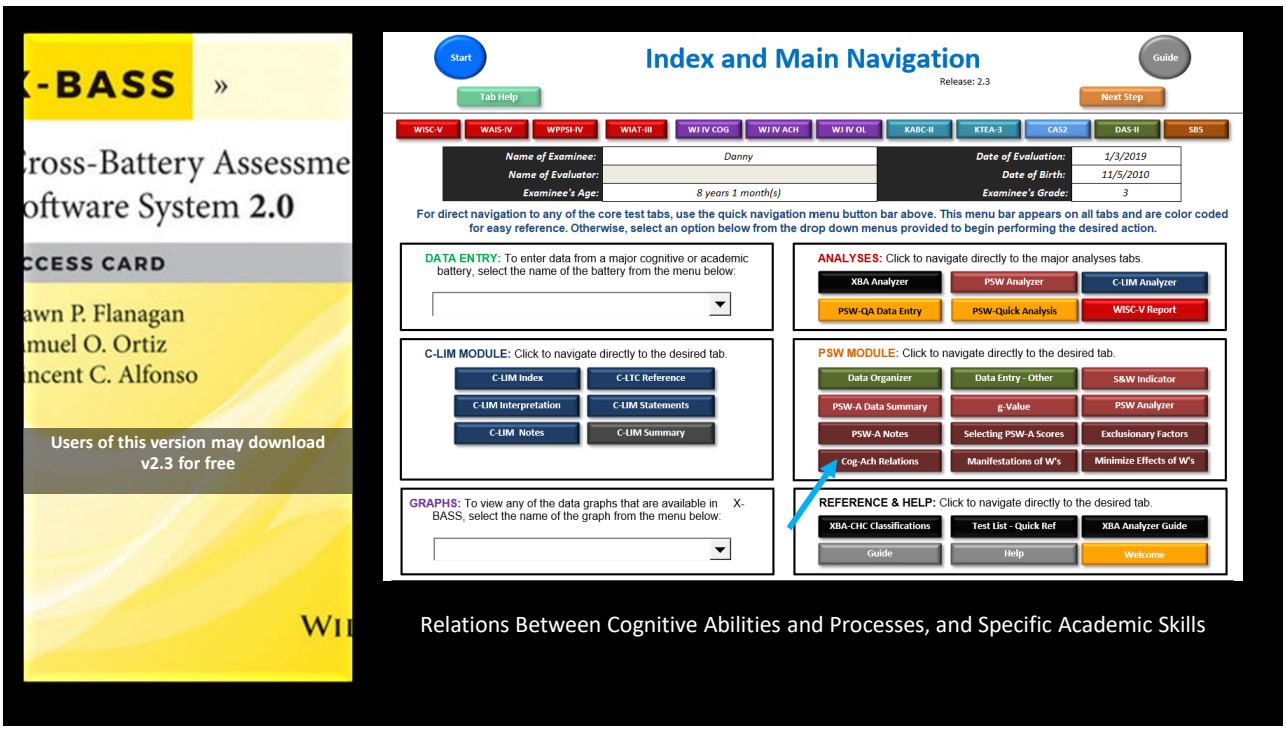

Relations Between Cognitive Abilities and Processes, and Specific Academic Skills

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Cognitive-Achievement Relations*

Developed by Erin M. McDonough, Dawn P. Flanagan, Megan Sy, and Vincent C. Alfonso.

Print Table

SLD Specifier	Subskill	Etiology	Associated Impairments/Cognitive Correlates
With Impairment in Reading	Word Reading Accuracy	Several cortical and subcortical structures are frequently implicated, including the planum temporale, temporal lobes, corpus callosum, and cerebellum (e.g., Eckert et al., 2003). More recent work appears to identify dysfunction in a left hemispheric network that includes the occipitotemporal region, inferior frontal gyrus, and inferior parietal region of the brain (Silani et al., 2005; Shaywitz et al., 2000; Fletcher, Simos, Papanicolaou, & Denton, 2004; Richlan et al., 2009; Richlan, 2012). Numerous imaging studies have also found that dysfunctional responses in the left inferior frontal and temporo-parietal cortices play a significant role with regard to phonological deficits (Skeide et al., 2015). Family and genetic factors have long been identified as crucial in dyslexia, with some researchers suggesting that a child with a parent with a reading disability is eight times more likely to be dyslexic compared to the general population (Pennington & Olson, 2005). Certainly, there is converging evidence from family and twin studies demonstrating the heritability and familiality of dyslexia (Grigorenko, 2001). Recently, genetic linkage studies have also identified several susceptibility genes for reading disabilities. These include sites on chromosomes 1, 2, 3, 4, 6, 11, 15, and 18, with one of the most commonly identified genetic locus being on chromosome 6 (Grigorenko, 2005; Paracchini et al., 2007; Scerri & Schulte-Korne, 2010; Scerri et al., 2011; Skeide et al., 2015). Shared environmental factors include: language and literacy environment during childhood (Wadsworth et al., 2000), quality of reading instruction.	**Phonological awareness** – primary cognitive correlate; the metacognitive understanding that words have internal structures based on phonemes (Fletcher et al., 2007; Melby-Lervåg, Lyster, & Hulme, 2012; Willcutt et al., 2013). When this awareness is impaired, word recognition is delayed and fluency and comprehension skills are consequently affected. **Rapid naming** – some researchers have found that phonological awareness and rapid letter naming both uniquely predict word recognition skills (Schatschneider, Fletcher, Francis, Carlson, & Foorman, 2004; Wagner, Torgesen, & Rashotte, 1994; Wagner, Torgesen, Rashotte, & Hecht, 1997). However, a meta-analysis of studies examining the relationship between rapid naming and dyslexia found little evidence to support a central and persistent deficit in naming speed in individuals with the disorder (Vukovic & Siegel, 2006). On the other hand, there are findings to suggest that phonological awareness and rapid naming, although correlated, are distinct variables and contribute uniquely to word recognition (Petrill, Deater-Deckard, Thompson, DeThorne, & Schatschneider, 2006). **Phonological memory** – working memory for verbal and sound-based information has also been found to be significantly related to word recognition, although it may not uniquely contribute when phonological processing is accounted for (Melvy-Lervag, Lyster, & Hulme, 2012; Schatschneider et al., 2004; Wagner et al., 1997; Willcutt et al., 2013).
	Reading Comprehension	Several brain regions are often implicated in reading comprehension. These include the anterior temporal lobe, inferior temporal gyrus, inferior frontal gyrus, inferior frontal sulcus, and middle and superior frontal and temporal regions (Ferstl et al., 2008; Gernsbacher & Kaschak, 2003). More recent research has revealed a relationship between listening and reading comprehension and activation along the left superior temporal sulcus, which has referred to by some as the "comprehension cortex" (Berl et al., 2010). However, broader pathways are also activated in reading comprehension, reflecting increased cognitive demand compared to listening comprehension. Genetic factors are said to account for 41 to 76 percent of the variance in comprehension (e.g., Betjemann et al., 2008; Harlaar, Dale, & Plomin, 2007; Petrill	**Oral language** – difficulties in reading comprehension are frequently associated with deficits oral language in general, including areas such as vocabulary, morphology, and syntax (Catts et al., 1999; Cutting & Scarborough, 2006; Share & Leikin, 2004; Torgesen, 2000; Willcutt et al., 2013). **Listening comprehension** – several studies have demonstrated that a unique portion of the variance in reading comprehension can be explained by listening comprehension (Cutting & Scarborough, 2006; Kendeou, van den Broek, White, & Lynch, 2009). **Working memory** – comprehension involves holding words and sentences in awareness, while integrating prior knowledge with incoming information (Carretti et

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Foundational Information Informs Interpretation of Strengths and Weaknesses

How cognitive weaknesses manifest in real-world performances

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Why is it Important To Understand How Cognitive Weaknesses Manifest?

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Gf

General and Specific Manifestations of a Gf Weakness

General Manifestations of Cognitive/ Neuropsychological Weakness	Specific Manifestations of Cognitive/ Neuropsychological Weakness
Difficulties with:	***Reading Difficulties:***
Higher-level thinking and reasoning	Drawing inferences from text
Transferring or generalizing learning	Abstracting main idea(s)
Deriving solutions for novel problems	***Math Difficulties:***
Extending knowledge through critical thinking	Reasoning with quantitative information (word problems)
Perceiving and applying underlying rules or process(es) to solve problems	Internalizing procedures and processes used to solve problems
	Apprehending relationships between numbers
	Writing Difficulties:
	Essay writing and generalizing concepts
	Developing a theme
	Comparing and contrasting ideas

- Example of General: Difficulty perceiving and applying underlying rules to solve problems
- Reading: Difficulties drawing inferences from text
- Math: Difficulties apprehending relationships between numbers
- Writing: Difficulty with persuasive writing

See Chapter 4 in *Essentials of Cross-Battery Assessment* (Flanagan, Ortiz, & Alfonso, 2013)
See Chapter 1 in *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners* (Mascolo, Alfonso, & Flanagan, 2014)
See ***Intervention Library: Finding Interventions and Resources for Students and Teachers*** (IL:FIRST ®; Flanagan, Mascolo, Ortiz, & Alfonso, 2021)

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Similar Tables for Other Broad CHC Abilities (Gc, Gwm, Gl, Gr, Gv, Ga, Gs)

Found in

X-BASS

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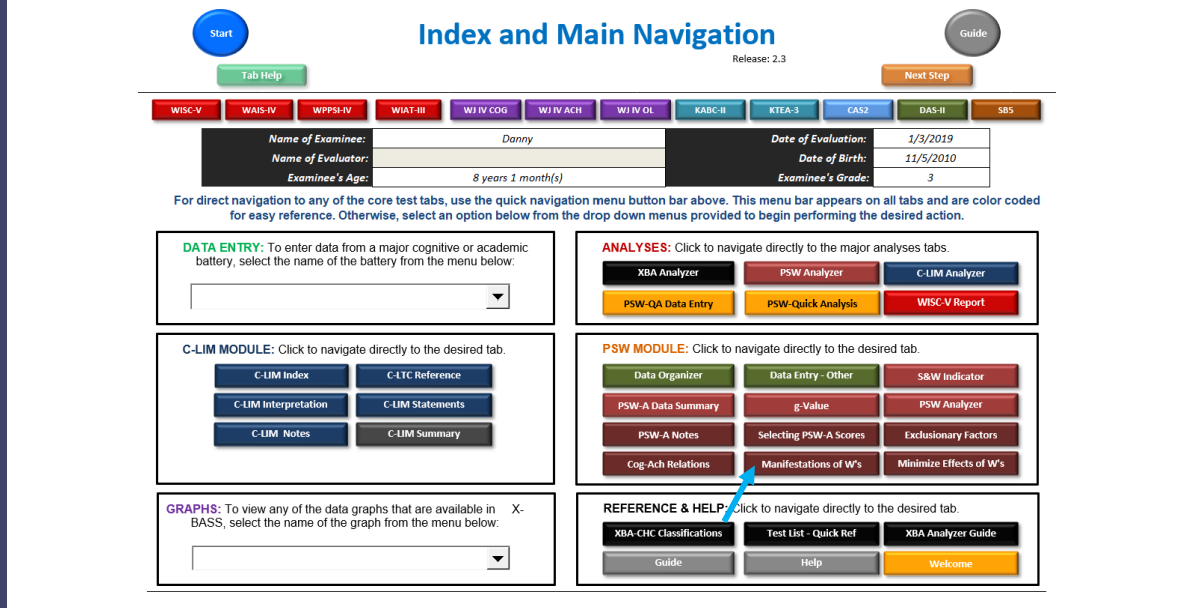

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Manifestations of Cognitive Weaknesses*

Developed by Dawn P. Flanagan and Jennifer T. Mascolo

Use the drop down menu to select and scroll to a specific ability domain: Fluid Reasoning (Gf) Print Form

Manifestations of a Fluid Reasoning (Gf) Deficit

CHC Broad Cognitive Abilities/ Neuropsychological Functions	Brief Definition*	General Manifestations of the Cognitive/Neuropsychological Weakness	Specific Manifestations of the Cognitive/Neuropsychological Weakness
Fluid Reasoning (Gf)	• Novel reasoning and problem solving; ability to solve problems that are relatively new or novel • Processes are minimally dependent on prior knowledge • Involves manipulating rules, abstracting, generalizing, and identifying logical relationships • Fluid reasoning is evident in inferential reasoning, concept formation, classification of unfamiliar stimuli, categorization, and extrapolation of reasonable estimates in ambiguous situations (Schneider & McGrew, 2012) • Narrow Gf abilities include Induction, General Sequential Reasoning (Deductive), and Quantitative Reasoning	***Difficulties with:*** • Higher level thinking and Reasoning • Transferring or generalizing learning • Deriving solutions for novel problems • Extending knowledge through critical thinking • Perceiving and applying underlying rules or process(es) to solve problems	Reading Difficulties: • Drawing inferences from text • Abstracting main idea(s) Math Difficulties: • Reasoning with quantitative information (word problems) • Internalizing procedures and processes used to solve problems • Apprehending relationships between numbers Writing Difficulties: • Essay writing and generalizing concepts • Developing a theme • Comparing and contrasting ideas

Manifestations of a Comprehension-Knowledge (Gf) Deficit

CHC Broad Cognitive Abilities/ Neuropsychological Functions	Brief Definition*	General Manifestations of the Cognitive/Neuropsychological Weakness	Specific Manifestations of the Cognitive/Neuropsychological Weakness
Comprehension-Knowledge (Gc)	• Breadth and depth of knowledge and skills (e.g., words, general information) that are valued by one's culture	***Difficulties with:*** • Vocabulary acquisition	***Reading Difficulties:*** • Decoding (e.g., word student is attempting to decode is not in his/her vocabulary)

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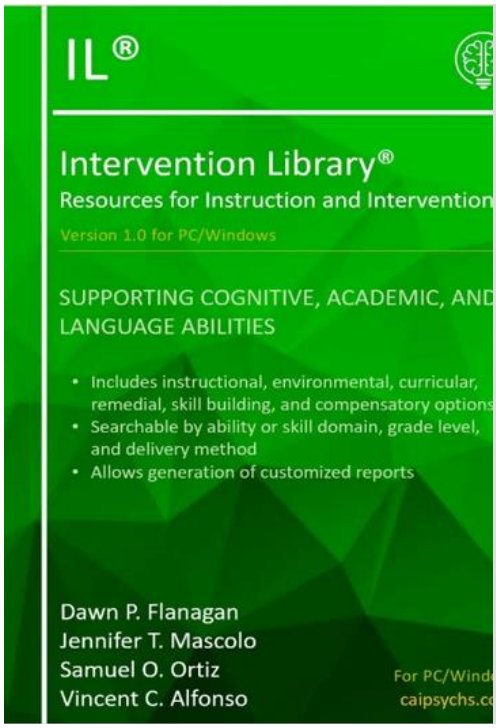

- **How cognitive weaknesses manifest in real-world performances provides the focus for intervention**
- **Intervention Library (IL)**

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COGNITIVE WEAKNESSES MANIFEST IN CLASSROOM PERFORMANCE

Gwm

Weakness in Auditory Short-term Storage

How does this cognitive weakness manifest for this student in the classroom?

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MANIFESTATIONS OF A WEAKNESS IN WORKING MEMORY

Working Memory Capacity (Gwm) (Check All that Apply) Print Gwm Only Clear All Gwm Selections

Refers to the ability to encode and maintain verbal or visual information in immediate awareness and then manipulate or transform it in some way within a few seconds, which requires focused attention. An example of Gwm is the ability to hold a string of numbers in one's mind (e.g., 4-7-3-6) and repeat the string back in reverse sequence (i.e., 6-3-7-4). A weakness in Gwm can interfere with learning and achievement in the following ways:

General Manifestations	Specific Manifestations: Reading	Specific Manifestations: Math	Specific Manifestations: Writing
Difficulties with	***Reading Difficulties***	***Math Difficulties***	***Writing Difficulties***
☐ Following multistep oral and written instructions	☑ Reading comprehension (i.e. remembering what is read)	☐ Rote memorization of math facts	☐ Spelling multisyllabic words
☑ Remembering information long enough to apply it	☐ Decoding multisyllabic words	☐ Remembering math procedures	☐ Redundancy in writing (word and conceptual levels) due to forgetting
☐ Remembering the sequence of information	☐ Orally retelling or paraphrasing what one has read	☐ Multi-step problems and regrouping	☐ Communicating main idea of a story in writing due to difficulty remembering what was read
☐ Rote memorization		☐ Extracting information to be used in word problems	☐ Maintaining and building upon the theme of assembly including relevant supporting details
☐ Maintaining one's place in a math problem or train of thought while writing		☑ Maintaining one's place while executing a series of steps in a computation or higher-level math problem	☑ Note-taking due to challenges with holding information in mind long enough to write it down
Other:			

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COGNITIVE WEAKNESSES MANIFEST IN CLASSROOM PERFORMANCE

Reduce Working Memory Demands Using Guided Notes

Guided notes facilitate learning because they minimize the effects of the working memory weakness on the student's ability to access the curriculum

Slope

- Slope is a measure of the steepness of a line on a graph.
  - The rise divided by the run.
  - Rise is the vertical change when the slope of a line is expressed as the ratio rise/run, or "rise over run"
  - Run is the horizontal change when the slope of a line is expressed as the ratio rise/run, or "rise over run"
- Rate · a _____ that compares the amount of change in a _____ variable to the amount of change in an _____ variable.

_____ = _____ = _____ = _____

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To Summarize – Foundational Information That Informs Interpretation of Strengths and Weaknesses

- **CHC theory**
- **Theoretical constructs measured by cognitive, neuropsychological, achievement, language, and special purpose batteries**
- **Relations between cognitive abilities, processes, and academic skills**
- **How cognitive weaknesses manifest in real-world performances**

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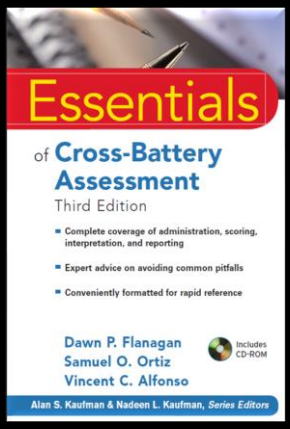

Third Edition: Operational Definition of SLD Renamed DD/C

- The operational definition of SLD was renamed "Dual Discrepancy/Consistency" (2013) to clarify it as distinct from XBA
- DD/C is Level IV of Flanagan and colleagues' operational definition of SLD

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Level	Nature of SLD[1]	Focus of Evaluation	Examples of Evaluation Methods and Data Sources	Criteria for SLD	SLD Classification and Eligibility
I	Difficulties in one or more areas of academic achievement, including (but not limited to)[2] Basic Reading Skill, Reading Comprehension, Reading Fluency, Oral Expression, Listening Comprehension, Written Expression, Math Calculation, and Math Problem Solving.	**Academic Achievement:** Performance in specific academic skills [e.g., *Grw (reading decoding, reading fluency, reading comprehension, spelling, written expression)* *Gq (math calculation, math problem solving) and Gc (communication ability, listening ability)*].	Response to quality instruction and intervention via progress monitoring, performance on norm-referenced, standardized achievement tests, evaluation of work samples, observations of academic performance, teacher/parent/student interview, history of academic performance, and data from other members of the Multidisciplinary Team (MDT) (e.g., speech-language pathologist, interventionist, reading specialist).	Performance in one or more academic areas is *weak or deficient*[3] (despite attempts at delivering quality instruction) as evidenced by converging data. Note that low scores are not sufficient to meet this condition. These scores must also represent *unexpected underachievement* (a condition determined by X-BASS based on an individual's unique pattern of scores).	**Necessary**
II	SLD does not include a learning problem that is the result of visual, hearing, or motor disabilities; of intellectual disability; of social or emotional difficulty or disorder; or of environmental, educational, cultural, or economic disadvantage.	**Exclusionary Factors:** Identification of potential primary causes of academic skill weaknesses or deficits, including intellectual disability, cultural or linguistic difference, sensory impairment, insufficient instruction or opportunity to learn, organic or physical health factors, social/emotional or psychological difficulty or disorder.	Data from the methods and sources listed at Levels I and III; Behavior Rating Scales; medical records; prior evaluations; interviews with current or past professionals such as counselors, psychiatrists, etc.	Performance is not *primarily* attributed to these exclusionary factors, although one or more of them may contribute to learning difficulties. [Consider using the ***Exclusionary Factors Form***, which is included in X-BASS]	
III	A disorder in one or more of the basic psychological/neuro-psychological processes involved in understanding or in using language, spoken or written; such disorders are presumed to originate from central nervous system dysfunction.	**Cognitive Abilities & Processes** Performance in cognitive abilities and processes (e.g., *Gv, Ga, Gl, Gr, Gwm, Gs*), specific neuropsychological processes (e.g., attention, executive functioning, orthographic processing; rapid automatic naming).	Performance on norm-referenced tests, evaluation of work samples, observations of cognitive performance, task analysis, testing limits, teacher/parent/student interview, history of academic performance, and records review.	Performance in one or more cognitive or neuropsychological processes (related to academic skill deficiency) is *weak or deficient*[3] as evidenced by converging data. Note that low scores are not sufficient to meet this condition. The cognitive process in question must also be *domain-specific* (a condition determined by X-BASS based on an individual's unique pattern of scores).	

Flanagan, Ortiz, and Alfonso (2013 – Present; periodically revised based on advances in theory and research)

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IV	The specific learning disability is a discrete condition differentiated from generalized learning deficiency by generally average or better ability to think and reason and a learning skill profile exhibiting significant variability, indicating a pattern of cognitive and academic strengths and weaknesses.	**Pattern of Strengths and Weaknesses (PSW) Marked by a Dual-Discrepancy/Consistency (DD/C)** Determination of whether academic skill weaknesses or deficits are *unexpected* and related to *domain specific* cognitive weaknesses or deficits; pattern of data reflects a below average aptitude-achievement *consistency* with at least *average ability* to think and reason.	Data gathered at all previous levels as well as any additional data following a review of initial evaluation results (e.g., data gathered for hypothesis testing; data gathered via demand analysis and limits testing).	Circumscribed below average aptitude-achievement *consistency*; circumscribed ability-achievement and ability-cognitive aptitude *discrepancies*, with at least average ability to think and reason; clinical judgment supports the impression that the student's overall ability to think and reason will enable him or her to benefit from tailored or specialized instruction/intervention, compensatory strategies, and accommodations, such that his or her performance rate and level will likely approximate more typically achieving, non-disabled peers. The DD/C PSW analysis is conducted by X-BASS based on an individual's unique pattern of strengths and weaknesses).	**Sufficient For SLD Identification**
V	Specific learning disability has an adverse impact on educational performance.	**Special Education Eligibility**[4] Determination of Least Restrictive Environment (LRE) for delivery of instruction and educational resources.	Data from all previous levels and MDT meetings.	Student demonstrates significant difficulties in daily academic activities that cannot be remediated, accommodated, or otherwise compensated for *without* the assistance of individualized special education services.	**Necessary for Special Education Eligibility**

Source: Adapted from Flanagan and Alfonso (2017) and Flanagan, Ortiz, and Alfonso (2013). X-BASS – Cross-Battery Assessment Software System (Flanagan, Ortiz, & Alfonso, 2017)
[1]This column includes concepts inherent in the federal definition (IDEIA, 2004), Kavale, Spaulding, and Beam's (2009) definition, Harrison and Holmes' (2012) consensus definition, and other prominent definitions of SLD (see Sotelo-Dynega, in press). Thus, the most salient prominent SLD markers are included in this column.
[2]Poor spelling with adequate ability to express ideas in writing is often typical of dyslexia and/or dysgraphia. Even though IDEIA 2004 includes only the broad category of written expression, poor spelling and handwriting are often symptomatic of a specific writing disability and should not be ignored (Wendling & Mather, 2009).
[3]Weak performance is typically associated with standard scores in the 85-89 range, whereas deficient performance is often associated with standard scores that are greater than 1SD below the mean. Interpretations of weak or deficient performance based on standard scores that fall in the weak and deficient ranges are bolstered when they have ecological validity (e.g., when there is evidence that the abilities or processes identified as weak or deficient manifest in everyday classroom activities that require these abilities and processes).
[4]The major specific learning disability may be accompanied by secondary learning difficulties that should be considered when planning the more intensive, individualized special education instruction directed at the primary problem. For information on linking assessment data to intervention, see Mascolo, Alfonso, and Flanagan (2014).

Flanagan, Ortiz, and Alfonso (2013 – Present; periodically revised based on advances in theory and research)

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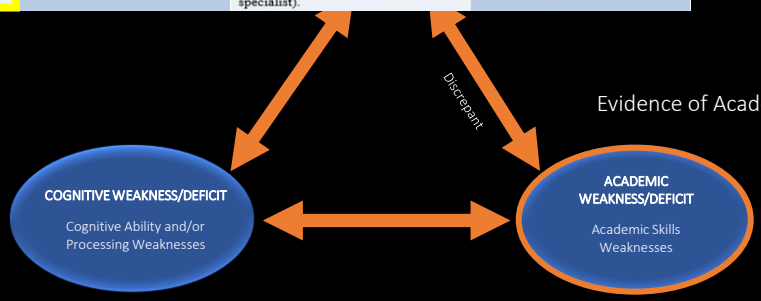
Level I: Dual Discrepancy/Consistency (DD/C) Method

Level	Nature of SLD[1]	Focus of Evaluation	Examples of Evaluation Methods and Data Sources	Criteria for SLD
I	Difficulties in one or more areas of academic achievement, including (but not limited to)[2] Basic Reading Skill, Reading Comprehension, Reading Fluency, Oral Expression, Listening Comprehension, Written Expression, Math Calculation, and Math Problem Solving.	**Academic Achievement:** Performance in specific academic skills [e.g., *Grw (reading decoding, reading fluency, reading comprehension, spelling, written expression) Gq (math calculation, math problem solving) and Gc (communication ability, listening ability)*].	Response to quality instruction and intervention via progress monitoring, performance on norm-referenced, standardized achievement tests, evaluation of work samples, observations of academic performance, teacher/parent/student interview, history of academic performance, and data from other members of the Multidisciplinary Team (MDT) (e.g., speech-language pathologist, interventionist, reading specialist).	Performance in one or more academic areas is *weak or deficient*[3] (despite attempts at delivering quality instruction) as evidenced by converging data. Note that low scores are not sufficient to meet this condition. These scores must also represent *unexpected underachievement* (a condition determined by X-BASS based on an individual's unique pattern of scores).



