

Cross-Battery Assessment: A Pattern of Strengths and Weaknesses Approach to SLD Identification

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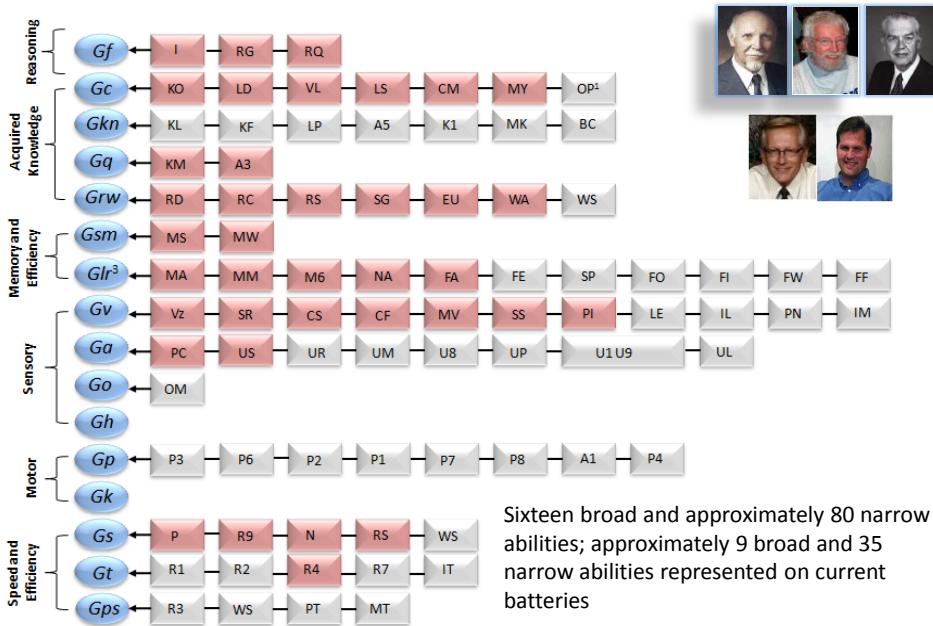


Agenda

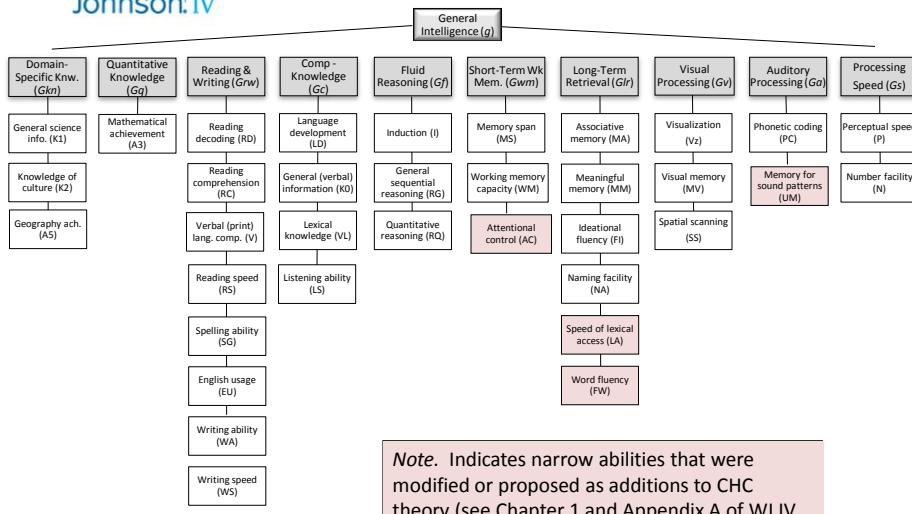


- Overview of CHC Theory and the relations between broad and narrow CHC abilities and specific academic skills
- SLD Identification and the utility of the Pattern of Strengths and Weaknesses Analyzer (PSW-A)
- Linking results to intervention

Current and Expanded Cattell-Horn-Carroll (CHC) Model of Cognitive Abilities
 (adapted from Schneider & McGrew, 2012)



CHC Theory – Modifications from WJ IV TM



Summary of Relations between CHC Abilities and Specific Areas of Academic Achievement
 (Berninger, 2013; Flanagan and colleagues, 2006, 2013; McGrew & Wendling, 2010; McGrew et al., 2014)

	Reading Achievement	Math Achievement	Writing Achievement
Gf	Inductive (I) and general sequential reasoning (RG) abilities play a moderate role in reading comprehension .	Inductive (I) and general sequential (RG) reasoning abilities are consistently very important for math problem solving at all ages.	Inductive (I) and general sequential reasoning abilities (RG) are consistently related to written expression at all ages.
Gc	Language development (LD), lexical knowledge (VL), and listening ability (LS) are important at all ages for reading acquisition and development . These abilities become increasingly important with age.	Language development (LD), lexical knowledge (VL), and listening abilities (LS) are important at all ages. These abilities become increasingly important with age.	Language development (LD), lexical knowledge (VL), and general information (KI) are important primarily after about the 2 nd grade. These abilities become increasingly important with age.
Gwm	Memory span (MS) and working memory capacity (WM) or attentional control. Gwm important for overall reading success .	Memory span (MS) and working memory capacity (WM) or attentional control. Gmw important for overall math success .	Memory span (MS) is important to writing, especially spelling skills whereas working memory has shown relations with advanced writing skills (e.g., written expression). Gmw important for overall writing success .
Gr	Orthographic Processing (often measured by tests of perceptual speed) – reading fluency	Visualization (VZ) is important primarily for higher level or advanced mathematics (e.g., geometry, calculus).	Orthographic Processing (often measured by tests of perceptual speed) - spelling
Ga	Phonetic coding (PC) or “ phonological awareness/processing ” is very important during the elementary school years for the development of basic reading skills .		Phonetic coding (PC) or “ phonological awareness/processing ” is very important during the elementary school years for both basic writing skills and written expression (primarily before about grade 5).
Gl	Naming facility (NA) or “ rapid automatic naming ” (also called speed of lexical access) is very important during the elementary school years. Associative memory (MA) is also important.	Naming Facility (NA; or speed of lexical access); Associative Memory (MA) – rapid retrieval of basic math facts	Naming facility (NA) or “ rapid automatic naming ” (also called speed of lexical access) has demonstrated relations with written expression, primarily writing fluency .
Gs	Perceptual speed (P) abilities are important during all school years, particularly the elementary school years.	Perceptual speed (P) abilities are important during all school years, particularly the elementary school years.	Perceptual speed (P) abilities are important during all school years for basic writing and related to all ages for written expression.

Definitions of CHC Broad and Narrow Abilities

Broad Ability	Definition
Fluid Reasoning (Gf)	The deliberate but flexible control of attention to solve novel, “on-the-spot” problems that cannot be performed by relying exclusively on previously learned habits, schemas, and scripts.
Induction (I)	The ability to observe a phenomenon and discover the underlying principles or rules that determine its behavior.
General Sequential Reasoning (RG)	The ability to reason logically, using known premises and principles.
Quantitative Reasoning (RQ)	The ability to reason, either with induction or deduction, with numbers, mathematical relations, and operators.

Refinements: Piagetian Reasoning (RP) and Reasoning Speed (RE) were deemphasized, primarily because there is little evidence that they are distinct factors.

What is Fluid Reasoning (Gf)?

Fluid Reasoning (*Gf*) refers to a type of thinking that an individual may use when faced with a relatively new task that cannot be performed automatically.

- forming and recognizing concepts (e.g., how are a dog, cat, and cow alike?)
- identifying and perceiving relationships (e.g., sun is to morning as moon is to *night*)
- drawing inferences (e.g., after reading a story, answering the question, “What will John do next?”)
- reorganizing or transforming information (e.g., selecting one of several pictures to complete a puzzle).

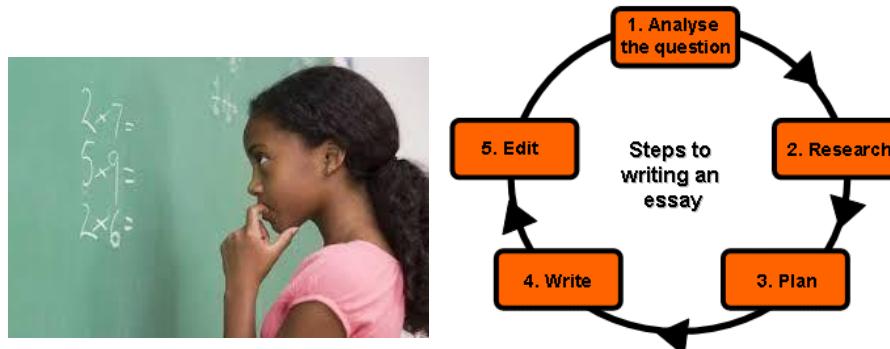


Relations between Gf and Reading Achievement

Gf – Induction (I) and general sequential reasoning (RG) play a moderate role in *reading comprehension*



Relations between Gf and Math and Writing Achievement



Definitions of CHC Broad and Narrow Abilities

Broad Ability	Definition
Crystallized Intelligence (Gc)	The depth and breadth and of knowledge and skills that are valued by one's culture.

General Verbal Information (K0)	The breadth and depth of knowledge that one's culture deems essential, practical, or otherwise worthwhile for everyone to know.
Language Development (LD)	General understanding of spoken language at the level of words, idioms, and sentences.
Lexical Knowledge (VL)	Extent of vocabulary that can be understood in terms of correct word meanings.

Additional Gc Narrow Abilities

Broad Ability	Definition
Crystallized Intelligence (Gc)	The depth and breadth and of knowledge and skills that are valued by one's culture.
Listening Ability (LS)	The ability to understand speech.
Communication Ability (CM)	The ability to use speech to communicate one's thoughts clearly.
Grammatical Sensitivity (MY)	Awareness of the formal rules of grammar and morphology of words in speech.

What is Crystallized Intelligence (Gc)?

- a person's knowledge base (or general fund of information) that has built up over time, beginning in infancy.
- your own personal library or everything you know.



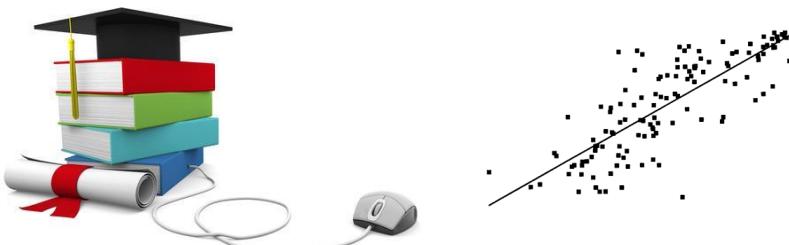
What is Crystallized Intelligence (Gc)?

- Having well developed or good Crystallized intelligence means that one understands and uses language well, has an average or better vocabulary, has good listening skills, and is able to use language well via verbal expression.



Relations between Gc Abilities and Reading Achievement

- **Gc** – Language development (LD), lexical knowledge (VL), general information (KO) and listening ability (LS) are important at all ages. *These abilities become increasingly important with age*



Relations between Gc Abilities and Math and Writing Achievement

- **Gc** – Language development (LD), lexical knowledge (VL), general information (K0) and listening ability (LS) are important for reading achievement at all ages. *These abilities become increasingly important with age*

$$\begin{aligned} & \frac{3a(y+2)^2 + (3y+4)(4x+1)}{a^2(3y+4)^3} \\ & \frac{3a(y+2)^2}{a^2(3y+4)^3} + \frac{(3y+4)(4x+1)}{a^2(3y+4)^3} \\ & \frac{3a(y+2)^2}{a^2(3y+4)^3} + \frac{12x^2 + 16x + 3y + 4}{a^2(3y+4)^3} \end{aligned}$$



CHC Ability	Reading Achievement	Math Achievement	Writing Achievement
Gc	Language development (LD), lexical knowledge (VL), General Information (K0) and listening ability (LS) are important at all ages. These abilities become increasingly important with age.	Language development (LD), lexical knowledge (VL), and listening abilities (LS) are important at all ages. These abilities become increasingly important with age.	Language development (LD), lexical knowledge (VL), and general information (K0) are important beginning around the 3rd grade. These abilities become increasingly important with age.

Definitions of CHC Broad and Narrow Abilities

Broad Ability	Definition
Auditory Processing (Ga)	The ability to detect and process meaningful nonverbal information in sound.

Phonetic coding (PC)	The ability to hear phonemes distinctly.
Speech Sound Discrimination (US)	The ability to detect and discriminate differences in speech sounds (other than phonemes) under conditions of little distraction or distortion.
Resistance to Auditory Stimulus Distortion (UR)	The ability to hear words correctly even under conditions of distortion or loud background noise.
Memory for Sound Patterns (UM)	The ability to retain (<u>on a short-term basis</u>) auditory even and voices



such as tones, tonal patterns,

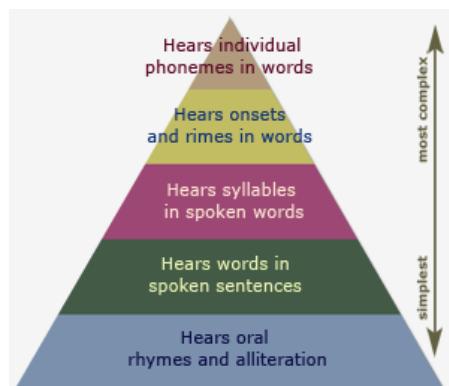
What is Auditory Processing (Ga)?

- Auditory processing (Ga) refers to the ability to perceive, analyze, and synthesize a variety of auditory information (e.g., sounds).
 - auditory processing include listening to words with missing letters and saying the correct word (e.g., hearing “olipop” and saying “lollipop”)
 - listening to piano music and identifying the key in which the piece is being played (e.g., C sharp)



Relations between Ga and Reading Achievement

- **Ga** – Phonetic Coding (PC) or phonological awareness; phonological processing – very important during the elementary school years.



Relations between Ga and Writing Achievement

Spelling

isn't

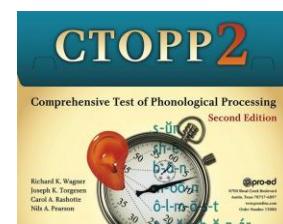
EZ



CHC Ability	Reading Achievement	Math Achievement	Writing Achievement
Ga	Phonetic coding (PC) or "phonological awareness/processing" is very important during the elementary school years.		Phonetic coding (PC) or "phonological awareness/processing" is important during the elementary school years for both basic writing skills and written expression.

Assessing Phonological Processing Related to Reading

- Examples of assessments of phonological processing directly related to reading:
 - PAL-II Rhyming, Syllables, Phonemes, Rimes
 - KTEA-II Phonological Awareness Subtest
 - NEPSY-II Phonological Processing Subtest
 - WJ III Sound Awareness, Sound Blending, and Incomplete Words Subtests
 - DAS-II Phonological Processing Subtest
 - CTOPP-II Blending and Segmenting Subtests



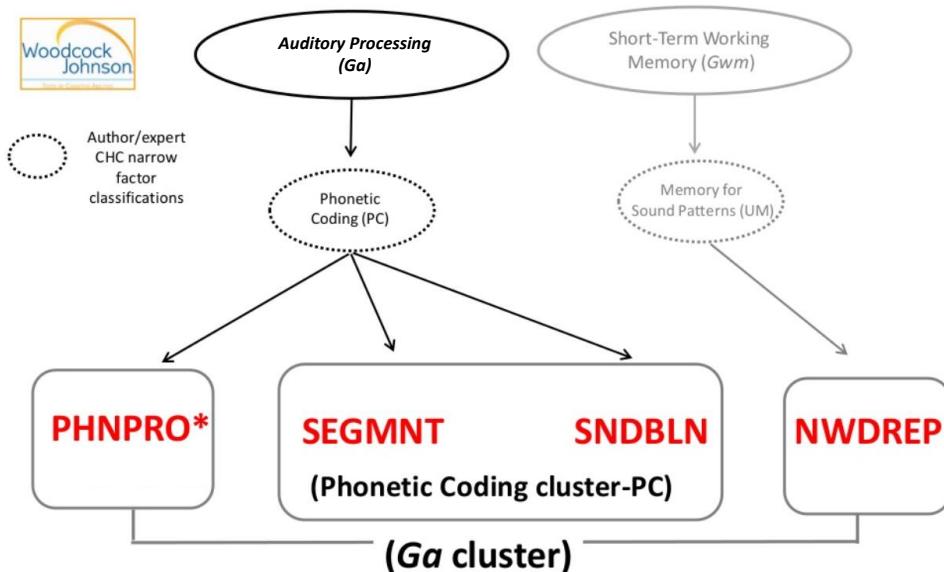
Cognitive Test on WJ IV

- **Phonological Processing**

- Measures Ga (PC) and some fluency aspects of Gfr
- Comprised of three tasks (Word Access, Word Fluency, and Substitution)
- Good predictor of reading and writing (part of these scholastic aptitude clusters)



Information from: Institute for Applied Psychometrics; Kevin McGrew 2-04014



Information from: Institute for Applied Psychometrics; Kevin McGrew 2-2014

Definitions of CHC Broad and Narrow Abilities

Broad Ability	Definition
Short-Term Memory (Gsm)	The ability to encode, maintain and manipulate information in one's immediate awareness.

Memory Span (MS)	The ability to maintain information in primary memory and immediately reproduce the information in the same sequence in which it was represented.
Working Memory Capacity (MW)	The ability to direct the focus of attention to perform relatively simple manipulations, combinations, and transformations of information within primary memory, while avoiding distracting stimuli and engaging in strategic/controlled searches for information in secondary memory.

What is Short-term Memory (Gsm)?

- Short-term memory (Gsm) is the ability to hold information in one's mind and then use it within a few seconds.
 - holding a phone number in one's mind long enough to dial it.



- Working memory is also part of the short-term memory system and involves manipulating or transforming information and using it in some way (e.g., saying the months of the year backwards).

Sample Items From The Letter-Number Sequencing Test

	<u>Item</u>	<u>Correct response</u>
LNS-Forward	9 – A – 6 – J – 3 – P	9 – A – 6 – J – 3 – P
LNS-Reordered	E – 1 – R – 8 – M – 7	1 – 7 – 8 – E – M – R

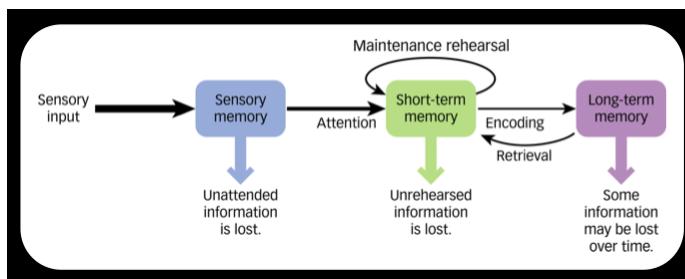
What is Short-term Memory (Gsm)?

- A child with short-term memory difficulties may have a hard time
 - Following directions
 - understanding long reading passages (e.g., a story read aloud by the teacher)
 - Spelling
 - sounding out words
 - and doing math problems (e.g., remembering the steps required to solve long math problems)
- Children who have difficulties with short-term memory do better when they are *taught how to use strategies* to help them remember things.
 - Mnemonics



Relations between Gsm and Achievement

- **Gsm** – Memory span (MS) and working memory capacity are important at all ages

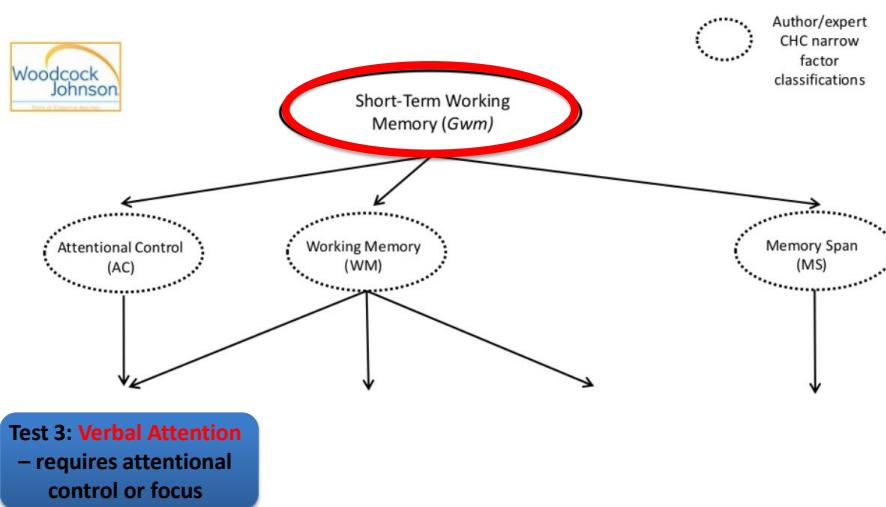


CHC Ability	Reading Achievement	Math Achievement	Writing Achievement
<i>Gsm</i>	Memory span (MS) and working memory capacity (MW).	Memory span (MS) and working memory capacity (MW).	Memory span (MS) is important to writing, especially spelling skills whereas working memory (MW) has shown relations with advanced writing skills (e.g., written expression).