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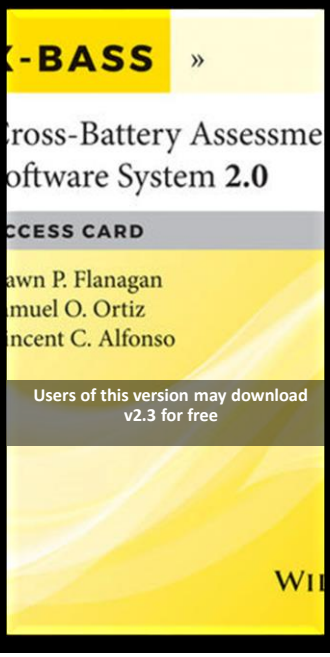
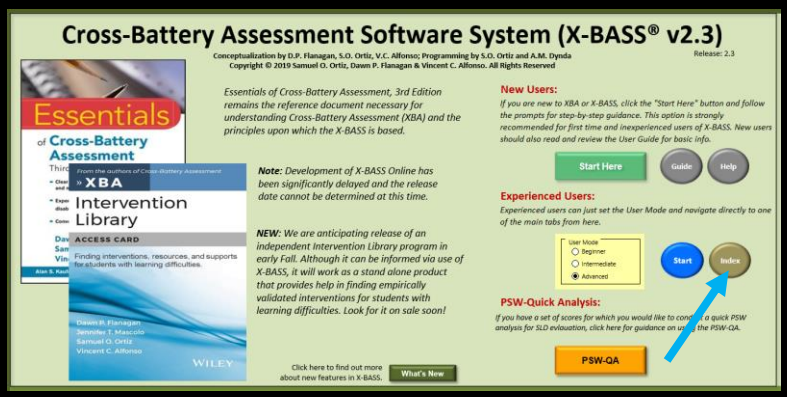
Level II: Dual Discrepancy/Consistency (DD/C) Method





Exclusionary Factors Form

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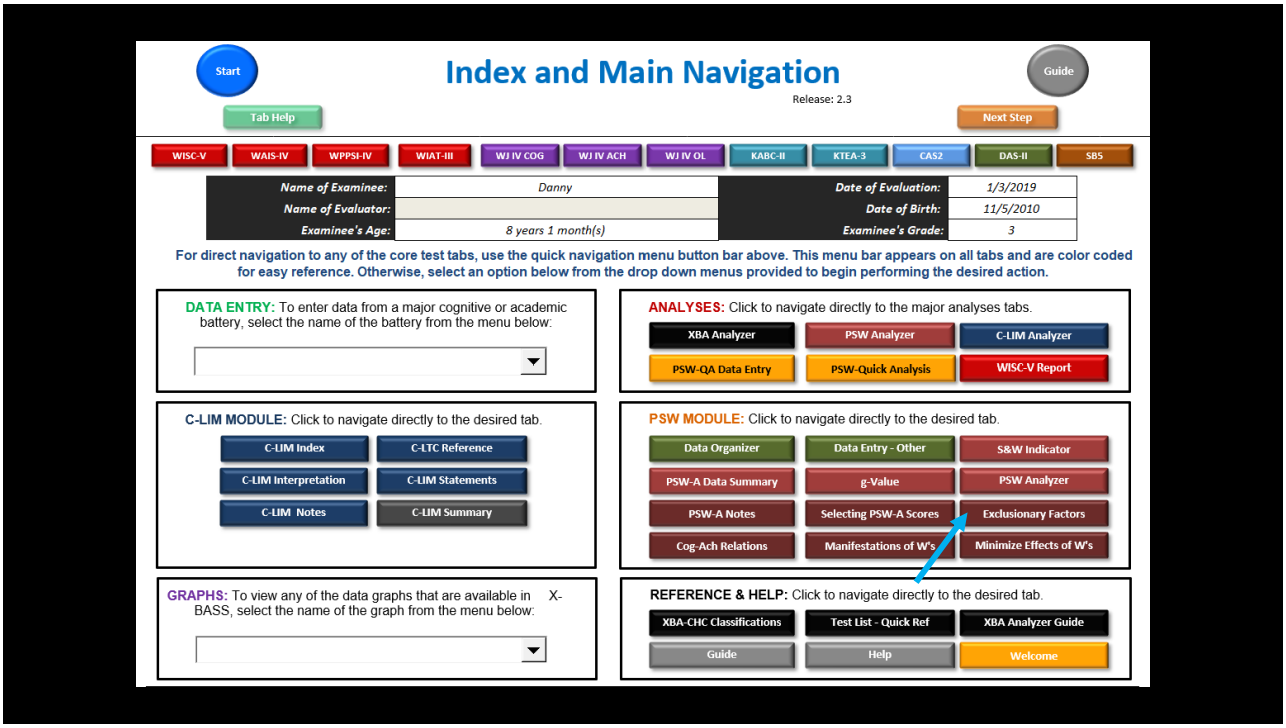
Start
Index and Main Navigation
Release: 2.3
Guide
Tab Help
Next Step
WISC-V
WAIS-IV
WPPSI-IV
WIAT-III
WJ IV COG
WJ IV ACH
WJ IV OL
KABC-II
KTEA-3
CAS2
DAS-II
SB5
Name of Examinee: Danny
Name of Evaluator:
Examinee's Age: 8 years 1 month(s)
Date of Evaluation: 1/3/2019
Date of Birth: 11/5/2010
Examinee's Grade: 3
For direct navigation to any of the core test tabs, use the quick navigation menu button bar above. This menu bar appears on all tabs and are color coded for easy reference. Otherwise, select an option below from the drop down menus provided to begin performing the desired action.
DATA ENTRY: To enter data from a major cognitive or academic battery, select the name of the battery from the menu below:
ANALYSES: Click to navigate directly to the major analyses tabs.
XBA Analyzer
PSW Analyzer
C-LIM Analyzer
PSW-QA Data Entry
PSW-Quick Analysis
WISC-V Report
C-LIM MODULE: Click to navigate directly to the desired tab.
C-LIM Index
C-LTC Reference
C-LIM Interpretation
C-LIM Statements
C-LIM Notes
C-LIM Summary
PSW MODULE: Click to navigate directly to the desired tab.
Data Organizer
Data Entry - Other
S&W Indicator
PSW-A Data Summary
g-Value
PSW Analyzer
PSW-A Notes
Selecting PSW-A Scores
Exclusionary Factors
Cog-Ach Relations
Manifestations of W's
Minimize Effects of W's
GRAPHS: To view any of the data graphs that are available in X-BASS, select the name of the graph from the menu below:
REFERENCE & HELP: Click to navigate directly to the desired tab.
XBA-CHC Classifications
Test List - Quick Ref
XBA Analyzer Guide
Guide
Help
Welcome

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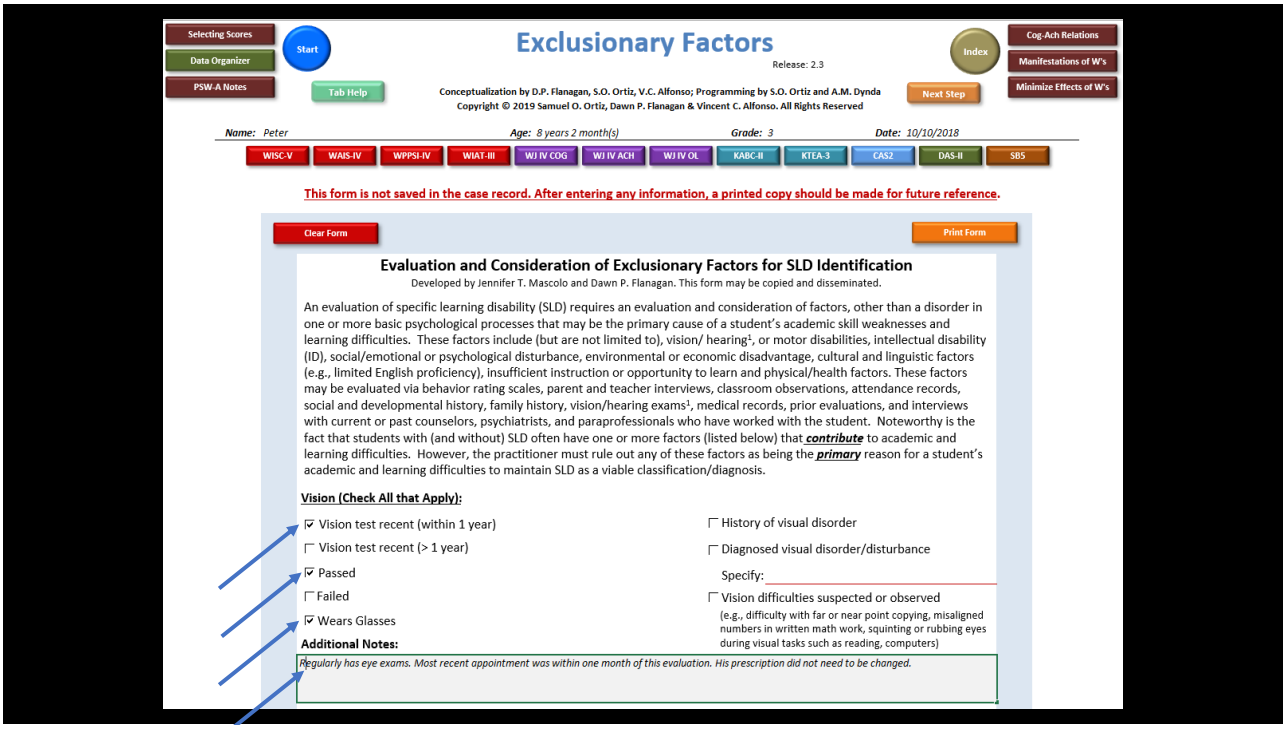
Selecting Scores
Data Organizer
PSW-A Notes
Start
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Index
Next Step
Cog-Ach Relations
Manifestations of W's
Minimize Effects of W's
Conceptualization by D.P. Flanagan, S.O. Ortiz, V.C. Alfonso; Programming by S.O. Ortiz and A.M. Dynda
Copyright © 2019 Samuel O. Ortiz, Dawn P. Flanagan & Vincent C. Alfonso. All Rights Reserved
Name: Peter
Age: 8 years 2 month(s)
Grade: 3
Date: 10/10/2018
WISC-V
WAIS-IV
WPPSI-IV
WIAT-III
WJ IV COG
WJ IV ACH
WJ IV OL
KABC-II
KTEA-3
CAS2
DAS-II
SB5
This form is not saved in the case record. After entering any information, a printed copy should be made for future reference.
Clear Form
Print Form
Evaluation and Consideration of Exclusionary Factors for SLD Identification
Developed by Jennifer T. Mascolo and Dawn P. Flanagan. This form may be copied and disseminated.
An evaluation of specific learning disability (SLD) requires an evaluation and consideration of factors, other than a disorder in one or more basic psychological processes that may be the primary cause of a student's academic skill weaknesses and learning difficulties. These factors include (but are not limited to), vision/ hearing[1], or motor disabilities, intellectual disability (ID), social/emotional or psychological disturbance, environmental or economic disadvantage, cultural and linguistic factors (e.g., limited English proficiency), insufficient instruction or opportunity to learn and physical/health factors. These factors may be evaluated via behavior rating scales, parent and teacher interviews, classroom observations, attendance records, social and developmental history, family history, vision/hearing exams[1], medical records, prior evaluations, and interviews with current or past counselors, psychiatrists, and paraprofessionals who have worked with the student. Noteworthy is the fact that students with (and without) SLD often have one or more factors (listed below) that contribute to academic and learning difficulties. However, the practitioner must rule out any of these factors as being the primary reason for a student's academic and learning difficulties to maintain SLD as a viable classification/diagnosis.
Vision (Check All that Apply):
☑ Vision test recent (within 1 year)
☐ Vision test recent (> 1 year)
☑ Passed
☐ Failed
☑ Wears Glasses
☐ History of visual disorder
☐ Diagnosed visual disorder/disturbance
Specify:
☐ Vision difficulties suspected or observed
(e.g., difficulty with far or near point copying, misaligned numbers in written math work, squinting or rubbing eyes during visual tasks such as reading, computers)
Additional Notes:
Regularly has eye exams. Most recent appointment was within one month of this evaluation. His prescription did not need to be changed.

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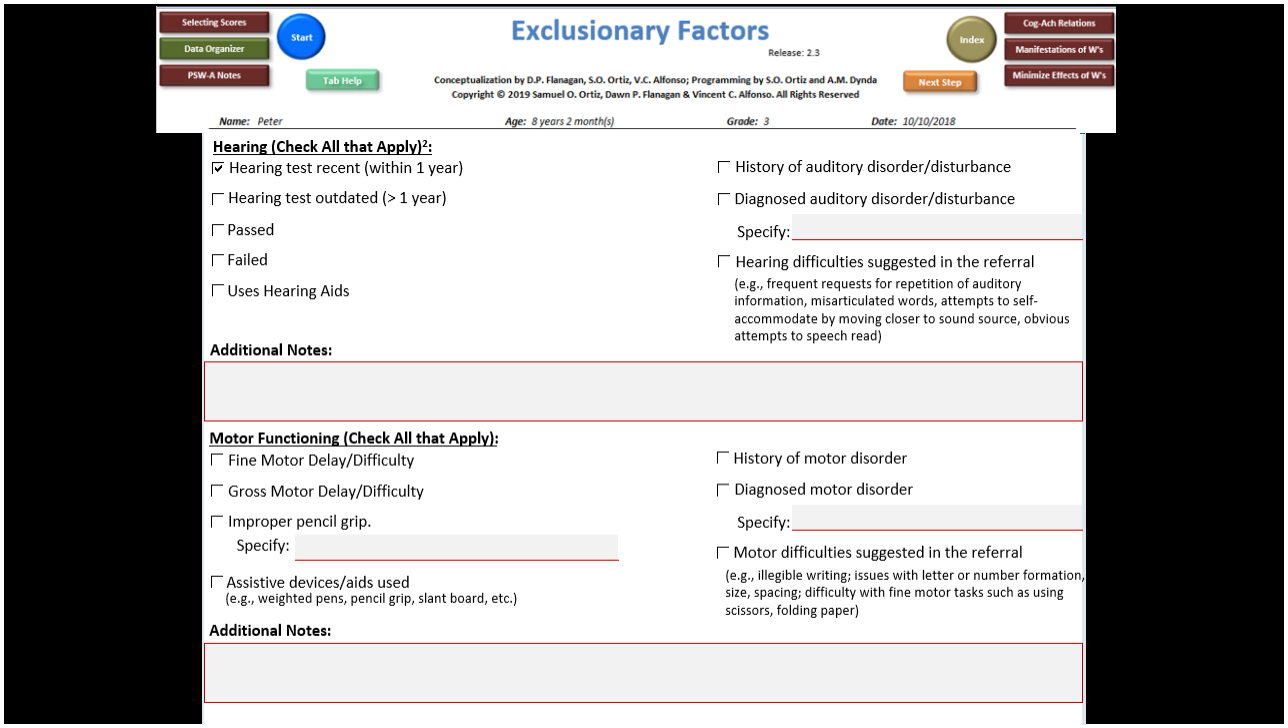
Selecting Scores
Data Organizer
PSW-A Notes
Start
Tab Help
Exclusionary Factors
Release: 2.3
Conceptualization by D.P. Flanagan, S.O. Ortiz, V.C. Alfonso; Programming by S.O. Ortiz and A.M. Dynda
Copyright © 2019 Samuel O. Ortiz, Dawn P. Flanagan & Vincent C. Alfonso. All Rights Reserved
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Next Step
Cog-Ach Relations
Manifestations of W's
Minimize Effects of W's
Name: Peter
Age: 8 years 2 month(s)
Grade: 3
Date: 10/10/2018
Hearing (Check All that Apply)[2]:
Hearing test recent (within 1 year)
Hearing test outdated (> 1 year)
Passed
Failed
Uses Hearing Aids
History of auditory disorder/disturbance
Diagnosed auditory disorder/disturbance
Specify:
Hearing difficulties suggested in the referral
(e.g., frequent requests for repetition of auditory information, misarticulated words, attempts to self-accommodate by moving closer to sound source, obvious attempts to speech read)
Additional Notes:
Motor Functioning (Check All that Apply):
Fine Motor Delay/Difficulty
Gross Motor Delay/Difficulty
Improper pencil grip.
Specify:
Assistive devices/aids used
(e.g., weighted pens, pencil grip, slant board, etc.)
History of motor disorder
Diagnosed motor disorder
Specify:
Motor difficulties suggested in the referral
(e.g., illegible writing; issues with letter or number formation, size, spacing; difficulty with fine motor tasks such as using scissors, folding paper)
Additional Notes:

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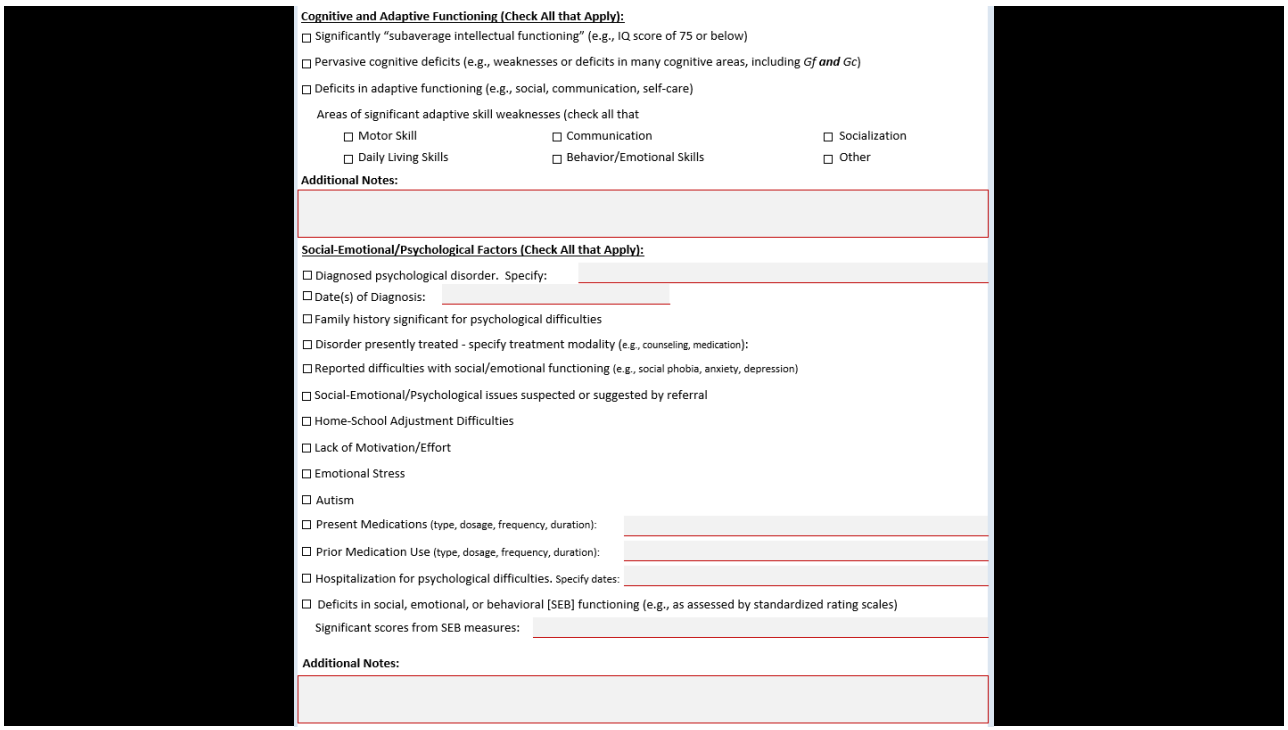
Cognitive and Adaptive Functioning (Check All that Apply):
Significantly "subaverage intellectual functioning" (e.g., IQ score of 75 or below)
Pervasive cognitive deficits (e.g., weaknesses or deficits in many cognitive areas, including Gf and Gc)
Deficits in adaptive functioning (e.g., social, communication, self-care)
Areas of significant adaptive skill weaknesses (check all that
Motor Skill
Communication
Socialization
Daily Living Skills
Behavior/Emotional Skills
Other
Additional Notes:
Social-Emotional/Psychological Factors (Check All that Apply):
Diagnosed psychological disorder. Specify:
Date(s) of Diagnosis:
Family history significant for psychological difficulties
Disorder presently treated - specify treatment modality (e.g., counseling, medication):
Reported difficulties with social/emotional functioning (e.g., social phobia, anxiety, depression)
Social-Emotional/Psychological issues suspected or suggested by referral
Home-School Adjustment Difficulties
Lack of Motivation/Effort
Emotional Stress
Autism
Present Medications (type, dosage, frequency, duration):
Prior Medication Use (type, dosage, frequency, duration):
Hospitalization for psychological difficulties. Specify dates:
Deficits in social, emotional, or behavioral [SEB] functioning (e.g., as assessed by standardized rating scales)
Significant scores from SEB measures:
Additional Notes:

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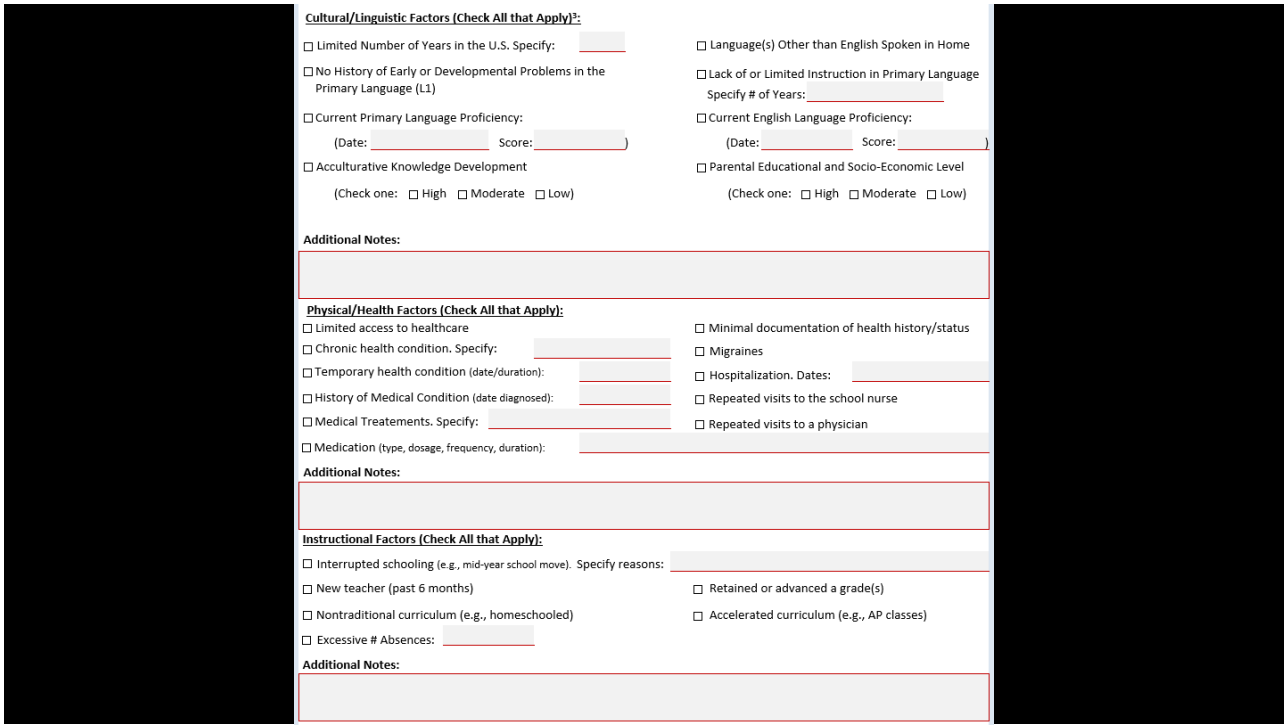

Cultural/Linguistic Factors (Check All that Apply)[3]:

- ☐ Limited Number of Years in the U.S. Specify:
- ☐ No History of Early or Developmental Problems in the Primary Language (L1)
- ☐ Current Primary Language Proficiency: (Date: Score:)
- ☐ Acculturative Knowledge Development (Check one: ☐ High ☐ Moderate ☐ Low)
- ☐ Language(s) Other than English Spoken in Home
- ☐ Lack of or Limited Instruction in Primary Language Specify # of Years:
- ☐ Current English Language Proficiency: (Date: Score:)
- ☐ Parental Educational and Socio-Economic Level (Check one: ☐ High ☐ Moderate ☐ Low)

Additional Notes:

Physical/Health Factors (Check All that Apply):

- ☐ Limited access to healthcare
- ☐ Chronic health condition. Specify:
- ☐ Temporary health condition (date/duration):
- ☐ History of Medical Condition (date diagnosed):
- ☐ Medical Treatements. Specify:
- ☐ Medication (type, dosage, frequency, duration):
- ☐ Minimal documentation of health history/status
- ☐ Migraines
- ☐ Hospitalization. Dates:
- ☐ Repeated visits to the school nurse
- ☐ Repeated visits to a physician

Additional Notes:

Instructional Factors (Check All that Apply):

- ☐ Interrupted schooling (e.g., mid-year school move). Specify reasons:
- ☐ New teacher (past 6 months)
- ☐ Nontraditional curriculum (e.g., homeschooled)
- ☐ Excessive # Absences:
- ☐ Retained or advanced a grade(s)
- ☐ Accelerated curriculum (e.g., AP classes)

Additional Notes:

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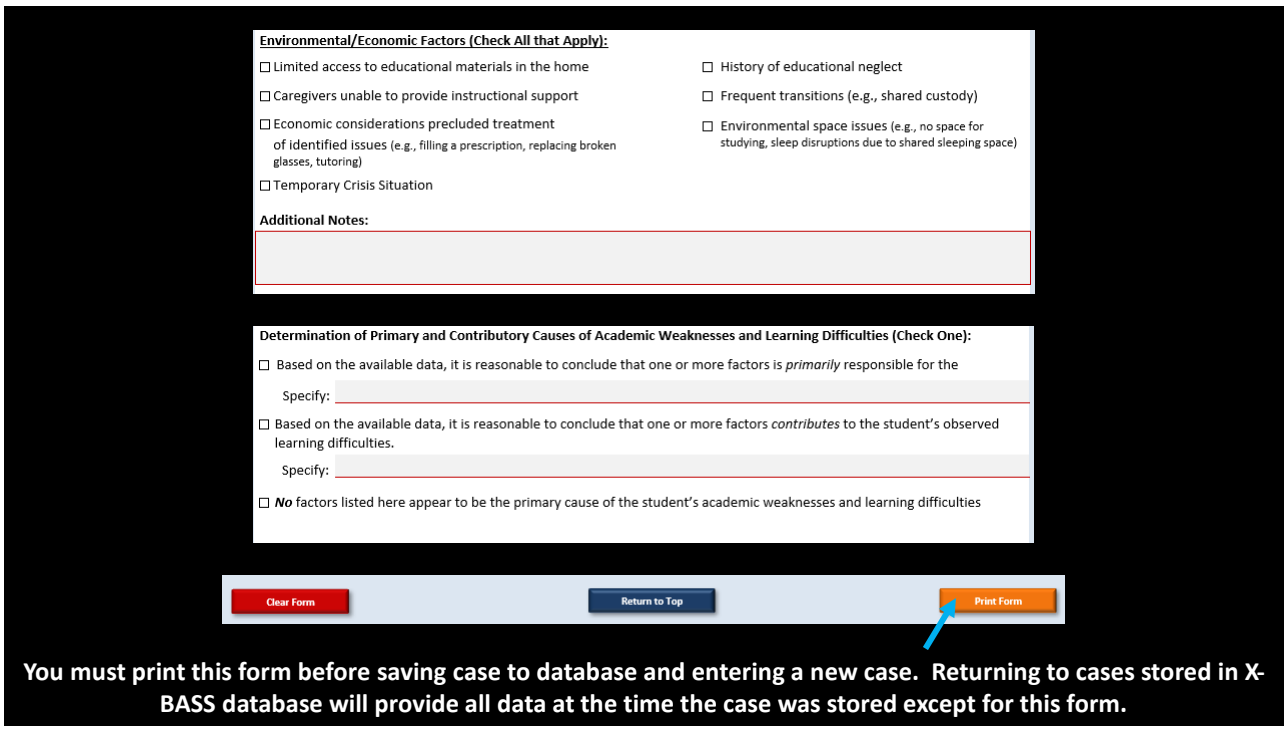

Environmental/Economic Factors (Check All that Apply):

- ☐ Limited access to educational materials in the home
- ☐ Caregivers unable to provide instructional support
- ☐ Economic considerations precluded treatment of identified issues (e.g., filling a prescription, replacing broken glasses, tutoring)
- ☐ Temporary Crisis Situation
- ☐ History of educational neglect
- ☐ Frequent transitions (e.g., shared custody)
- ☐ Environmental space issues (e.g., no space for studying, sleep disruptions due to shared sleeping space)

Additional Notes:

Determination of Primary and Contributory Causes of Academic Weaknesses and Learning Difficulties (Check One):

- ☐ Based on the available data, it is reasonable to conclude that one or more factors is *primarily* responsible for the Specify:
- ☐ Based on the available data, it is reasonable to conclude that one or more factors *contributes* to the student's observed learning difficulties. Specify:
- ☐ ***No*** factors listed here appear to be the primary cause of the student's academic weaknesses and learning difficulties

Clear Form | Return to Top | Print Form

You must print this form before saving case to database and entering a new case. Returning to cases stored in X-BASS database will provide all data at the time the case was stored except for this form.

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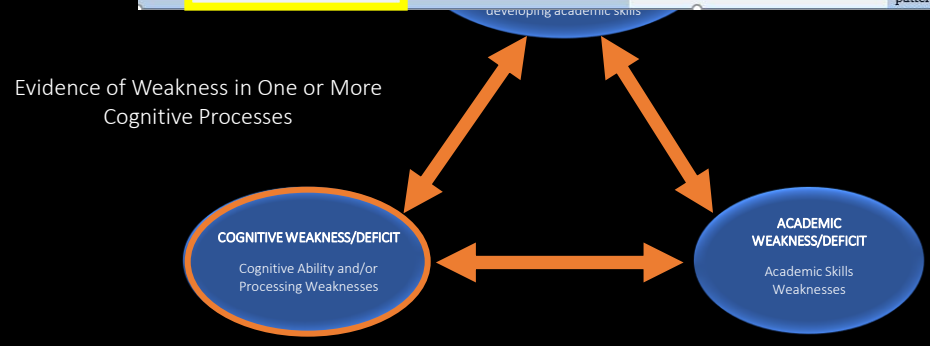
Level III: Dual Discrepancy/Consistency (DD/C) Method

III	A disorder in one or more of the basic psychological/neuro-psychological processes involved in understanding or in using language, spoken or written; such disorders are presumed to originate from central nervous system dysfunction.	**Cognitive Abilities & Processes** Performance in cognitive abilities and processes (e.g., *Gv, Ga, Gl, Gr, Gwm, Gs*), specific neuropsychological processes (e.g., attention, executive functioning, orthographic processing; rapid automatic naming).	Performance on norm-referenced tests, evaluation of work samples, observations of cognitive performance, task analysis, testing limits, teacher/parent/student interview, history of academic performance, and records review.	Performance in one or more cognitive or neuropsychological processes (related to academic skill deficiency) is *weak or deficient*[3] as evidenced by converging data. Note that low scores are not sufficient to meet this condition. The cognitive process in question must also be *domain-specific* (a condition determined by X-BASS based on an individual's unique pattern of scores).



Flanagan, Ortiz, and Alfonso (2013 – Present; periodically revised based on advances in theory and research)
Flanagan, Ortiz, Alfonso, and Mascolo (2002 , 2006)

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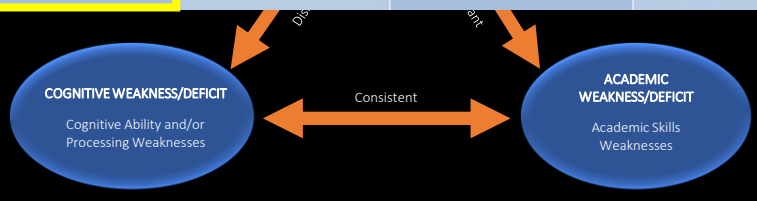
Level IV: Dual Discrepancy/Consistency (DD/C) Method

IV	The specific learning disability is a discrete condition differentiated from generalized learning deficiency by generally average or better ability to think and reason and a learning skill profile exhibiting significant variability, indicating a pattern of cognitive and academic strengths and weaknesses.	**Pattern of Strengths and Weaknesses (PSW) Marked by a Dual-Discrepancy/Consistency (DD/C)** Determination of whether academic skill weaknesses or deficits are *unexpected* and related to *domain specific* cognitive weaknesses or deficits; pattern of data reflects a below average aptitude-achievement *consistency* with at least *average ability* to think and reason.	Data gathered at all previous levels as well as any additional data following a review of initial evaluation results (e.g., data gathered for hypothesis testing; data gathered via demand analysis and limits testing).	Circumscribed below average aptitude-achievement *consistency*; circumscribed ability-achievement and ability-cognitive aptitude *discrepancies*, with at least average ability to think and reason; clinical judgment supports the impression that the student's overall ability to think and reason will enable him or her to benefit from tailored or specialized instruction/intervention, compensatory strategies, and accommodations, such that his or her performance rate and level will likely approximate more typically achieving, non-disabled peers. The DD/C PSW analysis is conducted by X-BASS based on an individual's unique pattern of strengths and weaknesses).



Flanagan, Ortiz, and Alfonso (2013 – Present; periodically revised based on advances in theory and research)
Flanagan, Ortiz, Alfonso, and Mascolo (2002 , 2006)

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DD/C Criteria for SLD Identification

Level	Nature of SLD[1]	Focus of Evaluation	Examples of Evaluation Methods and Data Sources	Criteria for SLD	SLD Classification and Eligibility
I	Difficulties in one or more areas of academic achievement, including (but not limited to)[2] Basic Reading Skill, Reading Comprehension, Reading Fluency, Oral Expression, Listening Comprehension, Written Expression, Math Calculation, and Math Problem Solving.	**Academic Achievement:** Performance in specific academic skills [e.g., *Grw (reading decoding, reading fluency, reading comprehension, spelling, written expression) Gq (math calculation, math problem solving) and Gc (communication ability, listening ability)*].	Response to quality instruction and intervention via progress monitoring, performance on norm-referenced, standardized achievement tests, evaluation of work samples, observations of academic performance, teacher/parent/student interview, history of academic performance, and data from other members of the Multidisciplinary Team (MDT) (e.g., speech-language pathologist, interventionist, reading specialist).	Performance in one or more academic areas is *weak or deficient*[3] (despite attempts at delivering quality instruction) as evidenced by converging data. Note that low scores are not sufficient to meet this condition. These scores must also represent *unexpected underachievement* (a condition determined by X-BASS based on an individual's unique pattern of scores).	**Necessary** ↓
II	SLD does not include a learning problem that is the result of visual, hearing, or motor disabilities; of intellectual disability; of social or emotional difficulty or disorder; or of environmental, educational, cultural, or economic disadvantage.	**Exclusionary Factors:** Identification of potential primary causes of academic skill weaknesses or deficits, including intellectual disability, cultural or linguistic difference, sensory impairment, insufficient instruction or opportunity to learn, organic or physical health factors, social/emotional or psychological difficulty or disorder.	Data from the methods and sources listed at Levels I and III; Behavior Rating Scales; medical records; prior evaluations; interviews with current or past professionals such as counselors, psychiatrists, etc.	Performance is not *primarily* attributed to these exclusionary factors, although one or more of them may contribute to learning difficulties. [Consider using the ***Exclusionary Factors Form***, which is included in X-BASS]	↓
III	A disorder in one or more of the basic psychological/neuro-psychological processes involved in understanding or in using language, spoken or written; such disorders are presumed to originate from central nervous system dysfunction.	**Cognitive Abilities & Processes** Performance in cognitive abilities and processes (e.g., *Gv, Ga, Gl, Gr, Gwm, Gs*), specific neuropsychological processes (e.g., attention, executive functioning, orthographic processing; rapid automatic naming).	Performance on norm-referenced tests, evaluation of work samples, observations of cognitive performance, task analysis, testing limits, teacher/parent/student interview, history of academic performance, and records review.	Performance in one or more cognitive or neuropsychological processes (related to academic skill deficiency) is *weak or deficient*[3] as evidenced by converging data. Note that low scores are not sufficient to meet this condition. The cognitive process in question must also be *domain-specific* (a condition determined by X-BASS based on an individual's unique pattern of scores).	↓

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IV	The specific learning disability is a discrete condition differentiated from generalized learning deficiency by generally average or better ability to think and reason and a learning skill profile exhibiting significant variability, indicating a pattern of cognitive and academic strengths and weaknesses.	**Pattern of Strengths and Weaknesses (PSW) Marked by a Dual-Discrepancy/Consistency (DD/C)** Determination of whether academic skill weaknesses or deficits are *unexpected* and related to *domain specific* cognitive weaknesses or deficits; pattern of data reflects a below average aptitude-achievement *consistency* with at least *average ability* to think and reason.	Data gathered at all previous levels as well as any additional data following a review of initial evaluation results (e.g., data gathered for hypothesis testing; data gathered via demand analysis and limits testing).	Circumscribed below average aptitude-achievement *consistency*; circumscribed ability-achievement and ability-cognitive aptitude *discrepancies*, with at least average ability to think and reason; clinical judgment supports the impression that the student's overall ability to think and reason will enable him or her to benefit from tailored or specialized instruction/intervention, compensatory strategies, and accommodations, such that his or her performance rate and level will likely approximate more typically achieving, non-disabled peers. The DD/C PSW analysis is conducted by X-BASS based on an individual's unique pattern of strengths and weaknesses).	↓ **Sufficient For SLD Identification**
V	Specific learning disability has an adverse impact on educational performance.	**Special Education Eligibility**[4] Determination of Least Restrictive Environment (LRE) for delivery of instruction and educational resources.	Data from all previous levels and MDT meetings.	Student demonstrates significant difficulties in daily academic activities that cannot be remediated, accommodated, or otherwise compensated for *without* the assistance of individualized special education services.	**Necessary for Special Education Eligibility**

Source: Adapted from Flanagan and Alfonso (2017) and Flanagan, Ortiz, and Alfonso (2013). X-BASS – Cross-Battery Assessment Software System (Flanagan, Ortiz, & Alfonso, 2017)
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[3]Weak performance is typically associated with standard scores in the 85-89 range, whereas deficient performance is often associated with standard scores that are greater than 1SD below the mean. Interpretations of weak or deficient performance based on standard scores that fall in the weak and deficient ranges are bolstered when they have ecological validity (e.g., when there is evidence that the abilities or processes identified as weak or deficient manifest in everyday classroom activities that require these abilities and processes).
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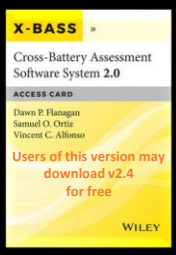
Essential Elements of PSW based on DD/C Operational Definition of SLD

Flanagan, Ortiz, and Alfonso (2002-2022)

- Level I: Academic weakness (SS < 90; more typically below 85)
  - *Must also meet criteria for unexpected underachievement*
  - *Not all weaknesses are unexpected (to determine unexpected use X-BASS)*
- Level II: Exclusionary factors must be ruled out as the primary cause of the academic skill weakness(es)
  - It is not unusual to find one or more exclusionary factors that contribute to academic weaknesses
  - Use Exclusionary Factors Form to ensure accountability
- Level III: Cognitive weakness (SS < 90; more typically below 85)
  - *Must also meet criteria for domain-specific weakness*
  - *Not all cognitive weaknesses are domain-specific (to determine domain-specific use X-BASS)*
  - Generally low average ability across most cognitive areas does not meet the criterion of a domain-specific cognitive weakness



X-BASS (Flanagan, Ortiz, & Alfonso, 2017) is necessary to conduct the DD/C PSW analysis

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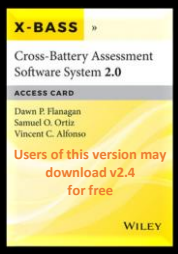
Essential Elements of PSW based on DD/C Operational Definition of SLD

Flanagan, Ortiz, and Alfonso (2002-2017)

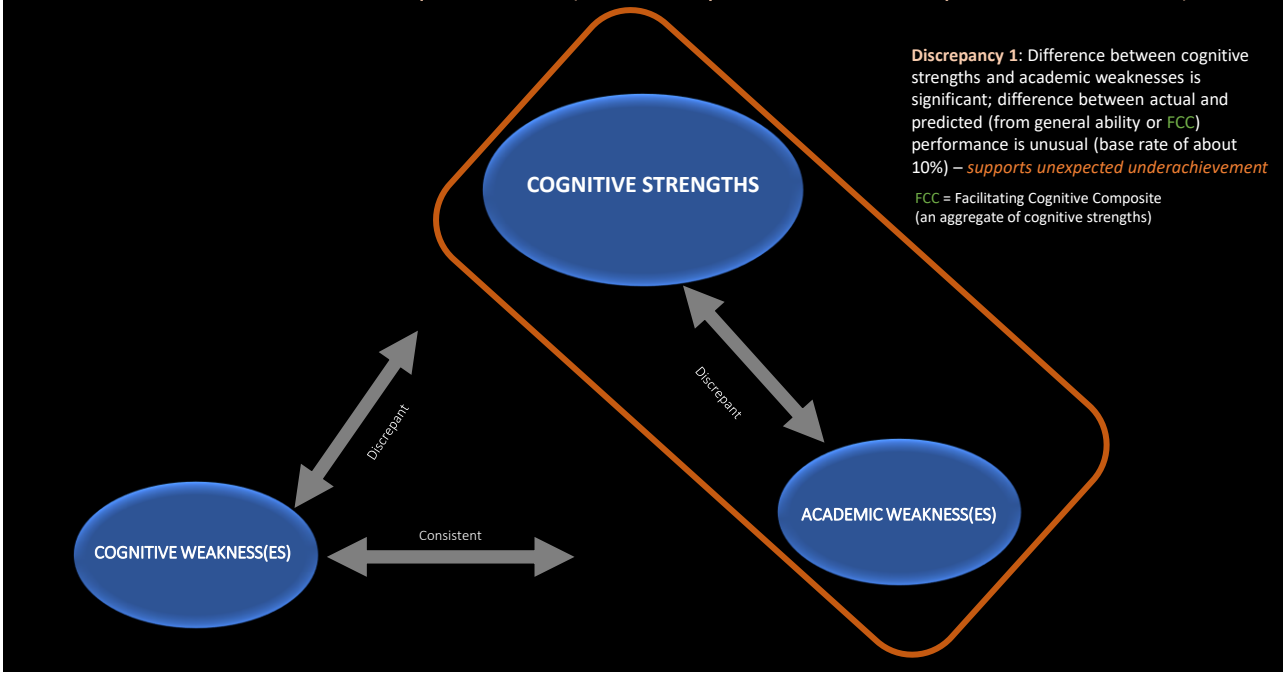
- Level IV: Data support a "dual discrepancy" and a "consistency" with at least average ability to think and reason
  - **Discrepancy 1**: Difference between cognitive strengths and academic weaknesses is significant; difference between actual and predicted (from general ability or FCC) performance is unusual (base rate of about 10%) – *supports unexpected underachievement*
  - **Discrepancy 2**: Difference between cognitive strengths and cognitive weaknesses is significant; difference between actual and predicted (from general ability or the Facilitating Cognitive Composite [FCC]) performance is unusual (base rate of about 10%) – *supports domain-specific cognitive weakness*
  - **Consistency:** Empirical or ecologically valid relationship between cognitive and academic weaknesses



X-BASS (Flanagan, Ortiz, & Alfonso, 2015-2017) is necessary to conduct the DD/C PSW analysis

124

The DD/C Method Encompasses AAD (But "Ability" is Not Defined by a Full-Scale Score)



Discrepancy 1: Difference between cognitive strengths and academic weaknesses is significant; difference between actual and predicted (from general ability or FCC) performance is unusual (base rate of about 10%) – *supports unexpected underachievement*

FCC = Facilitating Cognitive Composite (an aggregate of cognitive strengths)

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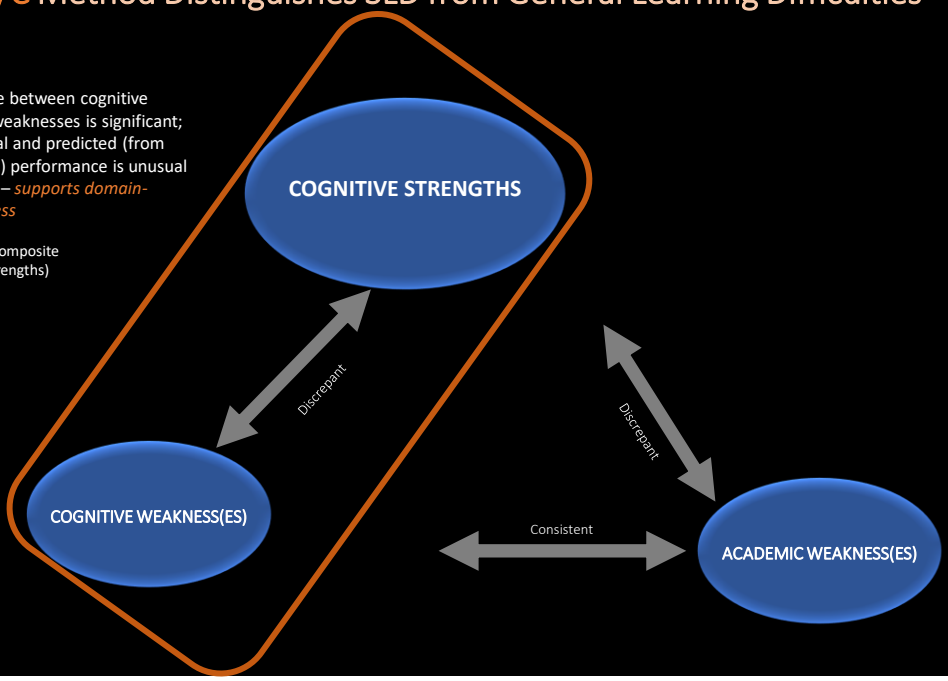
The DD/C Method Distinguishes SLD from General Learning Difficulties

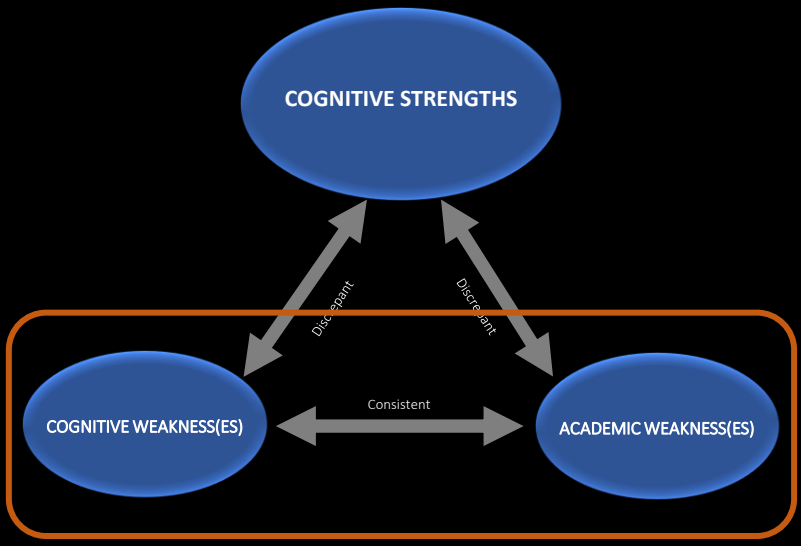
Discrepancy 2: Difference between cognitive strengths and cognitive weaknesses is significant; difference between actual and predicted (from general ability or the FCC) performance is unusual (base rate of about 10%) – *supports domain-specific cognitive weakness*

FCC = Facilitating Cognitive Composite (an aggregate of cognitive strengths)



126

The DD/C Method Identifies a Consistency Between the Limited Number of Cognitive Deficits and Academic Skill Deficit



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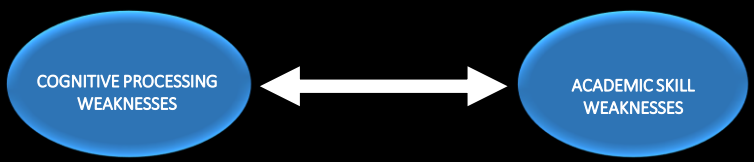
Consistency – Don't Assume a Perfect Prediction

Not all academic weaknesses have corresponding cognitive weaknesses

Cognitive processing weaknesses do not guarantee that there will be academic weaknesses – they simply ***raise the risk*** (Flanagan & Schneider, 2016)

*Relationship is **probabilistic**, not deterministic, as some have assumed erroneously (e.g., Kranzler et al., 2016)*



CONSISTENCY IS DEFINED BY AN EMPIRICALLY ESTABLISHED RELATIONSHIP BETWEEN COGNITIVE PROCESSES AND SPECIFIC ACADEMIC SKILLS

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Term or Concept	DD/C	X-BASS	Comments
Below Average Aptitude-Achievement Consistency	Areas of cognitive and academic weakness are below average and there is an empirical and/or ecologically valid relationship between them.	For this component of the PSW analysis, X-BASS answers two specific questions and based on the answers to those questions, provides a statement about the presence of Below Average Aptitude-Achievement Consistency. The first question *is, **"Are the scores that represent the cognitive and academic areas of weakness actually weaknesses as compared to most people (i.e., below average or lower compared to same-age peers from the general population)?"*** The program parses the cognitive and academic weakness scores into three levels, <85, 85-89 inclusive, and ≥ 90. Scores that are less than 85 are considered normative weaknesses; scores that are between 85 and 89 (inclusive) are considered weaknesses because they are below average; and scores of 90 or higher are not considered to be weaknesses. Next, the two scores (academic and cognitive) are examined relative to each other. When both scores are less than 85, the program will report a "Yes," meaning that both scores are normative weaknesses. If one score is less than 85 and the other is between 85 and 89, the program will report "Likely." If both scores are between 85 and 89 (inclusive), the program reports "Possibly" (because the scores are within normal limits, despite being classified as below average). The program will also report "Possibly" when one score is less than 85 and one is 90 or higher. If one score is between 85 and 89 (inclusive) and the other is 90 or higher, the program reports "Unlikely" and when both scores are 90 or higher, the program reports "No," indicating that the scores cannot be considered weaknesses as compared to most people. The second question is*, **"Are the areas of cognitive and academic weakness related empirically?"*** The strength of the relationship between the cognitive and academic areas of weakness is reported automatically by X-BASS as either LOW (median intercorrelation < .3), Moderate (i.e., MOD) (median intercorrelation between .3 and .5), or HIGH (median intercorrelation > .5), based on a review of the literature (see Flanagan, Ortiz, & Alfonso, 2013; McGrew & Wendling, 2010) and the technical manuals of cognitive and intelligence batteries (e.g., WJ IV, WISC-V). Information regarding where the cognitive and academic weakness scores fall as compared to most people and the strength of the relationship between the two areas is used to answer the question, ***"Is there a below average aptitude-achievement consistency?"*** The answer automatically generated by X-BASS will be either "Yes, Consistent," "No, Not Consistent," or "Possibly, Use Clinical Judgment." For example, if the cognitive and academic areas selected by the evaluator as weaknesses are associated with scores that fall below 85 and if the strength of the relationship between the areas of cognitive and academic weakness is moderate or high, then the program will report "Yes, Consistent."	In some cases, the question of whether an individual's pattern of strengths and weaknesses is marked by a below average aptitude-achievement consistency may not be clear based on the quantitative data alone. As such, it is always important to interpret an individual's pattern of strengths and weaknesses within the context of all available data sources (e.g., including exclusionary factors, behavioral observations, work samples) and render an informed judgment about SLD based on the totality of the data.

Description of the **Consistency** Component of the DD/C Model and How it is Determined Using X-BASS

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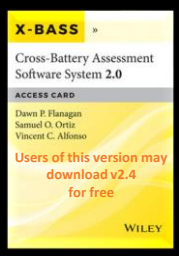
How Does X-BASS Analyze Data Following DD/C Criteria?



- g-Value is calculated to determine likelihood of at least average ability to think and reason
- Facilitating Cognitive Composite (FCC) – aggregate of strengths
- Inhibiting Cognitive Composite (ICC) – aggregate of weaknesses

Based on an individual's unique performance on cognitive tests

- Determines statistical significance – $p < .05$
- Determines *domain specific* cognitive weakness – Difference between predicted and actual performance is unusual
- Determines *unexpected* underachievement – Difference between predicted and actual performance is unusual

Regression analysis and correction for false negatives

- Determines *consistency* between cognitive and academic weaknesses – population relative comparison and empirical support for relationship

Relationships reported as low, moderate, or high

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DD/C is the Only PSW Model that Includes "At Least Average Ability to Think and Reason" as a Criterion

Defined in DD/C as a composite standard score of 90 ± 5 despite cognitive processing deficits***

At Least Average Ability to Think and Reason ("Spared" Abilities) is Consistent with the SLD Construct and has been for over a Century

***The PSW Component of X-BASS will allow the user to override this criterion. However, a pop-up message will inform the user that this override means that the analysis is no longer entirely consistent with DD/C.

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SLD is Not Simply Low Achievement or Low Cognitive Ability and Low Achievement

"The addition of the adjective *specific* in describing LD was meant to imply that the poor academic performance experienced by students with LD emanated from a *limited number* of underlying deficits" (p. 245)

Kenneth Kavale, 2000

Kavale, K.A., & Forness, S.R. (2000). What definitions of learning disability say and don't say. *Journal of Learning Disabilities, 33*, 239-256.

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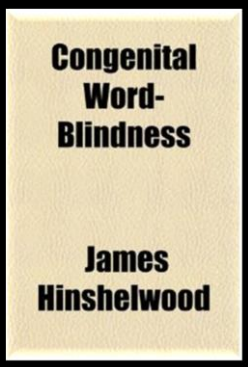
Individuals with SLD have At Least Average Overall Ability to Think and Reason

- The children often have average or above intelligence and good memory in other respects
- Hinshelwood, 1902



"Historical Perspective" Information from Nancy Mather, NYASP 2011

133

Individuals with SLD have At Least Average Overall Ability to Think and Reason

"it seems probably that psychometric tests as ordinarily employed give an entirely erroneous and unfair estimate of the intellectual capacity of these children" (p. 582)

Orton, 1925

"Historical Perspective" Information from Nancy Mather, NYASP 2011

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Individuals with SLD have At Least Average Overall Ability to Think and Reason

- Remedial training must continue until reading is in harmony with the child's other capacities and achievement
- Some children of superior intelligence struggle to learn to read
- Monroe, M. (1932)

"Historical Perspective" Information from Nancy Mather, NYASP 2011

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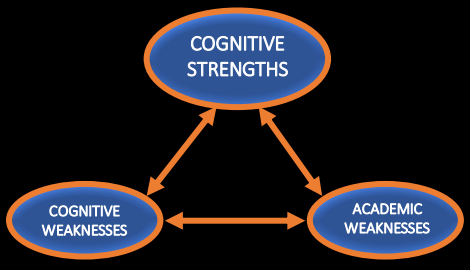
Individuals with SLD have At Least Average Overall Ability to Think and Reason

"The clearest expression of a special disability is consistently low scores on a series of tests in a given subject conjoined with average or superior scores on tests in other subjects. Such scores can be arranged in an 'educational profile.' For example, in case of a reading disability, a child might obtain scores placing him in the ninth grade in arithmetic…and in the third grade in reading. Here we would have evidence of a striking reading disability." (p. 43).

Source: Travis, L. E. (1935). Intellectual factors. In G. M. Whipple (Ed.), *The thirty-fourth yearbook of the National Society for the Study of Education: Educational Diagnosis* (pp. 37-47). Bloomington, IL: Public School Publishing Company.



"Historical Perspective" Information from Nancy Mather, NYASP 2011

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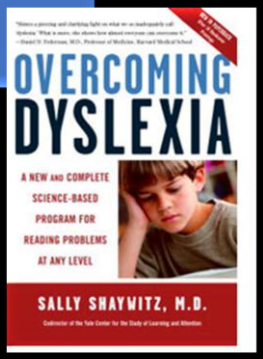
Individuals with SLD have At Least Average Overall Ability to Think and Reason

"Weaknesses in word reading and spelling surrounded by a ***sea of strengths***"

Sally Shaywitz



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Individuals with SLD have At Least Average Overall Ability to Think and Reason

All historical approaches to SLD *emphasize the spared or intact abilities* that stand in stark contrast to the deficient abilities

Kaufman, 2008, pp. 7-8

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PWS Analysis Following the Dual Discrepancy/Consistency (DD/C) Model Using X-BASS

- Requires Estimates of 7-8 Cognitive Abilities and Processes
  - Gf
  - Gc
  - Gl, Gr
  - Gwm
  - Gv
  - Ga
  - Gs

  Encompasses approximately 20 frequently measured cognitive abilities and processes
- These cognitive estimates are necessary for the calculation of values and composites that are unique to DD/C (i.e., g-value, FCC, and ICC)

- Other areas that may be included in the PSW Analysis, but do not contribute to the g-value, ICC, or FCC
  - Orthographic Processing
  - Speed of Lexical Access
  - Cognitive Efficiency (which combines Gs and Gwm)
  - Executive Functions
  - Visual-motor abilities
  - Sensory-motor abilities
  - Composites that represent abilities and processes from other batteries not in X-BASS

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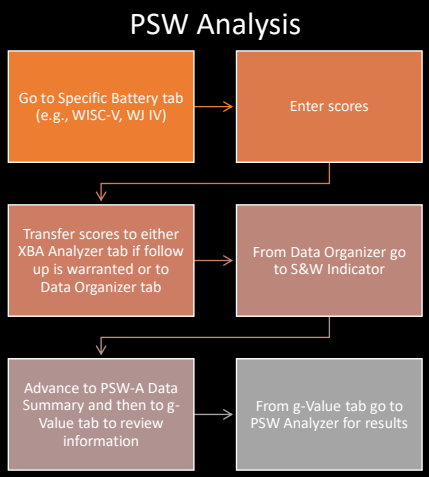
Let's Navigate X-BASS – From Data Entry to PSW Analysis



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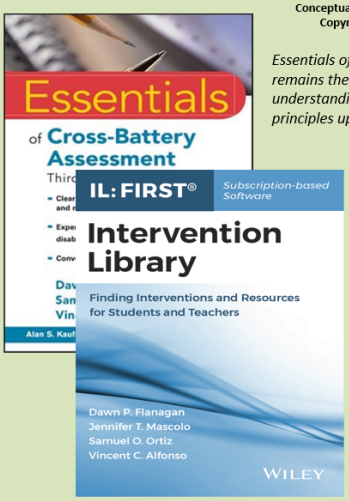
Cross-Battery Assessment Software System (X-BASS® v2.4)

Conceptualization by D.P. Flanagan, S.O. Ortiz, V.C. Alfonso; Programming by S.O. Ortiz and A.M. Dynda

Release: 2.4



Essentials of Cross-Battery Assessment, 3rd Edition remains the reference document necessary for understanding Cross-Battery Assessment (XBA) and the principles upon which the X-BASS is based.

***NEW:** We are proud to announce the release of an independent, companion program to X-BASS called "Intervention Library: Finding Interventions and Resources for Students and Teachers (IL:FIRST v1.0)." IL:FIRST is a stand alone program designed to assist practitioners in being able to find, evaluate, and explore a variety of interventions that can be tailored to specific cognitive and academic strengths and weaknesses commonly found in students with learning difficulties as may be informed via use of X-BASS. For more information, go to Wiley.com and search for "Intervention Library."*

Click here to find out more about new features in X-BASS. [What's New]

New Users:

If you are new to XBA or X-BASS, click the "Start Here" button and follow the prompts for step-by-step guidance. This option is strongly recommended for first time and inexperienced users of X-BASS. New users should also read and review the User Guide for basic info.

[Start Here] [Guide] [Help]

Experienced Users:

Experienced users can just set the User Mode and navigate directly to one of the main tabs from here.

User Mode: Beginner / Intermediate / Advanced [Start] [Index]

PSW-Quick Analysis:

If you have a set of scores for which you would like to conduct a quick PSW analysis for SLD evaluation, click here for guidance on using the PSW-QA.

[PSW-QA]

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Dual-Discrepancy/Consistency Model: Analyses for SLD

PSW

Release: 2.4

g-Value | Data Organizer | S&W Indicator | Start | Tab Help | Index | Next Step | PSW-A Data Summary | XBA Analyzer | Selecting PSW Scores

Name: Dan Age: 13 years 4 month(s) Grade: 8 Date: 12/4/2020

WISC-V | WAIS-IV | WPPSI-IV | WIAT-4 | WIAT-III | WJ IV COG | WJ IV ACH | WJ IV OL | KABC-II | KTEA-3 | CAS2 | DAS-II | SB5

g-Value = 0.74

Display Results Again — Click to re-display message regarding results of the current PSW analysis.

See Results in PSW-QA — Click to transfer the scores and data over to the PSW Quick Analysis tab.

Cognitive Strengths
The value here is either the Facilitating Cognitive Composite (FCC) or a user-entered Alternative Cognitive Composite (ACC).

FCC = 108

WIAT-4 Numerical Operations (MC; Gq A3) Subtest - 101

Supporting Academic Strengths
Areas listed in the drop down menu above have been identified as academic strengths for the individual.

Are weaknesses domain specific?
Using the FCC as the predictor, if the difference between Actual and Predicted specific cognitive performance equals or exceeds the Critical Value, then the size of the difference is unusually large and infrequent and the weakness is domain specific.

Difference: 29.55 Critical Value: 14.91

Yes, domain specific

Base rate value set at 10%

Is underachievement unexpected?
Using the FCC as the predictor, if the difference between Actual and Predicted specific academic performance equals or exceeds the Critical Value, then the size of the difference is unusually large and infrequent and underachievement is unexpected.

Difference: 20.80 Critical Value: 16.88

Yes, unexpected underachievement

Base rate value set at 10%

Is the difference statistically significant?

YES $p < .05$ YES

A "YES" in these boxes indicates that the difference between the Facilitating Cognitive Composite (FCC or alternative) and the Actual cognitive or the Actual academic weakness score is statistically significant at a 95% level of probability (one-tailed; assumes the cognitive/academic weakness is < cognitive aggregate).

Cognitive Weakness
If calculated, the Inhibiting Cognitive Composite (ICC) is selected below by default. You may select a different area of cognitive weakness from the drop down menu for analysis.

Inhibiting Cognitive Composite (ICC) - 76

Actual: 76 (ICC) Predicted by: 106 (Strengths (FCC))

Academic Weakness
The first weakness in the list is selected by default. You may select a different area of academic weakness from the drop down menu for analysis.

WIAT-4 Word Reading (BRS; Grw-RRD) Subtest - 84

Actual: 84 (BRS) Predicted by: 105 (Strengths (FCC))

Both Weaknesses? YES

Strength of Relationship: HIGH

Is there a BELOW AVERAGE aptitude-achievement consistency?

YES, CONSISTENT

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When the Criteria for the DD/C Pattern are Met, the Following May be Concluded Within the Context of Flanagan and Colleagues' Operational Definition of SLD (now known as DD/C)

Failure To respond to quality instruction or intervention

At least average ability to think and reason

Exclusionary factors are not the primary reason for underachievement

Low achievement is unexpected

There are domain-specific weaknesses in cognitive areas that are related empirically to achievement weaknesses (consistency)

Flanagan, D. P., & Alfonso, V. C. (2015). RTI Data and Cognitive Assessment are Both Useful for SLD Identification and Intervention Planning. In N. Mather & L. E. Jaffe (Eds.), *Expert Psychological Report Writing*. New York, NY: John Wiley & Sons.

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Failure To respond to quality instruction or intervention

What Does DD/C Allow You to Conclude When Criteria are Met?