Short-term Working Memory (Gwm)

- Changed Short-term Memory (*Gsm*) to ***Short-term Working Memory (Gwm)***
- **Same definition:** The ability to apprehend and hold information in immediate awareness and then use it within a few seconds
- **Defines Gwm further as:** Efficiency of attentional control
- WJ IV Gwm tasks measure the **capacity limits** of short-term working memory
- There does not appear to be a distinction between the broad Gwm, the narrow WM ability, and the WJ IV author's definition of attentional control, as discussed in the WJ IV TM.



Information from: Institute for Applied Psychometrics; Kevin McGrew 2-2014

Definitions of CHC Broad and Narrow Abilities

Broad Ability	Definition
Long-Term Storage and Retrieval (Glr)	The ability to store, consolidate, and retrieve information over periods of time measured in minutes, hours, days, and years.

Learning Efficiency

Associative Memory (MA)	The ability to remember previously unrelated information as having been paired.
Meaningful Memory (MM)	The ability to remember narratives and other forms of semantically related information.
Free Recall Memory (M6)	The ability to recall lists in any order.

Additional Glr Narrow Abilities

Broad Ability	Definition
Long-Term Storage and Retrieval (Glr)	The ability to store, consolidate, and retrieve information over periods of time measured in minutes, hours, days, and years.

Retrieval Fluency

Ideational Fluency (FI)	The ability to rapidly produce a series of ideas, words, or phrases related to a specific condition or object.
Word Fluency (FW)	The ability to rapidly produce words that share a non-semantic feature.
Figural Fluency (FF)	Ability to rapidly draw or sketch as many things (or elaborations) as possible when presented with a non-meaningful visual stimulus (e.g., a set of unique visual elements).
Naming Facility (NA)	The ability to rapidly name pictures, letters or objects that are known to the individual.

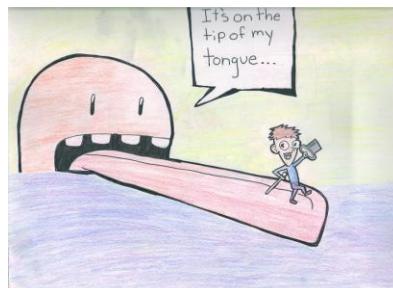
What is Long-term Storage and Retrieval (Glr)?

- Refers to an individual's ability to take in and store a variety of information (e.g., ideas, names, concepts) in one's mind and then retrieve it quickly and easily at a later time by using association.



What is Long-term Storage and Retrieval (Glr)?

- This ability does not represent *what* is stored in long-term memory or what you know. Rather, it represents the *process* of storing and retrieving information.
- When someone says, "It's on the tip of my tongue," they are having a hard time retrieving something that they know.



Evaluation of Vocabulary Knowledge - Gc (Looking for an Exact Word)

- DAS-II Naming Vocabulary = **79**
- CELF-4 Expressive Vocabulary = **75**

21	Chain	V ring	0
22	Jar	Q cold	1
23	Lock	locked Q cold	0
24	Igloo	ice DK Q frost	0
25	Measuring cup	part milkin Q DK	0
26	Paper clip	Clipper Q pen	0
27	Thermometer	measure, what degree is	0
28	Hourglass	measurement	

Item Sets
1-22, 8-22

16.	bowling pin	bowling ball	2 1 0
19.	thermometer, termometer, 'mometer	measuring like ... IDK	2 1 0
20.	scale, weighing scale, weight scale	foot step Where you see how much pounds you weigh	2 1 0

Retrieval Difficulties - Glr

Evaluation of Vocabulary Knowledge – Gc (Looking for a Definition of a Word)

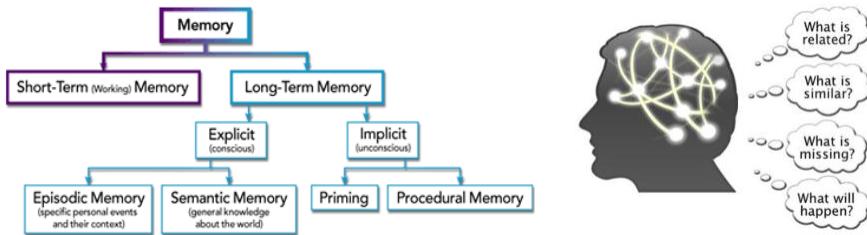
- DAS-II Word Definitions = **90**

Item	Response	0-1
1 Scissors	what you cut w/	1
2 Bed	what you sleep in	1
3 Tiny	real tiny real short like as a mouse Q little like a mouse	1
4 Travel	go somewhere far away	1
5 Crash	you crash into somebody when not looking Q you are going to fast & police will get you	0
6 Disappear	. you have magic & disappear when playing H & G's	0
7 Prize	+ like a toy Q you get something off of a crane machine	0
8 Discover	DK	0
9 Collect	DK - Q smthng yellow	0
10 Hide		

Broader parameters; Can give enough information to show understanding

Relations between Glr and Reading Achievement

Glr – Naming facility (NA) or “rapid automatic naming” is very important during the elementary school years. Associative memory (MA) also appears to be important in the early elementary school years.



CHC Ability	Reading Achievement	Math Achievement	Writing Achievement
Glr	Naming facility (NA) or “rapid automatic naming” is very important during the elementary school years. Associative memory (MA) is also important.	Naming facility (NA); Associative Memory (MA)	Naming facility (NA) or “rapid automatic naming” has demonstrated relations with written expression, primarily the fluency aspect of writing.

Schneider and McGrew's Conceptualization of Gsm and Glr in Contemporary CHC Theory

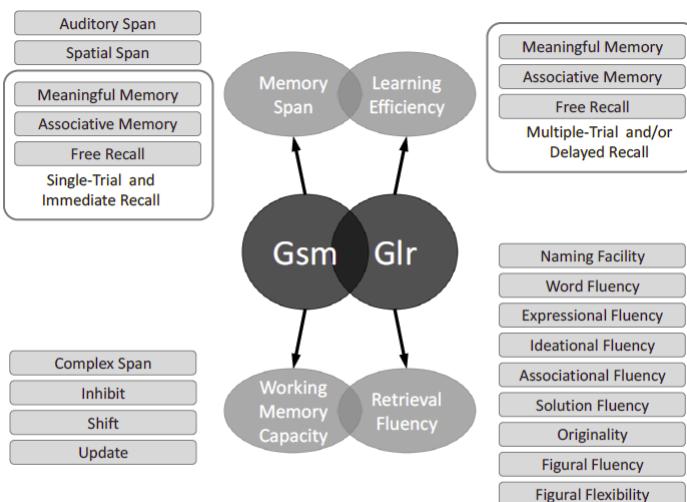
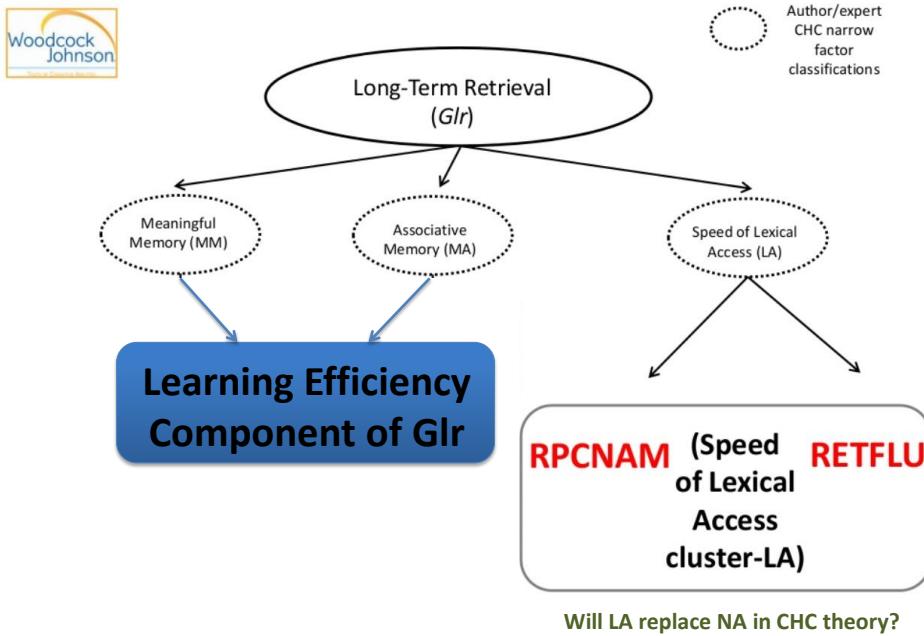


Figure 4.6. Conceptual map of memory-related abilities in CHC theory.



Information adapted from: Institute for Applied Psychometrics; Kevin McGrew 2-2014

Definitions of CHC Broad and Narrow Abilities

Broad Ability	Definition
Visual Processing (Gv)	The ability to make use of simulated mental imagery (often in conjunction with currently perceived images) to solve problems.

Visualization (Vz)	The ability to perceive complex patterns and mentally simulate how they might look when transformed (e.g., rotated, changed in size, partially obscured).
Speeded Rotation (SR)	The ability to solve problems quickly by using mental rotation of simple images.
Closure Speed (CS)	The ability to quickly identify a familiar meaningful visual object from incomplete (e.g., vague, partially obscured, disconnected) visual stimuli, without knowing in advance what the object is.

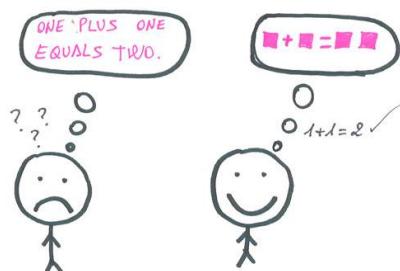
Additional Gv Narrow Abilities

Broad Ability	Definition
Visual Processing (Gv)	The ability to make use of simulated mental imagery (often in conjunction with currently perceived images) to solve problems.
Visual Memory (MV)	The ability to remember complex visual images over short periods of time (less than 30 seconds).
Spatial Scanning (SS)	The ability to visualize a path out of a maze or a field with many obstacles.

What is Visual Processing (Gv)?

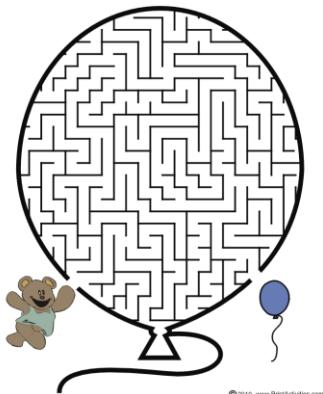
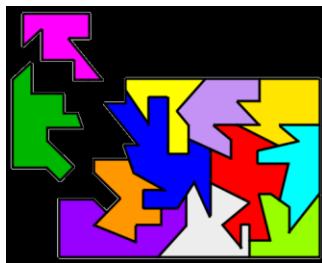
- Visual processing (Gv) is an individual's ability to think about visual patterns (e.g., what is the shortest route from your house to school?) and visual images (e.g., what would this shape look like if I turned it upside down?).

VISUAL THINKING MATTERS.



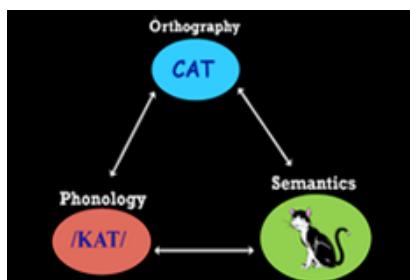
What is Visual Processing (Gv)?

- This type of ability also involves generating, perceiving, and analyzing visual patterns and visual information.
 - putting puzzles together
 - completing a maze (such as the ones often seen on children's menus in restaurants)
 - interpreting a graph or chart.
- Important when doing advanced math (e.g., geometry and calculus).



Relations between Gv Abilities and Achievement

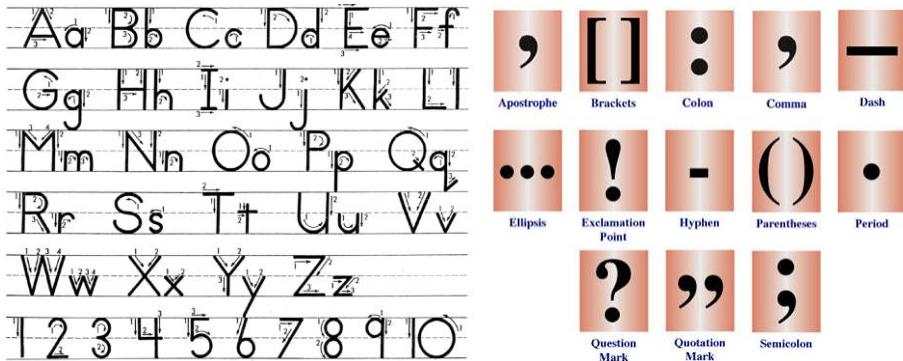
- **Gv** – Orthographic processing



DOU(B)T

Orthography (Wagner & Barker, 1994)

- The system of marks that make up the English language, including upper and lower case letters, numbers, and punctuation marks



Assessing Visual Processing Related to Reading

- Visual processing must be assessed using *orthography* (letters, words and numbers) rather than abstract designs or familiar pictures

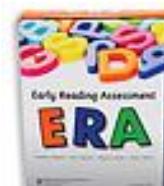
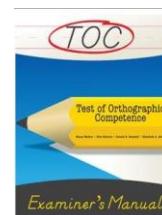
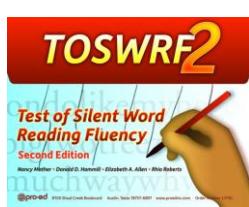


Relationship Between Gv and Achievement

CHC Ability	Reading Achievement	Math Achievement	Writing Achievement
Gv	Orthographic processing (e.g., visual processing using letters and sub-word sound units) is important for reading decoding.	Visualization (Vz) may be important primarily for higher level or advanced mathematics (e.g., geometry, calculus).	Orthographic processing (e.g., visual processing using letters and sub-word sound units) is important for spelling.

Assessing Orthographic Processing Related to Reading

- Examples of assessments of orthographic processing directly related to reading:
 - Test of Silent Word Reading Fluency-2 (TOSWRF-2)
 - Test of Irregular Word Reading Efficiency (TIWRE)
 - Test of Orthographic Competence (TOC)
 - Process Assessment of the Learner (PAL-II)
 - Early Reading Assessment (ERA)



Cognitive Test on WJ IV

- Letter-Pattern Matching
 - Measures Gs (P) and *orthographic processing*
 - Examinee locates and circles the two identical letter patterns in a row of six patterns
 - Is similar to Number-Pattern Matching (Visual Matching)
 - LETPAT + NUMPAT = Gs (P; *orthographic processing*)



Information from: Institute for Applied Psychometrics; Kevin McGrew 2-2014

Definitions of CHC Broad and Narrow Abilities

Broad Ability	Definition
Processing Speed (Gs)	The speed at which visual stimuli can be compared for similarity or difference.

Perceptual Speed (P)	The ability at which visual stimuli can be compared for similarity or difference.
Rate-of-Test-Taking (R9)	The speed and fluency with which simple cognitive tests are completed.
Number Facility (N)	The speed at which basic arithmetic operations are performed accurately.
Reading Speed (RS)	The rate of reading text with full comprehension.
Writing Speed (WS)	The rate at which words or sentences can be generated or copied.

What is Processing Speed (Gs)?

FAST THINKING

- Processing speed (Gs) refers to an individual's ability to perform simple clerical tasks quickly, especially when under pressure to maintain attention and concentration.
- It can also be thought of as how quickly one can think or how quickly one can take simple tests that require simple decisions.
- Involves sustained/focused and selective attention.

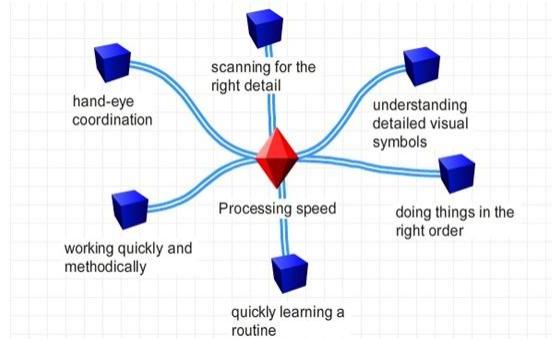
Revisions and Refinements to Gs Domain



- **Gs:** Reading Speed (RS) and Writing Speed (WS) were added (also listed under Grw)
 - Reading and writing speed demand quick, accurate performance and, therefore, are measures of Gs.
- The narrow Gs ability of Semantic Processing Speed (R4) was moved to Gt and Inspection Time (IT) was added to Gt.

Relations between Gs and Achievement

- **Gs** – Perceptual speed (P) abilities are important during all school years, particularly the elementary school years.



CHC Ability	Reading Achievement	Math Achievement	Writing Achievement
Gs	Perceptual speed (P) is important during all school years, particularly the elementary school years.	Perceptual speed (P) is important during all school years, particularly the elementary school years.	Perceptual speed (P) is important during all school years for basic writing and written expression.

What Combinations of Abilities Are Important for Different Achievements

- Fluid Reasoning – *Gf*
- Crystallized Knowledge – *Gc*
- Short-term Memory – *Gsm*
- Long-term Storage and Retrieval – *Glr*
- Visual Processing – *Gv*
- Auditory Processing – *Ga*
- Processing Speed – *Gs*

Putting the Abilities Together

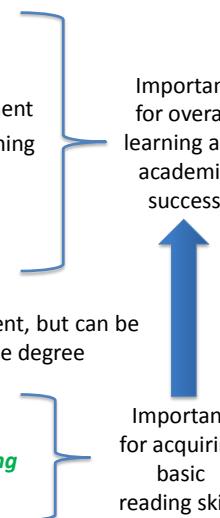
- Students who Learn Quickly and Excel Academically
 - **Gc** (good fund of knowledge; good vocabulary; communicate well)
 - **Glr** (learning is efficient; info is retrieved fluently)
 - **Gsm + Gf** (able to hold retrieved info; transform it; interact it with new info and draw conclusions based on inductive and deductive reasoning)



See Flanagan, Ortiz, and Alfonso (2013). *Essentials of Cross-Battery Assessment*, 3e

Top Four Most Important Abilities for Learning and Academic Success

- **1. Fluid Reasoning (Gf)**
- **2. Crystallized Knowledge (Gc)**
 - Weaknesses in these abilities constrain learning and achievement
- **(Executive Functions** – weaknesses lead to inconsistencies in Learning and Achievement)
- **3. Short-Term Memory (Gsm) – Working Memory**
- **4. Long-Term Storage and Retrieval (Glr)**
 - Working Memory, Retrieval Fluency, and Learning Efficiency
 - Weaknesses in these abilities obstruct learning and achievement, but can be improved upon, bypassed, or compensated for at least to some degree
- **Important Processes (related to reading)**
 - **Ga – Phonological Processing (encompasses many skills)**
 - **Visual Processing/Processing Speed – Orthographic Processing**
 - Train processing deficits to point where they become skill



See Flanagan, Ortiz, and Alfonso (2013). *Essentials of Cross-Battery Assessment*, 3e

IDEIA – Federal Definition of SLD

“A *disorder in one or more of the basic psychological processes* involved in understanding or using language, spoken or written, which manifests itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. Such terms include such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia”

55

Federal Regulations Permit the Use of a PSW Model (Alternative Research-based Approach)

(34 CFR 300.311(a)(5)), (34 CFR 300.309(a)(2(ii))).