(DD/C is Level IV in Flanagan and Colleagues' Operational Definition of SLD)

Bob's academic difficulties in reading and writing have persisted despite being exposed to quality instruction and intervention over a prolonged period. **These difficulties could not be explained by global cognitive impairment, social-emotional difficulties, cultural and linguistic differences, sensory-motor difficulties, lack of motivation or effort, environmental disadvantage, or a health-related impairment. Rather, Bob exhibited specific and circumscribed weaknesses in cognitive areas that are known to be related to difficulties in reading and writing, namely Working Memory, Retrieval Fluency, Phonological Processing, and Associative Memory. Thus, while Bob can think and reason like most children his age, as demonstrated by his performance in the cognitive areas of Fluid Reasoning, Comprehension-Knowledge, and Visual Processing, he possesses specific and related cognitive and academic deficits that are consistent with a Specific Learning Disability (SLD).**

Flanagan, D. P., & Alfonso, V. C. (2015). RTI Data and Cognitive Assessment are Both Useful for SLD Identification and Intervention Planning. In N. Mather & L. E. Jaffe (Eds.), *Expert Psychological Report Writing*. New York, NY: John Wiley & Sons.

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At Least Average Ability to Think and Reason - Low Achievement is Unexpected

What Does DD/C Allow You to Conclude When Criteria are Met?

(DD/C is Level IV in Flanagan and Colleagues' Operational Definition of SLD)

Bob's academic difficulties in reading and writing have persisted despite being exposed to quality instruction and intervention over a prolonged period*. These difficulties could not be explained by global cognitive impairment*, social-emotional difficulties, cultural and linguistic differences, sensory-motor difficulties, lack of motivation or effort, environmental disadvantage, or a health-related impairment. Rather, Bob exhibited specific and circumscribed weaknesses in cognitive areas that are known to be related to difficulties in reading and writing, namely Working Memory, Retrieval Fluency, Phonological Processing, and Associative Memory. Thus, while Bob can think and reason like most children his age, as demonstrated by his performance in the cognitive areas of Fluid Reasoning, Comprehension-Knowledge, and Visual Processing, he possesses specific and related cognitive and academic deficits that are consistent with a Specific Learning Disability (SLD).

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Exclusionary Factors are Not the Primary Reason for Underachievement

What Does DD/C Allow You to Conclude When Criteria are Met?

(DD/C is Level IV in Flanagan and Colleagues' Operational Definition of SLD)

Bob's academic difficulties in reading and writing have persisted despite being exposed to quality instruction and intervention over a prolonged period. *These difficulties could not be explained by global cognitive impairment, social-emotional difficulties, cultural and linguistic differences, sensory-motor difficulties, lack of motivation or effort, environmental disadvantage, or a health-related impairment.* Rather, Bob exhibited specific and circumscribed weaknesses in cognitive areas that are known to be related to difficulties in reading and writing, namely Working Memory, Retrieval Fluency, Phonological Processing, and Associative Memory. Thus, while Bob can think and reason like most children his age, as demonstrated by his performance in the cognitive areas of Fluid Reasoning, Comprehension-Knowledge, and Visual Processing, he possesses specific and related cognitive and academic deficits that are consistent with a Specific Learning Disability (SLD).

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There are Domain-Specific Weaknesses in Cognitive Areas that are Related Empirically to Achievement Weaknesses (Consistency)

What Does DD/C Allow You to Conclude When Criteria are Met?

(DD/C is Level IV in Flanagan and Colleagues' Operational Definition of SLD)

Bob's academic difficulties in reading and writing have persisted despite being exposed to quality instruction and intervention over a prolonged period. These difficulties could not be explained by global cognitive impairment, social-emotional difficulties, cultural and linguistic differences, sensory-motor difficulties, lack of motivation or effort, environmental disadvantage, or a health-related impairment. ***Rather, Bob exhibited specific and circumscribed weaknesses in cognitive areas that are known to be related to difficulties in reading and writing, namely Working Memory, Retrieval Fluency, Phonological Processing, and Associative Memory.*** **Thus, while Bob can think and reason like most children his age, as demonstrated by his performance in the cognitive areas of Fluid Reasoning, Comprehension-Knowledge, and Visual Processing, he possesses specific and related cognitive and academic deficits that are consistent with a Specific Learning Disability (SLD).**

Flanagan, D. P., & Alfonso, V. C. (2015). RTI Data and Cognitive Assessment are Both Useful for SLD Identification and Intervention Planning. In N. Mather & L. E. Jaffe (Eds.), *Expert Psychological Report Writing*. New York, NY: John Wiley & Sons.

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Exhibits the DD/C pattern of Strengths and Weaknesses

What Does DD/C Allow You to Conclude When Criteria are Met?

(DD/C is Level IV in Flanagan and Colleagues' Operational Definition of SLD)

Bob's academic difficulties in reading and writing have persisted despite being exposed to quality instruction and intervention over a prolonged period. These difficulties could not be explained by global cognitive impairment, social-emotional difficulties, cultural and linguistic differences, sensory-motor difficulties, lack of motivation or effort, environmental disadvantage, or a health-related impairment. Rather, Bob exhibited specific and circumscribed weaknesses in cognitive areas that are known to be related to difficulties in reading and writing, namely Working Memory, Retrieval Fluency, Phonological Processing, and Associative Memory. ***Thus, while Bob can think and reason like most children his age, as demonstrated by his performance in the cognitive areas of Fluid Reasoning, Comprehension-Knowledge, and Visual Processing, he possesses specific and related cognitive and academic deficits that are consistent with a Specific Learning Disability (SLD).***

Flanagan, D. P., & Alfonso, V. C. (2015). RTI Data and Cognitive Assessment are Both Useful for SLD Identification and Intervention Planning. In N. Mather & L. E. Jaffe (Eds.), *Expert Psychological Report Writing*. New York, NY: John Wiley & Sons.

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How to Determine Strengths and Weaknesses

- **Consider the difference between relative weaknesses and normative weaknesses**
  - Relative weaknesses are determined through intra-individual analysis
  - Normative weaknesses are determined through inter-individual analysis
- **Consider whether the ability is a facilitator or an inhibitor**
  - Stronger abilities tend to facilitate learning and achievement
  - Weaker abilities tend to inhibit learning and achievement
  - Rely on converging data sources when making this determination
- **Consider whether the score is near a cut point and use confidence intervals**
  - If the confidence interval includes the cut score, then additional data are needed

149

Individuals with SLD have At Least Average Overall Ability to Think and Reason

"it seems probably that psychometric tests as ordinarily employed give an entirely erroneous and unfair estimate of the intellectual capacity of these children" (p. 582)

Orton, 1925

Gf-Gc Composite Recommended in Comparison Procedures for students suspected of SLD (2014)

"Historical Perspective" Information from Nancy Mather, NYASP 2011

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WJ IV Global Ability Scores

General Intellectual Ability (GIA)

Gf-Gc Composite

Dawn P. Flanagan and Vincent C. Alfonso S2P Conference 2021

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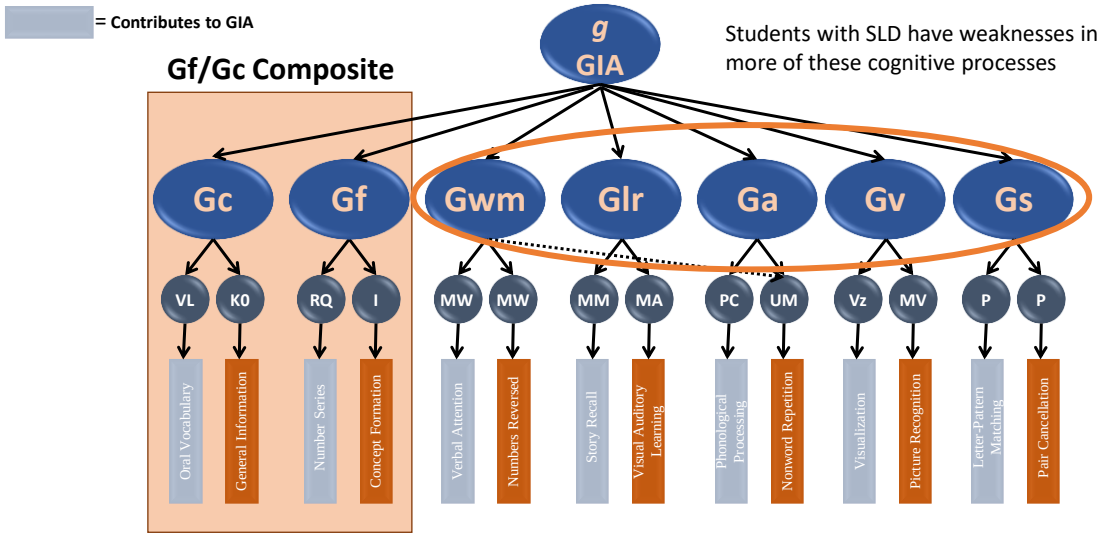
CHC Factors on the WJ IV COG



In cases of suspected SLD, when Gf/Gc Composite is higher than GIA, use Gf/Gc Composite in discrepancy analysis

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WISC-V Global Ability Scores

Full-Scale IQ

General Ability Index (GAI)

Gf-Gc Composite (Clinical Composite in X-BASS)

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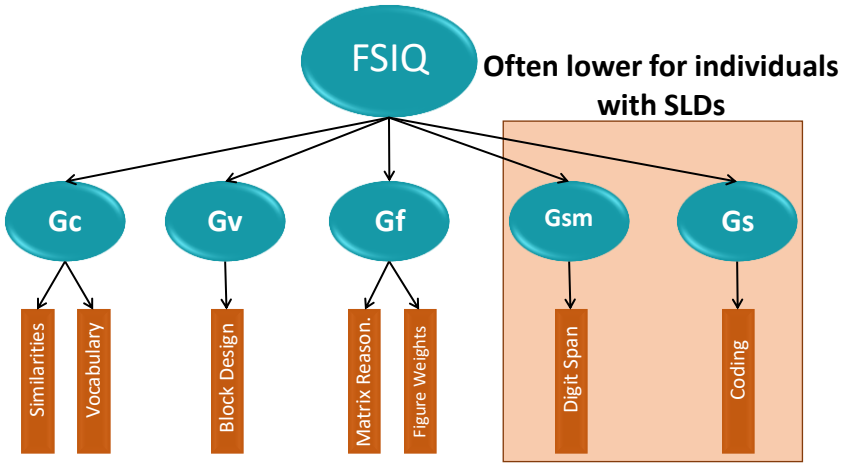
CHC Factors on the WISC-V

The **FSIQ** is the most comprehensive estimate of overall ability

- Based on seven subtests that measure aspects of five cognitive constructs



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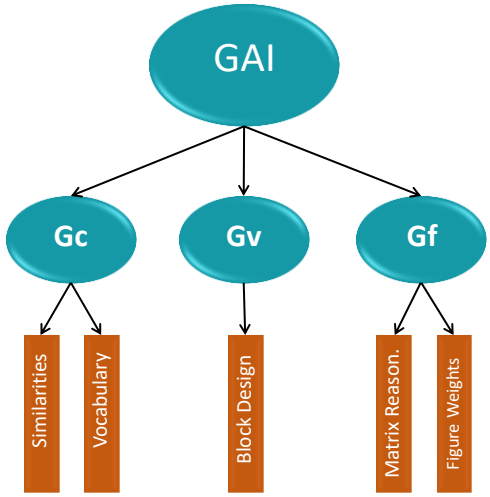
General Ability Index on the WISC-V

- The **GAI** *may* provide a viable alternative to the FSIQ in discrepancy analysis for SLD identification



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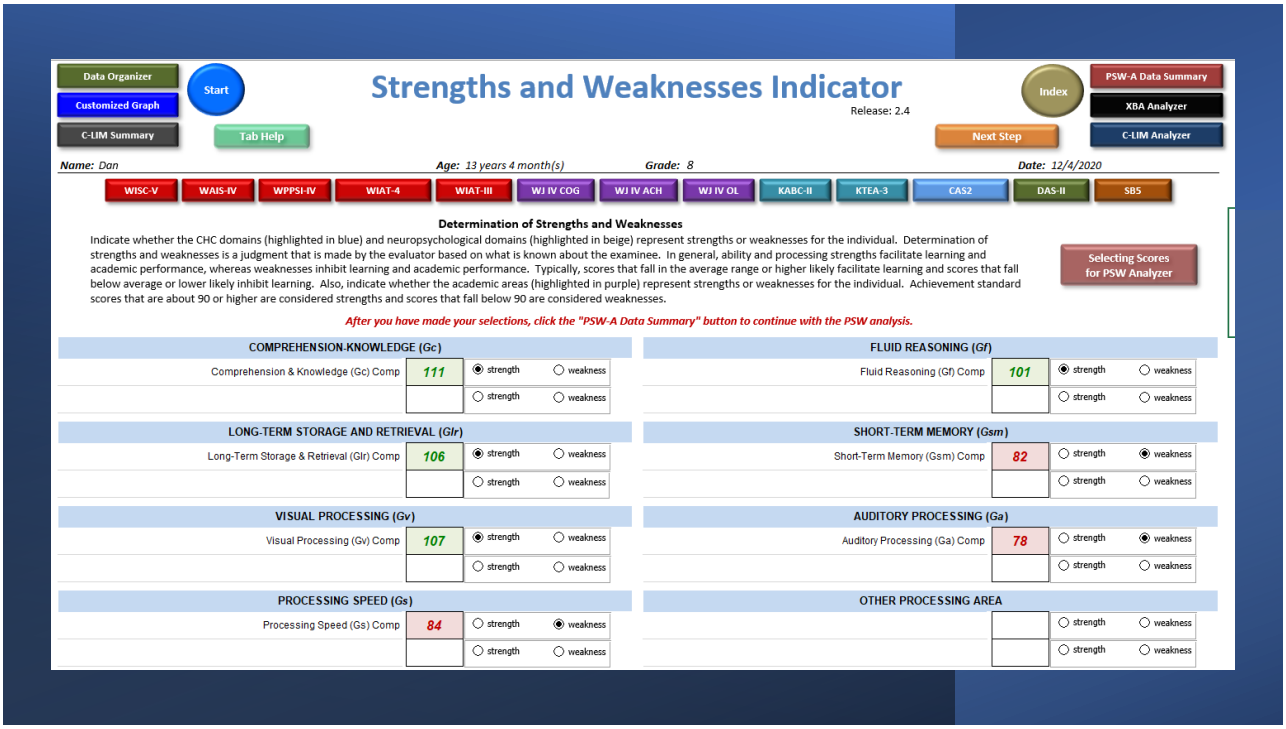

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Using X-BASS to Determine SLD: The C-LIM and Special Issues for ELs

Important Facts for Use and Practice

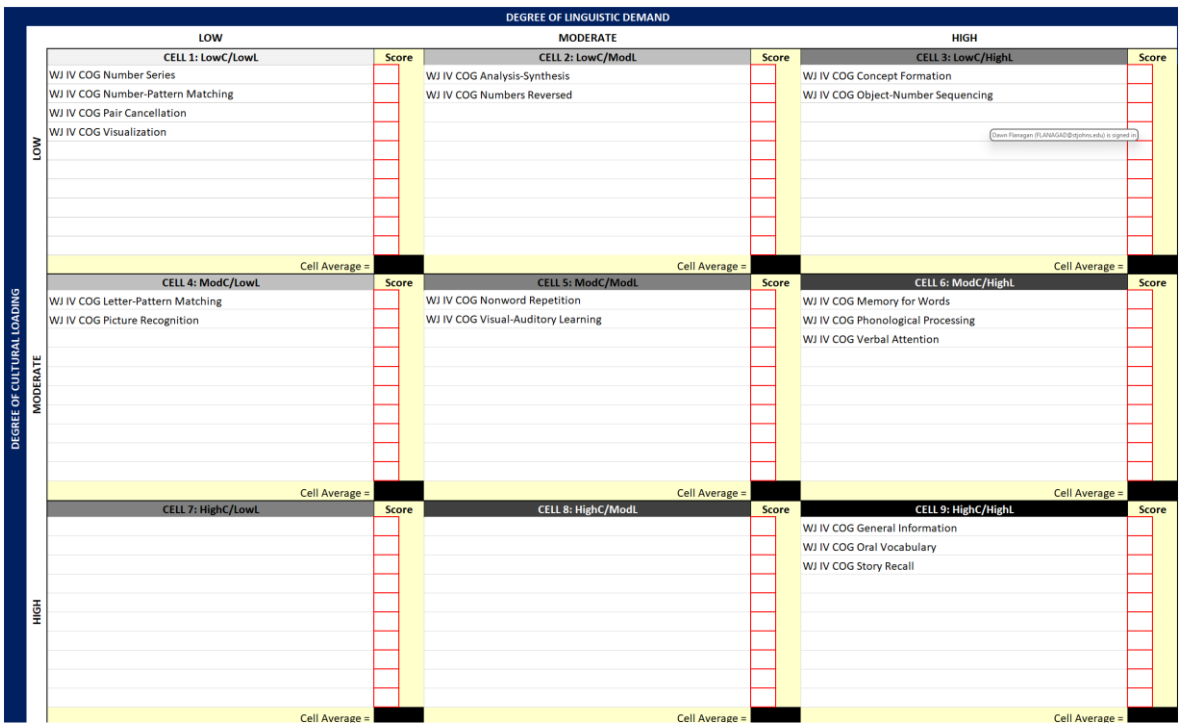
The C-LIM is not a test, scale, measure, or mechanism for making diagnoses. It is a visual representation of current and previous research on the test performance of English learners arranged by mean values to permit examination of the combined influence of acculturative knowledge acquisition and limited English proficiency and its impact on test score validity.

The C-LIM is not a language proficiency measure and will not distinguish native English speakers from English learners with high, native-like English proficiency and is not designed to determine if someone is or is not an English learner. Moreover, the C-LIM is not for use with individuals who are native English speakers.

The C-LIM is not designed or intended for diagnosing any particular disability but rather as a tool to assist clinician's in making decisions regarding whether ability test scores should be viewed as indications of actual disability or rather a reflection of differences in language proficiency and acculturative knowledge acquisition.

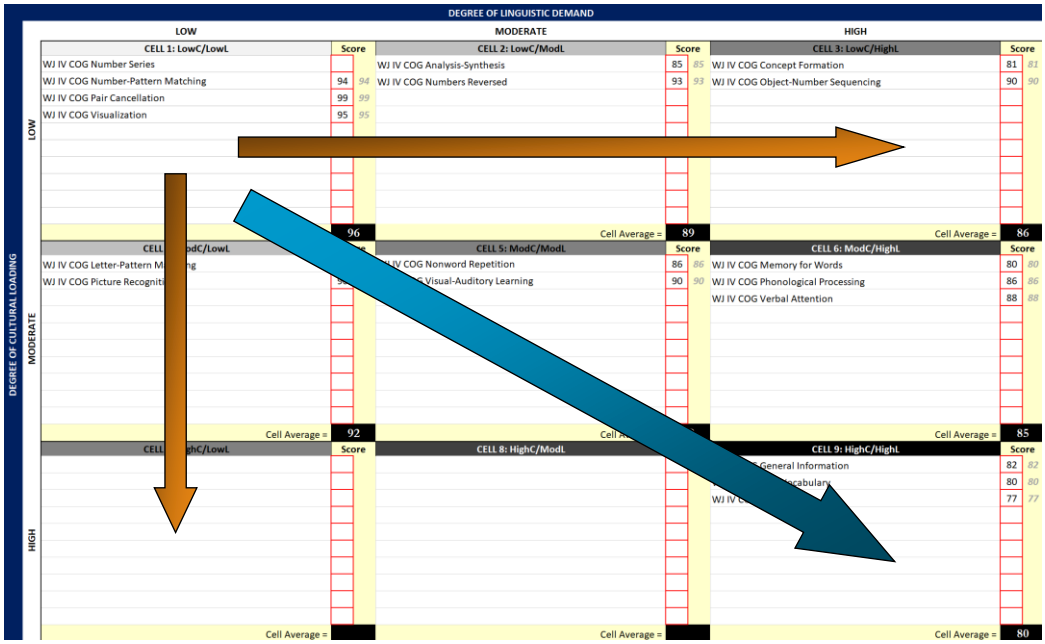
The primary purpose of the C-LIM is to assist evaluators in ruling out cultural and linguistic influences as exclusionary factors that may have undermined the validity of test scores, particularly in evaluations of SLD or other cognitive-based disorders. Being able to make this determination is the primary and main hurdle in evaluation of ELLs and the C-LIM's purpose is to provide an evidence-based method that assists clinician's regarding interpretation of test score data in a nondiscriminatory manner.

157



158

Moderately Different



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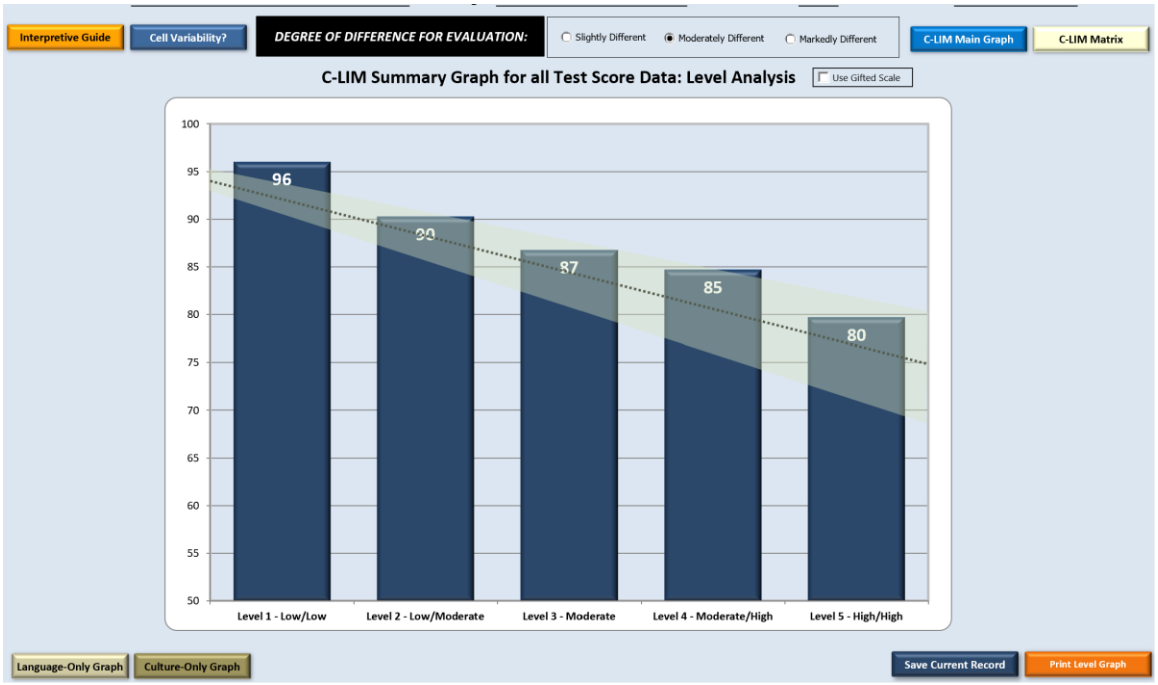


160

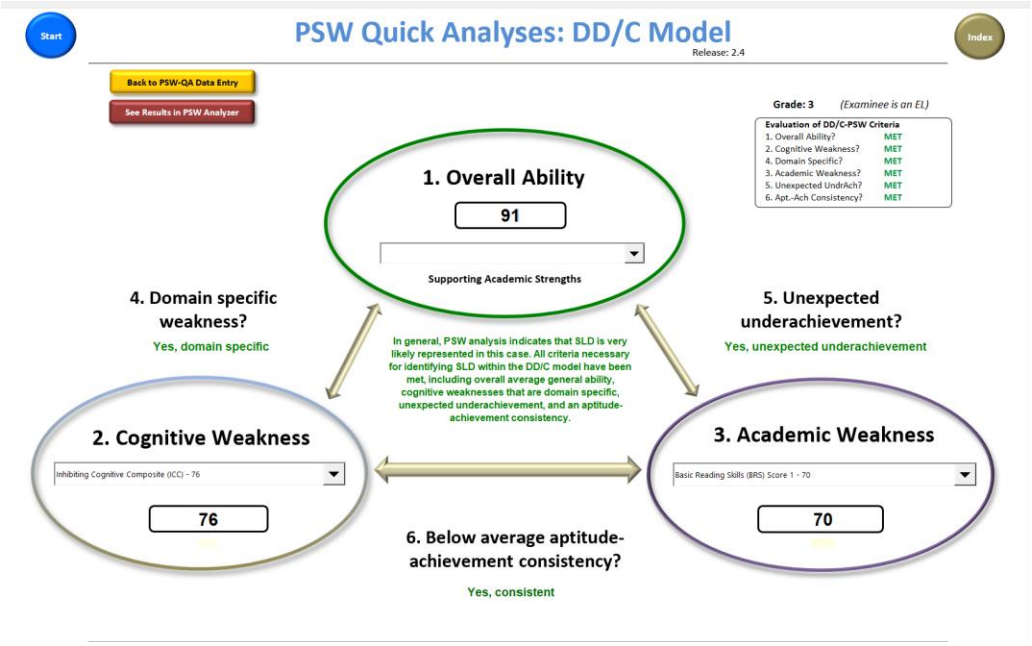
C-LIM Interpretation For Scores That Decline As Culture and Language Demands Increase

A review of the pattern of test scores indicated that performance was consistent with what would be expected of other individuals with similar cultural and linguistic backgrounds. This means that the scores cannot be interpreted as valid estimates of the student's abilities.

However, because the scores were compared to other individuals from research studies who were of average ability and who had not been identified as having a disability, it suggests that the student's performance is also average (possibly higher) and that it is not likely that a learning disability is present in this case. This means that although the student is having difficulties in the classroom, they are most likely attributable to, and primarily the result of, the normal process of second language and acculturative knowledge acquisition.

161

If Test Score Validity Was Not Examined, This Student Would Qualify for SLD (But, Difference, Not Disorder). Without a Review of C-L Influences, SLD in this Case Would be a False Positive



162

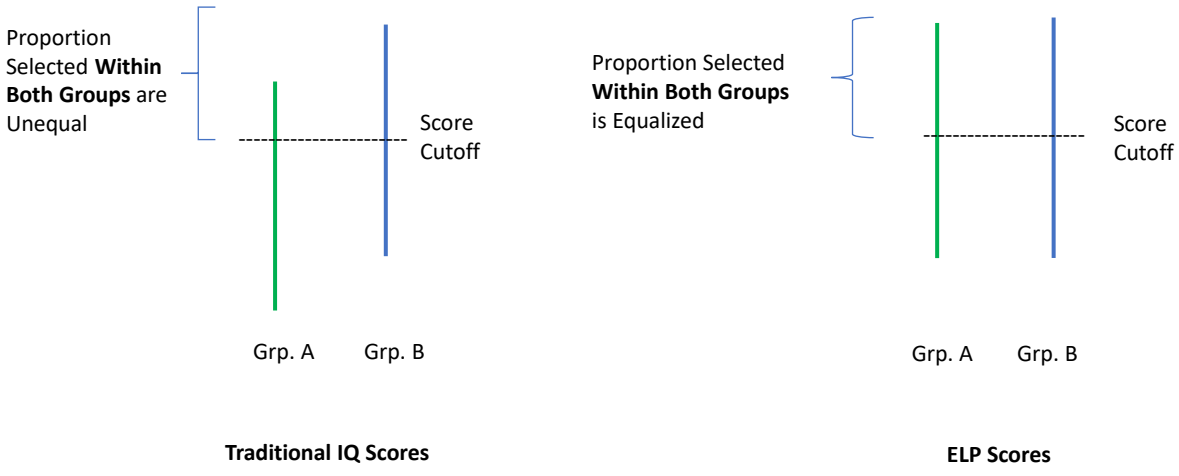
The C-LIM Interpretation is Not Different From What Jane Mercer Did with the ELP

Estimated Learning Potential (ELP) scores

ELP scores are (WISC-R) IQ scores that have been 'adjusted' for the effects of sociocultural background and are compared only to the test-taker's ethnic peer norms. The general effect was higher estimates of intellectual potential for minority students (compared to Whites). This averaged to about 11 points for Black students and 7 points for Hispanic students (Taylor, 1983)

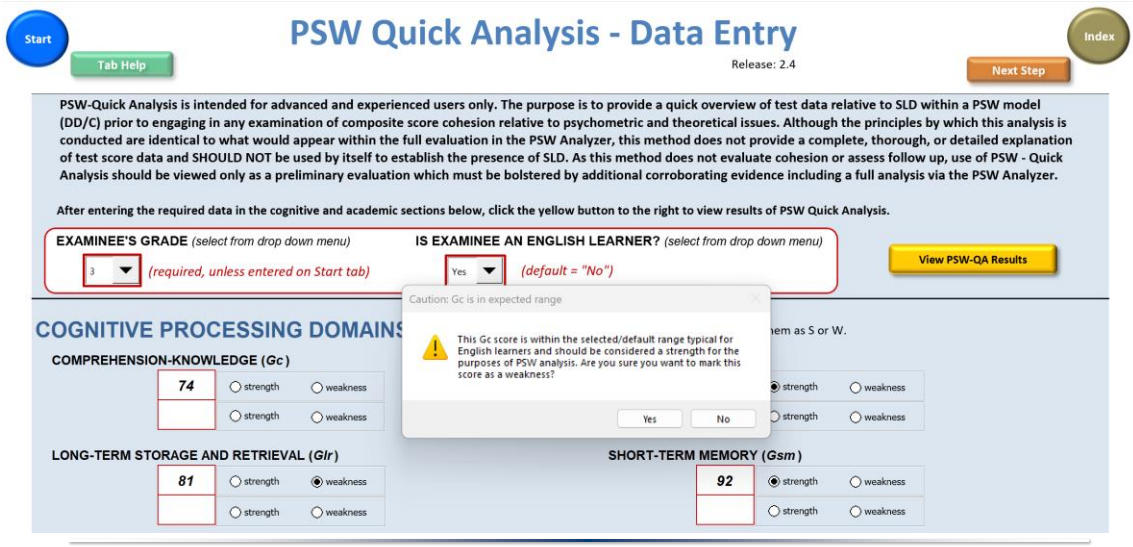
163

The SOMPA and Sociocultural Norms



164

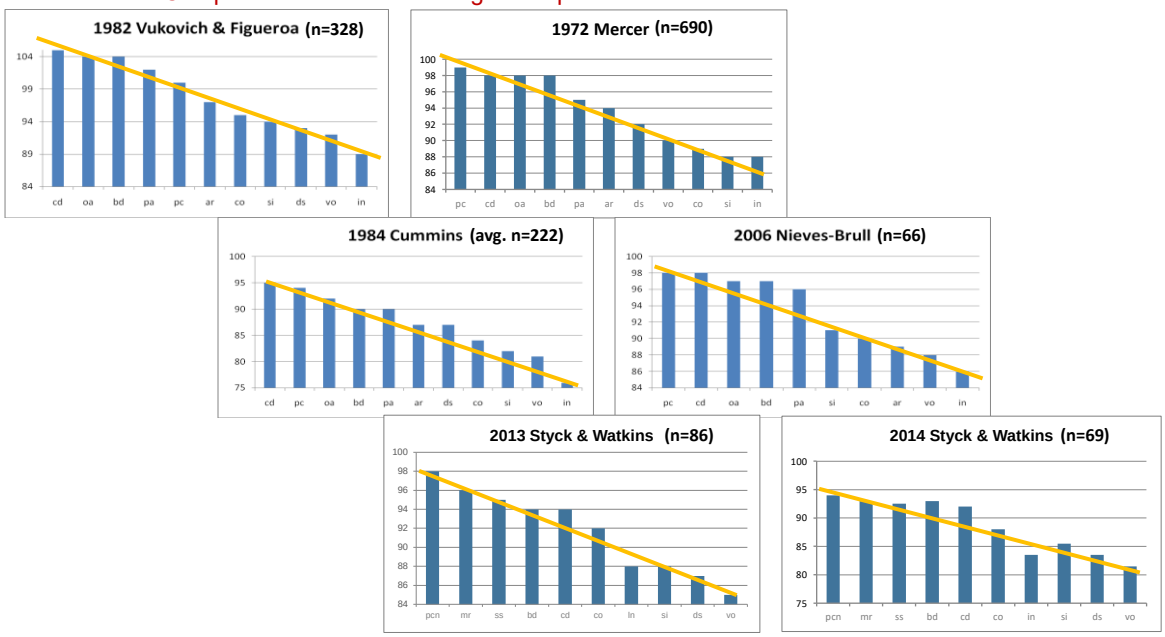
SOMPA was Criticized for "Adjusting" Scores



165

Research Foundations for EL Evaluation: EL to ES

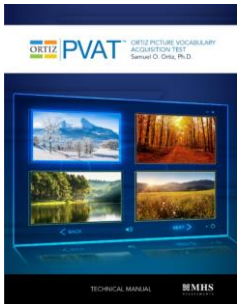
Comparison of overall "average" test performance at the subtest level: EL to ES



166

The Ortiz Picture Vocabulary Acquisition Test

Sampling bilinguals—continuous (99 levels of exposure: 1%-99%)



Author: Samuel O. Ortiz

Table 5. Length of Exposure to English: Ortiz PVAT English Learner Normative Sample

Length of Time Exposed to English	English Learner Normative Sample (*N*)	English Learner Normative Sample (%)
0–6 months	128	10.8
7–11 months	131	11.0
1–2 years	168	14.1
3–4 years	165	13.9
5 years	119	10.0
6–7 years	118	9.9
8–9 years	113	9.5
10–11 years	90	7.6
12–13 years	70	5.9
14–15 years	51	4.3
16 years or more	37	3.1
Total	1,190	100.0

Performance is based on comparison of exact amount of language development determined by percentage of lifetime exposure—not by category.

Table 6. Percentage of Life Exposed to English: Ortiz PVAT English Learner Normative Sample

Percentage of Life Exposed to English (%)	English Learner Normative Sample (*N*)	English Learner Normative Sample (%)
0–20	280	23.5
21–40	196	16.5
41–60	196	16.5
61–80	209	17.6
81–100	309	26.0
Total	1,190	100.0

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Fairness and English Learners:

Ensuring True Peer Comparability

Stratification Variables in Dual Standardization Norm Samples of the Ortiz PVAT

English Speakers (*N* = 1,530)

- Ages 2:6 to 22:11
- Gender: equal split
- Stratification:
  - Geographic region
  - Parental education level (PEL)
  - Race/ethnicity

English Learners (*N* = 1,190)

- Ages 2:6 to 22:11
- Gender: equal split
- Stratification:
  - Geographic region
  - Parental education level (PEL)
  - Language spoken at home (53 different languages)
  - Proportion of lifetime exposure to English (i.e., opportunity to learn English):
    - 11 categories for length of exposure to English
    - 0-6 months up to 16+ years

Inclusion of these variables in the stratification of the EL Norm Sample is a completely unique feature of the Ortiz PVAT not found in any other test.

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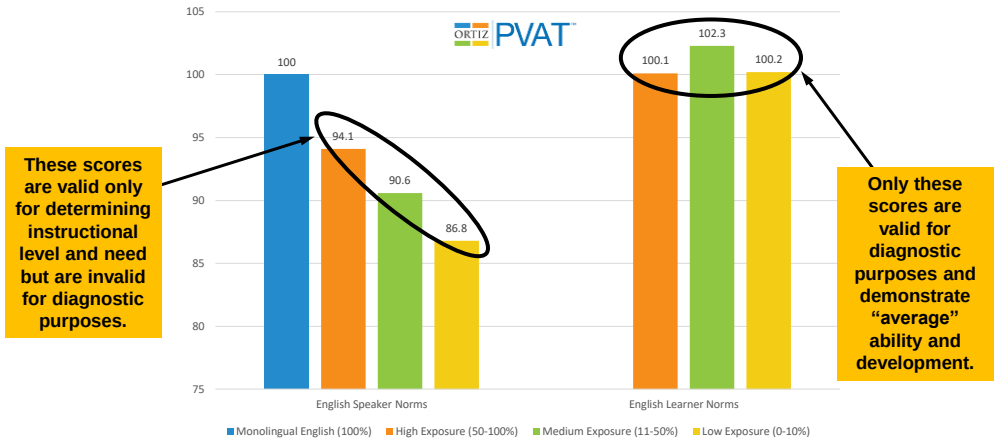
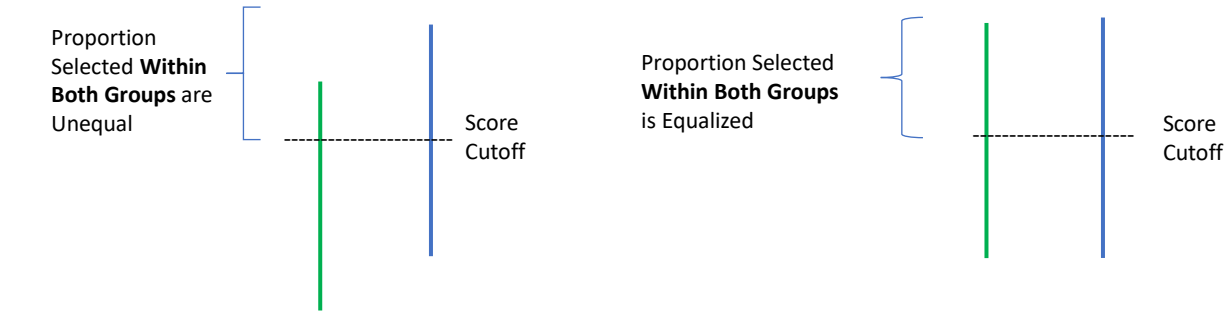
The Ortiz PVAT – Advances in fairness and testing

Developmental Language/Exposure-based Comparison Provides Validity and Fairness for ELs



169

Jane Mercer's Position was the Same for the SOMPA



These scores are valid only for determining instructional level and need but are invalid for diagnostic purposes.

Traditional IQ Scores

Only these scores are valid for diagnostic purposes and demonstrate "average" ability and development.

ELP Scores

170

EQUITY & DIVERSITY

U.S. School Enrollment Hits Majority-Minority Milestone

2014

America's public schools are on the cusp of a new demographic era.

This fall, for the first time, the overall number of Latino, African-American, and Asian students in public K-12 classrooms is expected to surpass the number of non-Hispanic whites.

The new collective majority of minority schoolchildren—projected to be 50.3 percent by the National Center for Education Statistics—is driven largely by dramatic growth in the Latino population and a decline in the white population, and, to a lesser degree, by a steady rise in the number of Asian-Americans. African-American growth has been mostly flat.

EducationWeek®

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THE EFFECTS OF SOCIOECONOMIC STATUS AND LANGUAGE DIFFERENCE ON SPECIFIC COGNITIVE TEST PERFORMANCE: A COMPARATIVE STUDY OF AFRICAN AMERICAN CHILDREN

Participants

The participants of the study included 79 African-American students, strictly including public school students in grades Kindergarten to fifth grade, who attend the Mount Vernon City School District in Westchester County, NY. Participants were recruited and selected based on meeting the race criteria of Black or African American, as well as the criteria of being *flagged* as "Poverty-from low-income family". This information was obtained from the student portal on *Infinite Campus*, an online database of Student Information System, used by the Mount Vernon City School District. Participants in the study were non-disabled students who did not have an Individual Educational Program (IEP) or a Section 504 Accommodation Plan. All participants were general education students who spoke no other language at home, aside from "English", according to Infinite Campus.

Fernanda Carvalho (Dissertation, St. John's University, 2023; mentored by Dr. Samuel Ortiz)

172

WISC-V Index Scores on the WISC-V for African American Students

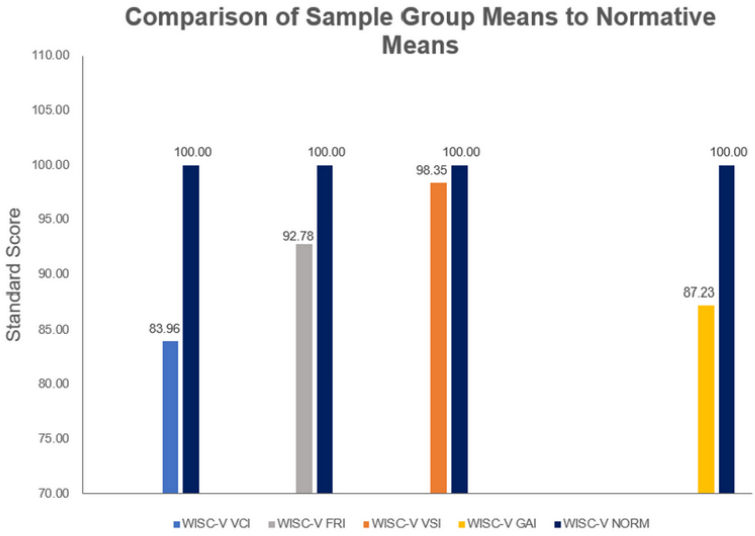

Figure 1. Mean differences in Standard Scores between the sample group index performance and the WISC-V normative mean of 100.

Results show an impact of language difference, meaning that Black students may well be regarded as being "bilingual" when they have African American Vernacular English (AAVE) at home and Standard American English (SAE) in school.

The Oakland Unified School District came to this conclusion back in 1996 and decided, rightfully so, to treat their African-American population as "English learners."

These data support that idea as well as the basic structure of the C-LIM wherein test performance declines relative to the degree of developmental proficiency in English required by the test.

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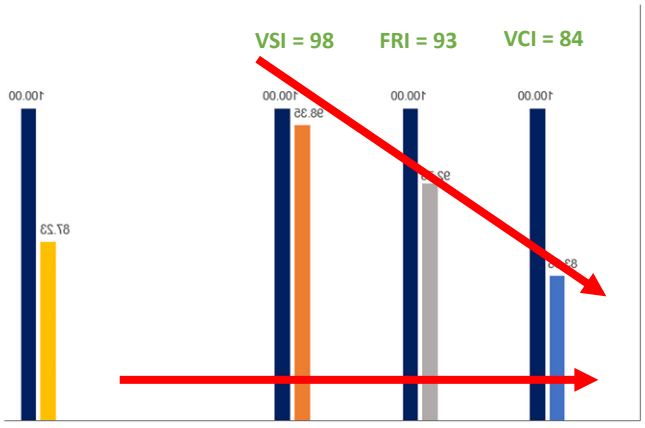
WISC-V Index Scores on the WISC-V for African American Students



A declining pattern of performance with increasing culture and language demands

174

WISC-V Index Scores on the WISC-V for African American Students

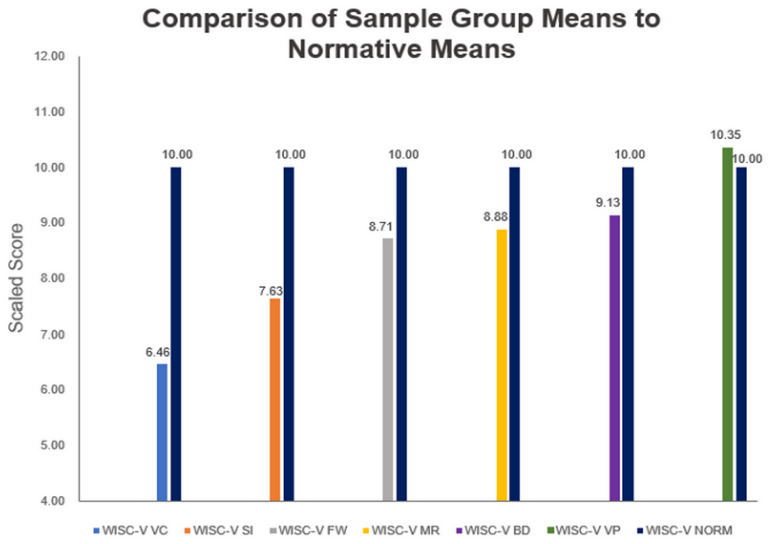
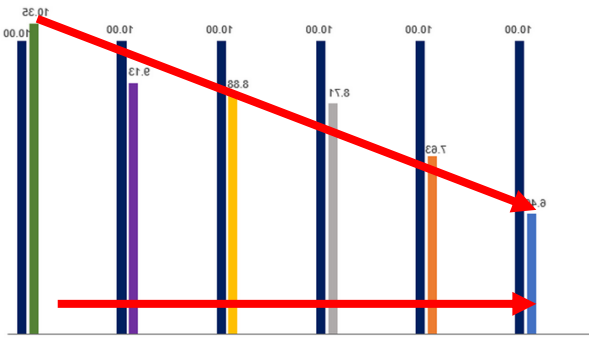


Figure 2. Mean differences in Scaled Scores between the sample group individual subtest performance and the WISC-V normative mean of 10.

175

WISC-V Index Scores on the WISC-V for African American Students

VP=10.35 BD=9.13 MR=8.88 FW= 8.71 SI= 7.63 VC= 6.46



This is not a random order and shows that language and culture are operating in the evaluation of African American children and thus, the use of the C-LIM would be appropriate and necessary to determine test score validity.

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Do Not Underestimate the Importance of Language

1st Gen = great grandparents are foreign-born and mostly monolingual;

2nd Gen = grandparents are U.S.-born bilingual and relatively equal in both;

3rd Gen = parents are U.S.-born bilingual but much more English dominant;

4th Gen = no appreciable exposure or development in any language except SAE

Personal Communication (Samuel O. Ortiz, October 6, 2023)

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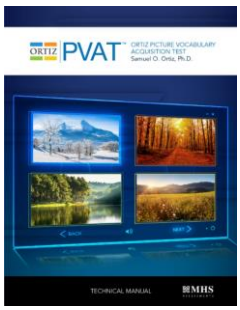
When you **limit inclusion into the monolingual, English-speaking norm sample to children who are 4th generation English speakers only,** variance in test performance related to race or ethnicity disappears. This suggests that variance that has traditionally been ascribed to race or ethnicity is actually more likely to have been due to language differences.



Form	Racial/Ethnic Group	*N*	*M*	*SD*	*F (df)*	*p*	Pairwise Comparisons ($p < .01$)	Partial η^2
Form A	Black	280	99.4	15.2	2.60 (3, 1523)	.051	*ns*	.005
	Hispanic	126	99.5	15.4				
	White	1,018	100.5	15.3				
	Other	106	96.3	15.3				
Form B	Black	280	99.6	15.1	2.47 (3, 1523)	.060	*ns*	.005
	Hispanic	126	99.7	15.3				
	White	1,018	100.6	15.2				
	Other	106	96.4	15.2				

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Table 3. Variance Explained by Exogenous Variables (Individual Test Performance) by Age Group.

		Variance explained			
	Individual test	7-10	11-14	15-18	
Highest Language Demands	Verbal Comprehension	.79[c]	.86[c]	.81[c]	1
	General Information	.71[c]	.85[c]	.86[c]	
	Concept Formation	.67[c]	.71[c]	.67[c]	2
	Visual–Auditory Learning	.40[b]	.37[b]	.41[b]	
	Delayed Recall Visual–Auditory Learning	.39[b]	.32[b]	.37[b]	
	Analysis Synthesis	.29[b]	.44[b]	.47[b]	
	Sound Blending	.25[b]	.32[b]	.35[b]	3
	Auditory Working Memory	.22[b]	.44[b]	.32[b]	
	Retrieval Fluency	.22[b]	.22[b]	.28[b]	
	Memory for Words	.18[b]	.32[b]	.23[b]	
	Numbers Reversed	.17[b]	.26[b]	.30[b]	
	Pair Cancelation	.17[b]	.11[b]	.11[b]	
	Rapid Picture Naming	.16[b]	.07[a]	.16[b]	
	Incomplete Words	.13[b]	.31[b]	.23[b]	4
	Visual Matching	.13[b]	.15[b]	.16[b]	
	Decision Speed	.12[b]	.15[b]	.19[b]	
	Auditory Attention	.10[b]	.20[b]	.15[b]	
Lowest Language Demands	Spatial Relations	.08[a]	.16[b]	.16[b]	5
	Planning	.07[a]	.12[b]	.11[b]	
	Picture Recall	.02[a]	.06[a]	.10[b]	

*Source: Cormier, D.C., McGrew, K.S. & Ysseldyke, J. E. (2014). The Influences of Linguistic Demand and Cultural Loading on Cognitive Test Scores. Journal of Psychoeducational Assessment, 32(7), 610-623.

179

How is Low Income and Poverty Determined?

180

How the Census Bureau Measures Poverty

Example

Situation

Family A has five members: two children, one mother, one father, and one great-aunt.

Step 1: Determine the family's poverty threshold for that year

The family's 2022 poverty threshold (below) is $35,801

Step 2: Calculate the total family income for the same year

Suppose the members' incomes in 2022 were:

- Child 1: $0
- Child 2: $0
- Mother: $13,000
- Father: $12,500
- Great-aunt: $11,000

Thus, Family A's total income for 2022 was $36,500.

Step 3: Compare the family's total income with the poverty threshold

The total family income divided by the poverty threshold is called the Ratio of Income to Poverty.

Income / Threshold = $36,500 / $35,801 = 1.02

The difference in dollars between family income and the family's poverty threshold is called the Income Deficit (for families in poverty) or Income Surplus (for families above poverty).

Income – Threshold = $36,500 - $35,801 = $699

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Poverty Thresholds for 2022 by Size of Family and Number of Related Children Under 18 Years
(In dollars)

Size of family unit	Weighted average thresholds	Related children under 18 years								
		None	One	Two	Three	Four	Five	Six	Seven	Eight or more
One person (unrelated individual):	14,880									
Under 65 years	15,230	15,225								
65 years and over	14,040	14,036								
Two people:	18,900									
Householder under 65 years	19,690	19,597	20,172							
Householder 65 years and over	17,710	17,689	20,095							
Three people	23,280	22,892	23,556	23,578						
Four people	29,950	30,186	30,679	29,678	29,782					
Five people	35,510	36,402	36,932	35,801	34,926	34,391				
Six people	40,160	41,869	42,035	41,169	40,339	39,104	38,373			
Seven people	45,690	48,176	48,477	47,440	46,717	45,371	43,800	42,076		
Eight people	51,010	53,881	54,357	53,378	52,521	51,304	49,760	48,153	47,745	
Nine people or more	60,300	64,815	65,129	64,263	63,536	62,342	60,699	59,213	58,845	56,578

Source: U.S. Census Bureau, 2023.
Note: The source of the weighted average thresholds is the 2023 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

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How the Census Bureau Measures Poverty

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Income – Threshold = $36,500 - $35,801 = $699

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Conclusion

Since Family A's total income was greater than their poverty threshold, they are considered not "in poverty" according to the official definition.

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CAS2

Household income (in dollars)[k]		
Under 15,000	11.7	13.0
15,000–24,999	10.3	11.0
25,000–34,999	10.5	11.0
35,000–49,999	14.3	14.0
50,000–74,999	19.4	19.0
75,000 and over	33.7	32.0
Parental education[l]		
Less than bachelor's degree	70.0	72.0
Bachelor's degree	19.6	19.0
Graduate degree	10.4	9.0

About 75% of K-ABC-2 has a parent education level less than a bachelor's degree

About 68% of the WIAT-4 school age sample has parent education level less than a bachelor's degree

About 67% of the WISC-V sample has parent education level less than a bachelor's degree

43% on WJ IV COG (K-12 sample) has less than a bachelor's degree

185

What does living at the poverty line look like?

Inflation affects families at different income levels unevenly as the poorest Americans pay a larger share of their incomes on food and housing.

Updated on Thu, October 5, 2023

According to the most recent report issued in January 2023, **the poverty threshold for a family of four is $29,960**. For an individual, the poverty threshold is $14,891.

Comparatively, the 2023 median household income for a family of four is **$98,487**.

186

What are the Effects of Poverty on Child Development?

The effects of poverty extend into every facet of a child's development, influencing their physical, cognitive, social, and emotional growth. Here's how poverty shapes their developmental journey:

- **Cognitive Development:** Poverty can impede cognitive development due to limited access to quality early education, books, and enriching experiences. Children from low-income households may enter school with smaller vocabularies and less developed literacy skills.
- **Social Skills and Relationships:** Children in poverty often face social isolation due to a lack of resources for extracurricular activities and participation in community events. This isolation can hinder the development of crucial social skills and the formation of healthy relationships.
- **Emotional Well-being:** Growing up in poverty exposes children to chronic stress, which can lead to emotional challenges. Constant uncertainty and adversity can result in feelings of helplessness, anxiety, and low self-esteem.

Child poverty isn't always visible, but its impact is profound. It's more than just a lack of material resources; it's a systemic issue that affects all aspects of a child's life:

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Effect of SES on Test Performance (After Controlling for Language)

Post hoc Analyses

Effect of Annual Family Income on Language (English Learners with revised cutoffs for grouping)

	N	Mean	SD	t	df	p	d
Annual Family Income <$65,000 X = XX,XXX	6	96.83	6.91	-2.875	13	.013*	1.51
Annual Family Income >=$65,000 X = XX,XXX	9	111.89	11.43				

*$p < .05$

The effect size of 1.51 is large and shows that below a certain threshold, SES will affect test performance, much in the same way as language differences do. Here, however, language differences were controlled by the Ortiz PVAT so the difference in performance is primarily due to SES.

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Journal of
Intelligence

Essay

Modern Assessments of Intelligence Must Be Fair and Equitable

LaTasha R. Holden [1,2,*] and Gabriel J. Tanenbaum [1]

It is crucial to acknowledge these concerns about inequity and injustice given the dark history of intelligence assessment, its applications, and the effect this has had on many lives. Considering this and the growing forms of diverse needs, we argue that reform of assessment design and practice is urgent, and that reform efforts must be directed toward goals of equity and fairness (see also **Holden and Hart 2021**). Thus, rather than calling for the elimination of cognitive ability testing (see **McGrew 2023**; **McGrew et al. 2023** on the death of cognitive ability tests being premature), researchers and practitioners must find ways to make them better suited for students of all backgrounds

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Journal of
Intelligence

Essay

Modern Assessments of Intelligence Must Be Fair and Equitable

LaTasha R. Holden [1,2,*] and Gabriel J. Tanenbaum [1]

9.2. Recommendations for Practitioners

School neuropsychology is a field that focuses on understanding and assessing children's processes of learning and academic development. As such, to achieve nondiscriminatory forms of assessment practice, we must consider that the brain's organization and development are bound to the cultural context in which they unfold and seek to understand the impact of culture on language and neuropsychological performance (Ortiz and Oganes 2022). Inclusive forms of assessing student performance should recognize that cultural differences could impact a variety of cognitive processes including "decision speed, retrieval fluency, problem solving, auditory processing, acculturative knowledge acquisition, language proficiency, and other abilities" (Ortiz and Oganes 2022). In the future, school psychologists in both research and practice should focus more on examining the broad abilities and subprocesses of *g* from an equity perspective.

190

Journal of
Intelligence

Essay

Modern Assessments of Intelligence Must Be Fair and Equitable

LaTasha R. Holden [1,2,*] and Gabriel J. Tanenbaum [1]

The Council of National Psychological Associations for the Advancement of Ethnic Minority Interests (CNPAAEMI) has also called the CAS and KABC-II relatively more culturally fair than other intelligence tests because they have both shifted towards neuropsychologically based approaches that are less reliant on academic tasks. Both the CAS and KABC-II have been found to still correlate well with academic achievement while also producing significantly smaller gaps between Black and White children's scores (Naglieri and Bornstein 2003). Further, the KABC-II was designed with inclusivity in mind and aimed to minimize the cultural gap between White and Minority children (Lichtenberger and Kaufman 2010). The ways in which this was accomplished included: elimination of knowledge-based subtests from global score indices, reduced emphasis on language and crystallized abilities for measuring overall cognitive ability, subtests designed based on research with fewer cultural differences (e.g., face recognition and gestalt closure), reduced verbal load for both examiner and examinee, and inclusion of teaching items where examiners are encouraged to modify wording, use gestures, and explain introductory terms. Taken together, this shows that there are known and proven methods for arriving at intelligence assessments that are more inclusive, culturally sensitive, and fair across diverse groups of students.

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Journal of
Intelligence

Essay

Modern Assessments of Intelligence Must Be Fair and Equitable

LaTasha R. Holden [1,2,*] and Gabriel J. Tanenbaum [1]

Some Recommendations:

Focus on broad abilities and subprocesses of *g*

Pay attention to theories (**Process Overlap Theory**) that explain *g* as an emergent property (positive manifold) – there is no equivalent of *g* in the brain. There area domain-general and domain-specific cognitive processes and the domain-general processes overlap more with the domain-specific processes than the domain-specific processes overlap with each other.

Use tests that limit emphasis on culture and language

192

Intelligence Tests and Tests of Cognitive Abilities and Processes

Smaller Black-White Differences

- KABC-II
- CAS2
- DAS-2

Larger Black-White Differences

- WISC-V
- WJ IV
- SB5

193

We Do Not Assess Groups; We Assess One Child at a Time (Myriad Potential Causal Explanations for Differences)

- Extent of poverty
- Remoteness
- Access to resources
- Health care
- Nutrition
- Trauma
- Community violence
- PTSD
- Language and cultural factors
- Parent education
- Family dynamics/home environment
- Exposure to lead
- History of concussions
- Developmental milestones
- Parent's education
- language spoken in the home
- Extent of conversational language with and reading to the child/books in the home
- Educational history
- Medical history
- Preschool experience
- Computer/iPad in the home
- Homework assistance (by whom)
- Peer relationships
- Relationships with family members
- Relationship with teacher(s) and evaluator(s)

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Distinguishing ID and SLD

If suspected ID, then begin with adaptive behavior

Is suspected SLD, rule out ID before using cognitive tests

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Best Practice for Evaluation of any Student Referred for Suspected Disability - **RIOT**

- Records Review
- Interviews with family, child, teacher(s), and others as deemed necessary
- Observations
- Standardized testing and other data-gathering methods

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Problem-Solving using the ICEL/RIOT Matrix

Key Domains of Learning		
I	Instruction	Instruction is how the curriculum is taught and can vary in many different ways including: level of Instruction, rate of Instruction, and presentation of Instruction
C	Curriculum	Curriculum refers to what is taught. Curriculum would include scope, sequencing, pacing, materials, rigor, format, relevance
E	Environment	The environment is where the instruction takes place. Variables in the environment include classroom expectations, beliefs/attitudes, peers, school culture, facilities, class size, attendance/tardies, management
L	Learner	The learner is who is being taught. This is the last domain that is considered and is only addressed when the curriculum and instruction are found to appropriate and the environment accommodating. Variables include motivation prerequisite skills, organization/study habits, abilities, impairments, and history of instruction.

One tool that can assist schools in their quest to sample information from a broad range of sources and to investigate all likely explanations for academic or behavioral problems is the ICEL/RIOT matrix. This matrix helps schools to work efficiently and quickly to decide what relevant information to collect on academic performance and behavior—and also how to organize that information to identify probable reasons why the student groups are not experiencing academic or behavioral success.

The ICEL/RIOT matrix is not itself a data collection instrument. Instead, it is an organizing framework that increases schools' confidence both in the quality of the data that they collect and the findings that emerge from the data (Hosp, 2006, May). The leftmost vertical column of the ICEL/RIOT table includes four key domains of learning to be assessed: **Instruction**, **Curriculum**, **Environment**, and **Learner** (ICEL). A common mistake that schools often make is to assume that student learning problems exist primarily in the learner and to underestimate the degree to which teacher instructional strategies, curriculum demands, and environmental influences impact the learner's academic performance. The ICEL elements ensure that a full range of relevant explanations for student problems are examined.

Potential Sources of Information	
R	Review of historical records and products
I	Interview of key stakeholders
O	Observe performance in real time functional settings
T	Test student through careful use of appropriately matched measurement technologies

The top horizontal row of the ICEL/RIOT table includes four potential sources of student information: **Review**, **Interview**, **Observation**, and **Test** (RIOT). Schools should attempt to collect information from a range of sources to control for potential bias from any one source.

The power of the ICEL/RIOT matrix lies in its use as a cognitive strategy, one that helps educators to verify that they have asked the right questions and sampled from a sufficiently broad range of data sources to increase the probability that they will correctly understand the student's presenting concern(s). Viewed in this way, the matrix is not a rigid approach but rather serves as a flexible framework for exploratory problem-solving.