- Evaluation documentation must consider whether the student exhibits a pattern of strengths and weaknesses
 - In performance, achievement or both
 - Relative to age, State approved grade levels standards, *or intellectual development*
 - That is determined by the group to be relevant to the identification of SLD using appropriate instruments

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OSEP allows Teams to Choose

- §300.309(a)(2)(ii) permits, but does not require, consideration of a pattern of strengths or weaknesses, or both, *relative to intellectual development*, if the evaluation group considers that information relevant to an identification of SLD.

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Main Elements of PSW – Inclusionary Criteria

- Specific academic weakness(es)
 - **Specific cognitive weakness(es)**
 - Cognitive abilities and processes in the average range (or higher) – particularly those least related to the area(s) of academic weakness
 - “otherwise normal ability profile”
 - *Pattern of cognitive strengths suggests at least average overall cognitive ability*
 - May have some academic skills in the average range (or higher)
 - **Research-based (or ecologically valid) links between the academic and cognitive weaknesses**
 - The “SLD pattern” is only supportive of SLD when other data sources converge in a manner consistent with what is known about SLD
- Cannot be attributed primarily to exclusionary factors*

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|AMERICAN ACADEMY OF SCHOOL PSYCHOLOGY SURVEY ON THE INDEPENDENT EDUCATIONAL EVALUATION FOR A SPECIFIC LEARNING DISABILITY: RESULTS AND DISCUSSION

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This article reviews the results of a survey of the Fellows of the American Academy of School Psychology (Academy; AASP) regarding the independent educational evaluation (IEE) for a specific learning disability (SLD). Academy Fellows were asked about important components of the IEE, desirable evaluator qualifications, and recommended criteria for a diagnosis of SLD in

Endorsed and Most Important (in bold) Evaluator Qualifications to Conduct an IEE for SLD (N = 50)

Evaluator qualification	Endorsed		Importance		
	n	%	n	%	Rank
Assessment experience with children with specific learning disabilities	50	100	25	50	3
Current knowledge of the nature of SLD	49	98	30	60	1
Training with a broad variety of cognitive assessment instruments	49	98	27	54	2
Professional-level ability to communicate assessment results in written form	48	96	19	38	4
Understanding of special education law	43	86	8	16	9
Availability to attend due process hearings or otherwise defend their assessment report	42	84	8	16	9
Training with a broad variety of academic achievement assessment instruments	41	82	14	28	6
Understanding of APA and/or NASP ethics codes	40	80	12	24	8
Experience in direct school psychological services	38	76	14	28	6
Understanding of local education agency special education policies	36	72	4	8	16
Classroom observation skills	34	68	5	10	15
State department of education certification as a school psychologist	34	68	7	14	13
Licensure for independent practice by state department of health or board of psychologist examiners	33	66	16	32	5

Endorsed and Most Important (in bold) Criteria for Diagnosis of SLD in an IEE (N = 47)

Criteria	Endorsed		Importance		
	n	%	n	%	rank
Clinical judgment (integration of quantitative and qualitative data of an experienced clinician; presence of multiple diagnostic markers)					
Presence and severity of an explanatory cognitive processing deficiency	40	85	17	36	2
Presence and severity of an ability/achievement discrepancy response to intervention (RTI)	35	74	12	26	3
Ability/achievement consistency model	26	55	9	19	4
Number of years behind grade level	22	47	4	09	6
Underachievement cutoff model (achievement level cutoff scores)	12	26	5	11	5
	8	17	1	02	7

“Third Method” Alternative Research-Based Approaches to SLD Identification (PSW Methods)

- Approaches and “PSW-ready” batteries:
 - *Flanagan, Ortiz, Alfonso, & Mascolo (2002-2013)*
 - *Dual-Discrepancy/Consistency (within the context of an Operational Definition of SLD and a broader approach to “best practices” in CHC-based assessment)*
 - *Naglieri, 1999, 2013*
 - *Discrepancy/Consistency (PASS Model; CAS-2 battery)*
 - *Hale & Fiorello, 2004, 2011*
 - *Concordance-discordance model (based on neuropsych theory within the context of an hypothesis testing approach)*
 - *Milton Dehn*
 - *WJ IV, WISC-V, KTEA-III*

An Operational Definition of SLD

Flanagan, Ortiz, Alfonso, and Mascolo

- Definition first presented in 2002
- Revised and updated in 2006
- Updated in 2007
- Revised and updated in 2011
- Updated and Renamed in 3e of Essentials of XBA3: **Dual Discrepancy/Consistency (DD/C)**

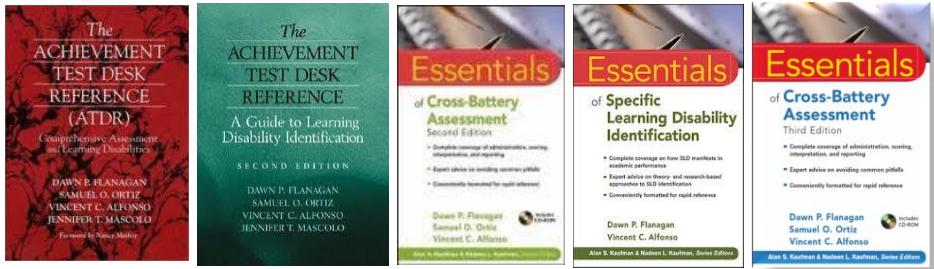


Figure 1. Flanagan and Colleagues' Dual Discrepancy/Consistency (DD-C) Operational Definition of SLD

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): Basic Reading Skill, Reading Comprehension, Reading Fluency, Oral Expression, Listening Comprehension, Written Expression, Math Calculation, Math Problem Solving.	Academic Achievement: Performance in specific academic skills [e.g., <i>Grw-R</i> (reading decoding, reading fluency, reading comprehension); <i>Grw-W</i> (spelling, written expression); <i>Gg</i> (math calculation, math problem solving); <i>Gc</i> (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, data from other members of Multidisciplinary Team (MDT) (e.g., speech-language pathologist, interventionist, reading specialist).	Performance in one or more academic areas is <i>weak or deficient</i> ² (despite attempts at delivering quality instruction) as evidenced by converging data sources.	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 disturbance; 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 disturbance.	Data from the methods and sources listed at Levels I and III. Behavior Rating Scales; medical records; prior evaluations; interviews with current or past 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 <i>Exclusionary Factors Form</i> , which may be downloaded from the CD that accompanies <i>Essentials of Cross-Battery Assessment</i> 3e – this form may be duplicated for use in practice]	
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., <i>Gv</i> , <i>Ga</i> , <i>Gf</i> , <i>Gsm</i> , <i>Gs</i>), specific neuropsychological processes (e.g., attention, executive functioning, orthographic processing, RAN, RAS) and learning efficiency (e.g., associative memory; free recall memory; meaningful memory).	Performance on norm-referenced tests, evaluation of word samples, observations of cognitive performance, task analysis, testing limits, teacher/parent/student interview, history of academic performance, records review.	Performance in one or more cognitive abilities and/or neuropsychological processes (related to academic skill deficiency) is <i>weak or deficient</i> ² as evidenced by converging data sources.	

Flanagan, Ortiz, & Alfonso (2013). *Essentials of Cross-Battery Assessment, 3rd Edition*. Hoboken, NJ: Wiley.

IV	The specific learning disability is a discrete condition differentiated from generalized learning failure by generally average or better ability to think and reason and a learning skill profile exhibiting significant variability, indicating processing areas of strength and weakness.	Pattern of Strengths and Weaknesses Marked by a Dual-Discrepancy/Consistency (DD-C) Determination of whether academic skill weaknesses or deficits are related to specific cognitive area(s) of weakness or deficit; pattern of data reflects a below average aptitude-achievement consistency with otherwise average or better 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 the purpose of hypothesis testing; data gathered via demand analysis and limits testing).	Circumscribed below average aptitude-achievement consistency (i.e., related cognitive processes and academic skills are generally about 1SD below the mean, or lower), circumscribed ability-achievement and ability-cognitive aptitude <i>discrepancies</i> , with cognitive areas of strength represented by standard scores that are generally ≥ 90 ; 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 PSW-4 v1.0 software program on the CD that accompanies <i>Essentials of Cross-Battery Assessment</i> 3e may be used to determine if the individual has a DD-C pattern of strengths and weaknesses that is consistent with the SLD construct]	 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 meeting, including parents.	Student demonstrates significant difficulties in daily academic activities that cannot be remediated, accommodated, or otherwise compensated for <i>without</i> the assistance of individualized special education services.	Necessary for Special Education Eligibility

⁴This column includes concepts inherent in the federal definition (IDEA, 2004), Kavale, Spaulding, and Beam's (2009) definition, Harrison and Holmes' (2012) consensus definition, and other prominent definitions of SLD (see Sotelo-Dynega, Flanagan, & Alfonso, 2011 for a summary). Thus, all prominent SLD markers are included in this column.

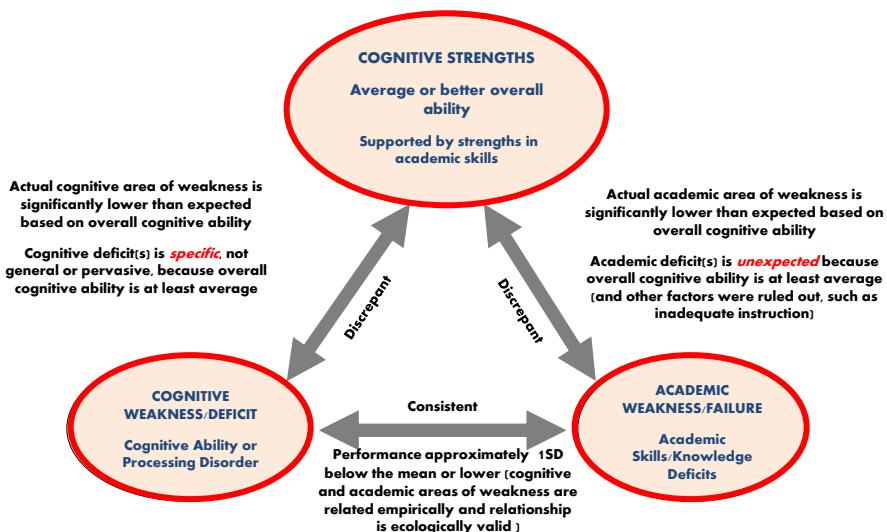
Poor spelling with adequate ability to express ideas in writing is often typical of dyslexia and/or dysgraphia. Even though IDEA 2004 includes only the broad category of written expression, poor spelling and handwriting are often symptomatic of a specific writing disability and should not be ignored (Wendling & Matter, 2009).

⁵Weak performance is typically associated with standard scores in the 85-89 range, whereas deficient performance is often associated with standard scores that are around 1SD below the mean or lower. Interpretations of weak or deficient performance based on standard scores that fall in these 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).

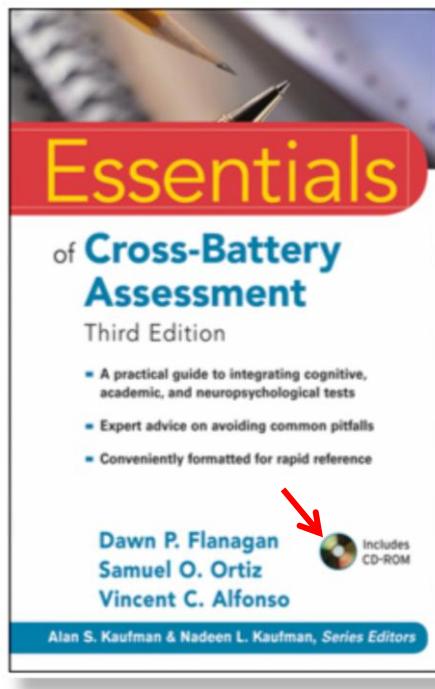
⁶The major specific learning disability may be accompanied by secondary learning difficulties that also may be considered when planning the most intensive, individualized special education instruction directed at the primary problem. For information on linking assessment data to intervention, see Mascolo, Flanagan, and Alfonso (2014).

Flanagan, Ortiz, & Alfonso (2013). *Essentials of Cross-Battery Assessment, 3rd Edition*. Hoboken, NJ: Wiley.

Conceptual Similarities Among Alternative Research-based Approach to SLD



Flanagan, Alfonso, & Mascolo (2011); Flanagan, Fiorello, & Ortiz (2010); Hale, Flanagan, & Naglieri (2008)



A PSW-A Example

Joe
Grade 1

Cross-Battery Pattern of Strengths and Weaknesses Analyzer (XBA PSW-A® v1.0)
 Conceptualization by D.P. Flanagan, S.O. Ortiz, V.C. Alfonso; Programming by S.O. Ortiz and A.M. Dynda
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Details on the conceptualization, use, and interpretation of the information and values produced by XBA PSW-A® are found in *Essentials of Cross-Battery Assessment, Third Edition* (Flanagan, Ortiz & Alfonso, 2013). Begin by following the steps outlined below. After entering the required information, click on the "Go to g-Value Data Entry Tab" button to move to the next tab.

IDENTIFYING INFORMATION														
You must select the student's grade from the drop down menu to begin analysis. Entering additional data is optional.														
Step 1. Student Name	Joe	Enter student's name	Step 4. Student Grade	1	REQUIRED: The student's current grade level (K to 12+) must be selected here.									
Step 2. Date of Birth		Enter date of birth in mm/dd/yyyy format	Step 5. School Name		Enter the name of the Student's school									
Step 3. Date of Evaluation		Enter date of evaluation in mm/dd/yyyy format	Step 6. Evaluator Name		Enter the name of the evaluator									
Step 7. Data Entry		Go to g-Value Data Entry Tab		After entering the student's grade and any other desired information, click the blue button to go to the g-Value Data Entry tab and continue entering the requested information.										
		Chronological Age:	The student's chronological age is calculated automatically.											
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; background-color: #FFFFCC;">Quick Access Navigation</td> <td style="width: 25%; background-color: #800000; color: white; text-align: center;">g-Value Data Entry</td> <td style="width: 25%; background-color: #800000; color: white; text-align: center;">g-Value</td> <td style="width: 25%; background-color: #CCCC99; text-align: center;">g-Value Summary</td> </tr> <tr> <td></td> <td style="background-color: #800000; color: white; text-align: center;">PSW Data Entry</td> <td style="background-color: #800000; color: white; text-align: center;">PSW Analyzer</td> <td style="background-color: #CCCC99; text-align: center;">PSW Summary</td> </tr> </table>						Quick Access Navigation	g-Value Data Entry	g-Value	g-Value Summary		PSW Data Entry	PSW Analyzer	PSW Summary	
Quick Access Navigation	g-Value Data Entry	g-Value	g-Value Summary											
	PSW Data Entry	PSW Analyzer	PSW Summary											
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; background-color: #FFFFCC;">Optional Save data/file:</td> <td style="width: 25%; background-color: #008000; color: white; text-align: center;">Save Data and File As...</td> <td style="width: 50%; background-color: #CCCC99; padding: 5px;">To save your data as a file for future use, click the GREEN button. Give the file a unique name and save to your desired location.</td> </tr> <tr> <td style="background-color: #FFFFCC;">Optional Start over/erase:</td> <td style="background-color: #CC0000; color: white; text-align: center;">Clear Data on ALL Tabs</td> <td style="background-color: #CCCC99; padding: 5px;">To start over or to enter new student data, click the RED button. All data that have been entered will be deleted.</td> </tr> <tr> <td colspan="3" style="background-color: #CCCC99; text-align: center; padding: 5px;">Click the GRAY button to access instructions on how to use the program and for additional notes and information .</td> </tr> </table>						Optional Save data/file:	Save Data and File As...	To save your data as a file for future use, click the GREEN button. Give the file a unique name and save to your desired location.	Optional Start over/erase:	Clear Data on ALL Tabs	To start over or to enter new student data, click the RED button. All data that have been entered will be deleted.	Click the GRAY button to access instructions on how to use the program and for additional notes and information .		
Optional Save data/file:	Save Data and File As...	To save your data as a file for future use, click the GREEN button. Give the file a unique name and save to your desired location.												
Optional Start over/erase:	Clear Data on ALL Tabs	To start over or to enter new student data, click the RED button. All data that have been entered will be deleted.												
Click the GRAY button to access instructions on how to use the program and for additional notes and information .														

Name: Joe		Grade: 1	
Return to Identifying Info		Continue to g-Value	
Step 1: Enter Composite Scores		In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).	
Step 2: Indicate "Yes" or "No"		In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.	
CHC ABILITY COMPOSITES		Enter Standard Scores (Range 40 - 160)*	Select Yes or No
Gc - Crystallized Knowledge		92	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gf - Fluid Reasoning		79	<input type="radio"/> Yes <input checked="" type="radio"/> No
Glr - Long-Term Storage & Retrieval		93	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gsm - Short-Term Memory		100	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gv - Visual Processing		97	<input checked="" type="radio"/> Yes <input type="radio"/> No
Ga - Auditory Processing		80	<input type="radio"/> Yes <input checked="" type="radio"/> No
Gs - Processing Speed		102	<input checked="" type="radio"/> Yes <input type="radio"/> No
*Note: If using T-Scores, convert them to Standard Scores (Deviation IQ metric) here: <input type="text"/> <-T-Score = Std. Score-> <input type="button" value=""/>			
Standard Score Range		Classification	
< 70		Extremely Below Average/Normative Deficit	
70 - 79		Well Below Average/Normative Deficit	
80 - 89		Below Average/Weakness ²	
90 - 109		Average ²	
110 - 119		Above Average/Strength ²	
120 - 129		Well Above Average/Normative Strength	
≥ 130		Extremely Above Average/Normative Strength	
Functional Description			
Markedly Insufficient		Insufficient	
Insufficient to Sufficient ¹		Sufficient	
Efficient		Proficient	
Markedly Proficient			
¹ Clinical judgment is likely necessary to determine if an ability reflected by a score in this range constrains learning and achievement for the individual.			
² Scores between 85-115 (inclusive) fall within the normal limits of functioning.			
Go to Main Tab			

Name: Joe Grade: 1

[Return to g-Value Data Entry](#) [Analysis and Interpretation of g-Value](#) [Go to PSW Data Entry](#)

Based on data entered in prior tabs, a g-Value is computed and displayed here. Users are advised to refer to the Notes, Instruction, and Development tab and to the relevant text in *Essentials of Cross-Battery Assessment, Third Edition* for a detailed discussion regarding the full meaning and proper use of the g-Value.

SS	CHC Broad Abilities						
140	Gc	Gf*	Glr	Gsm	Gv	Ga*	Gs
130	~90	~80	~90	~100	~95	~80	~100
120							
110							
100							
90							
80							
70							
60							
50							
40							

g -Value = 0.86

The g-Value reflects overall cognitive ability based on the broad CHC abilities judged by the evaluator to be "sufficient." The g-value is interpreted according to the likelihood that an individual possesses at least average overall cognitive ability.

$\geq .60$ = average overall ability is very likely
 $.51 - .59$ = more information needed
 $\leq .50$ = average overall ability is unlikely

Note: An asterisk (*) next to a broad ability code indicates that the ability was judged as "insufficient" by the evaluator.

Interpretation of g-Value = 0.86

How likely is it that the individual's pattern of strengths indicates at least average overall cognitive ability?

LIKELY. Despite the presence of weaknesses in one or more cognitive ability domains, this individual displays average or better functioning in cognitive ability domains considered important for acquiring the academic skills typical for this grade level. The individual's overall cognitive ability is very likely to be average or better and, therefore, ought to enable learning and achievement, especially when specific cognitive weaknesses are minimized through compensatory efforts, accommodations, and the like.

[Go to Main Tab](#)

[Return to g-Value Data Entry](#) [Pattern of Strengths and Weaknesses Data Entry](#) [Go to PSW Analyzer](#)

1a. Intact Ability Estimate
This composite is calculated using median reliabilities and intercorrelations among the CHC broad ability scores judged as sufficient on the g-Value tab.

96 The Intact Ability Estimate (IA-e) appears in green when it is > 90 and the g-Value $> .60$. The IA-e appears in yellow when it is between 85-89 inclusive, or the g-Value is between .51-.59 inclusive. "NA" will appear if the IA-e is < 85 or the g-Value $< .50$, or if there were too few abilities judged to be sufficient (i.e., < 3). When "NA" appears in the box no further analyses can or should be performed. When an alternative value is entered below, double dashes "—" are displayed.

0.86

Note: If you would like the program to use a value other than the IA-e, you may enter an alternative score here. Be sure that the value you enter here is an adequate representation of the individual's overall cognitive ability and is greater than or equal to 85. Simply delete this value if you wish to return to using the IA-e.

This score should be the best estimate of a cognitive weakness or deficit. Indicate whether the score is a composite/subtest and select the cognitive area it represents. For example, if you entered a "working memory" composite, check "Composite" and select "Gsm-Short-Term Memory" from the drop down menu.

Actual Score Conv. Score Enter the name of the composite or subtest that is the best estimate of the individual's cognitive weakness. Indicate score type and domain area

78 **78** XBA Gsm - Working Memory Composite Subtest Gsm-Short Term Memory

Select the initial probability level to evaluate the rarity (i.e., frequency) of the size of the difference between actual and predicted cognitive performance. The default starting value is .05, meaning a difference should occur about 5% of the time or less. The final value, however, will be corrected statistically to account for test unreliability.

Difference occurs about 1% of the time in the general population (best for subtests or tests with low reliability)
 Difference occurs about 5% of the time in the general population (recommended value, best for composites and reliable tests)
 Difference occurs about 10% of the time in the general population (liberal value increases false positive rate—not recommended)

The score should be the best estimate of an academic weakness or deficit. Indicate whether the score is a composite/subtest and select the SLD area it represents. For example, if you entered a "word reading" scaled score, check the "Subtest" button and select "Basic Reading Skills" from the drop down menu.

Actual Score Conv. Score Enter the name of the composite or subtest that is the best estimate of the individual's academic weakness. Indicate score type and domain area

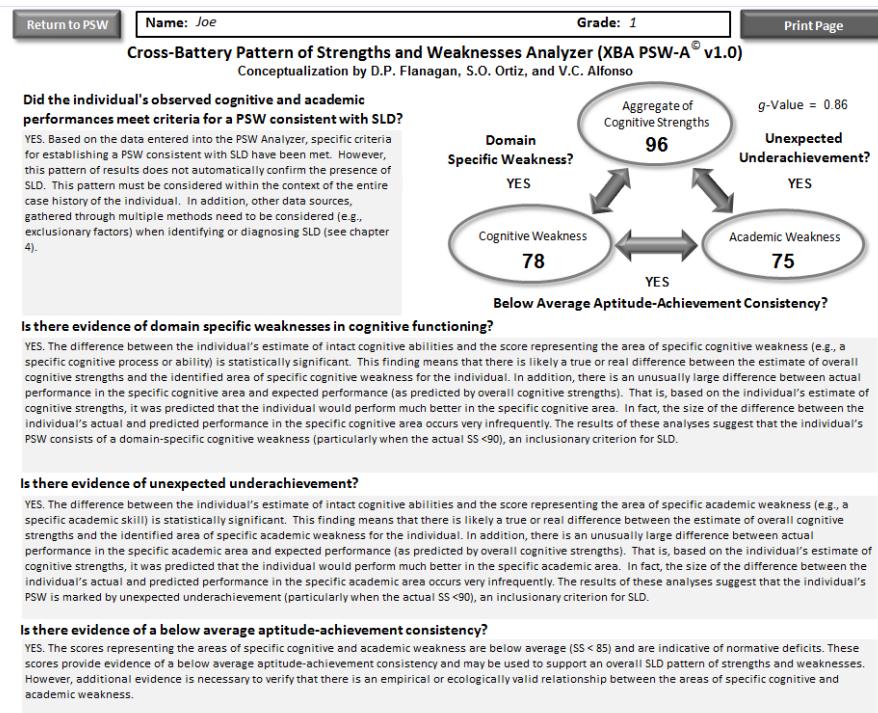
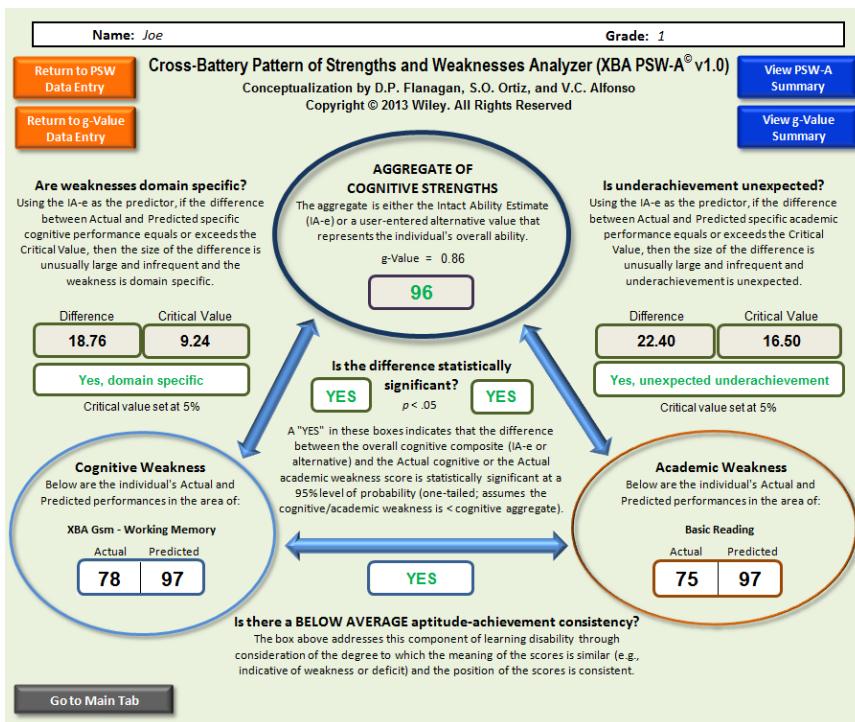
75 **75** Basic Reading Composite Subtest Basic Reading Skills

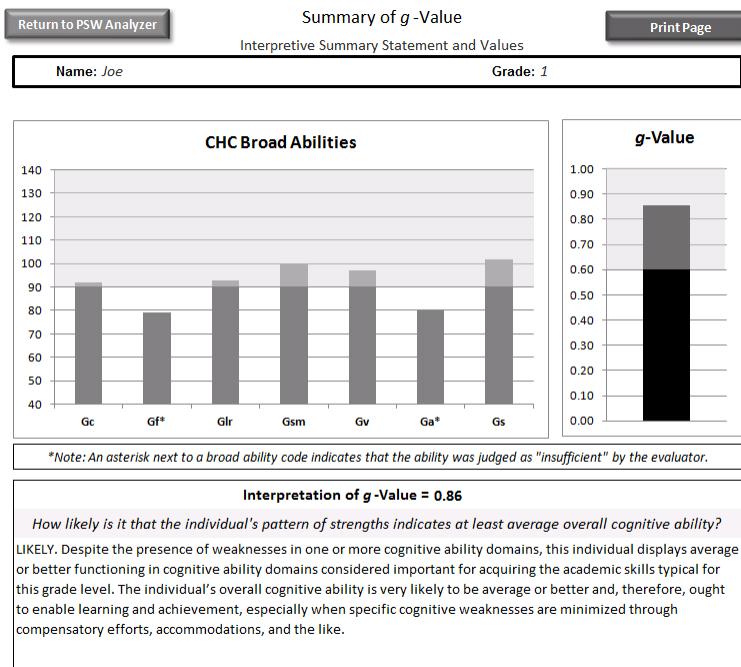
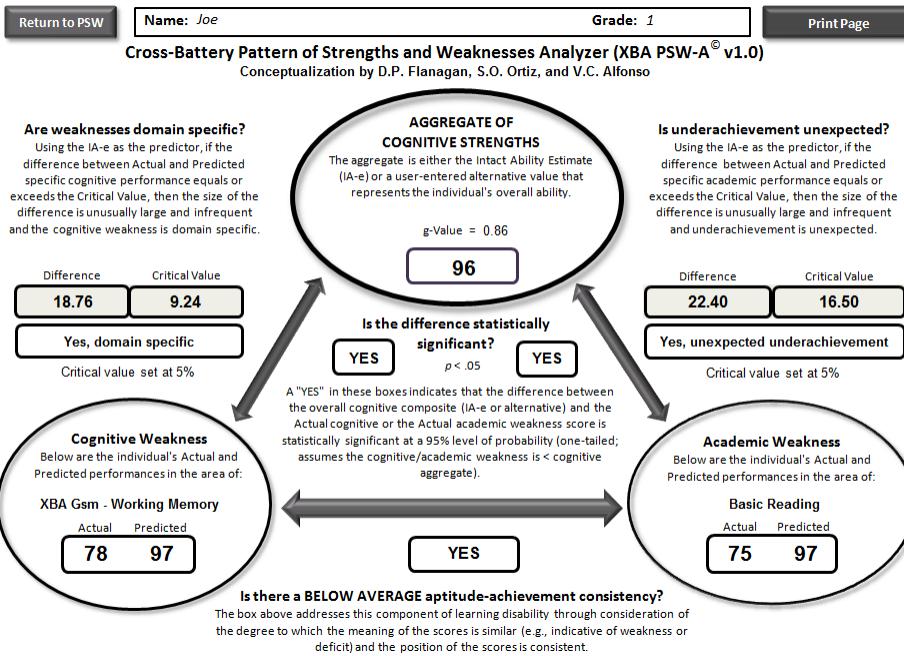
Select the initial probability level to evaluate the rarity (i.e., frequency) of the size of the difference between actual and predicted academic performance. The default starting value is .05, meaning a difference should occur about 5% of the time or less. The final value, however, will be corrected statistically to account for test unreliability.

Difference occurs about 1% of the time in the general population (best for subtests or tests with low reliability)
 Difference occurs about 5% of the time in the general population (recommended value, best for composites and reliable tests)
 Difference occurs about 10% of the time in the general population (liberal value increases false positive rate—not recommended)

3a. Academic Weakness
Enter a scaled/standard score (required) and the name of the subtest or composite (optional) in the boxes at the right that represents a significant area of academic weakness or deficit for the individual.

3b. Frequency of Difference
Select the level to be used in PSW analysis for determining if the size of a difference is infrequent or uncommon. The default value is 5% and will be adjusted for test unreliability. A more conservative or liberal value may be selected. If a second comparison is being made or a subtest is used, consider using a stricter value.





Formulae Used in PSW-A

(see “Notes, Instructions, and Development” tab for More Information)

- Default value for statistical significance is set at 95% ($p < .05$), which is the recommended value (Reynolds, 1985; Wright, 2002)
- When difference between IA-e and cognitive or academic weakness score is statistically significant, then the program evaluates the magnitude of the difference between actual and predicted performance and its degree of rarity.
 - *Program uses default value for rarity – i.e., size of difference occurs in about 5% (or less) of the population (one tailed – weakness is assumed to be lower than IA-e)*
- Program employs a regression-based prediction discrepancy procedure that ***guards against false negatives***
 - *Critical value is adjusted statistically to correct for inherent test unreliability and imperfect correlation so as to not exclude student's whose difference was insufficient to meet or exceed the target value due to measurement error (Reynolds, 1985; Wright, 2002)*

PSW-A v1.0

Flanagan, Ortiz, and Alfonso (2013)

- **Based on the most psychometrically defensible analyses of score differences**
 - Reynolds, C. R. (1985). Critical measurement issues in learning disabilities. *Journal of Special Education*, 18, 451-476.
 - Evans, L. D. (1990). A conceptual overview of the regression discrepancy model for evaluating severe discrepancy between IQ and achievement scores. *Journal of Learning Disabilities*, 23, 406-412.
 - Wright, J. (2002). Best practices in calculating severed discrepancies between expected and actual academic achievement scores: A step-by-step tutorial. Retrieved June 1, 2010 from: <http://www.kasp.org/Documents/discrepancies.pdf>

Evaluation of Below Average Aptitude-Achievement Consistency

- Three ranges
 - < 85
 - 85-89
 - ≥ 90
- Does the pattern include consistency?
 - both scores < 85 = yes
 - Both scores ≥ 90 = no
 - One score < 85 ; one score 85-89 = likely
 - Both scores 85-89 = possibly
 - One score < 85 ; one score ≥ 90 = possibly
 - One score 85-89; one score ≥ 90 = unlikely
- *Final determination based on clinical judgment, which is bolstered by empirical evidence supporting the relationship and ecological validity*

McCloskey's Representation of a Cognitive Neuropsychological Discrepancy Model for SLD Identification

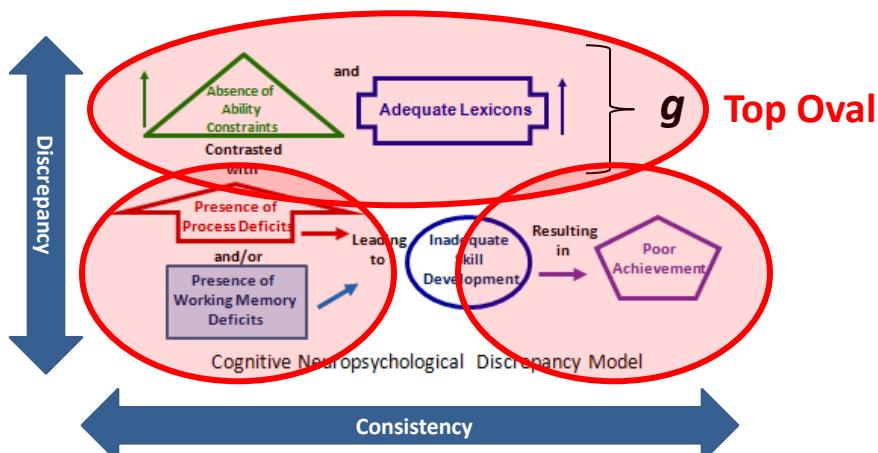
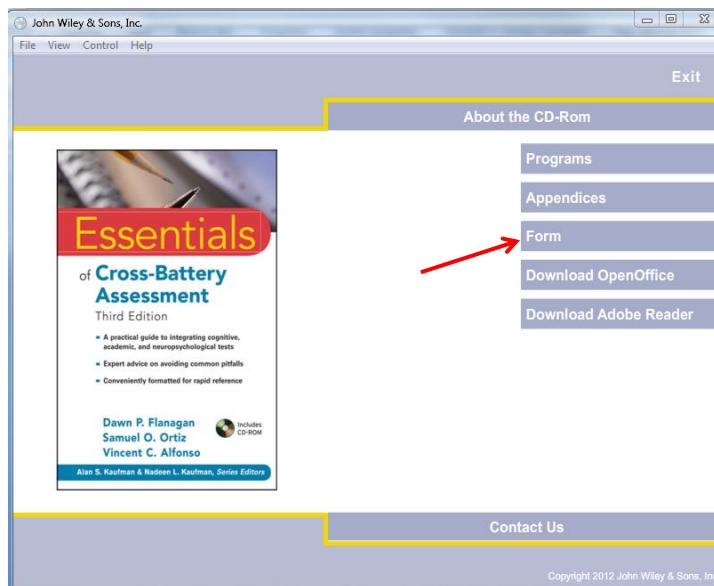


Figure from: McCloskey, Whitaker, Murphy, & Rogers (2012). Intellectual, Cognitive, and Neuropsychological Assessment in Three Tier Service Delivery Systems in Schools. In Flanagan & Harrison (Eds.), *Contemporary Intellectual Assessment: Theories, Tests, and Issues (3rd edition)*. New York: Guilford

Identification of SLD

- **Involves more than just examining scores from standardized tests**
 - A convergence of data sources is necessary
 - Data should be gathered via different methods
 - Exclusionary factors must be considered and examined systematically

Exclusionary Factors Form



Flanagan et al.'s Operational Definition: Level II – Review of Exclusionary Factors

Evaluation and Consideration of Exclusionary Factors for SLD Identification

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/hearing¹, 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/developmental history, family history, vision/hearing exams¹, 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 cause of a student's academic and learning difficulties to maintain SLD as a viable classification/diagnosis.

Form published in Flanagan, Alfonso, Mascolo, & Sotelo-Dynega (2012). Use of Intelligence Tests in the Identification of Specific Learning Disabilities Within the Context of An Operational Definition. In Flanagan & Harrison (Eds.), *Contemporary Intellectual Assessment: Theories, Tests, and Issues* (3rd edition). New York: Guilford.

Orientation to the PSW-A v1.0

PSW Data Entry Tab

- It is not necessary to use more than one area of cognitive weakness or more than one area of academic weakness.
 - *You may do so, but it is not necessary once the pattern is established*
 - Do not run multiple comparisons for a student because the program does not control for multiple comparisons
- *Evaluate the areas in which there are the most concerns, the most relevance to the referral, and the most compelling evidence of deficiency*
- *Form diagnostic impressions prior to using the program*
- *Select comparisons a priori*

g-Value =

- ***Sum of g-weights*** for each of the CHC ability domains
 - Program uses average *g*-weights from four sources (WJ III *Technical Manual* and three separate Cross-Battery joint factor analysis studies – all included the seven main cognitive domains)
- The abilities and their corresponding *g*-weights in the order in which they are listed in the *g*-Value Data Entry tab (which generally follows from highest to lowest) are as follows:
 - *Gc = .2355*
 - *Gf = .1870*
 - *Glr = .1572*
 - *Gsm = .1152*
 - *Gv = .1167*
 - *Ga = .1029*
 - *Gs = .0864*
 - SUM = 1.0009

Abilities that are Considered Most Important to Learning and Academic Success in School are Given More Weight in the Calculation of the g-Value

- Grades K-2
 - **Gc** – Crystallized Intelligence
 - **Glr** – Long-term Storage and Retrieval
 - **Gsm** – Short-term Memory
 - **Gs** – Processing Speed
- Grades 3+
 - **Gc** – Crystallized Intelligence
 - **Glr** – Long-term Storage and Retrieval
 - **Gsm** – Short-term Memory
 - **Gf** – Fluid Reasoning

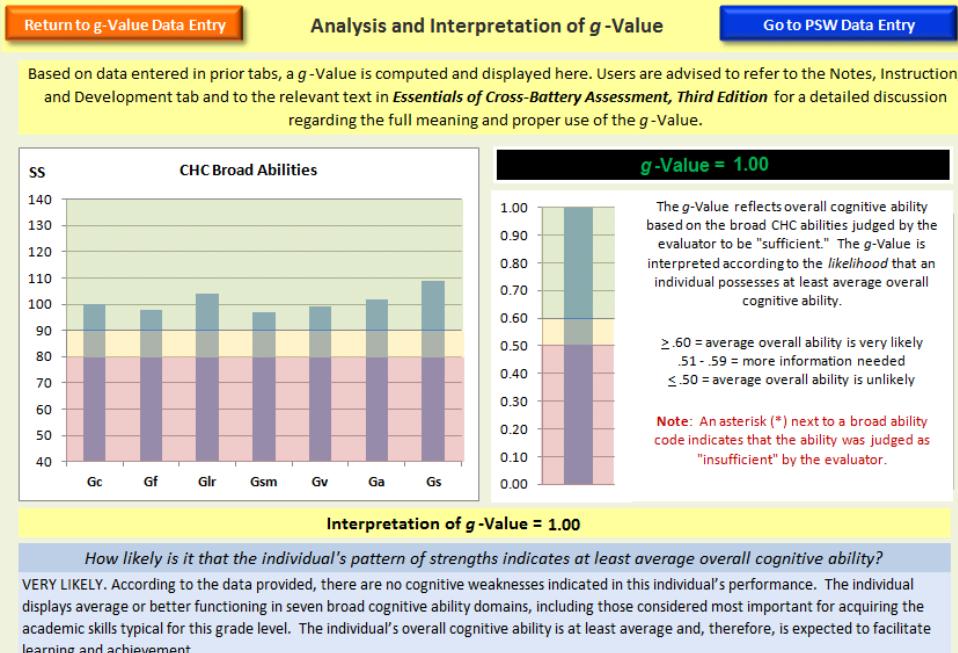
g-Value Data Entry Tab

- “Yes” selected for all seven CHC ability domains
 - ***g-Value = 1.0***
- “No” selected for all seven CHC ability domains
 - ***g-Value = 0***