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Problem-Solving using the ICEL/RIOT Matrix

Domain		Variables	Review	Interview	Observe	Test
Instruction	Instruction is how curriculum is taught. How content is presented to students can vary in many different ways: Level of Instruction Rate of Instruction Presentation of Instruction Is the curriculum being differentiated to meet the needs of the learners? Consider: • instructional techniques • presentation style • clarity of instruction • questioning • feedback technique • cooperative learning • use of graphic organizers • instructional conversations • development of academic language/ vocabulary	**Group/System** • Instructional decision making regarding selection and use of materials • Use of progress monitoring • Explicit Instruction • Differentiated Instruction • Sequencing of lesson designs to promote success • Use of a variety of practice and application activities • Pace and presentation of new content • Block of time allotted per subject **Individual** • Instructional decision making regarding placement of the student • in groups • Use of progress monitoring Communication of expectations and criteria for success • Differentiated Instruction • Direct instruction with explanations and cues • Use of a variety of practice and application activities • Pace and presentation of new content	• Unit/Lessons Plans • Permanent products (e.g. written pieces, worksheets, projects) for skill/degree of difficulty requirements • Benchmarks / standards • Assignments (calculate % of assign turned in, average amount-%- of assignments completed), • Length/time required to complete assignments	Stakeholders about: • Effective teaching practices • Instructional decision making regarding choice of materials, placement of students, instructional strategies • Sequencing/pacing of instruction • Choice of screening, diagnostic and formative assessments • Product methods (e.g. dictation, oral retell, paper pencil, projects) • Grouping structures used • Accommodations/ modifications used • Reinforcement management/ engagement strategies • Allowable repetition for mastery/ understanding • Who is providing the supplemental/ intensive instruction • Use of supportive technology • Student/group performance compared to peers • Patterns of performance errors/ behavior • Setting(s) where behavior is problematic • Significance of academic, speech, social, task or motor difficulties • Onset and duration of problem • Consistency from day to day, subject to subject • Interference with personal, interpersonal, and academic adjustment • Performance using different modes of expression (e.g. verbal, written, kinesthetic) • Teacher perceptions/hypotheses regarding why the student is unable to demonstrate the desired behaviors- academic and/or behavioral • Philosophical orientation of curriculum (e.g. whole language, phonics) • Expectations of district for pacing/coverage of curriculum	• Teachers' instructional styles/preferred styles of presenting • Clarity of instructions/ directions • Effective teaching practices • Communication of benchmarks/expectations and criteria for success • How new information is presented • Percent of time with direct instruction, whole group instruction, practice time, differentiated instruction, etc. • How teachers gain/ maintain student attention • Academic engaged time • Transitions • Large group instruction • Small group instruction • Independent work time • Group work time • Teachers use of positive reinforcement, student-teacher interaction quality/quantity, (use of direct observation protocols) • Time on task • External supports necessary to sustain engagement	Classroom environment survey Develop checklists on effective instruction "Things to Look For" and "Ask About"

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Problem-Solving using the ICEL/RIOT Matrix

Domain		Variables	Review	Interview	Observe	Test
Curriculum	Curriculum refers to what is taught. Scope and sequence would be included here as well as pacing within and between topics. Is curriculum appropriate for student? Consider: • sequencing of objectives • teaching methods • materials provided • difficulty • presentation • length • format • relevance	**Group/System** • Presence of Core Curriculum • Universal behavior expectations/PBIS • Staff training in curriculum • Percentage of students at benchmark/meeting grade level expectations • Long-range direction for instruction • Alignment to standards • Instructional philosophy/approaches • Instructional materials • Stated outcomes for the course of study **•Individual** • Accommodations • Supplementary instruction • Interventions • Access to instruction (time, attention, behavior, attendance) • Instructional materials • Arrangement of the content/instruction	Curriculum selected •scientific researched based •implemented with integrity •integration of supplemental and intensive curriculum, as appropriate Scope and sequence of textbooks and other resources Permanent products (e.g. books, worksheets, curriculum guides) Benchmarks/ Standards	Stakeholders about: • Core curriculum • Support curricula used for supplemental and intensive instruction • Supplemental teaching materials • Expanded core curriculum (e.g. community skills, study skills) • Flexibility for teacher to modify curriculum • Use of data-based decision making • Philosophical orientation of curriculum (e.g. whole language, phonics, direct instruction) • Expectations of district for pacing /coverage of curriculum • Content/outcomes of course • Modifications of benchmarks made for students • Readability of textbook and other resources • Prerequisite skills/prior understanding needed for success • Allowable repetition for mastery/understanding • Technology integration • Cultural competency/relevance of the curricular content to student demographics	•Peer group response to curricular demands •Target student group response to curricular demands •Variety of practice opportunities •Allowance for peer sharing/ mentoring during work time •Student/peer response to curricular materials •Types of student performance options: how are students expected to demonstrate the skill/standards?	Readability/ level of text books and other resources Readability level/difficulties of tests "Things to Look For" and "Ask About"

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Problem-Solving using the ICEL/RIOT Matrix

Domain			Variables	Review	Interview	Observe	Test
Environment	Classroom/School	The classroom/school environment is where instruction takes place. How is the environment impacting learning? Consider: •what may distract or inhibit student learning •peers •classroom/school •expectations •beliefs/attitudes •attendance/tardies •class size	• Physical arrangement of the classroom or other problem location • Furniture/equipment • Rules • Management Plans • Routines • Expectations • Peer context • Peer and family influence • Task pressure • Adult supervision	• School/ classroom rules • Physical layouts of school, classrooms, property, and buses as appropriate • Daily schedule-amount of time allocated to instruction in areas of concern. • Out of classroom time for other instruction/ supports	Stakeholders about: •Classroom routines, rules, behavior management plans, situational expectations (e.g. classroom vs. hallway, PE, recess) and how rules were developed •Make-up of peers •(Re)organization of room's layout (e.g. desk location selection, changes) •Limited distractions area School-based personnel: •School wide discipline •In-school behavior •Peer to peer mentoring programs •Adult to peer mentoring •Counselors, school psychologists supports •Teachers •Level of family/school engagement	• The physical layout/arrangement of learning spaces • Lighting/sound sources, temperature, noise levels • Environmental/other student distractions • Posting of rules, clocks, and/or daily schedule • Signal for transitions • Social expectations • Established routines versus new/novel expectations • Peer makeup • Interaction patterns • How students handle transitions in schedule	Classroom mapping Systematic Observation Teacher Working Conditions Survey Student Surveys "Things to Look For" and "Ask About"
	Family/Community	The family/community environment is where student spends time outside of the classroom environment. How is the environment impacting learning? Consider: •what may distract or inhibit student learning •home/family support •expectations •beliefs/attitudes •transience •attendance/tardies	• Resources to support learning • Parent involvement including talking to students about school, checking homework, attending events, and volunteering at school • Rules and expectations at home • Routines • Peer and family influence • Adult supervision • Cultural factors	• Student attendance record • Parent/guardian participation in school open house, parent conferences, volunteer opportunities • Mobility rate • Transportation from home to school (e.g., time on bus) • Discipline records • Student support services being delivered (e.g., integrated, coordinated, offered) • Parent availability for support (parent work schedule) • Other siblings in the home and their performance at school and availability to support/mentor target student	Parents about: •Sleep habits •Nutrition/eating habits •Homework space/time allocation •Supervision •Use of out of school time (e.g., physical activity) •Home responsibilities •Peers •Siblings •Out of school mentoring (e.g., Big Brother/Sister, church involvement, clubs) •Interference of identified difficulty on outside of school activities •Social expectations at home •Cultural factors influencing child •Consistency between parent expectations for performance and school expectations for performance •Consistency between levels of support to complete homework and levels of support in class •Level of family/school engagement	• Community Activities • Club/Sports Activities • Peer interactions • Adult-student interactions	NOTE: Direct assessments may not be available for this Domain

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Problem-Solving using the ICEL/RIOT Matrix

Domain		Variables	Review	Interview	Observe	Test
Environment	Peers: The peer environment is where the instruction takes place. How is the peer environment impacting learning? Consider: • what may distract or inhibit student learning • peers • expectations • beliefs/attitudes • transience • attendance/tardies	• Belonging at school: feeling accepted, respected, and included at school • Resources and structures to support achievement • Rules and social expectations • Peer pressure • Routines • Peer and family influence • Cultural factors	• Attendance records (e.g., tardy to school/classes, absences) • Discipline records • Academic performance and proficiency of peers (similar demographics) • Identify peer supports, friends, problem relationships	Peers about: • Beliefs, self-determination • Peer group/friends • Mentoring opportunities • Club involvement • Community involvement • Home responsibility • Goals and aspirations • Self-perceived strengths/talents • Self-perceived challenges Teacher about: • Perception of student/peer group interaction • Peer reinforcement of compliance or noncompliance Student about Peer Factors: • The degree to which peers influence work completion, compliance, motivation, target behavior	• Classroom behavior (e.g., class participation, work completion, engagement) • Social Settings (e.g., in-school/hall/Cafeteria behavior and interactions • Interaction of peer to peer • Interaction of target student with peers • Observation protocols to compare performance (e.g., on task, work completed, questions asked, compliance) to same demographic peers. • Compare peer time to complete work to target student time to complete work.	Note: Direct assessments may not be available for this Domain

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Problem-Solving using the ICEL/RIOT Matrix

Domain		Variables	Review	Interview	Observe	Test
Learner	The learner is who is being taught. This is the last domain that is considered and is only addressed when the curriculum and instruction are found to be appropriate and the environment is accommodating. Variables include motivation, prerequisite skills, organization/study habits, abilities, impairments, and history of instruction.	• Student's current knowledge, or 'prior knowledge' • Academic performance data • Attendance record • Social/behavioral performance data • Student's skills and motivation • Curriculum and instruction are appropriate • Student's 'ability', race, gender or family history	•Product vs. peer product •Cumulative file/ records •Health records, including vision and hearing •Teacher's grade book •Assignment notebook •Previous interventions if available •Patterns of performance, including attendance, retention, and moves •Error analysis of permanent product •Response to interventions as reflected by systematic progress monitoring •Behavior history	Student about: •Self-perceived strengths/talents •Self-perceived challenges •Ideas about what s/he needs •Personal adjustment •Beliefs, self-determination •Peer group/friends •Mentoring opportunities •Club involvement •Community involvement •Home responsibility •Goals and aspirations Parents about: •Health issues impacting learning •Orthopedic or neurological issues •Hearing/vision checks •Perceptions on learning, behavior, speech, or motor difficulties •Family engagement in school activities (e.g., homework support)	• Student's learning style match for instruction • Use of supportive technology • Target behavior, antecedents, conditions, consequences • Dimensions and nature of the problem • Student/group transitions • Large group instruction • Small group instruction • Independent work time group work time • Time on task • External supports necessary to sustain engagement • Processing directions • Cultural factors • Access barriers • Interactions	•"Things to Look For" and "Ask About" •Standardized academic assessments •Cognitive assessments •Preference/ interest inventories •Motivation scales •Personal adjustment & behavior rating scales •Progress monitoring •Response to interventions •FBA - nature and dimensions of behavior (frequency, duration, latency, intensity), including anecdotal notes •Physical fitness •Physical health •Social emotional well-being •Student effort checklist

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The Riverside County Special Education Local Plan Area "Alternate Means" Assessment Guidelines

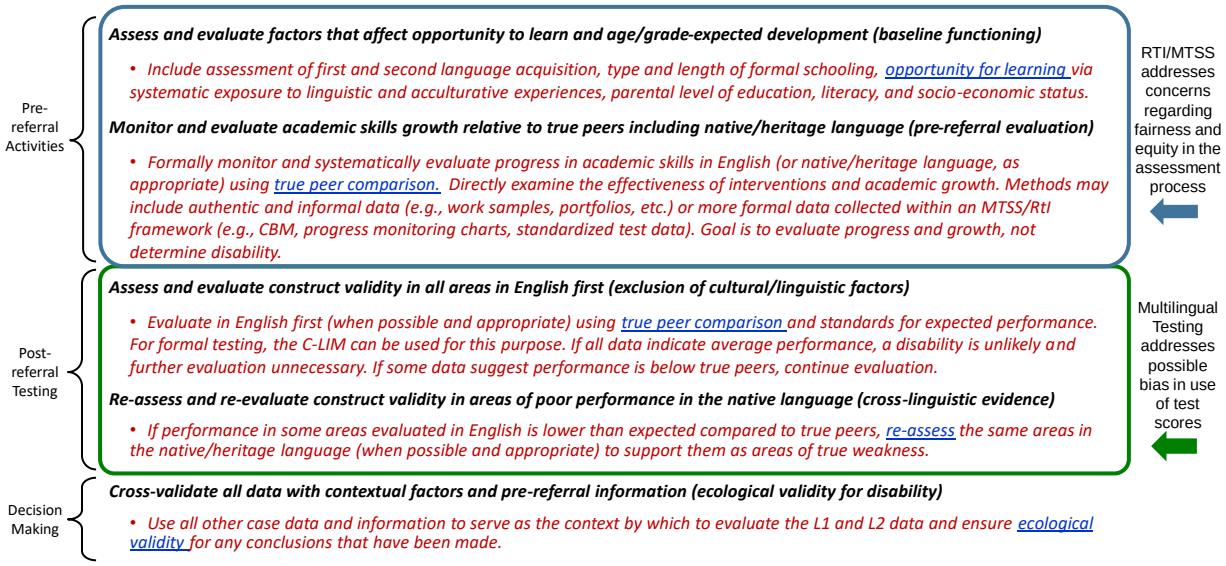
Introduction

These *"Alternate Means" Assessment Guidelines* integrate well with existing practices. This document was written to provide practitioners in Riverside County SELPA with alternative strategies to evaluate eligibility for special education when an IQ-Achievement discrepancy model is not appropriate. **The California Department of Education (CDE) has issued a directive to state special educators. LEAs are not to use intelligence tests in the assessment of African-American students referred for any special education services.** In lieu of IQ tests, the SELPA considered a review, interview, observe and test (RIOT) model, patterns of strengths and weaknesses (PSW), and the MATRIX models.

https://tinyurl.com/RiversideRIOT

203

A Best Practice Framework for Nondiscriminatory Evaluation:



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Diverse Student Normal Ability Performance (DSNAP)

Drs. Larry Pristo and Sam Ortiz

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Based on a Century of Testing Els with Intelligence Tests Administered in English

Research-based subtest means regarding expected test performance EL vs. EL

Degree of Linguistic Demand

Degree of Cultural Loading	Low	Moderate	High
Low	Slightly Different: 3-5 points Moderately Different: 5-7 points Markedly Different: 7-10 points	Slightly Different: 5-7 points Moderately Different: 7-10 points Markedly Different: 10-15 points	Slightly Different: 7-10 points Moderately Different: 10-15 points Markedly Different: 15-20 points
Moderate	Slightly Different: 5-7 points Moderately Different: 7-10 points Markedly Different: 10-15 points	Slightly Different: 7-10 points Moderately Different: 10-15 points Markedly Different: 15-20 points	Slightly Different: 10-15 points Moderately Different: 15-20 points Markedly Different: 20-25 points
High	Slightly Different: 7-10 points Moderately Different: 10-15 points Markedly Different: 15-20 points	Slightly Different: 10-15 points Moderately Different: 15-20 points Markedly Different: 20-25 points	Slightly Different: 15-20 points Moderately Different: 20-25 points Markedly Different: 25-35 points

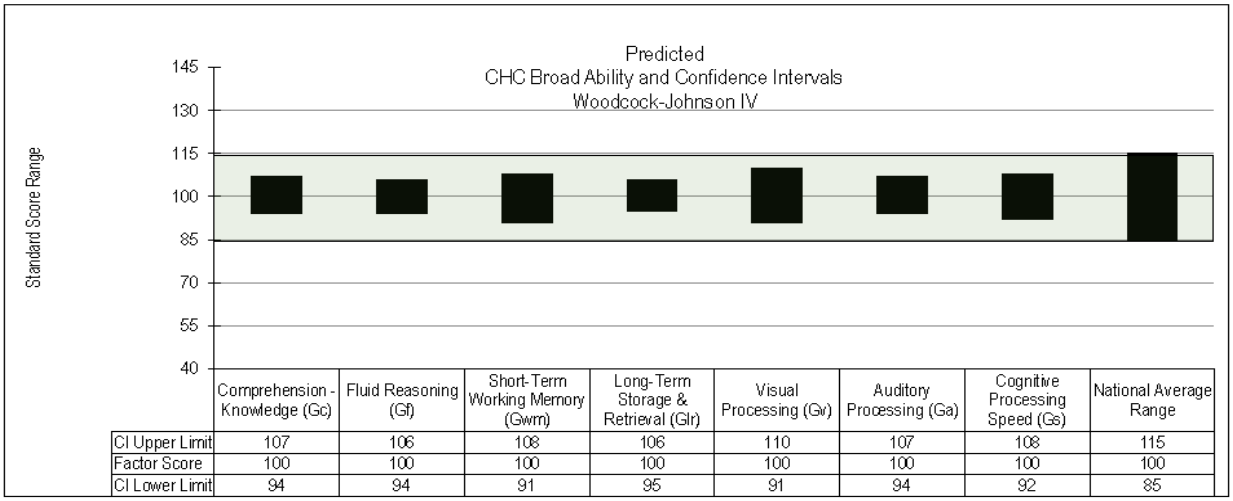
***Slightly Different**: Includes individuals with very high levels of English language proficiency (e.g., CALP) and high acculturation, but still not entirely comparable to mainstream U.S. English speakers. Examples include individuals who are third generation in the U.S., have well educated/higher SES parents, have attended dual-language program for at least 6-7 years, or demonstrate native or near native-like proficiency in English language conversation and solid literacy skills. (Not a common category)*

***Moderately Different**: Includes individuals with moderate to higher levels of English language proficiency (e.g., advanced BICS/emerging CALP) and typical EL acculturative learning experiences. Examples include individuals who were born or came early to the U.S. with limited English-speaking parents, usually from low to very low SES with parent's having low or limited literacy even in their own language, generally received formal education in English only or primarily in English since starting school.*

***Markedly Different**: Includes individuals with low to very low levels of English language proficiency (e.g., early BICS) or very limited acculturative learning experiences due to unusual influences on development. Examples include extremely low and limited parental SES and education, recently arrival in the U.S. or residence for in the U.S. 3 years or less, lack of prior formal education, exposure to trauma, violence, abuse, neglect, time spent in refugee or resettlement camps, changes in or multiple early languages.*

206

Normal Ability Performance (NAP) on WJ IV for a No-Difference (monolingual) Student.



	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Working Memory (Gwm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	107	106	108	106	110	107	108	115
Factor Score	100	100	100	100	100	100	100	100
CI Lower Limit	94	94	91	95	91	94	92	85

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WJ IV C-LIM Categories

LL	Low Linguistic	Moderate Linguistic	High Linguistic	
Low Culture	Gf - Number Series Gs - Number-Pattern Matching Gs - Pair Cancellation Gv - Visualization	Gf - Analysis-Synthesis Gwm - Numbers Reversed	Gf - Concept Formation Gwm - Object-Number Sequencing	Low Culture
Moderate Culture	Gs - Letter-Pattern Matching Gv - Picture Recognition	Ga - Nonword Repetition Glr - Visual-Auditory Learning	Gsm - Memory for Words Ga - Phonological Processing Gwm -Verbal Attention	Moderate Culture
High Culture			Gc - General Information Gc - Oral Vocabulary Glr - Story Recall	High Culture
	Low Linguistic	Moderate Linguistic	High Linguistic	HH

208

Based on a Century of Testing ELs with Intelligence Tests Administered in English

Research-based subtest means regarding expected test performance EL vs. EL

Degree of Cultural Loading	Degree of Linguistic Demand: Low	Moderate	High
Low	Slightly Different: 3-5 points Moderately Different: 5-7 points Markedly Different: 7-10 points	Slightly Different: 5-7 points Moderately Different: 7-10 points Markedly Different: 10-15 points	Slightly Different: 7-10 points Moderately Different: 10-15 points Markedly Different: 15-20 points
Moderate	Slightly Different: 5-7 points Moderately Different: 7-10 points Markedly Different: 10-15 points	Slightly Different: 7-10 points Moderately Different: 10-15 points Markedly Different: 15-20 points	Slightly Different: 10-15 points Moderately Different: 15-20 points Markedly Different: 20-25 points
High	Slightly Different: 7-10 points Moderately Different: 10-15 points Markedly Different: 15-20 points	Slightly Different: 10-15 points Moderately Different: 15-20 points Markedly Different: 20-25 points	Slightly Different: 15-20 points Moderately Different: 20-25 points Markedly Different: 25-35 points

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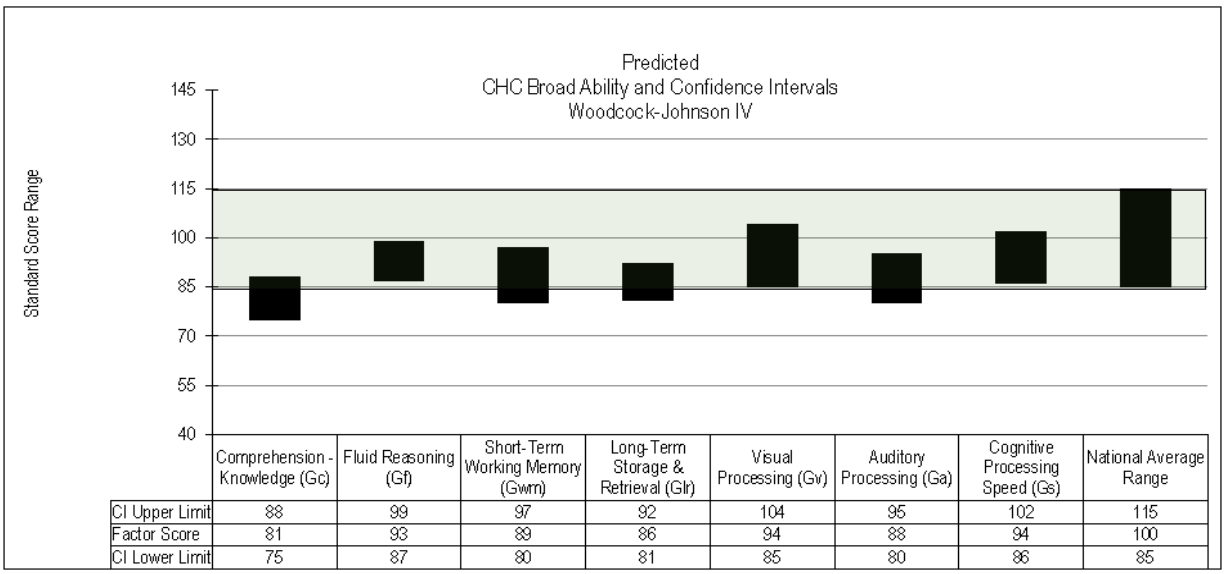
209

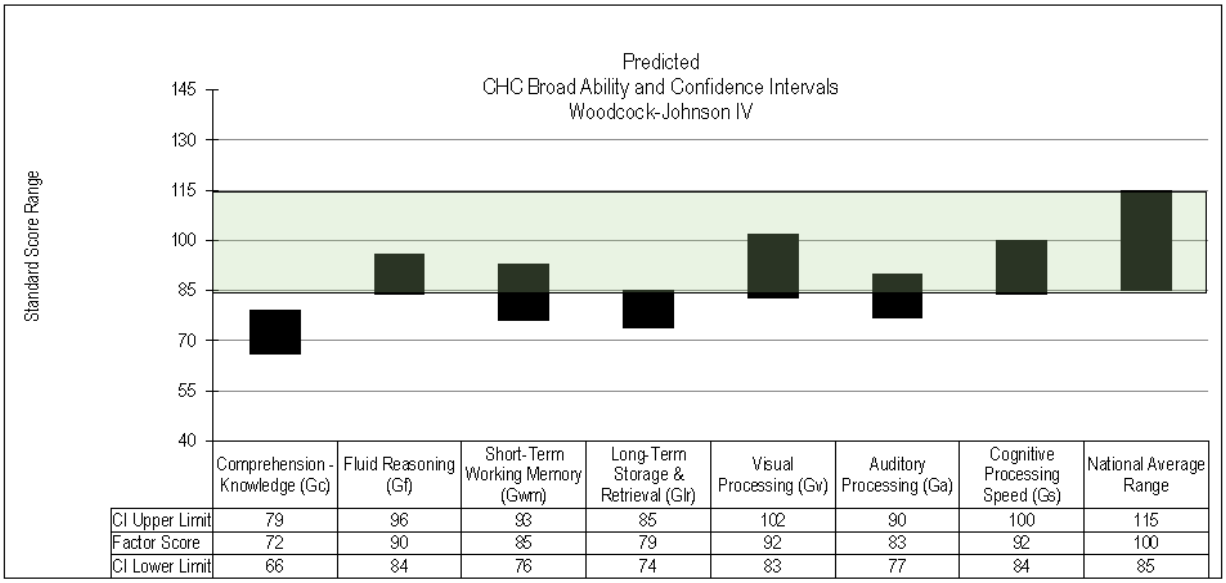
Woodcock-Johnson Tests of Cognitive Abilities IV, Slightly Different



	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Working Memory (Gwm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	88	99	97	92	104	95	102	115
Factor Score	81	93	89	86	94	88	94	100
CI Lower Limit	75	87	80	81	85	80	86	85

210

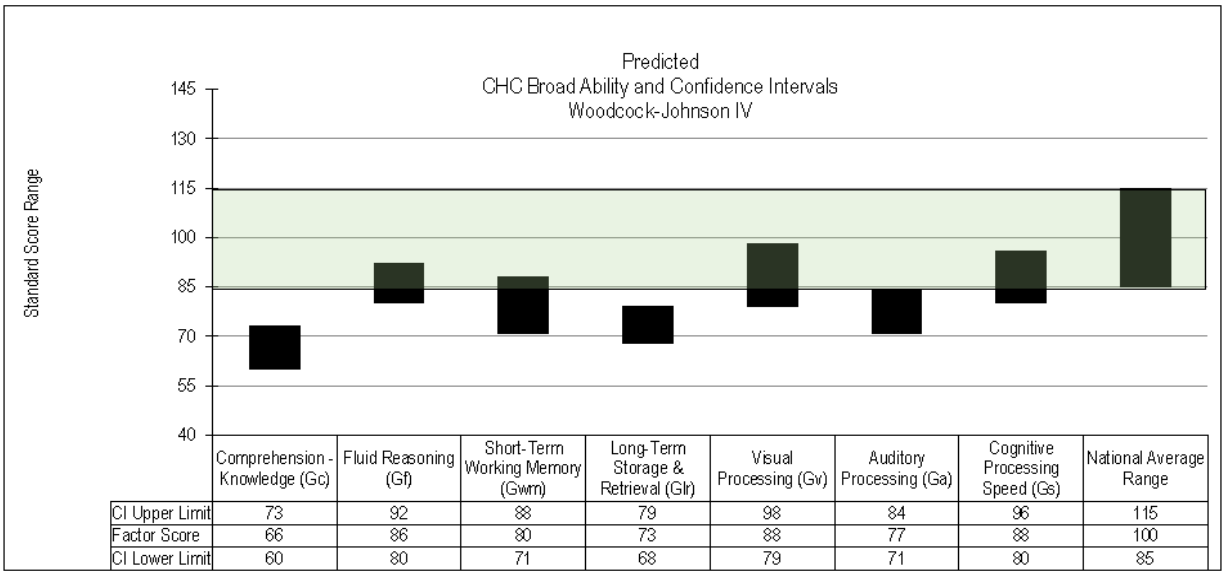
Woodcock-Johnson Tests of Cognitive Abilities IV, Moderately Different



	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Working Memory (Gwm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	79	96	93	85	102	90	100	115
Factor Score	72	90	85	79	92	83	92	100
CI Lower Limit	66	84	76	74	83	77	84	85

211

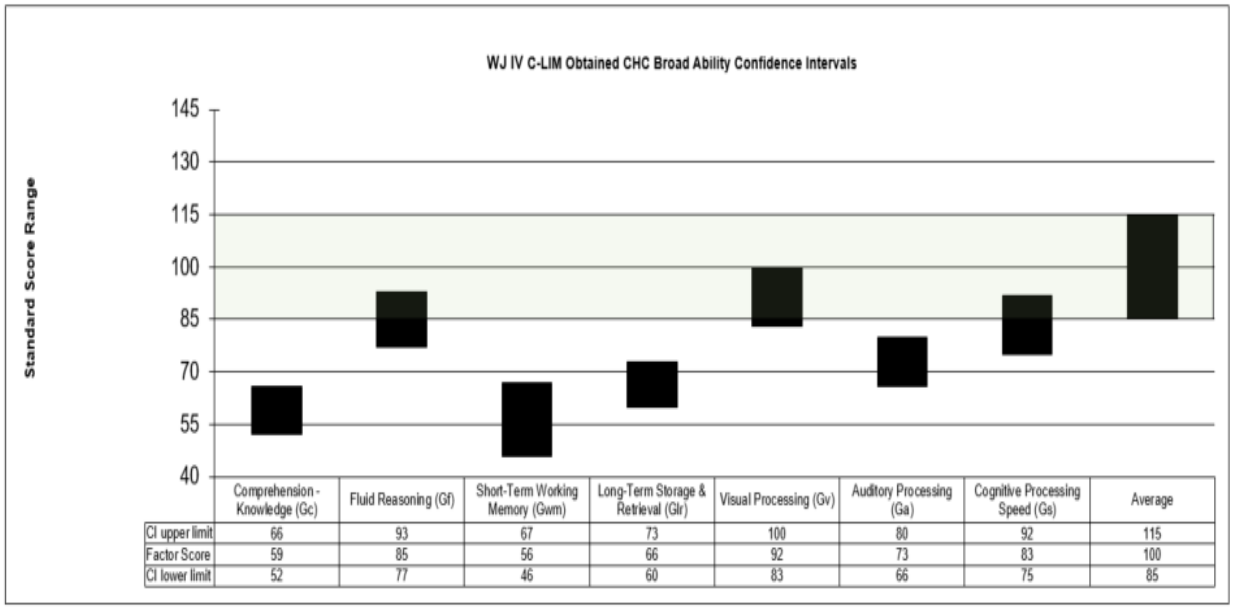
Woodcock-Johnson Tests of Cognitive Abilities IV, Markedly Different



	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Working Memory (Gwm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	73	92	88	79	98	84	96	115
Factor Score	66	86	80	73	88	77	88	100
CI Lower Limit	60	80	71	68	79	71	80	85