Example of "Yes" Selected for All Areas

Return to Identifying Info		DATA ENTRY for <i>g</i> -Value		Continue to <i>g</i> -Value	
Step 1: Enter Composite Scores		In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).			
Step 2: Indicate "Yes" or "No"		In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.			
CHC ABILITY COMPOSITES		Enter Standard Scores (Range 40 - 160)*	Select Yes or No	Determining Sufficiency: An ability is considered "sufficient" when it is judged by the evaluator to contribute meaningfully to the individual's overall cognitive functioning, particularly for the purpose of facilitating academic performance (e.g., acquisition and development of academic skills). Typically, standard scores around 90 or higher are sufficient, as abilities associated with scores in this range (≥ 90) often contribute meaningfully to the individual's overall cognitive functioning and, therefore, support learning. When standard scores are around 90 or lower, clinical judgment is necessary to determine if the broad ability constrains or inhibits learning and achievement.	
Gc - Crystallized Knowledge		100	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Gf - Fluid Reasoning		98	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Glr - Long-Term Storage & Retrieval		104	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Gsm - Short-Term Memory		97	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Gv - Visual Processing		99	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Ga - Auditory Processing		102	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Gs - Processing Speed		109	<input checked="" type="radio"/> Yes <input type="radio"/> No		

"Yes" Selected for All Areas – *g*-Value = 1.00

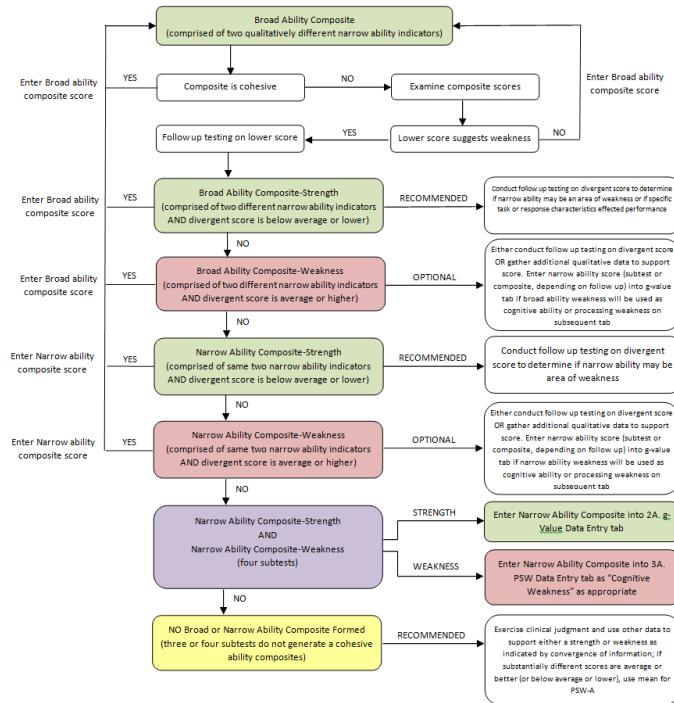


Example of "No" Selected for All Areas

Return to Identifying Info		DATA ENTRY for g-Value			Continue to g-Value			
Step 1: Enter Composite Scores		In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).						
Step 2: Indicate "Yes" or "No"		In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.						
CHC ABILITY COMPOSITES		Enter Standard Scores (Range 40 - 160)*	Select Yes or No	Determining Sufficiency: An ability is considered "sufficient" when it is judged by the evaluator to contribute meaningfully to the individual's overall cognitive functioning, particularly for the purpose of facilitating academic performance (e.g., acquisition and development of academic skills). Typically, standard scores around 90 or higher are sufficient, as abilities associated with scores in this range (≥ 90) often contribute meaningfully to the individual's overall cognitive functioning and, therefore, support learning. When standard scores are around 90 or lower, clinical judgment is necessary to determine if the broad ability constrains or inhibits learning and achievement.				
Gc - Crystallized Knowledge	80	<input type="radio"/> Yes <input checked="" type="radio"/> No	Gf - Fluid Reasoning	79	<input type="radio"/> Yes <input checked="" type="radio"/> No	Glr - Long-Term Storage & Retrieval	84	<input type="radio"/> Yes <input checked="" type="radio"/> No
Gsm - Short-Term Memory	77	<input type="radio"/> Yes <input checked="" type="radio"/> No	Gv - Visual Processing	83	<input type="radio"/> Yes <input checked="" type="radio"/> No	Ga - Auditory Processing	80	<input type="radio"/> Yes <input checked="" type="radio"/> No
Gs - Processing Speed	85	<input type="radio"/> Yes <input checked="" type="radio"/> No						

Return to g-Value Data Entry		Analysis and Interpretation of g-Value			Go to PSW Data Entry																
Based on data entered in prior tabs, a g-Value is computed and displayed here. Users are advised to refer to the Notes, Instruction, and Development tab and to the relevant text in <i>Essentials of Cross-Battery Assessment, Third Edition</i> for a detailed discussion regarding the full meaning and proper use of the g-Value.																					
<p>SS</p> <p>CHC Broad Abilities</p> <table border="1"> <caption>CHC Broad Abilities Standard Scores</caption> <thead> <tr> <th>Broad Ability</th> <th>Standard Score (SS)</th> </tr> </thead> <tbody> <tr><td>Gc*</td><td>~75</td></tr> <tr><td>Gf*</td><td>~72</td></tr> <tr><td>Glr*</td><td>~82</td></tr> <tr><td>Gsm*</td><td>~75</td></tr> <tr><td>Gv*</td><td>~82</td></tr> <tr><td>Ga*</td><td>~75</td></tr> <tr><td>Gs*</td><td>~85</td></tr> </tbody> </table>			Broad Ability	Standard Score (SS)	Gc*	~75	Gf*	~72	Glr*	~82	Gsm*	~75	Gv*	~82	Ga*	~75	Gs*	~85	<p>g-Value = 0.00</p> <p>The g-Value reflects overall cognitive ability based on the broad CHC abilities judged by the evaluator to be "sufficient." The g-Value is interpreted according to the likelihood that an individual possesses at least average overall cognitive ability.</p> <p>$\geq .60$ = average overall ability is very likely $.51 - .59$ = more information needed $\leq .50$ = average overall ability is unlikely</p> <p>Note: An asterisk (*) next to a broad ability code indicates that the ability was judged as "insufficient" by the evaluator.</p>		
Broad Ability	Standard Score (SS)																				
Gc*	~75																				
Gf*	~72																				
Glr*	~82																				
Gsm*	~75																				
Gv*	~82																				
Ga*	~75																				
Gs*	~85																				
<p>Interpretation of g-Value = 0.00</p> <p>How likely is it that the individual's pattern of strengths indicates at least average overall cognitive ability?</p> <p>VERY UNLIKELY. According to the data provided, there are no cognitive strengths indicated in this individual's performance. The individual displays below average or lower functioning in all seven broad cognitive ability domains, including those considered most important for acquiring the academic skills typical for this grade level. The individual's overall cognitive ability cannot be considered to be at least average and, therefore, is not expected to facilitate learning and achievement.</p>																					

**DECISION FLOWCHART
FOR DETERMINING
SCORES TO BE ENTERED
INTO PSW-A (*g*-Value
Data Entry Tab)**



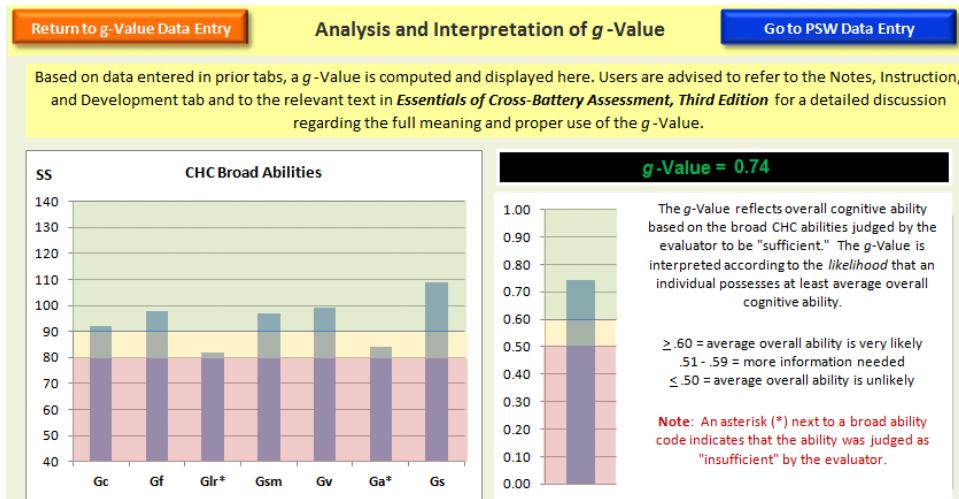
g-Value and IA-e

- When *g*-Value is .60 or higher (reported in the color green), then
 - The IA-e is almost always in the average range or higher (and reported in the color green)

Example of Relationship between *g*-Value and IA-e

Return to Identifying Info		DATA ENTRY for <i>g</i> -Value		Continue to <i>g</i> -Value	
Step 1: Enter Composite Scores		In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).			
Step 2: Indicate "Yes" or "No"		In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.			
CHC ABILITY COMPOSITES		Enter Standard Scores (Range 40 - 160)*	Select Yes or No	Determining Sufficiency: An ability is considered "sufficient" when it is judged by the evaluator to contribute meaningfully to the individual's overall cognitive functioning, particularly for the purpose of facilitating academic performance (e.g., acquisition and development of academic skills). Typically, standard scores around 90 or higher are sufficient, as abilities associated with scores in this range (≥ 90) often contribute meaningfully to the individual's overall cognitive functioning and, therefore, support learning. When standard scores are around 90 or lower, clinical judgment is necessary to determine if the broad ability constrains or inhibits learning and achievement.	
Gc - Crystallized Knowledge		92	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Gf - Fluid Reasoning		98	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Glr - Long-Term Storage & Retrieval		82	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Gsm - Short-Term Memory		97	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Gv - Visual Processing		99	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Ga - Auditory Processing		84	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Gs - Processing Speed		109	<input checked="" type="radio"/> Yes <input type="radio"/> No		

Example of Relationship between *g*-Value and IA-e



Example of Relationship between *g*-Value and IA-e

Return to <i>g</i> -Value Data Entry	Pattern of Strengths and Weaknesses Data Entry	Go to PSW Analyzer
1a. Intact Ability Estimate This composite is calculated using median reliabilities and intercorrelations among the CHC broad ability scores judged as sufficient on the <i>g</i> -Value tab.	The composite represents the individual's overall cognitive ability without the attenuating effects of the CHC abilities judged to be areas of weakness or deficit.	
1b. Alternative Ability Estimate You may enter an alternative value if desired or when the IA-e is not believed to be a good estimate of general ability.	<p>99 The Intact Ability Estimate (IA-e) appears in green when it is ≥ 90 and the <i>g</i>-Value $\geq .60$. The IA-e appears in yellow when it is between 85-89, inclusive, or the <i>g</i>-Value is between .51-.59, inclusive. "N/A" will appear if the IA-e is < 85 or the <i>g</i>-Value $\leq .50$, or if there were too few abilities judged to be sufficient (i.e., < 3). When "N/A" appears in the box no further analyses can or should be performed. When an alternative value is entered below, double dashes "--" are displayed.</p> <p><input type="text"/> Note: If you would like the program to use a value other than the IA-e, you may enter an alternative score here. Be sure that the value you enter here is an adequate representation of the individual's overall cognitive ability and is greater than or equal to 85. Simply delete this value if you wish to return to using the IA-e.</p>	0.74 <i>g</i> -Value
2a. Cognitive Weakness Enter the scaled/standard score and subtest or composite name in the boxes on the right that best represents the student's cognitive	This score should be the best estimate of a cognitive weakness or deficit. Indicate whether the score is a composite/subtest and select the cognitive area it represents. For example, if you entered a "working memory" composite, check "Composite" and select "Gsm-Short-Term Memory" from the drop down menu.	

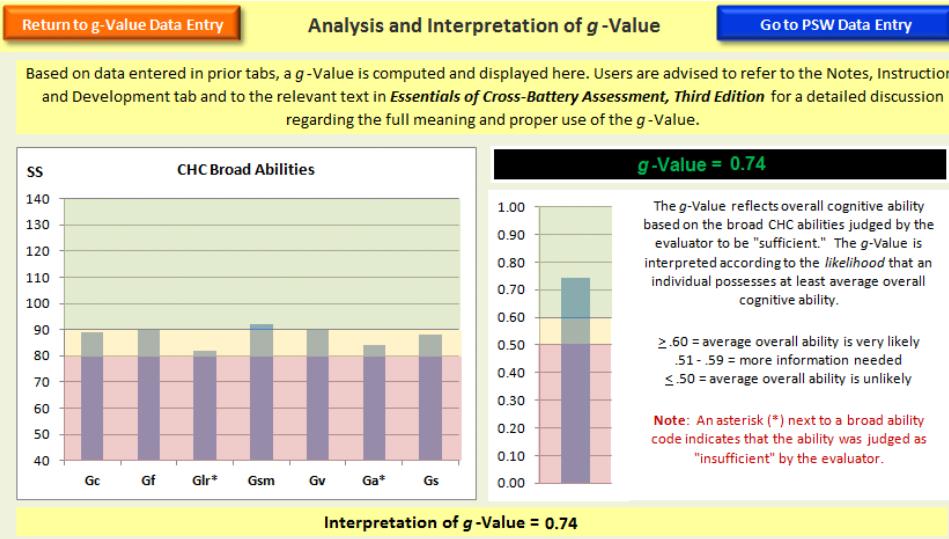
g-Value and IA-e

- When *g*-Value is .60 or higher (reported in the color green), then
 - The IA-e is almost always in the average range or higher (and reported in the color green)
- *g*-Value may be .60 or higher (reported in the color green)
 - IA-e may be in the low average range and appear in the color yellow

Example of Relationship between g-Value and IA-e

Return to Identifying Info		DATA ENTRY for g -Value		Continue to g-Value	
Step 1: Enter Composite Scores		In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).			
Step 2: Indicate "Yes" or "No"		In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.			
CHC ABILITY COMPOSITES	Enter Standard Scores (Range 40 - 160)*	Select Yes or No	Determining Sufficiency: An ability is considered "sufficient" when it is judged by the evaluator to contribute meaningfully to the individual's overall cognitive functioning, particularly for the purpose of facilitating academic performance (e.g., acquisition and development of academic skills). Typically, standard scores around 90 or higher are sufficient, as abilities associated with scores in this range (≥ 90) often contribute meaningfully to the individual's overall cognitive functioning and, therefore, support learning. When standard scores are around 90 or lower, clinical judgment is necessary to determine if the broad ability constrains or inhibits learning and achievement.		
Gc - Crystallized Knowledge	89	<input checked="" type="radio"/> Yes <input type="radio"/> No			
Gf - Fluid Reasoning	90	<input checked="" type="radio"/> Yes <input type="radio"/> No			
Glr* - Long-Term Storage & Retrieval	82	<input type="radio"/> Yes <input checked="" type="radio"/> No			
Gsm - Short-Term Memory	92	<input checked="" type="radio"/> Yes <input type="radio"/> No			
Gv - Visual Processing	90	<input checked="" type="radio"/> Yes <input type="radio"/> No			
Ga - Auditory Processing	84	<input type="radio"/> Yes <input checked="" type="radio"/> No			
Gs - Processing Speed	88	<input checked="" type="radio"/> Yes <input type="radio"/> No			

Example of Relationship between g-Value and IA-e



Example of Relationship between *g*-Value and IA-e

Return to g-Value Data Entry	Pattern of Strengths and Weaknesses Data Entry	Go to PSW Analyzer
1a. Intact Ability Estimate This composite is calculated using median reliabilities and intercorrelations among the CHC broad ability scores judged as sufficient on the <i>g</i> -Value tab.	The composite represents the individual's overall cognitive ability without the attenuating effects of the CHC abilities judged to be areas of weakness or deficit.	0.74 <i>g</i> -Value
1b. Alternative Ability Estimate You may enter an alternative value if desired or when the IA-e is not believed to be a good estimate of general ability.	87 The Intact Ability Estimate (IA-e) appears in green when it is ≥ 90 and the <i>g</i> -Value $\geq .60$. The IA-e appears in yellow when it is between 85-89, inclusive, or the <i>g</i> -Value is between .51-.59, inclusive. "N/A" will appear if the IA-e is < 85 or the <i>g</i> -Value <.50, or if there were too few abilities judged to be sufficient (i.e., <3). When "N/A" appears in the box no further analyses can or should be performed. When an alternative value is entered below, double dashes "..." are displayed.	<input type="text"/> Note: If you would like the program to use a value other than the IA-e, you may enter an alternative score here. Be sure that the value you enter here is an adequate representation of the individual's overall cognitive ability and is greater than or equal to 85. Simply delete this value if you wish to return to using the IA-e.

Don't Forget:

- *g*-Value is based on the *g*-weights associated with the CHC abilities that were judged to be sufficient
- IA-e is based on the CHC *obtained scores* that were judged to be sufficient

More on the Relationship between the *g*-Value and the IA-e

How is IA-e Calculated?

- PSW-A uses a standard formula that incorporates median inter-correlations among and reliabilities of those CHC domains that were judged to be “sufficient”
- Median ***inter-correlations*** among each broad ability and every other broad ability were derived from an investigation of over 250 coefficients reported in the technical manuals of cognitive batteries and included in within-battery and cross-battery independent factor analysis research.
- Median ***reliability coefficients*** were derived from over 50 coefficients gathered from the technical manuals of cognitive batteries

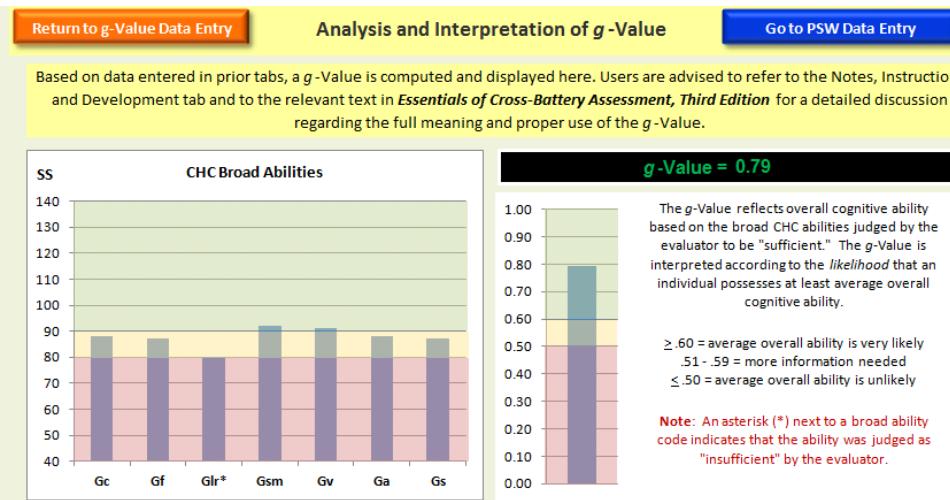
Reliability and Use of the IA-e

- The ***reliability of the IA-e*** (needed for the formula used to generate the predicted score) is calculated based on the reliabilities and inter-correlations among the CHC abilities that are reported to be sufficient
- ***To use the IA-e to generate a predicted cognitive or academic score***, approximately 500 inter-correlations among specific cognitive and academic areas (broad and narrow) and general cognitive ability (e.g., FSIQ and other total test composites from cognitive batteries) were gathered and medians were obtained

Example of Relationship between g-Value and IA-e: When “yes” is selected for scores that are in high 80’s and low 90’s

Return to Identifying Info		DATA ENTRY for g-Value		Continue to g-Value
Step 1: Enter Composite Scores		In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).		
Step 2: Indicate "Yes" or "No"		In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.		
CHC ABILITY COMPOSITES		Enter Standard Scores (Range 40 ~ 160)*	Select Yes or No	Determining Sufficiency:
<i>Gc - Crystallized Knowledge</i>		88	<input checked="" type="radio"/> Yes <input type="radio"/> No	An ability is considered "sufficient" when it is judged by the evaluator to contribute meaningfully to the individual's overall cognitive functioning, particularly for the purpose of facilitating academic performance (e.g., acquisition and development of academic skills). Typically, standard scores around 90 or higher are sufficient, as abilities associated with scores in this range (≥ 90) often contribute meaningfully to the individual's overall cognitive functioning and, therefore, support learning. When standard scores are around 90 or lower, clinical judgment is necessary to determine if the broad ability constrains or inhibits learning and achievement.
<i>Gf - Fluid Reasoning</i>		87	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<i>Glr - Long-Term Storage & Retrieval</i>		80	<input type="radio"/> Yes <input checked="" type="radio"/> No	
<i>Gsm - Short-Term Memory</i>		92	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<i>Gv - Visual Processing</i>		91	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<i>Ga - Auditory Processing</i>		88	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<i>Gs - Processing Speed</i>		87	<input checked="" type="radio"/> Yes <input type="radio"/> No	

Example of Relationship between g-Value and IA-e: When “yes” is selected for scores that are in high 80’s and low 90’s



Example of Relationship between g-Value and IA-e: When “yes” is selected for scores that are in high 80’s and low 90’s

Return to g-Value Data Entry	Pattern of Strengths and Weaknesses Data Entry	Go to PSW Analyzer
<p>1a. Intact Ability Estimate This composite is calculated using median reliabilities and intercorrelations among the CHC broad ability scores judged as sufficient on the g-Value tab.</p> <p>85 The Intact Ability Estimate (IA-e) appears in green when it is ≥ 90 and the g-Value $\geq .60$. The IA-e appears in yellow when it is between 85-89, inclusive, or the g-Value is between .51-.59, inclusive. "N/A" will appear if the IA-e is < 85 or the g-Value $\leq .50$, or if there were too few abilities judged to be sufficient (i.e., <3). When "N/A" appears in the box no further analyses can or should be performed. When an alternative value is entered below, double dashes "--" are displayed.</p> <p><input type="text"/> Note: If you would like the program to use a value other than the IA-e, you may enter an alternative score here. Be sure that the value you enter here is an adequate representation of the individual's overall cognitive ability and is greater than or equal to 85. Simply delete this value if you wish to return to using the IA-e.</p> <p>0.79 g-Value</p>		
<p>1b. Alternative Ability Estimate You may enter an alternative value if desired or when the IA-e is not believed to be a good estimate of general ability.</p>		

$$85 \pm 5 \text{ (80-90)}$$

$$90-110 = \text{Average}$$

Example of Relationship between g-Value and IA-e: When “yes” is selected for scores that are in high 80’s and low 90’s

Return to Identifying Info	DATA ENTRY for g-Value		Continue to g-Value
Step 1: Enter Composite Scores		In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).	
Step 2: Indicate “Yes” or “No”		In the right-hand column below indicate whether ability is “sufficient” by clicking on either the “Yes” or “No” button.	
CHC ABILITY COMPOSITES	Enter Standard Scores (Range 40 - 160)*	Select Yes or No	Determining Sufficiency: An ability is considered “sufficient” when it is judged by the evaluator to contribute meaningfully to the individual’s overall cognitive functioning, particularly for the purpose of facilitating academic performance (e.g., acquisition and development of academic skills). Typically, standard scores around 90 or higher are sufficient, as abilities associated with scores in this range (≥ 90) often contribute meaningfully to the individual’s overall cognitive functioning and, therefore, support learning. When standard scores are around 90 or lower, clinical judgment is necessary to determine if the broad ability constrains or inhibits learning and achievement.
<i>Gc - Crystallized Knowledge</i>	86	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<i>Gf - Fluid Reasoning</i>	87	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<i>Glr - Long-Term Storage & Retrieval</i>	80	<input type="radio"/> Yes <input checked="" type="radio"/> No	
<i>Gsm - Short-Term Memory</i>	92	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<i>Gv - Visual Processing</i>	91	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<i>Ga - Auditory Processing</i>	88	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<i>Gs - Processing Speed</i>	87	<input checked="" type="radio"/> Yes <input type="radio"/> No	

Gc is now and 86, not 88 (all other scores are the same as last example)

Example of Relationship between g-Value and IA-e: When “yes” is selected for scores that are in high 80’s and low 90’s

Return to g-Value Data Entry	Pattern of Strengths and Weaknesses Data Entry	Go to PSW Analyzer
1a. Intact Ability Estimate This composite is calculated using median reliabilities and intercorrelations among the CHC broad ability scores judged as sufficient on the g-Value tab.		
N/A The composite represents the individual's overall cognitive ability without the attenuating effects of the CHC abilities judged to be areas of weakness or deficit.		
1b. Alternative Ability Estimate You may enter an alternative value if desired or when the IA-e is not believed to be a good estimate of general ability.		
N/A The Intact Ability Estimate (IA-e) appears in green when it is ≥ 90 and the g-Value $\geq .60$. The IA-e appears in yellow when it is between 85-89, inclusive, or the g-Value is between .51-.59, inclusive. "N/A" will appear if the IA-e is < 85 or the g-Value $\leq .50$, or if there were too few abilities judged to be sufficient (i.e., < 3). When "N/A" appears in the box no further analyses can or should be performed. When an alternative value is entered below, double dashes "—" are displayed.		
Note: If you would like the program to use a value other than the IA-e, you may enter an alternative score here. Be sure that the value you enter here is an adequate representation of the individual's overall cognitive ability and is greater than or equal to 85. Simply delete this value if you wish to return to using the IA-e.		

IA-e is likely 84 or 83

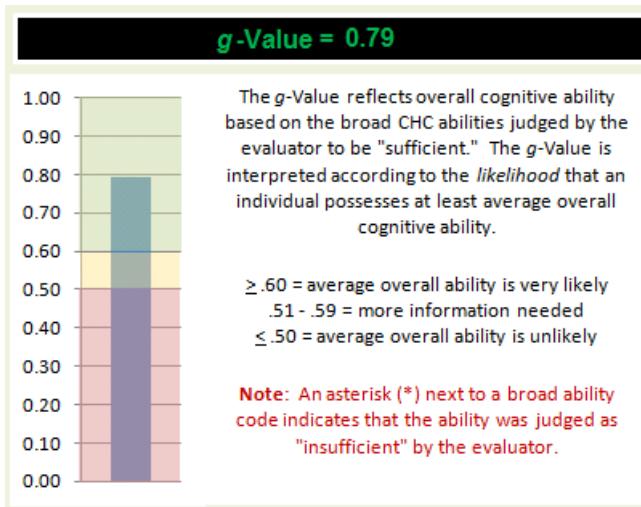
(upper end of CI does not touch or extend into the Average range)

Even with a liberal Confidence Interval, this individual's pattern of strengths does not suggest at least average overall cognitive ability

Pattern Suggests *General* Learning Difficulty, Not *Specific* Learning Disability

Return to Identifying Info	DATA ENTRY for g -Value	Continue to g-Value																								
Step 1: Enter Composite Scores In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).																										
Step 2: Indicate "Yes" or "No" In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.																										
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Return to g-Value Data Entry	Pattern of Strengths and Weaknesses Data Entry	Go to PSW Analyzer																								
1a. Intact Ability Estimate This composite is calculated using median reliabilities and intercorrelations among the CHC broad ability scores judged as sufficient on the g-Value tab.																										
N/A The composite represents the individual's overall cognitive ability without the attenuating effects of the CHC abilities judged to be areas of weakness or deficit.																										
1b. Alternative Ability Estimate You may enter an alternative value if desired or when the IA-e is not believed to be a good estimate of general ability.																										
N/A The Intact Ability Estimate (IA-e) appears in green when it is ≥ 90 and the g-Value $\geq .60$. The IA-e appears in yellow when it is between 85-89, inclusive, or the g-Value is between .51-.59, inclusive. "N/A" will appear if the IA-e is < 85 or the g-Value $\leq .50$, or if there were too few abilities judged to be sufficient (i.e., < 3). When "N/A" appears in the box no further analyses can or should be performed. When an alternative value is entered below, double dashes "—" are displayed.																										
Note: If you would like the program to use a value other than the IA-e, you may enter an alternative score here. Be sure that the value you enter here is an adequate representation of the individual's overall cognitive ability and is greater than or equal to 85. Simply delete this value if you wish to return to using the IA-e.																										

g-Value in Perspective



Most of the time a *g*-Value $\geq .60$ will yield an Average or better IA-e

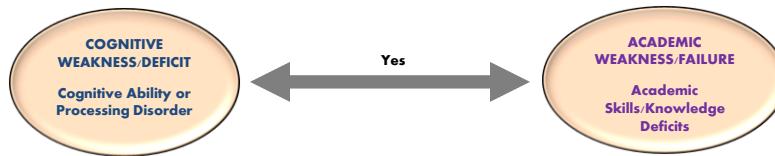
Most of the time a *g*-Value of $.51 - .59$ will yield an IA-e that is low average to average or better, depending on the obtained scores

IA-e in Perspective

- The IA-e appears in **green** when it is ≥ 90 and the *g*-Value is $\geq .60$.
- The IA-e appears in **yellow** when it is between 85-89, inclusive, or the *g*-Value is between $.51 - .59$, inclusive.
- "**N/A**" appears if the IA-e is < 85 or the *g*-Value is $\leq .50$, or if there are too few abilities judged to be sufficient (i.e., ≤ 3 , depending on age and ability domains).

Interpretation of PSW

Below Average Aptitude-Achievement Consistency
(scores approximately 1SD below the mean or lower)



Evaluation of consistency *is not* determined by a non-significant difference between the cognitive and academic weaknesses

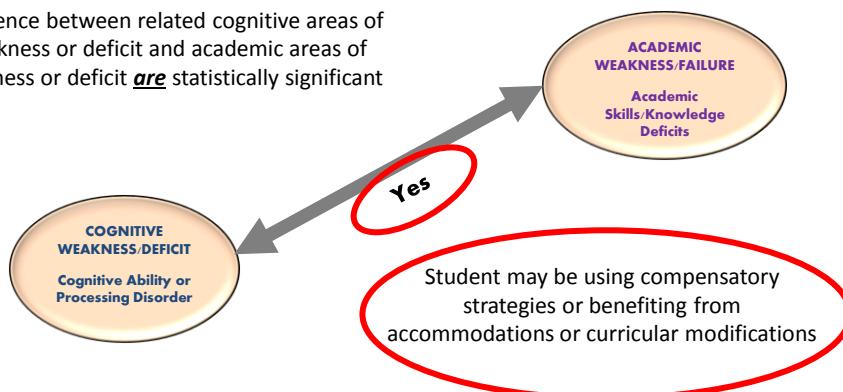
Flanagan, Ortiz and Alfonso (2013). Essentials of Cross-Battery Assessment, 3rd Edition. Wiley.

Interpretation of PSW

Below Average Aptitude-Achievement Consistency

(when scores for related cog-ach areas are approximately 1SD below the mean or lower - whether or not there is a statistically significant difference between them is irrelevant with regard to meeting the "consistency" criterion in the DD/C model)

Difference between related cognitive areas of weakness or deficit and academic areas of weakness or deficit are statistically significant

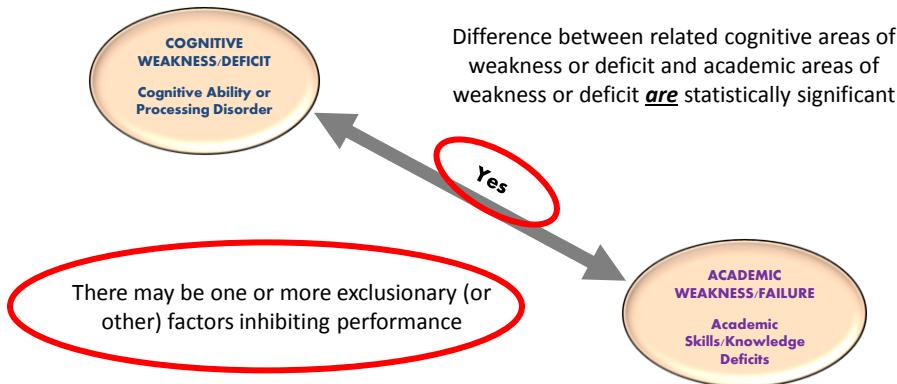


Flanagan, Ortiz and Alfonso (2013). Essentials of Cross-Battery Assessment, 3rd Edition. Wiley.

Interpretation of PSW

Below Average Aptitude-Achievement Consistency

(when scores for related cog-ach areas are approximately 1SD below the mean or lower - whether or not there is a statistically significant difference between them is irrelevant with regard to meeting the "consistency" criterion in the DD/C model)



Flanagan, Ortiz and Alfonso (2013). Essentials of Cross-Battery Assessment, 3rd Edition. Wiley.

Factors that may affect learning
<ul style="list-style-type: none"> 1. Executive functioning (e.g., time management skills, organizational skills) 2. Ability to complete tasks within a specified time period (e.g., classwork, tests, homework) 3. Sensory-motor integration (e.g., visual-motor coordination) 4. Ability to attend and concentrate on academic tasks in school 5. Match between student's learning needs and instructional environment 6. Relationships with same age and grade peers 7. Receptive to corrective feedback 8. Uses educational supports in school (e.g., before/after school programs) 9. Uses educational supports outside of school (e.g., tutoring, community programs) 10. Familial support (e.g., parent involvement, assistance from family members) 11. Self-esteem or self-concept 12. School climate (e.g., safety, peer group) 13. Motivation and level of effort

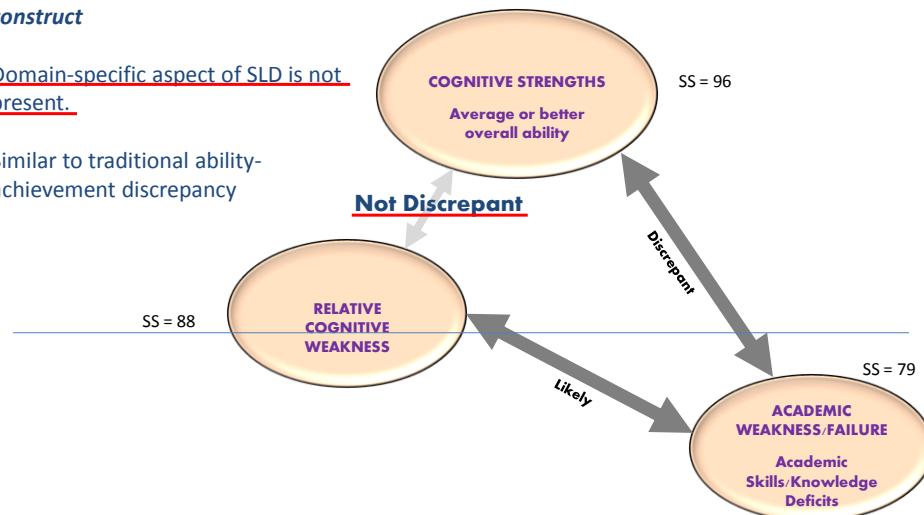


Level IV of Flanagan et al.'s DD/C Operational Definition of SLD: Pattern of Strengths and Weaknesses

Pattern not consistent with SLD construct

Domain-specific aspect of SLD is not present.

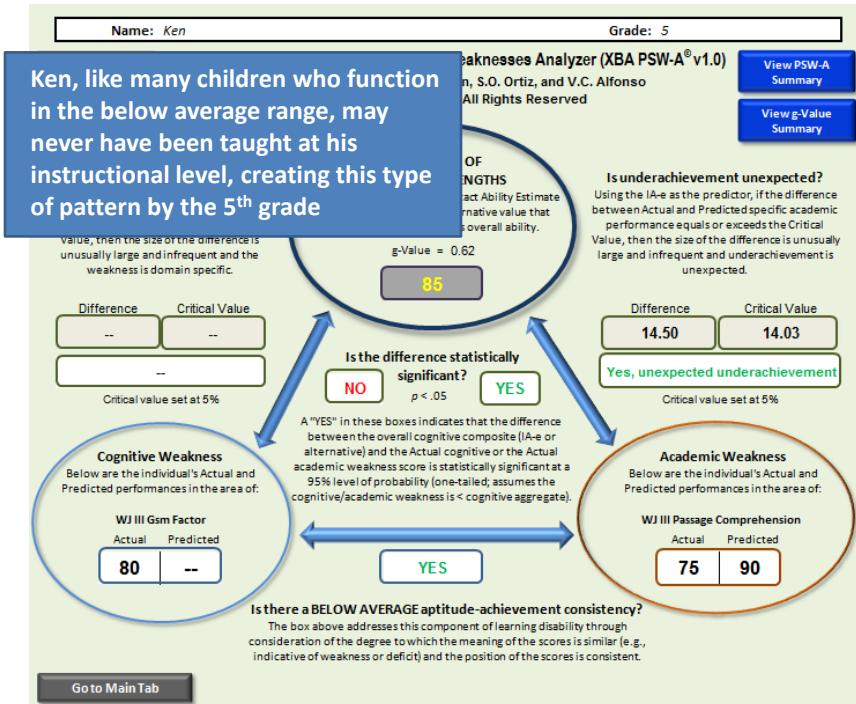
Similar to traditional ability-achievement discrepancy



Flanagan, Ortiz and Alfonso (2013). Essentials of Cross-Battery Assessment, 3rd Edition. Wiley.

Name: Ken		Grade: 5	
Return to Identifying Info		DATA ENTRY for g-Value	
Step 1: Enter Composite Scores		In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).	
Step 2: Indicate "Yes" or "No"		In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.	
CHC ABILITY COMPOSITES		Enter Standard Scores (Range 40 - 160)*	Select Yes or No
Gc - Crystallized Knowledge		90	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gf - Fluid Reasoning		84	<input type="radio"/> Yes <input checked="" type="radio"/> No
Glr - Long-Term Storage & Retrieval		89	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gsm - Short-Term Memory		80	<input type="radio"/> Yes <input checked="" type="radio"/> No
Gv - Visual Processing		88	<input checked="" type="radio"/> Yes <input type="radio"/> No
Ga - Auditory Processing		88	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gs - Processing Speed		90	<input checked="" type="radio"/> Yes <input type="radio"/> No
Determining Sufficiency: An ability is considered "sufficient" when it is judged by the evaluator to contribute meaningfully to the individual's overall cognitive functioning, particularly for the purpose of facilitating academic performance (e.g., acquisition and development of academic skills). Typically, standard scores around 90 or higher are sufficient, as abilities associated with scores in this range (≥ 90) often contribute meaningfully to the individual's overall cognitive functioning and, therefore, support learning. When standard scores are around 90 or lower, clinical judgment is necessary to determine if the broad ability constrains or inhibits learning and achievement.			
*Note: If using T-Scores, convert them to Standard Scores (Deviation IQ metric) here: <input type="text"/> <-T-Score = Std. Score--> <input type="text"/>			
Standard Score Range	Percentile Range	Classification	Functional Description
< 70	<2nd	Extremely Below Average/Normative Deficit	Markedly Insufficient
70 - 79	2nd to 8th	Well Below Average/Normative Deficit	Insufficient
80 - 89	9th to 24th	Below Average/Weakness ²	Insufficient to Sufficient ¹
90 - 109	25th to 74th	Average ²	Sufficient
110 - 119	75th to 89th	Above Average/Strength ²	Efficient
120 - 129	90th to 97th	Well Above Average/Normative Strength	Proficient
≥ 130	>97th	Extremely Above Average/Normative Strength	Markedly Proficient

¹Clinical judgment is likely necessary to determine if an ability reflected by a score in this range constrains learning and achievement for the individual.
²Scores between 85-115 (inclusive) fall within the normal limits of functioning.



Level IV of Flanagan et al.'s DD/C Operational Definition of SLD: Pattern of Strengths and Weaknesses

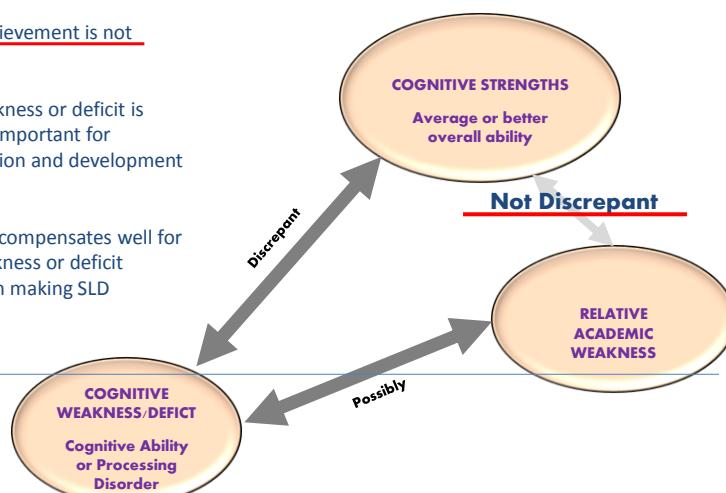
Pattern not consistent with SLD construct:

Unexpected underachievement is not present.