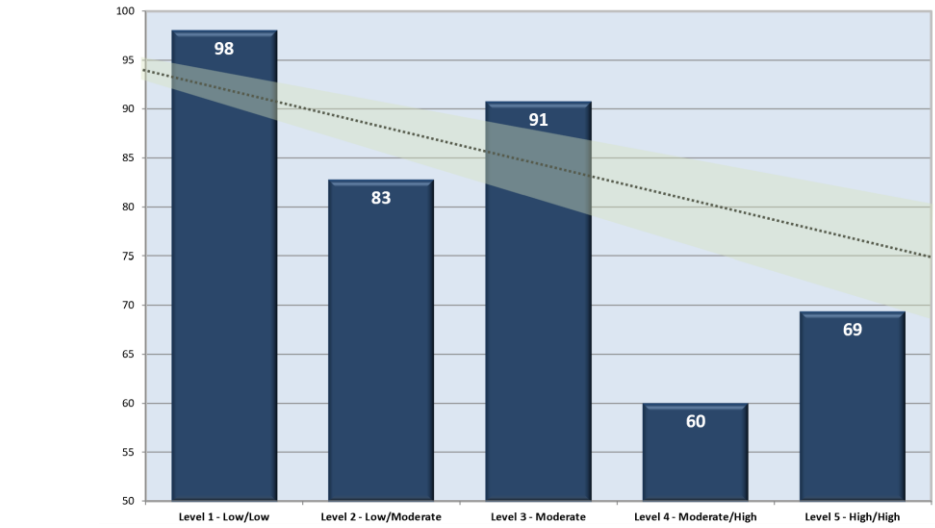
212

Obtained Scores for a Student Referred as Possible MID – Total Test Score Is Below 70



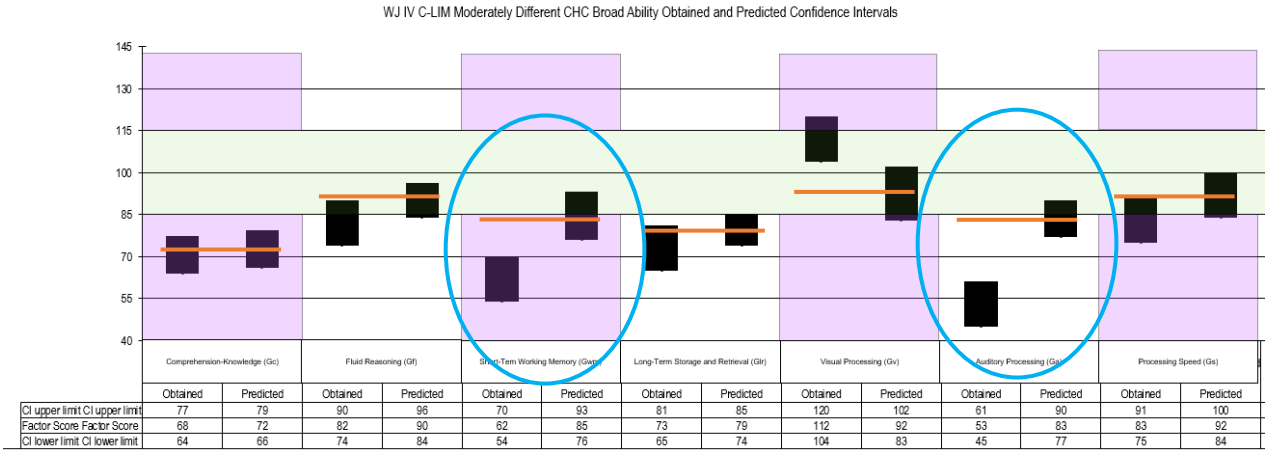
	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Working Memory (Gwm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	Average
CI upper limit	66	93	67	73	100	80	92	115
Factor Score	59	85	56	66	92	73	83	100
CI lower limit	52	77	46	60	83	66	75	85

213



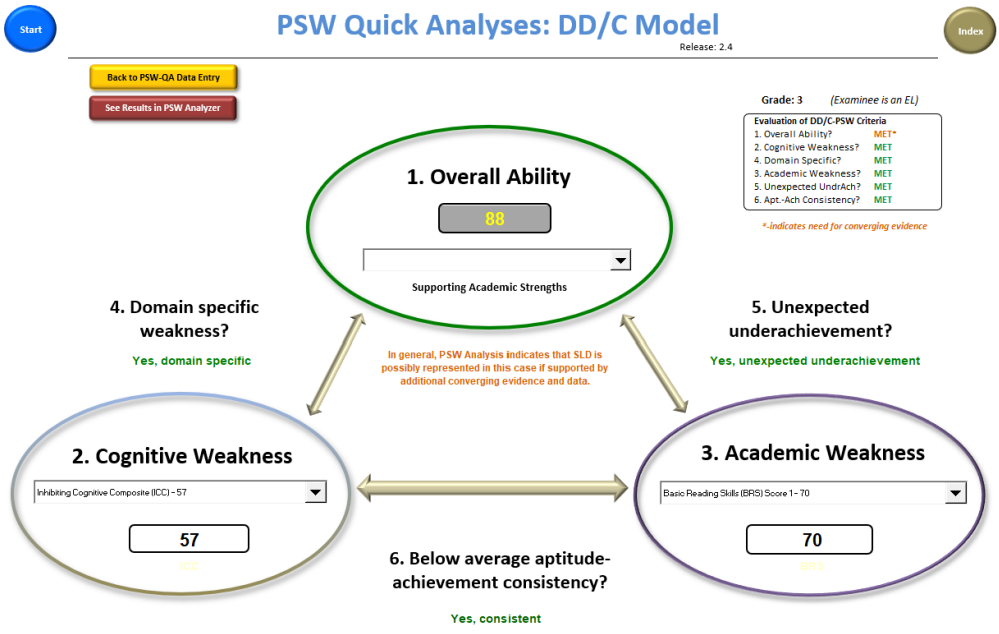
214

D-SNAP Obtained and Predicted CHC Broad Abilities
90% Confidence Interval



	Obtained	Predicted	Obtained	Predicted	Obtained	Predicted	Obtained	Predicted	Obtained	Predicted	Obtained	Predicted	Obtained	Predicted
CI upper limit CI upper limit	77	79	90	96	70	93	81	85	120	102	61	90	91	100
Factor Score Factor Score	68	72	82	90	62	85	73	79	112	92	53	83	83	92
CI lower limit CI lower limit	64	66	74	84	54	76	65	74	104	83	45	77	75	84

215



216

DSNAP for
Wechsler Intelligence Scale for Children - V

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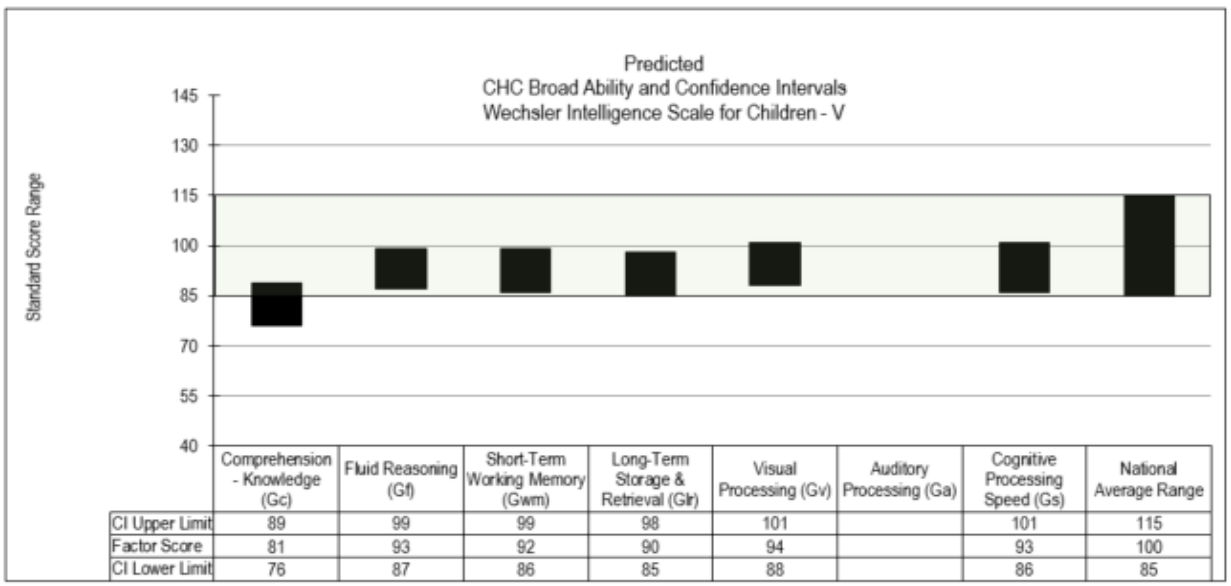
Wechsler Intelligence Scale for Children – V, Slightly Different



	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Working Memory (Gwm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	89	99	99	98	101		101	115
Factor Score	81	93	92	90	94		93	100
CI Lower Limit	76	87	86	85	88		86	85

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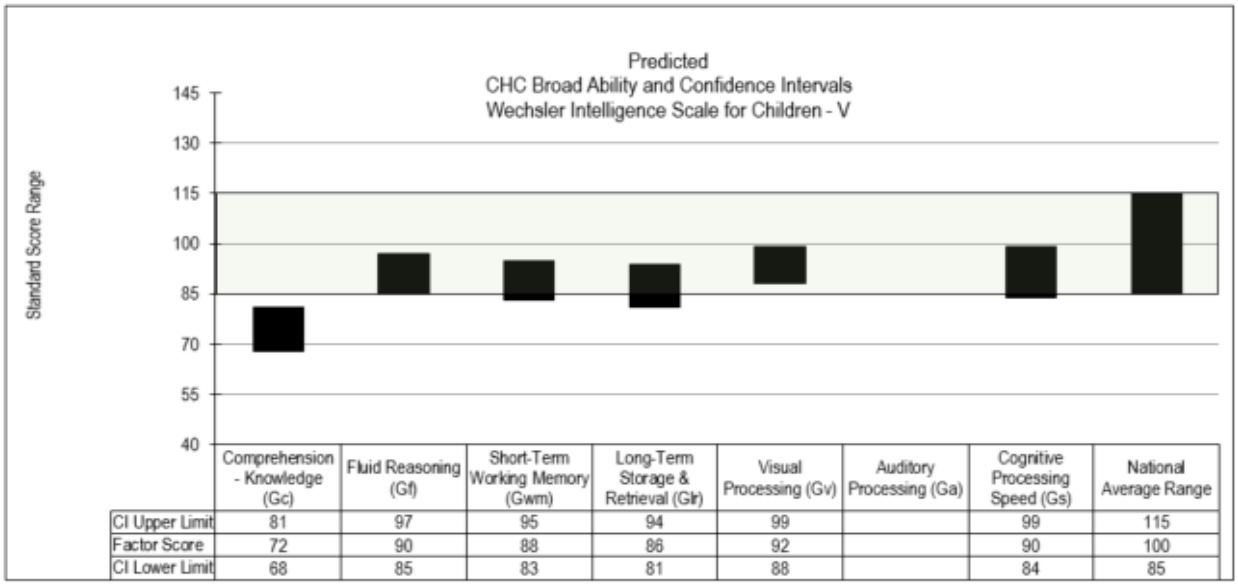
Wechsler Intelligence Scale for Children – V, Moderately Different



	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Working Memory (Gwm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	81	97	95	94	99		99	115
Factor Score	72	90	88	86	92		90	100
CI Lower Limit	68	85	83	81	88		84	85

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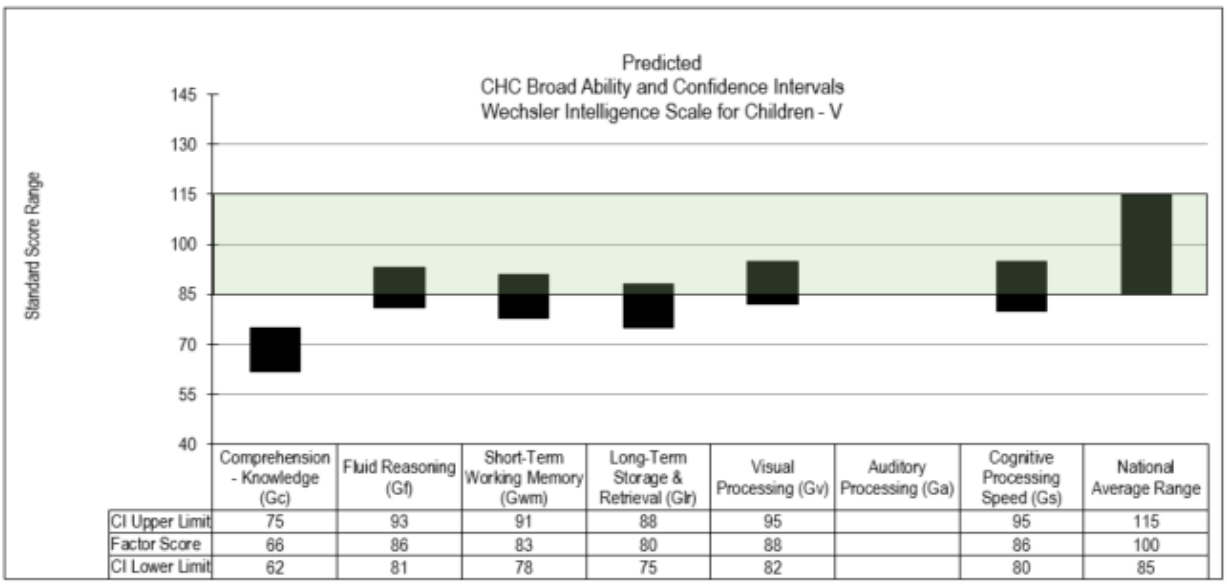
Wechsler Intelligence Scale for Children – V, Markedly Different



	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Working Memory (Gwm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	75	93	91	88	95		95	115
Factor Score	66	86	83	80	88		86	100
CI Lower Limit	62	81	78	75	82		80	85

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DSNAP for
Kaufman Assessment Battery for Children - II

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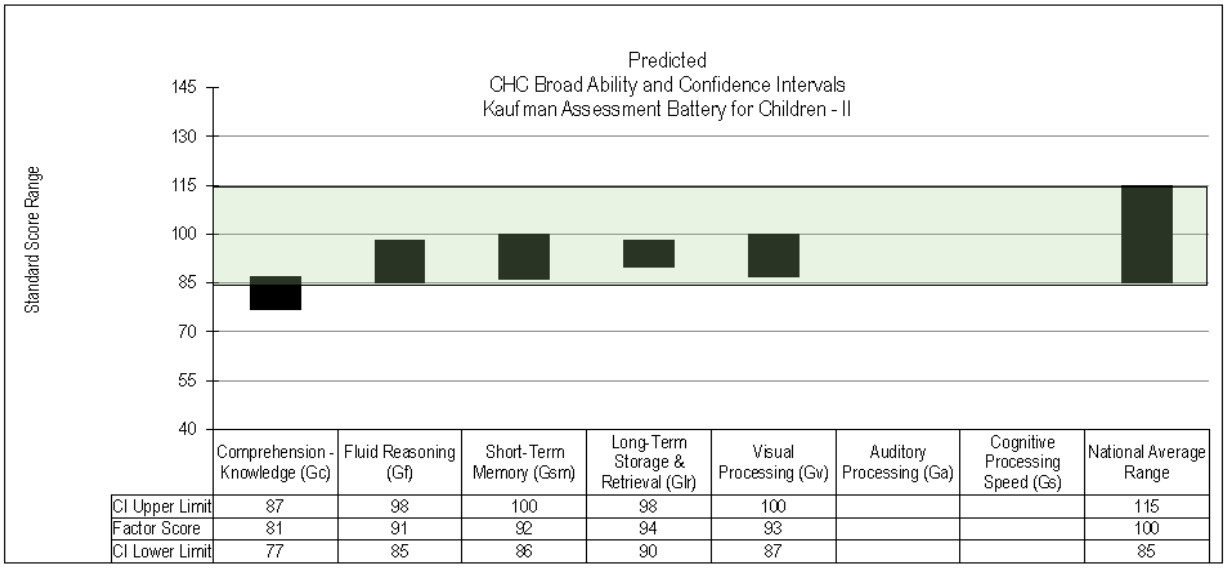
KABC-II C-LIM Categories (7+)

LL	Low Linguistic	Moderate Linguistic	High Linguistic	
Low Culture	Gf - Pattern Reasoning Gv - Triangles Glr - Atlantis	Glr - Atlantis Gsm - Number Recall		Low Culture
Moderate Culture		Gsm - Word Order Gv - Rover		Moderate Culture
High Culture		Gf - Story Completion	Gc - Verbal Knowledge Gc - Riddles	High Culture
	Low Linguistic	Moderate Linguistic	High Linguistic	HH

222

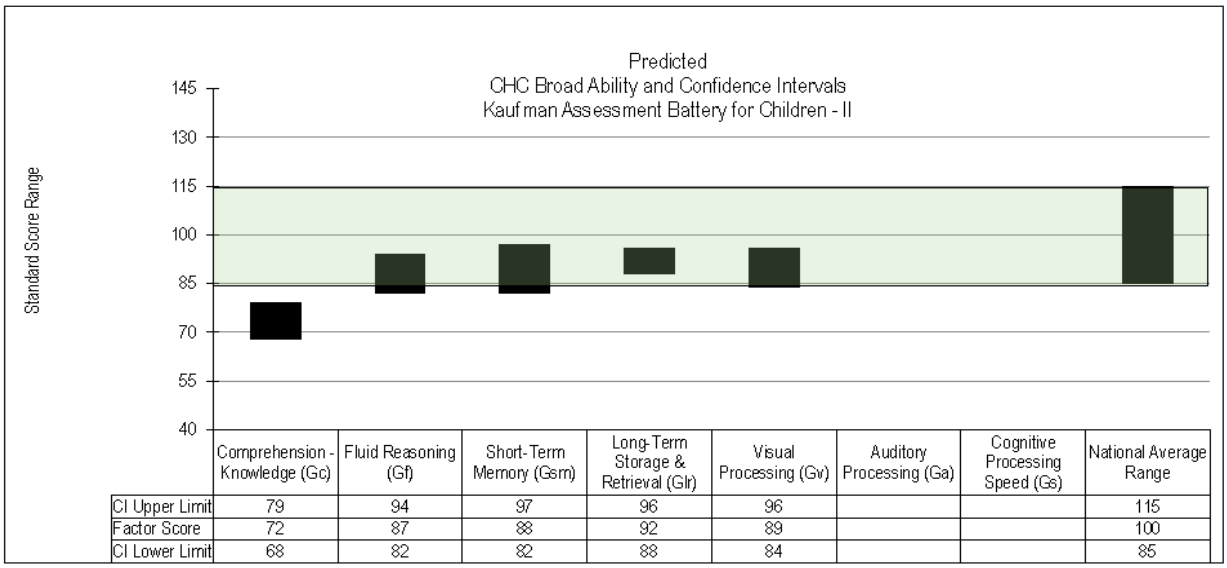
Kaufman Assessment Battery for Children – II, Slightly Different – 7+



	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Memory (Gsm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	87	98	100	98	100			115
Factor Score	81	91	92	94	93			100
CI Lower Limit	77	85	86	90	87			85

223

Kaufman Assessment Battery for Children – II, Moderately Different – 7+



	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Memory (Gsm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	79	94	97	96	96			115
Factor Score	72	87	88	92	89			100
CI Lower Limit	68	82	82	88	84			85

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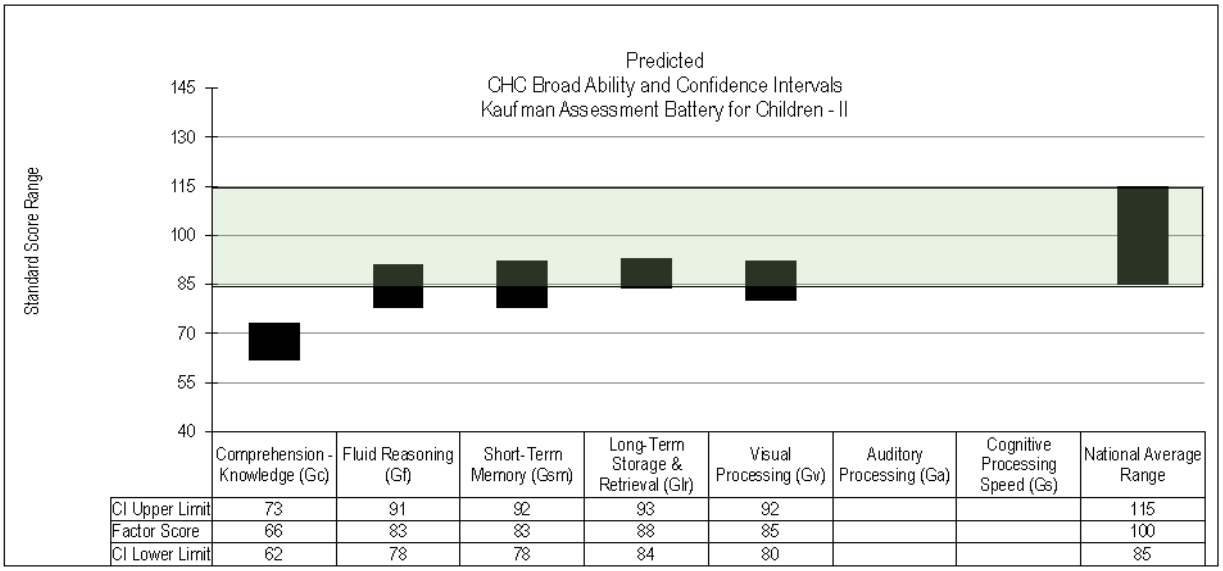
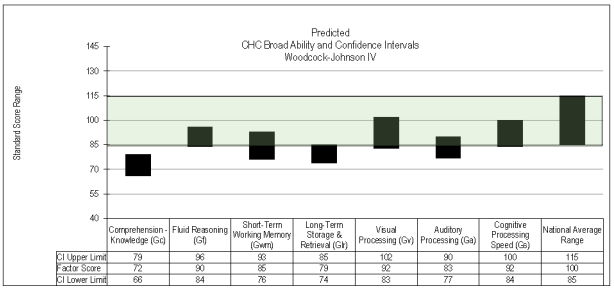
Kaufman Assessment Battery for Children – II, Markedly Different – 7+



	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Memory (Gsm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	73	91	92	93	92			115
Factor Score	66	83	83	88	85			100
CI Lower Limit	62	78	78	84	80			85

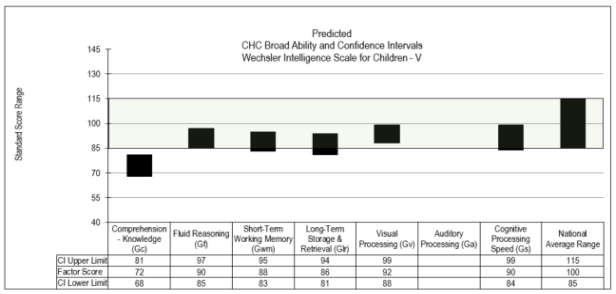
225

WJ IV, Moderately Different



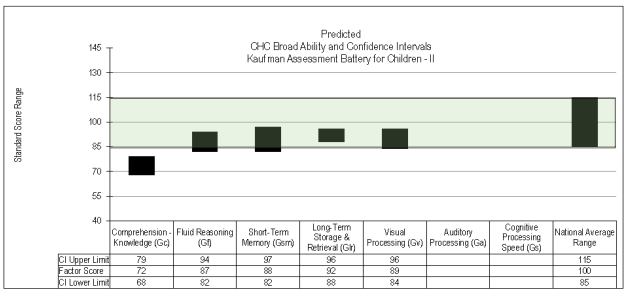
	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Working Memory (Gwm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	79	96	85	85	102	90	100	115
Factor Score	72	90	85	79	92	83	92	100
CI Lower Limit	66	84	76	74	83	77	84	85

WISC – V, Moderately Different



	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Working Memory (Gwm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	81	97	95	94	99		99	115
Factor Score	72	90	88	86	92		90	100
CI Lower Limit	68	85	83	81	88		84	85

KABC – II, Moderately Different



	Comprehension - Knowledge (Gc)	Fluid Reasoning (Gf)	Short-Term Memory (Gsm)	Long-Term Storage & Retrieval (Glr)	Visual Processing (Gv)	Auditory Processing (Ga)	Cognitive Processing Speed (Gs)	National Average Range
CI Upper Limit	79	94	97	96	96			115
Factor Score	72	87	88	92	89			100
CI Lower Limit	68	82	82	88	84			85

226

DSNAP Levels of Impact for Nonverbal Subtests

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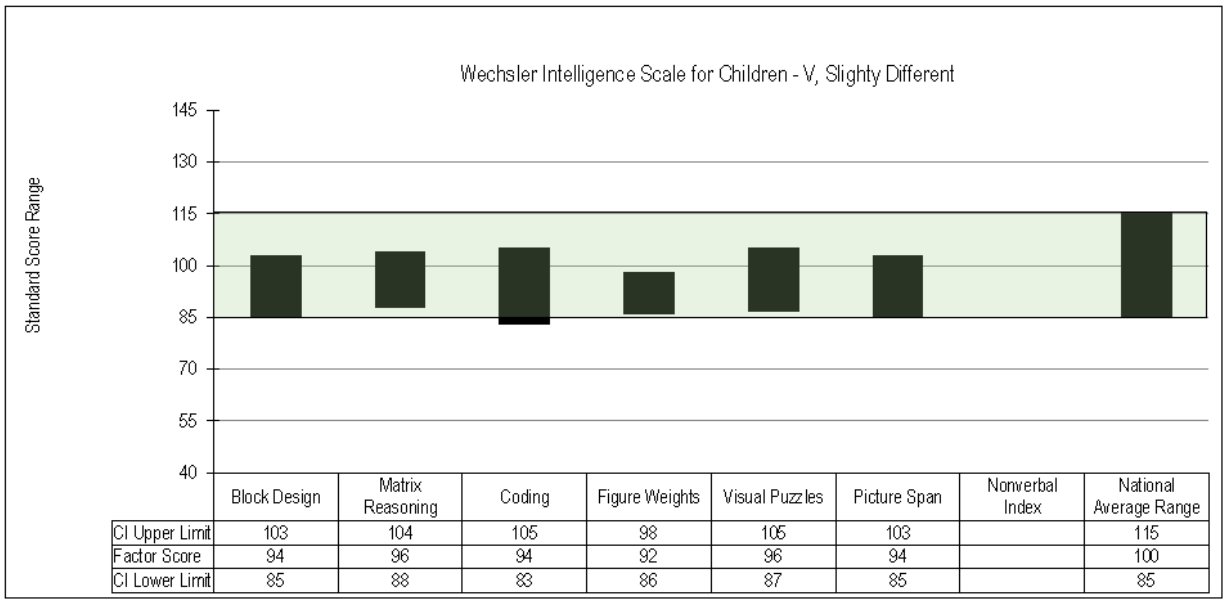
Wechsler Intelligence Scale for Children – V, Nonverbal - Slightly Different



	Block Design	Matrix Reasoning	Coding	Figure Weights	Visual Puzzles	Picture Span	Nonverbal Index	National Average Range
CI Upper Limit	103	104	105	98	105	103		115
Factor Score	94	96	94	92	96	94		100
CI Lower Limit	85	88	83	86	87	85		85

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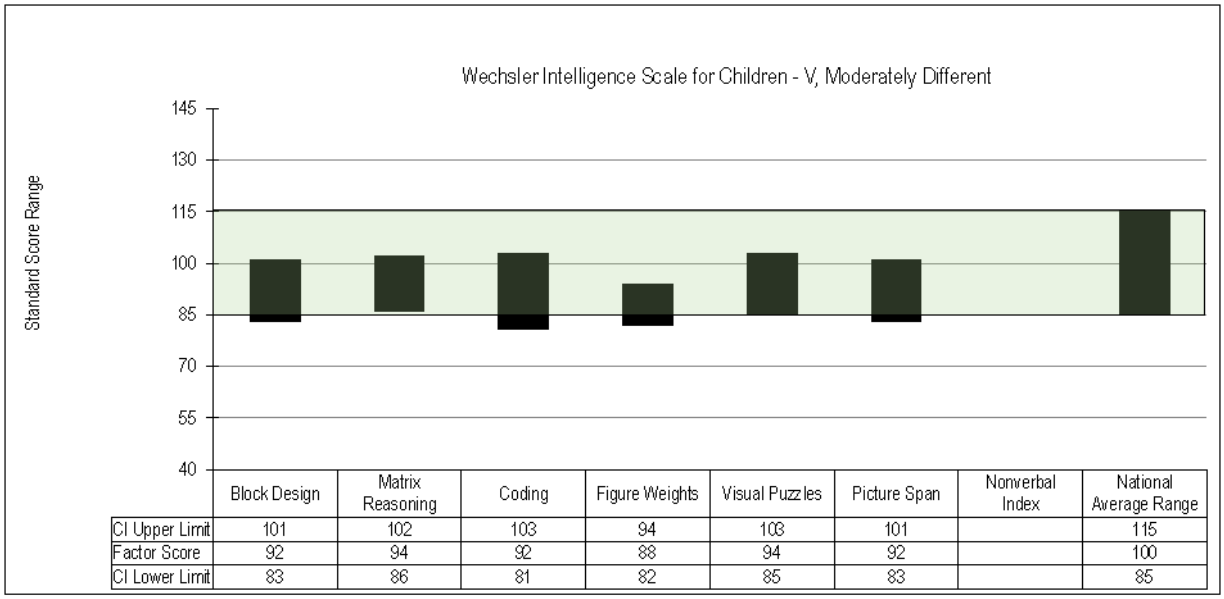
Wechsler Intelligence Scale for Children – V, Nonverbal - Moderately Different



	Block Design	Matrix Reasoning	Coding	Figure Weights	Visual Puzzles	Picture Span	Nonverbal Index	National Average Range
CI Upper Limit	101	102	103	94	103	101		115
Factor Score	92	94	92	88	94	92		100
CI Lower Limit	83	86	81	82	85	83		85

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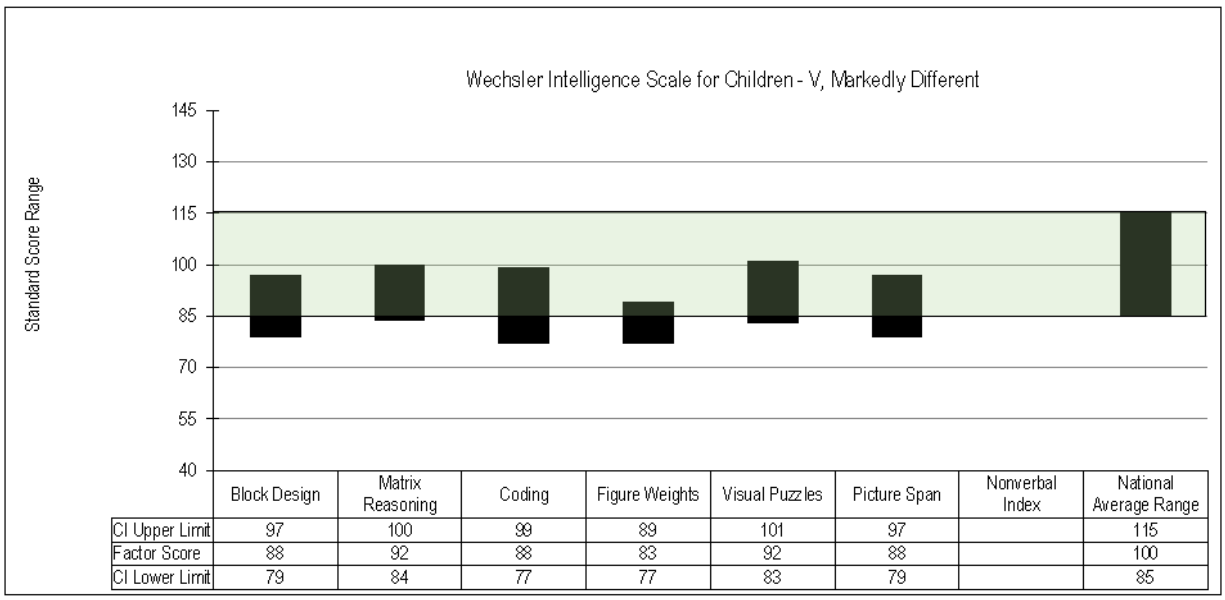
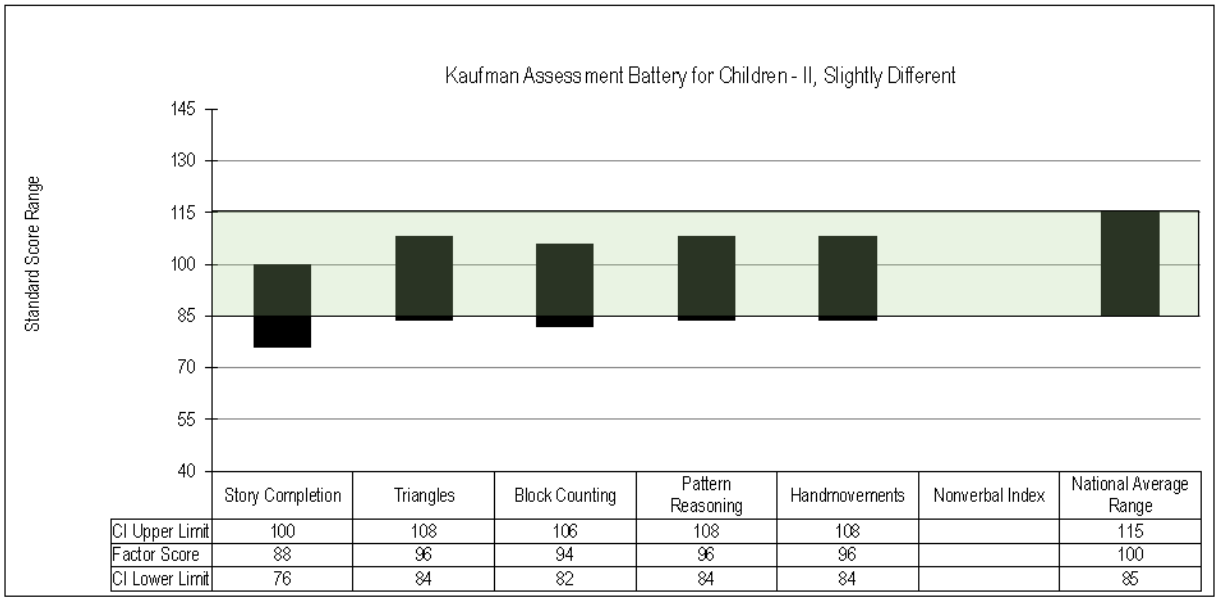
Wechsler Intelligence Scale for Children – V, Nonverbal - Markedly Different



	Block Design	Matrix Reasoning	Coding	Figure Weights	Visual Puzzles	Picture Span	Nonverbal Index	National Average Range
CI Upper Limit	97	100	99	89	101	97		115
Factor Score	88	92	88	83	92	88		100
CI Lower Limit	79	84	77	77	83	79		85

230

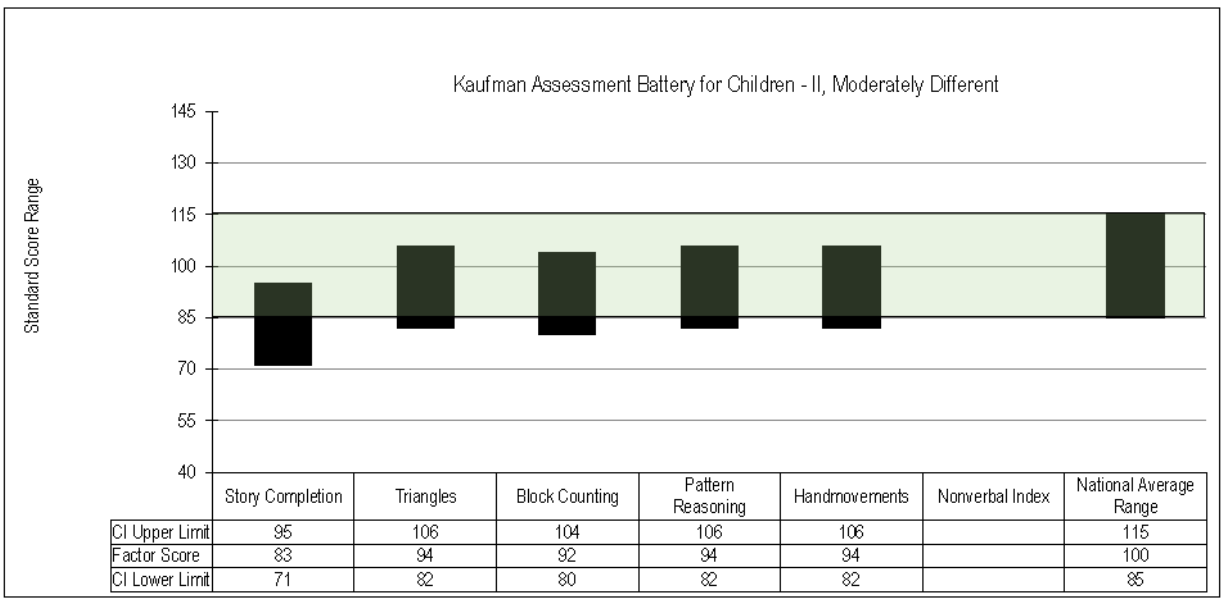
Kaufman Assessment Battery for Children – II, Nonverbal - Slightly Different



	Story Completion	Triangles	Block Counting	Pattern Reasoning	Handmovements	Nonverbal Index	National Average Range
CI Upper Limit	100	108	106	108	108		115
Factor Score	88	96	94	96	96		100
CI Lower Limit	76	84	82	84	84		85

231

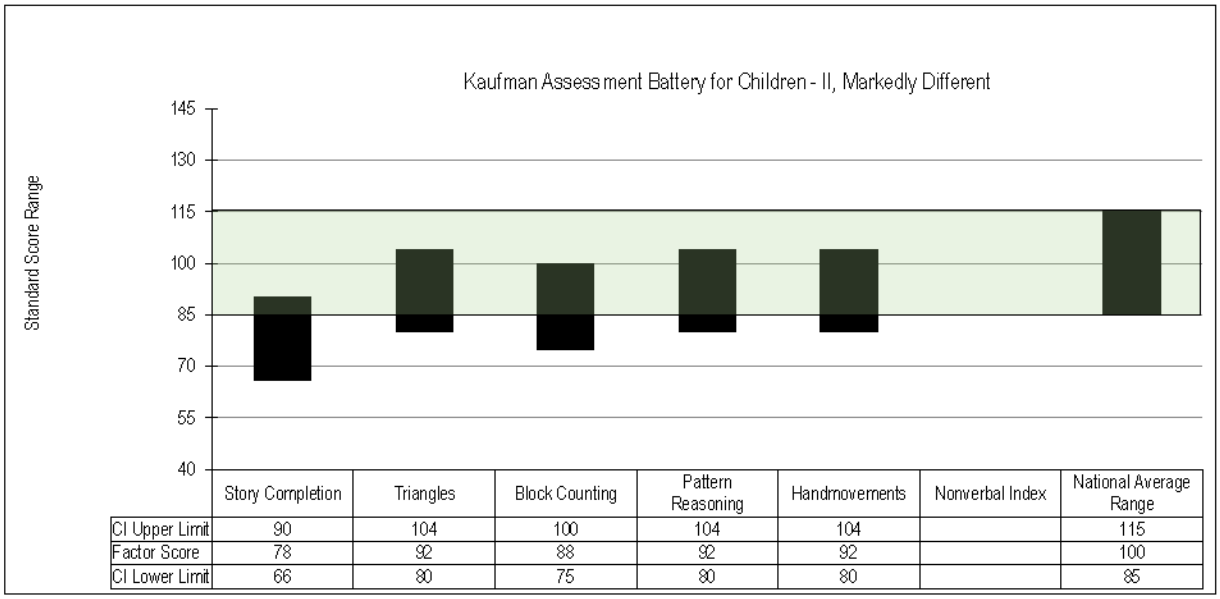
Kaufman Assessment Battery for Children – II, Nonverbal - Moderately Different



	Story Completion	Triangles	Block Counting	Pattern Reasoning	Handmovements	Nonverbal Index	National Average Range
CI Upper Limit	95	106	104	106	106		115
Factor Score	83	94	92	94	94		100
CI Lower Limit	71	82	80	82	82		85

232

Kaufman Assessment Battery for Children – II, Nonverbal - Markedly Different



	Story Completion	Triangles	Block Counting	Pattern Reasoning	Handmovements	Nonverbal Index	National Average Range
CI Upper Limit	90	104	100	104	104		115
Factor Score	78	92	88	92	92		100
CI Lower Limit	66	80	75	80	80		85

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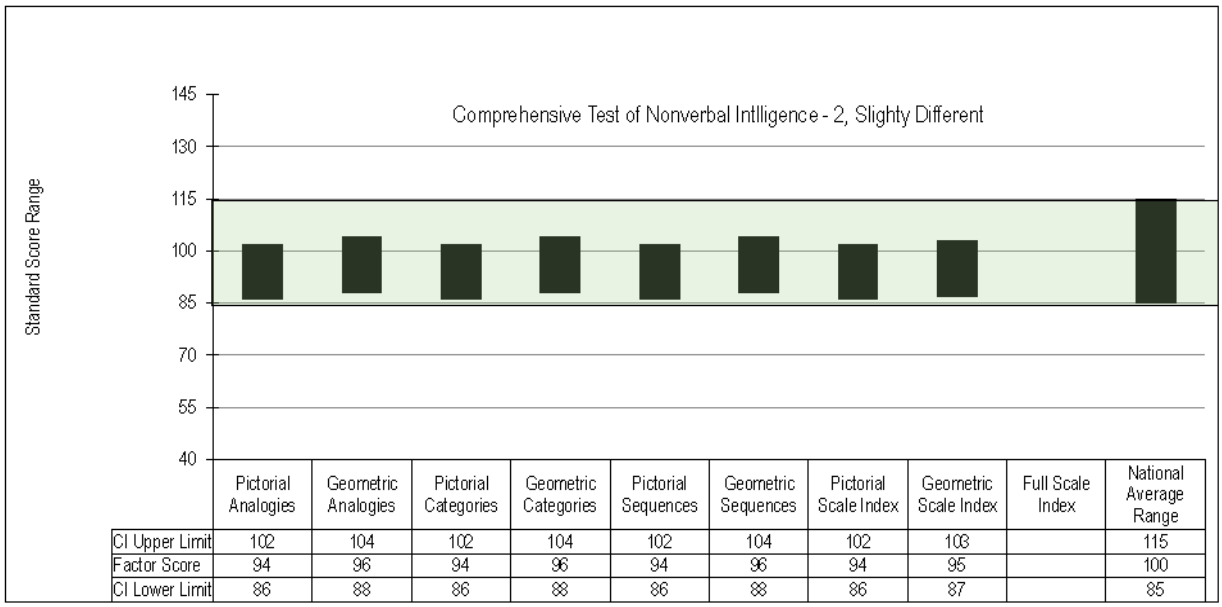
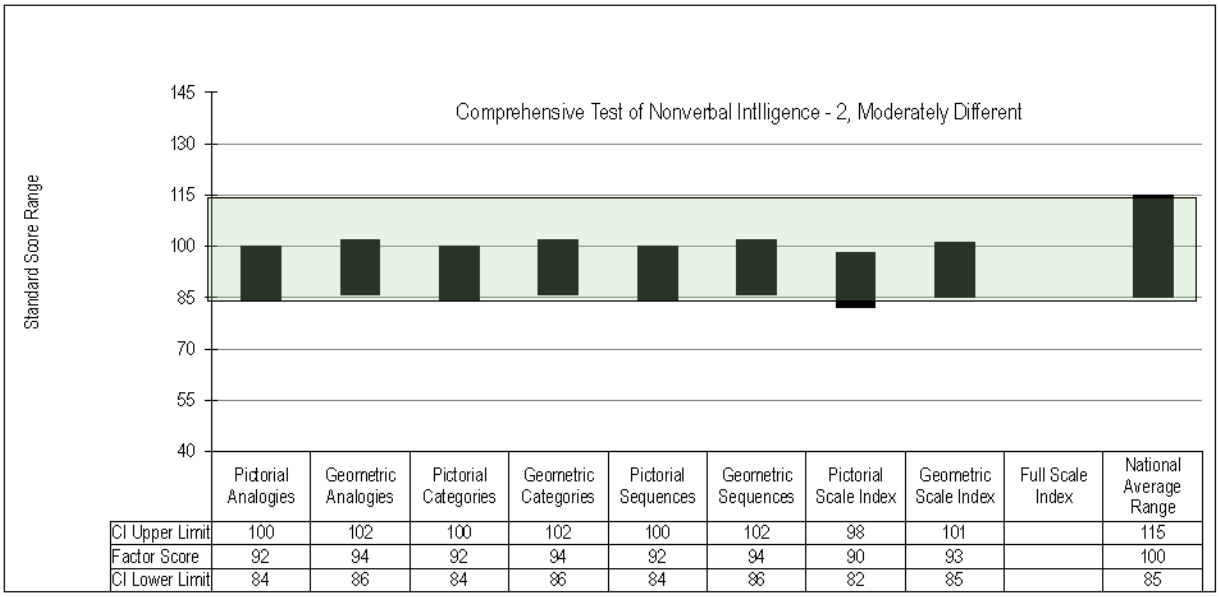
Comprehensive Test of Nonverbal Intelligence – 2, Slightly Different



	Pictorial Analogies	Geometric Analogies	Pictorial Categories	Geometric Categories	Pictorial Sequences	Geometric Sequences	Pictorial Scale Index	Geometric Scale Index	Full Scale Index	National Average Range
CI Upper Limit	102	104	102	104	102	104	102	103		115
Factor Score	94	96	94	96	94	96	94	95		100
CI Lower Limit	86	88	86	88	86	88	86	87		85

234

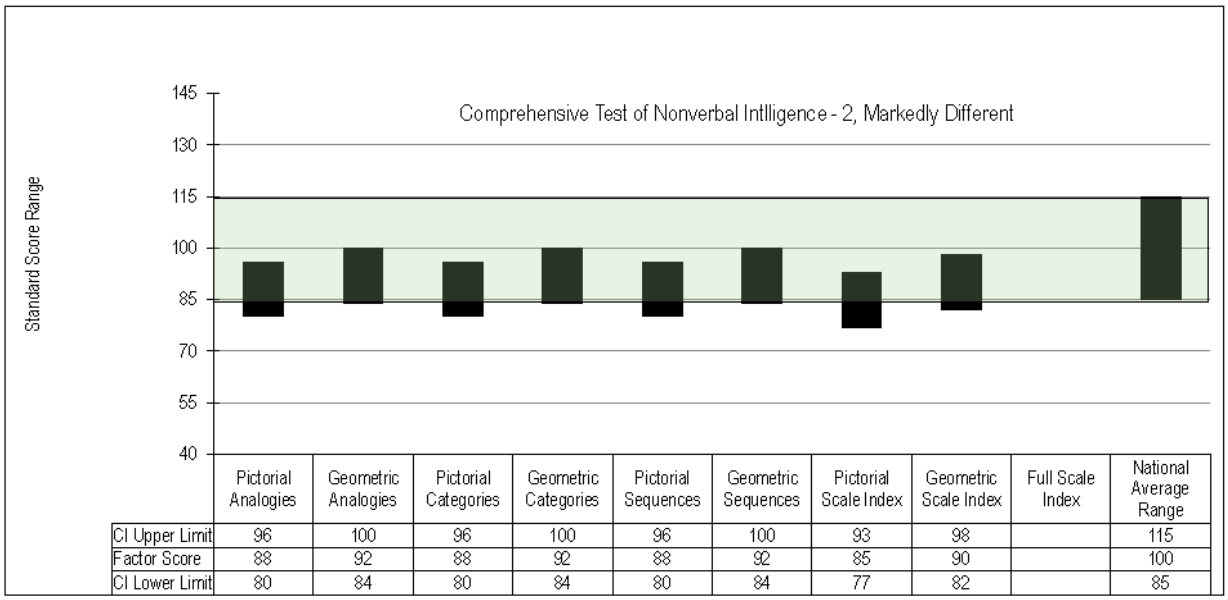
Comprehensive Test of Nonverbal Intelligence – 2, Moderately Different



	Pictorial Analogies	Geometric Analogies	Pictorial Categories	Geometric Categories	Pictorial Sequences	Geometric Sequences	Pictorial Scale Index	Geometric Scale Index	Full Scale Index	National Average Range
CI Upper Limit	100	102	100	102	100	102	98	101		115
Factor Score	92	94	92	94	92	94	90	93		100
CI Lower Limit	84	86	84	86	84	86	82	85		85

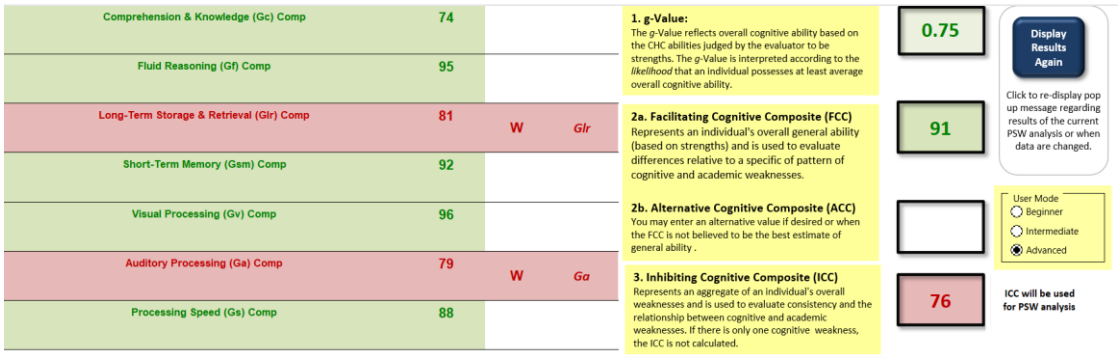
235

Comprehensive Test of Nonverbal Intelligence – 2, Markedly Different

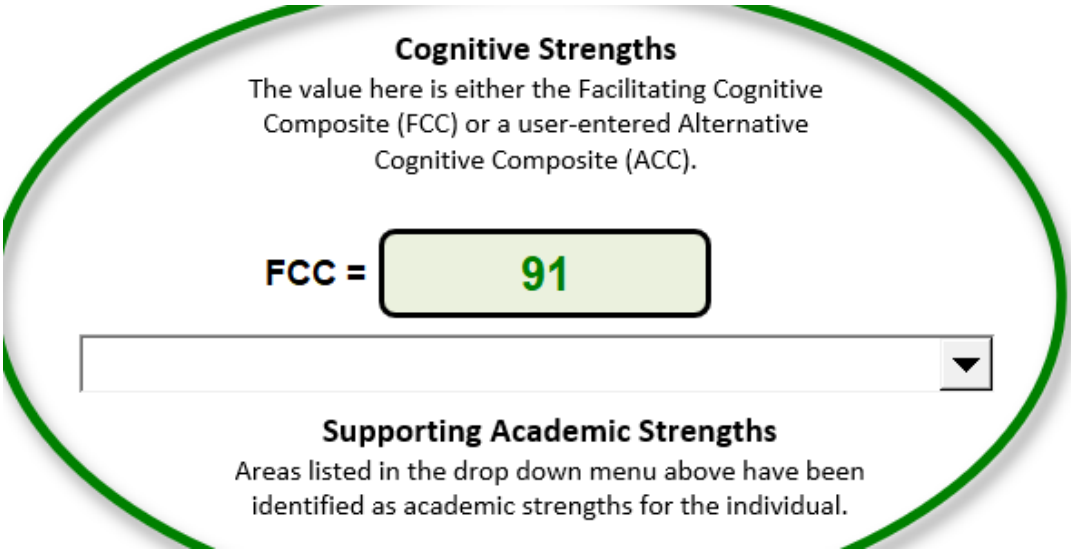


	Pictorial Analogies	Geometric Analogies	Pictorial Categories	Geometric Categories	Pictorial Sequences	Geometric Sequences	Pictorial Scale Index	Geometric Scale Index	Full Scale Index	National Average Range
CI Upper Limit	96	100	96	100	96	100	93	98		115
Factor Score	88	92	88	92	88	92	85	90		100
CI Lower Limit	80	84	80	84	80	84	77	82		85

236


Comprehension & Knowledge (Gc) Comp 74
Fluid Reasoning (Gf) Comp 95
Long-Term Storage & Retrieval (Glr) Comp 81 W Glr
Short-Term Memory (Gsm) Comp 92
Visual Processing (Gv) Comp 96
Auditory Processing (Ga) Comp 79 W Ga
Processing Speed (Gs) Comp 88
1. g-Value:
The g-Value reflects overall cognitive ability based on the CHC abilities judged by the evaluator to be strengths. The g-Value is interpreted according to the likelihood that an individual possesses at least average overall cognitive ability.
2a. Facilitating Cognitive Composite (FCC)
Represents an individual's overall general ability (based on strengths) and is used to evaluate differences relative to a specific of pattern of cognitive and academic weaknesses.
2b. Alternative Cognitive Composite (ACC)
You may enter an alternative value if desired or when the FCC is not believed to be the best estimate of general ability .
3. Inhibiting Cognitive Composite (ICC)
Represents an aggregate of an individual's overall weaknesses and is used to evaluate consistency and the relationship between cognitive and academic weaknesses. If there is only one cognitive weakness, the ICC is not calculated.
0.75
91
76
Display Results Again
Click to re-display pop up message regarding results of the current PSW analysis or when data are changed.
User Mode
Beginner
Intermediate
Advanced
ICC will be used for PSW analysis

237


Cognitive Strengths
The value here is either the Facilitating Cognitive Composite (FCC) or a user-entered Alternative Cognitive Composite (ACC).
FCC = 91
Supporting Academic Strengths
Areas listed in the drop down menu above have been identified as academic strengths for the individual.

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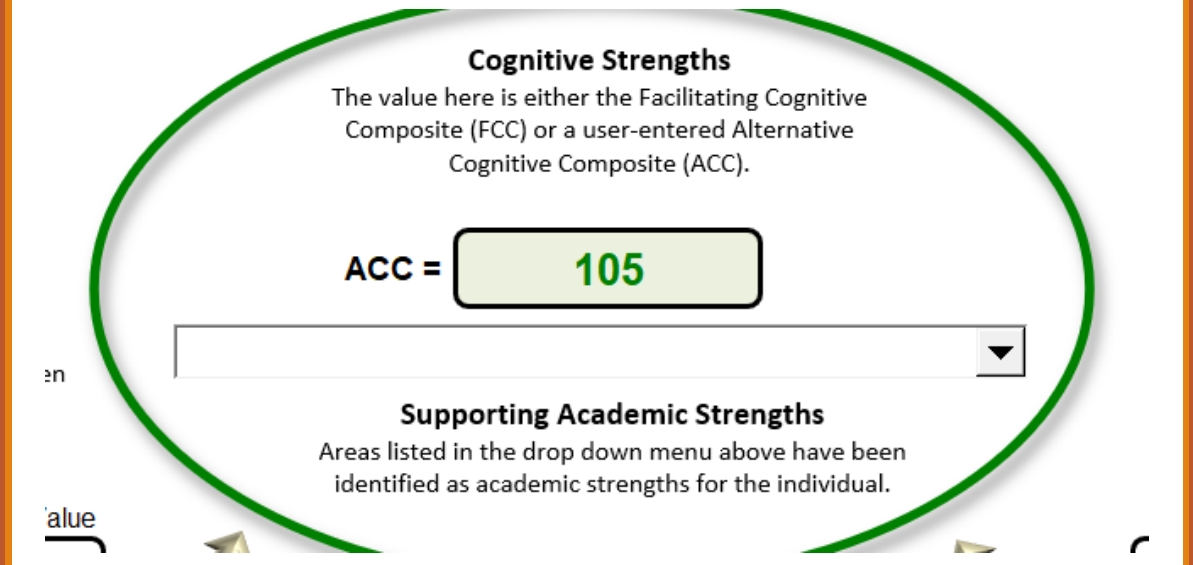
Comprehension & Knowledge (Gc) Comp 74
Fluid Reasoning (Gf) Comp 95
Long-Term Storage & Retrieval (Glr) Comp 81 W Glr
Short-Term Memory (Gsm) Comp 92
Visual Processing (Gv) Comp 96
Auditory Processing (Ga) Comp 79 W Ga
Processing Speed (Gs) Comp 88
1. g-Value:
The g-Value reflects overall cognitive ability based on the CHC abilities judged by the evaluator to be strengths. The g-Value is interpreted according to the likelihood that an individual possesses at least average overall cognitive ability.
2a. Facilitating Cognitive Composite (FCC)
Represents an individual's overall general ability (based on strengths) and is used to evaluate differences relative to a specific of pattern of cognitive and academic weaknesses.
2b. Alternative Cognitive Composite (ACC)
You may enter an alternative value if desired or when the FCC is not believed to be the best estimate of general ability .
3. Inhibiting Cognitive Composite (ICC)
Represents an aggregate of an individual's overall weaknesses and is used to evaluate consistency and the relationship between cognitive and academic weaknesses. If there is only one cognitive weakness, the ICC is not calculated.
0.75
--
105
76
Display Results Again
Click to re-display pop up message regarding results of the current PSW analysis or when data are changed.
User Mode
Beginner
Intermediate
Advanced
ACC will be used for PSW analysis

239


Cognitive Strengths
The value here is either the Facilitating Cognitive Composite (FCC) or a user-entered Alternative Cognitive Composite (ACC).
ACC = 105
Supporting Academic Strengths
Areas listed in the drop down menu above have been identified as academic strengths for the individual.

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DSNAP permits use of English-language tests by allowing examination of test score validity.

Test score validity is derived from:

- an understanding of the degree of impact of cultural and linguistic diversity on tests administered in English
- a convergence of experiential, developmental, and qualitative data to assist in determining "difference vs. disorder"
- knowing what to reasonably expect in terms of performance on any test (e.g., DSNAP) and being prepared for the unexpected.

Only when performance is beyond and below what can be explained and attributed to cultural and linguistic factors, is there valid evidence that may support a disability. However, lower than expected performance can still be due to things other than a disability and confounding factors apart from culture and language must also be ruled out.

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Research Foundations for EL Evaluation

Diverse Student's Normal Ability Profile (DSNAP)

The DSNAP is intended to improve upon the basic research principles that underlie the C-LIM and provide a more practitioner-friendly way of evaluating test score validity at the broad-ability (domain/construct) level which is consistent with the manner in which most test score interpretation is accomplished.

"This idea is not new. More than a decade ago, Flanagan et al. (2007) noted the critical need for psychologists to collect information regarding students' level of English proficiency, and the level of English required for the student to be able to comprehend test directions, formulate and communicate responses, or otherwise use their English language abilities within the testing process. ***Nonetheless, the results of our study provide an empirical basis in support of this broad recommendation***." (p. 9)

Source: Cormier, D. C., Bulut, O., McGrew, K. S. & Kennedy, K. (2022). Linguistic Influences on Cognitive Test Performance: Examinee Characteristics Are More Important than Test Characteristics, Journal of Intelligence, Volume 10, Issue 1.

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Summary and Conclusions

Dr. Craig Frisby concluded "Tests are not biased for American born English-speaking groups"

The C-LIM should be used for all cases where there is evidence of culture-language difference

Use the RIOT method and the C-LIM; Convergence of data sources

Specific cognitive ability and processing weaknesses interfere with learning in general and with acquisition and development of academic skills in particular

Cognitive ability and processing weaknesses manifest in real-world performances, specifically academic performance in the classroom, in predictable ways

Understanding the manifestations of cognitive weaknesses provides specific ecological validity for test findings and a focus for intervention

PSW is a viable way of evaluating the presence of strengths and weaknesses to determine if they are consistent with the SLD construct. To date, DD/C includes the most sophisticated set of analyses compared to other PSW methods.

The PSW Analyzer of X-BASS follows DD/C criteria and should be used to aid in SLD identification.

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Simply because we see cognitive and academic deficits together in the same child does not mean that our work as psychologists is done. Cognitive abilities are indeed extremely important causal determinants of academic abilities. However, there is a host of other factors that can in aggregate be much more important than cognitive abilities in influencing academic outcomes, though their effects may be small individually. Psychologists need to give cognitive abilities their proper consideration, but must also weave together all the evidential threads into a coherent narrative of the child's academic difficulties. Only then can psychologists be in the position to give truly helpful advice to parents and teachers trying to help children who have fallen behind.

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2016, VOL. 4, NO. 3, 137–145
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POINT-COUNTERPOINT: RESPONSE

Cross-Battery Assessment? XBA PSW? A case of mistaken identity: A commentary on Kranzler and colleagues' "Classification agreement analysis of Cross-Battery Assessment in the identification of specific learning disorders in children and youth"

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