Area of cognitive weakness or deficit is likely not particularly important for academic skill acquisition and development at this age/grade level

Alternatively, student compensates well for area of cognitive weakness or deficit (history is important in making SLD determination)

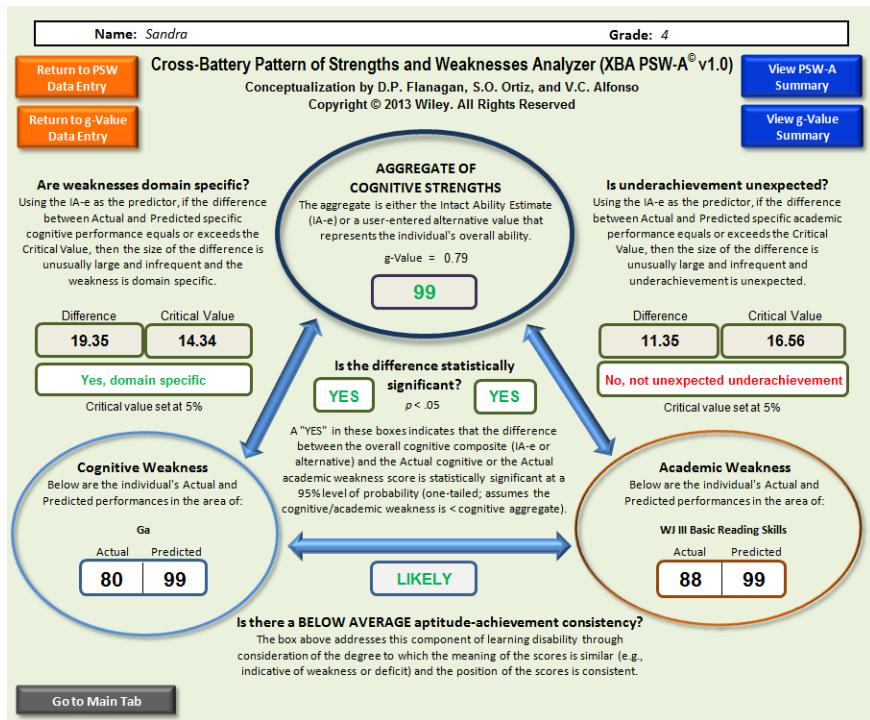
SS = 85



Flanagan, Ortiz and Alfonso (2013). Essentials of Cross-Battery Assessment, 3rd Edition. Wiley.

Name: Sandra		Grade: 4
<input type="button" value="Return to Identifying Info"/> <input type="button" value="Continue to g-Value"/>		
Step 1: Enter Composite Scores In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).		
Step 2: Indicate "Yes" or "No" In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.		
CHC ABILITY COMPOSITES	Enter Standard Scores (Range 40 - 160)*	Select Yes or No
Gc - Crystallized Knowledge	99	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gf - Fluid Reasoning	100	<input checked="" type="radio"/> Yes <input type="radio"/> No
Glr - Long-Term Storage & Retrieval	93	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gsm - Short-Term Memory	87	<input type="radio"/> Yes <input checked="" type="radio"/> No
Gv - Visual Processing	101	<input checked="" type="radio"/> Yes <input type="radio"/> No
Ga - Auditory Processing	80	<input type="radio"/> Yes <input checked="" type="radio"/> No
Gs - Processing Speed	102	<input checked="" type="radio"/> Yes <input type="radio"/> No
<small>*Note: If using T-Scores, convert them to Standard Scores (Deviation IQ metric) here:</small> <input type="text"/>		
Standard Score Range	Percentile Range	Classification
< 70	<2nd	Extremely Below Average/Normative Deficit
70 - 79	2nd to 8th	Well Below Average/Normative Deficit
80 - 89	9th to 24th	Below Average/Weakness ²
90 - 109	25th to 74th	Average ³
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120 - 129	90th to 97th	Well Above Average/Normative Strength
≥ 130	> 97th	Extremely Above Average/Normative Strength
<small>² Clinical judgment is likely necessary to determine if an ability reflected by a score in this range constrains learning and achievement for the individual.</small>		
<small>³ Scores between 85-115 (inclusive) fall within the normal limits of functioning.</small>		
<input type="button" value="Go to Main Tab"/>		

Name: Sandra		Grade: 4
<input type="button" value="Return to PSW Data Entry"/> <input type="button" value="View PSW-A Summary"/>		
<input type="button" value="Return to g-Value Data Entry"/> <input type="button" value="View g-Value Summary"/>		
Cross-Battery Pattern of Strengths and Weaknesses Analyzer (XBA PSW-A® v1.0) Conceptualization by D.P. Flanagan, S.O. Ortiz, and V.C. Alfonso Copyright © 2013 Wiley. All Rights Reserved		
Are weaknesses domain specific? Using the IA-e 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 Critical Value 12.19 9.32 <small>Yes, domain specific</small> <small>Critical value set at 5%</small>		
Is the difference statistically significant? <small>YES</small> <small>p < .05</small> <small>YES</small> <small>POSSIBLY</small>		
AGGREGATE OF COGNITIVE STRENGTHS The aggregate is either the Intact Ability Estimate (IA-e) or a user-entered alternative value that represents the individual's overall ability. <small>g-Value = 0.79</small> 99		
Is underachievement unexpected? Using the IA-e 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 Critical Value 11.35 16.56 <small>No, not unexpected underachievement</small> <small>Critical value set at 5%</small>		
Cognitive Weakness Below are the individual's Actual and Predicted performances in the area of: Gsm Actual Predicted 87 99		
Academic Weakness Below are the individual's Actual and Predicted performances in the area of: WJ III Basic Reading Skills Actual Predicted 88 99		
Is there a BELOW AVERAGE aptitude-achievement consistency? The box above addresses this component of learning disability through consideration of the degree to which the meaning of the scores is similar (e.g., indicative of weakness or deficit) and the position of the scores is consistent.		
<input type="button" value="Go to Main Tab"/>		



Level IV of Flanagan et al.'s DD/C Operational Definition of SLD: Pattern of Strengths and Weaknesses

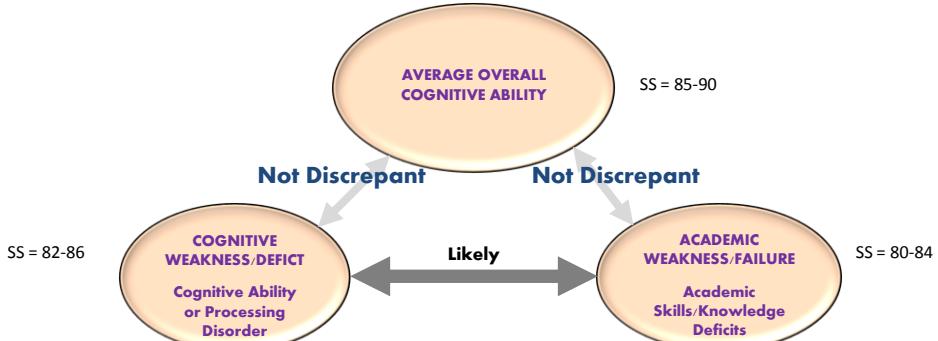
Pattern not consistent with SLD construct, although scores appear to suggest "the pattern"

Unexpected underachievement is not present.

Domain-specific cognitive weakness as a primary contributing factor to poor achievement not present

All performances are similar – expected achievement

Likely general learning difficulty (slow learner), especially in an average to high achieving school



Flanagan, Ortiz and Alfonso (2013). Essentials of Cross-Battery Assessment, 3rd Edition. Wiley.

Name: Bill		Grade: 5	
Return to Identifying Info		Continue to g-Value	
Step 1: Enter Composite Scores		In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).	
Step 2: Indicate "Yes" or "No"		In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.	
CHC ABILITY COMPOSITES	Enter Standard Scores (Range 40 - 160)*	Select Yes or No	
Gc - Crystallized Knowledge	91	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Gf - Fluid Reasoning	90	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Glr - Long-Term Storage & Retrieval	93	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Gsm - Short-Term Memory	87	<input type="radio"/> Yes <input checked="" type="radio"/> No	
Gv - Visual Processing	92	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Ga - Auditory Processing	96	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Gs - Processing Speed	85	<input type="radio"/> Yes <input checked="" type="radio"/> No	
<p>*Note: If using T-Scores, convert them to Standard Scores (Deviation IQ metric) here: <input type="text"/></p> <p><-T-Score = Std. Score-> <input type="text"/></p>			
Standard Score Range	Percentile Range	Classification	Functional Description
< 70	<2nd	Extremely Below Average/Normative Deficit	Markedly Insufficient
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120 - 129	90th to 97th	Well Above Average/Normative Strength	Proficient
≥ 130	>97th	Extremely Above Average/Normative Strength	Markedly Proficient
<small>¹Clinical judgment is likely necessary to determine if an ability reflected by a score in this range constrains learning and achievement for the individual.</small>			
<small>²Scores between 85-115 (inclusive) fall within the normal limits of functioning.</small>			
Go to Main Tab			

Name: Bill		Grade: 5
Return to PSW Data Entry		View PSW-A Summary
Return to g-Value Data Entry		View g-Value Summary
Cross-Battery Pattern of Strengths and Weaknesses Analyzer (XBA PSW-A® v1.0) Conceptualization by D.P. Flanagan, S.O. Ortiz, and V.C. Alfonso Copyright © 2013 Wiley. All Rights Reserved		
Are weaknesses domain specific? Using the IA-e 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.		
AGGREGATE OF COGNITIVE STRENGTHS The aggregate is either the Intact Ability Estimate (IA-e) or a user-entered alternative value that represents the individual's overall ability. $g\text{-Value} = 0.80$ 90		
Is underachievement unexpected? Using the IA-e 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.		
Cognitive Weakness Below are the individual's Actual and Predicted performances in the area of: WISC-IV Processing Speed Actual Predicted 85 --		
Academic Weakness Below are the individual's Actual and Predicted performances in the area of: Reading Fluency Actual Predicted 84 --		
Is the difference statistically significant? NO p < .05 NO A "YES" in these boxes indicates that the difference between the overall cognitive composite (IA-e 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).		
Is there a BELOW AVERAGE aptitude-achievement consistency? The box above addresses this component of learning disability through consideration of the degree to which the meaning of the scores is similar (e.g., indicative of weakness or deficit) and the position of the scores is consistent. LIKELY		
Go to Main Tab		

General Learning Difficulty

- Overall cognitive ability
 - In the 80s – low 90's range
- Academic Performance
 - In the 80s range
- **Pervasive** below average performance
- May have splinter skills (relative strengths)

Program Planning :

*Remediate academic deficits at Tiers II and III of an RTI service delivery model

*Small group; ample time to practice skills; emphasize need for several error-free repetitions of newly taught information, etc.

Guidelines for Differential Diagnosis: Cognitive Ability and Adaptive Behavior

<i>Intellectual Disability (ID)</i>	<i>General Learning Difficulty (Slow Learner)</i>	<i>Specific Learning Disability (SLD)</i>
General ability \leq 70-75	General ability $>$ 75 and \leq 89	General ability \geq 90
Little variation in cognitive ability and processing profile	Little to moderate variation in cognitive ability and processing profile	Moderate to high (or statistically significant) variation in cognitive ability and processing profile
All or nearly all cognitive areas <i>may be</i> \leq 75	May have normative deficits in one or more cognitive and academic areas (\leq 85)	Normative deficits (\leq 85) in specific cognitive abilities and processes; Normative deficits (\leq 85) in specific academic area(s): Empirical or ecologically between cognitive and
<i>DSM 5 Code</i> based on degree of severity reflecting level of intellectual impairment:		(\geq 90 and \leq 115) in d abilities and <i>possible</i> or academic strengths
317 Mild Mental Retardation: IQ level 50-55 to approximately 70		cits in Adaptive
318.0 Moderate Mental Retardation: IQ level 35-40 to 50-55		
318.1 Severe Mental Retardation: IQ level 20-25 to 35-40		
318.2 Profound Mental Retardation: IQ level below 20 or 25		
IDEA		
People scoring below 70 to 75 are thought to have an intellectual disability.		

Differential Diagnosis: Etiology

<i>Intellectual Disability (ID)</i>	<i>General Learning Difficulty (Slow Learner)</i>	<i>Specific Learning Disability (SLD)</i>
Normative cognitive deficits are explained by genetic conditions (e.g., PKU, chromosomal abnormalities, such as Down syndrome and fragile X syndrome); problems during pregnancy (e.g., use of alcohol or drugs; illnesses of the mother); problems at birth (prematurity, low birth weight); problems after birth (e.g., childhood diseases, head injuries; lead and mercury exposure); or poverty and cultural deprivation (e.g., malnutrition, inadequate medical care, environmental health hazards; under-stimulation). Note: in approximately 1/3 of individuals with ID, the cause is not known.	Underlying causes of generally low average cognitive and academic abilities are typically not known	SLD has a neurobiological basis. <i>The pattern of generally Average or better overall cognitive ability and Below Average performance in related cognitive and academic areas cannot be explained by exclusionary factors (e.g., poor instruction; social/emotional factors; psychological disturbance; cultural or language differences, environmental deprivation, etc.), although one or more of these factors may contribute to weak academic performance.</i>

Differential Diagnosis: Response to Instruction/Intervention and Programming

<i>Intellectual Disability (ID)</i>	<i>General Learning Difficulty (Slow Learner)</i>	<i>Specific Learning Disability (SLD)</i>
Progress Monitoring (or other performance indicators) demonstrates very slow rate of response/learning; will not meet typical grade level benchmarks in any academic area	Progress Monitoring (or other performance indicators) demonstrates slow rate of response/learning; may meet typical grade level benchmarks in some, but not all, academic areas	Following a comprehensive evaluation and resultant provisions of tailored interventions, accommodations, compensatory strategies, and/or modifications, Progress Monitoring (or other performance indicators) demonstrates rate of response/learning similar to same grade peers; may approximate or meet typical grade level benchmarks
Special Education	Tier II and Tier III interventions in General Education; Remedial Programs	Special Education; Remedial Programs; Inclusion (Tier II and Tier III interventions)
<i>Primary Foci:</i> Self-Help Skills; Functional Academics; Social Skills	<i>Primary Foci:</i> Functional Academics; Vocational Training; Accommodations; Compensatory Strategies; Social Skills and Self-Esteem	<i>Primary Foci:</i> Grade Level Performance; College Preparation; Accommodations; Compensatory Strategies; Self-Esteem; Self-Advocacy
Use data from strength-based assessment for intervention planning	Use data from strength-based assessment for intervention planning	Use data from strength-based assessment for intervention planning

Differential Diagnosis

- PERVASIVE and SPECIFIC DEVELOPMENTAL DISABILITIES MUST BE RULED OUT IN MAKING AN SLD DIAGNOSIS
- Environmental factors such as poverty/low income, language differences, cultural differences, family stressors *ARE SOURCES OF DIVERSITY, WHICH DO NOT RULE OUT SLD DIAGNOSES BUT SHOULD BE TAKEN INTO ACCOUNT IN INSTRUCTIONAL/TREATMENT PLANS.*

(Berninger, May 10, 2013; 5th Annual Assessment Conference, Fordham University, NY)

Biological Bases of Individual Differences: Genetic Variables (Berninger & Niedo, 2014)

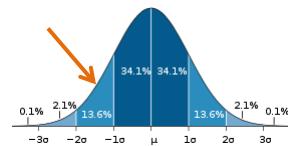
- “For students with more constraining **developmental disabilities**, instruction may result in varying degrees of developmental change and learning, *but at a rate and on a trajectory limited by underlying genetic abnormalities that make full normalization unrealistic* (Berninger & Miller, 2011).”

Berninger & Niedo (2014). Individualizing Instruction for Students with Oral and Written Language Difficulties. In Mascolo, Alfonso, and Flanagan (Eds.), *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners*. Hoboken, NJ: Wiley.

RESPONSE-TO-INTERVENTION: SEPARATING THE RHETORIC OF SELF-CONGRATULATION FROM THE REALITY OF SPECIFIC LEARNING DISABILITY IDENTIFICATION

Kenneth A. Kavale, James M. Kauffman, Randy J. Bachmeier, and Gretchen B. LeFever

When a student does not meet the discrepancy criterion and, therefore, cannot be deemed an underachiever, there is the strong possibility that the student is a "slow learner" (SL; i.e., a student with an IQ level between about 70 and 85). About 14% of the school population may be deemed SL, but this group does not demonstrate unexpected learning failure, but rather an achievement level consonant with IQ level. Although NCLB makes such low achievement problematic, *slow learner* has never been a special education category, and "What should not happen is that a designation of SLD be given to a slow learner" (Kavale, 2005, p. 555).



Learning Disability Quarterly, Summer, 2008

Don't Forget

- Differential Diagnosis is Important

A diagnosis identifies the nature of a specific learning disability and has implications for its probable etiology, instructional requirements, and prognosis. Ironically, in an era when educational practitioners are encouraged to use evidence-based instructional practices, they are not encouraged to use evidence-based differential diagnoses of specific learning disabilities.



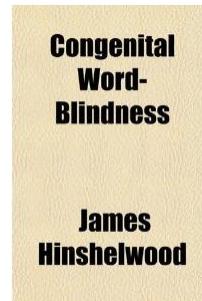
Virginia Berninger (2011). Chapter in Flanagan & Alfonso (Eds.), *Essentials of Specific Learning Disability Identification*. Wiley.

Is At Least Average Overall Ability Consistent with the SLD Construct?



Individuals with SLD have At Least Average Overall Ability

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



"Historical Perspective" Information from Nancy Mather, NYASP 2011

Individuals with SLD have At Least Average Overall Ability

Many of the children have a high degree of intelligence



Orton, 1937

"Historical Perspective" Information from Nancy Mather, NYASP 2011

Individuals with SLD have At Least Average Overall Ability

"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

Individuals with SLD have At Least Average Overall Ability

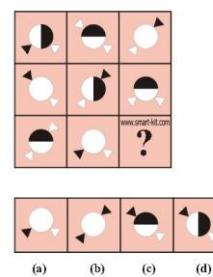
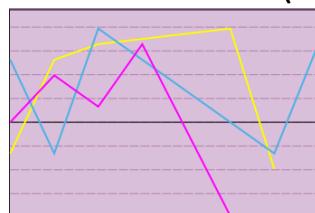
- Remedial training must continue until reading is in harmony with the child's other capacities and achievement
- Some children of superior intelligence struggle to learn to read
- Monroe, M. (1932)



"Historical Perspective" Information from Nancy Mather, NYASP 2011

Individuals with SLD have At Least Average Overall Ability

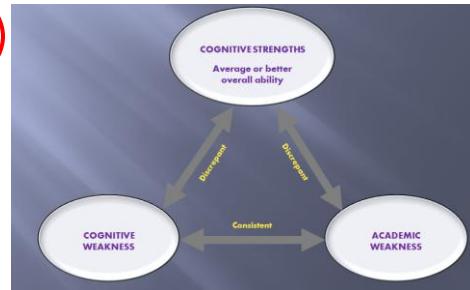
- "Sometimes children of good general intelligence show retardation in some of the specific skills which compose an intelligence test" (p. 22)
- Monroe and Backus (1937)



"Historical Perspective" Information from Nancy Mather, NYASP 2011

Individuals with SLD have At Least Average Overall Ability

“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

Overall Ability and RTI

Fuchs and Young (2006). *On the irrelevance of intelligence in predicting responsiveness to reading instruction*, 73(1), pp. 8-30.

IMPLICATIONS FOR RESEARCH AND PRACTICE

So, findings from our review suggest that IQ frequently predicts responsiveness to reading instruction, and it can explain important variance in such responsiveness. Put differently, IQ often mediates or influences the effectiveness of reading instruction such that it is more or less effective for children with higher versus lower IQ scores. By

Overall Ability and RTI

The rate of progress under remedial instruction was found to be a function of:

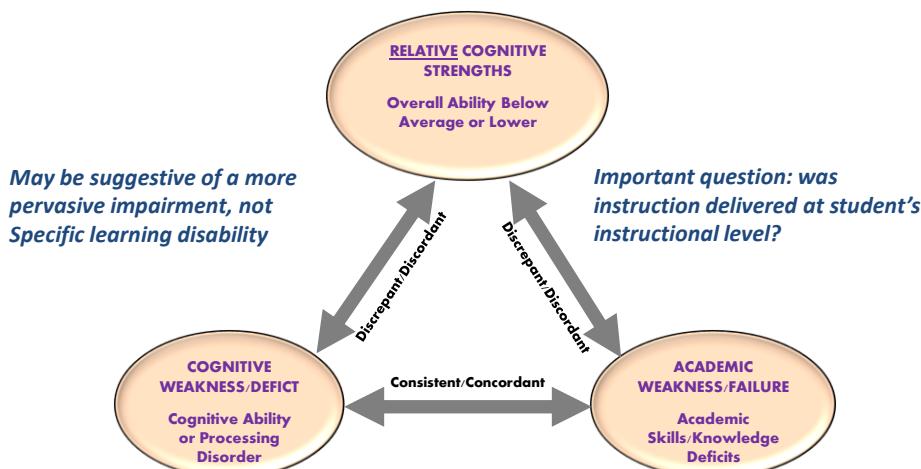
- the child's intelligence
- how early intervention is provided
- number of hours of training
- severity of the disability
- behavior and personality difficulties
- supervision of the remedial techniques

(Source: Monroe, 1932, p. 157)

"Historical Perspective" Information from Nancy Mather, NYASP 2011

Level IV of Flanagan et al.'s DD/C Operational Definition of SLD: Pattern of Strengths and Weaknesses

All Scores/CHC Domains Approximately 85-90 or Lower



Flanagan, Ortiz and Alfonso (2013). Essentials of Cross-Battery Assessment, 3rd Edition. Wiley.

Name: Syan		Grade: 4																																
Return to Identifying Info		Continue to g-Value																																
Step 1: Enter Composite Scores In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).																																		
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CHC ABILITY COMPOSITES <table border="1"> <tr><td>Gc - Crystallized Knowledge</td><td>91</td></tr> <tr><td>Gf - Fluid Reasoning</td><td>84</td></tr> <tr><td>Glr - Long-Term Storage & Retrieval</td><td>87</td></tr> <tr><td>Gsm - Short-Term Memory</td><td>72</td></tr> <tr><td>Gv - Visual Processing</td><td>85</td></tr> <tr><td>Ga - Auditory Processing</td><td>88</td></tr> <tr><td>Gs - Processing Speed</td><td>85</td></tr> </table>		Gc - Crystallized Knowledge	91	Gf - Fluid Reasoning	84	Glr - Long-Term Storage & Retrieval	87	Gsm - Short-Term Memory	72	Gv - Visual Processing	85	Ga - Auditory Processing	88	Gs - Processing Speed	85	Select Yes or No <table border="1"> <tr><td><input checked="" type="radio"/> Yes</td><td><input type="radio"/> No</td></tr> <tr><td><input type="radio"/> Yes</td><td><input checked="" type="radio"/> No</td></tr> <tr><td><input checked="" type="radio"/> Yes</td><td><input type="radio"/> No</td></tr> <tr><td><input type="radio"/> Yes</td><td><input checked="" type="radio"/> No</td></tr> <tr><td><input checked="" type="radio"/> Yes</td><td><input type="radio"/> No</td></tr> <tr><td><input type="radio"/> Yes</td><td><input checked="" type="radio"/> No</td></tr> <tr><td><input checked="" type="radio"/> Yes</td><td><input type="radio"/> No</td></tr> </table>	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No				
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Go to Main Tab																																		

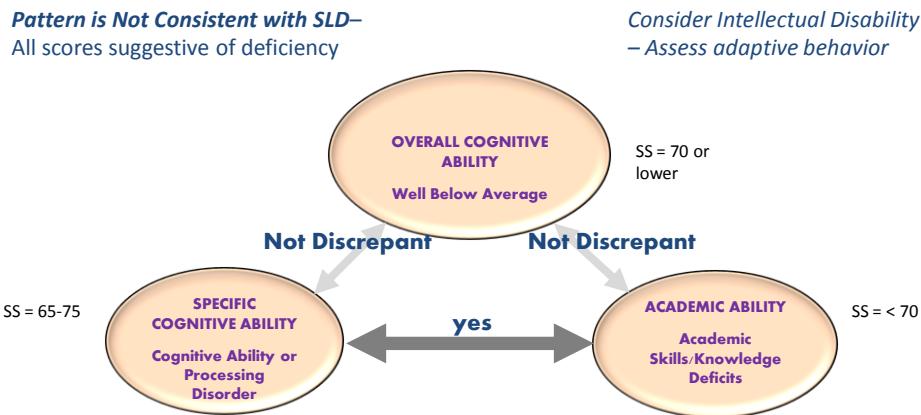
Name: Syan		Grade: 4
Return to PSW Data Entry		View PSW-A Summary
Return to g-Value Data Entry		View g-Value Summary
Cross-Battery Pattern of Strengths and Weaknesses Analyzer (XBA PSW-A® v1.0) Conceptualization by D.P. Flanagan, S.O. Ortiz, and V.C. Alfonso Copyright © 2013 Wiley. All Rights Reserved		
Are weaknesses domain specific? Using the IA-e 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.		
AGGREGATE OF COGNITIVE STRENGTHS The aggregate is either the intact Ability Estimate (IA-e) or a user-entered alternative value that represents the individual's overall ability. $g\text{-Value} = 0.51$ 86		
Is underachievement unexpected? Using the IA-e 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 16.66	Critical Value 8.73	Difference 24.50
Yes, domain specific Critical value set at 5%		Critical Value 12.33
Is the difference statistically significant? YES $p < .05$		
A "YES" in these boxes indicates that the difference between the overall cognitive composite (IA-e 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 Below are the individual's Actual and Predicted performances in the area of: WJ III Gsm Factor Actual Predicted 72 89		
Academic Weakness Below are the individual's Actual and Predicted performances in the area of: Total Math Actual Predicted 65 90		
Is there a BELOW AVERAGE aptitude-achievement consistency? The box above addresses this component of learning disability through consideration of the degree to which the meaning of the scores is similar (e.g., indicative of weakness or deficit) and the position of the scores is consistent.		
Go to Main Tab		

Name: Ryan		Grade: 6	
Return to Identifying Info	DATA ENTRY for g-Value		Continue to g-Value
Step 1: Enter Composite Scores	In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).		
Step 2: Indicate "Yes" or "No"	In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.		
CHC ABILITY COMPOSITES	Enter Standard Scores (Range 40 - 160)*	Select Yes or No	Determining Sufficiency: An ability is considered "sufficient" when it is judged by the evaluator to contribute meaningfully to the individual's overall cognitive functioning, particularly for the purpose of facilitating academic performance (e.g., acquisition and development of academic skills). Typically, standard scores around 90 or higher are sufficient, as abilities associated with scores in this range (≥ 90) often contribute meaningfully to the individual's overall cognitive functioning and, therefore, support learning. When standard scores are around 90 or lower, clinical judgment is necessary to determine if the broad ability constrains or inhibits learning and achievement.
Gc - Crystallized Knowledge	85	<input type="radio"/> Yes <input checked="" type="radio"/> No	
Gf - Fluid Reasoning	84	<input type="radio"/> Yes <input checked="" type="radio"/> No	
Glr - Long-Term Storage & Retrieval	89	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Gsm - Short-Term Memory	72	<input type="radio"/> Yes <input checked="" type="radio"/> No	
Gv - Visual Processing	92	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Ga - Auditory Processing	88	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Gs - Processing Speed	91	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<small>*Note: If using T-Scores, convert them to Standard Scores (Deviation IQ metric) here: <input type="text"/></small>			
Standard Score Range	Percentile Range	Classification	Functional Description
< 70	<2nd	Extremely Below Average/Normative Deficit	Markedly Insufficient
70 - 79	2nd to 8th	Well Below Average/Normative Deficit	Insufficient
80 - 89	9th to 24th	Below Average/Weakness ²	Insufficient to Sufficient ¹
90 - 109	25th to 74th	Average ²	Sufficient
110 - 119	75th to 89th	Above Average/Strength ²	Efficient
120 - 129	90th to 97th	Well Above Average/Normative Strength	Proficient
≥ 130	>97th	Extremely Above Average/Normative Strength	Markedly Proficient
<small>¹Clinical judgment is likely necessary to determine if an ability reflected by a score in this range constrains learning and achievement for the individual.</small>			
<small>²Scores between 85-115 (inclusive) fall within the normal limits of functioning.</small>			
Go to Main Tab			

Name: Ryan		Grade: 6											
Return to PSW Data Entry	Cross-Battery Pattern of Strengths and Weaknesses Analyzer (XBA PSW-A® v1.0)												
Return to g-Value Data Entry	Conceptualization by D.P. Flanagan, S.O. Ortiz, and V.C. Alfonso Copyright © 2013 Wiley. All Rights Reserved												
AGGREGATE OF COGNITIVE STRENGTHS	View PSW-A Summary												
<p>The aggregate is either the intact Ability Estimate (IA-e) or a user-entered alternative value that represents the individual's overall ability.</p> <p>$g\text{-Value} = 0.35$</p> <p>N/A</p>													
Is weaknesses domain specific? Using the IA-e 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.	Is underachievement unexpected? Using the IA-e 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.												
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Is there a BELOW AVERAGE aptitude-achievement consistency? <p>The box above addresses this component of learning disability through consideration of the degree to which the meaning of the scores is similar (e.g., indicative of weakness or deficit) and the position of the scores is consistent.</p>													
Go to Main Tab													

Level IV of Flanagan et al.'s DD/C Operational Definition of SLD: Pattern of Strengths and Weaknesses

Many/Most Scores Suggestive of Deficiency (generally 70-75 or lower)

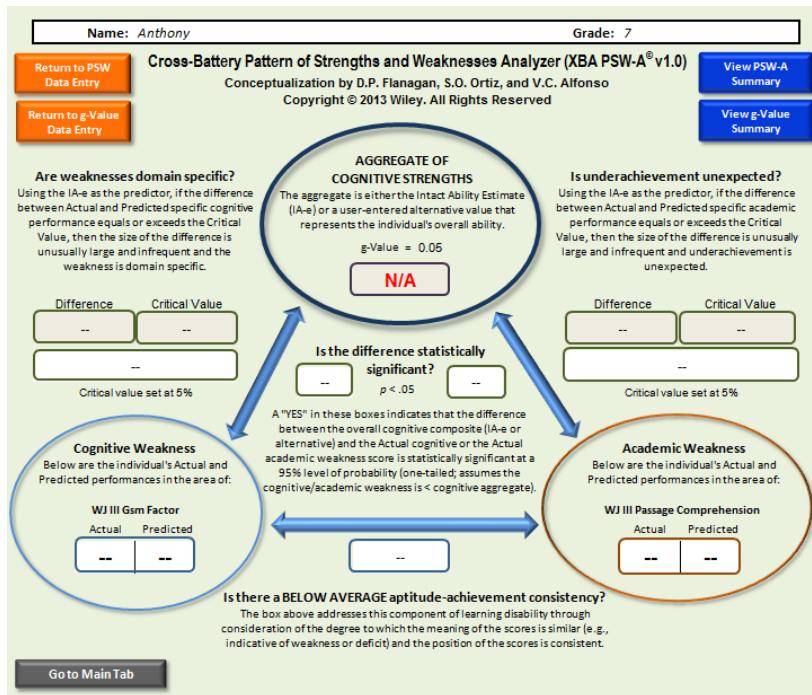


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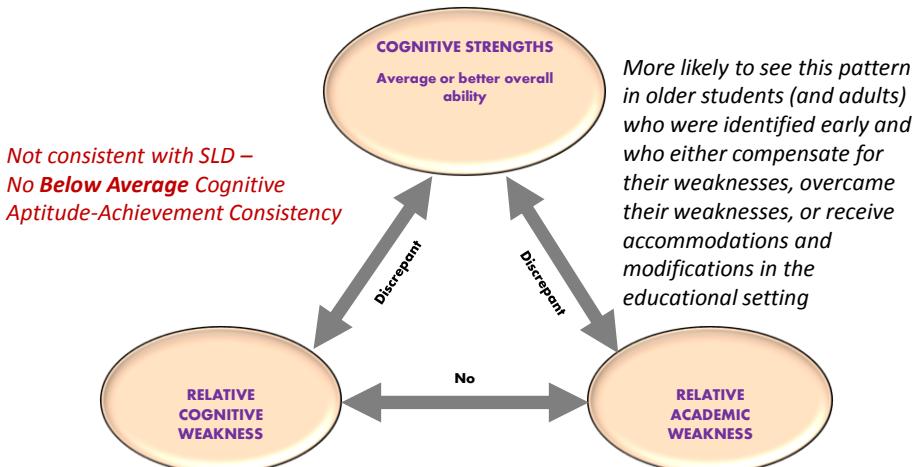
Name: Anthony		Grade: 7	
Return to Identifying Info		Continue to g-Value	
DATA ENTRY for g-Value <div style="background-color: #f2f2f2; padding: 5px;"> In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines). </div>			
Step 1: Enter Composite Scores <div style="background-color: #f2f2f2; padding: 5px;"> In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button. </div>			
CHC ABILITY COMPOSITES		Enter Standard Scores (Range 40 - 160)*	
<i>Gc - Crystallized Knowledge</i>		71	
<i>Gf - Fluid Reasoning</i>		70	
<i>Glr - Long-Term Storage & Retrieval</i>		72	
<i>Gsm - Short-Term Memory</i>		68	
<i>Gv - Visual Processing</i>		60	
<i>Ga - Auditory Processing</i>		89	
<i>Gs - Processing Speed</i>		79	
		<input type="radio"/> Yes <input checked="" type="radio"/> No	
		<input type="radio"/> Yes <input checked="" type="radio"/> No	
		<input type="radio"/> Yes <input checked="" type="radio"/> No	
		<input type="radio"/> Yes <input checked="" type="radio"/> No	
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<small>*Note: If using T-Scores, convert them to Standard Scores (Deviation IQ metric) here: <input type="text"/></small>			
<-T-Score = Std. Score--> <input type="text"/>			
Standard Score Range	Percentile Range	Classification	Functional Description
< 70	<2nd	Extremely Below Average/Normative Deficit	Markedly Insufficient
70 - 79	2nd to 8th	Well Below Average/Normative Deficit	Insufficient
80 - 89	9th to 24th	Below Average/Weakness ²	Insufficient to Sufficient ¹
90 - 109	25th to 74th	Average ²	Sufficient
110 - 119	75th to 89th	Above Average/Strength ²	Efficient
120 - 129	90th to 97th	Well Above Average/Normative Strength	Proficient
≥ 130	>97th	Extremely Above Average/Normative Strength	Markedly Proficient

¹Clinical judgment is likely necessary to determine if an ability reflected by a score in this range constrains learning and achievement for the individual.

²Scores between 85-115 (inclusive) fall within the normal limits of functioning.



Level IV of Flanagan et al.'s DD/C Operational Definition of SLD: Pattern of Strengths and Weaknesses



All Scores/Areas Approximately 90 or higher with Significant Variation

LIKELY SUGGESTS NORMAL VARIATION

Flanagan, Ortiz and Alfonso (2013). Essentials of Cross-Battery Assessment, 3rd Edition. Wiley.

Name: Bart		Grade: 11
Return to Identifying Info		Continue to g-Value
Step 1: Enter Composite Scores		In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).
Step 2: Indicate "Yes" or "No"		In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.
CHC ABILITY COMPOSITES	Enter Standard Scores (Range 40 - 160)*	Select Yes or No
Gc - Crystallized Knowledge	139	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gf - Fluid Reasoning	127	<input checked="" type="radio"/> Yes <input type="radio"/> No
Glr - Long-Term Storage & Retrieval	115	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gsm - Short-Term Memory	117	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gv - Visual Processing	138	<input checked="" type="radio"/> Yes <input type="radio"/> No
Ga - Auditory Processing	102	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gs - Processing Speed	99	<input checked="" type="radio"/> Yes <input checked="" type="radio"/> No

*Note: If using T-Scores, convert them to Standard Scores (Deviation IQ metric) here:

<-T-Score = Std. Score->

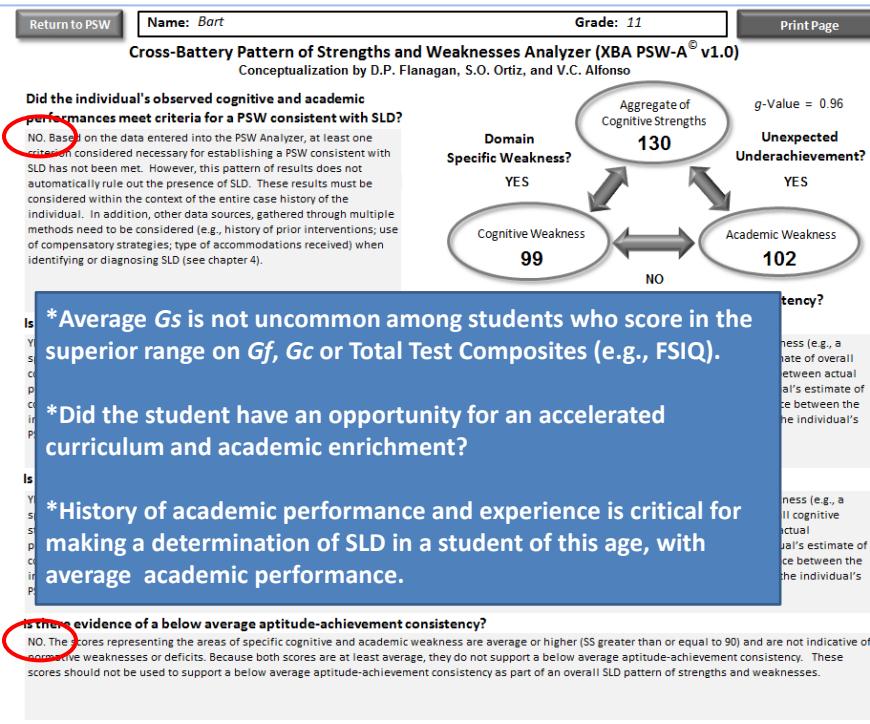
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≥ 130	>97th	Extremely Above Average/Normative Strength	Markedly Proficient

¹ Clinical judgment is likely necessary to determine if an ability reflected by a score in this range constrains learning and achievement for the individual.

² Scores between 85-115 (inclusive) fall within the normal limits of functioning.

[Go to Main Tab](#)

Name: Bart		Grade: 11
Return to PSW Data Entry		View PSW-A Summary
Return to g-Value Data Entry		View g-Value Summary
<p>Cross-Battery Pattern of Strengths and Weaknesses Analyzer (XBA PSW-A® v1.0) Conceptualization by D.P. Flanagan, S.O. Ortiz, and V.C. Alfonso Copyright © 2013 Wiley. All Rights Reserved</p>		
<p>Are weaknesses domain specific? Using the IA-e 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.</p> <p>AGGREGATE OF COGNITIVE STRENGTHS The aggregate is either the intact Ability Estimate (IA-e) or a user-entered alternative value that represents the individual's overall ability. g-Value = 0.96 130</p> <p>Is underachievement unexpected? Using the IA-e 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.</p> <p>Cognitive Weakness Below are the individual's Actual and Predicted performances in the area of: WJ III Gs Factor Actual Predicted 99 121</p> <p>Academic Weakness Below are the individual's Actual and Predicted performances in the area of: WJ III Basic Reading Skills Actual Predicted 102 120</p> <p>Is the difference statistically significant? YES YES p < .05</p> <p>Is there a BELOW AVERAGE aptitude-achievement consistency? The box above addresses this component of learning disability through consideration of the degree to which the meaning of the scores is similar (e.g., indicative of weakness or deficit) and the position of the scores is consistent.</p>		
Go to Main Tab		

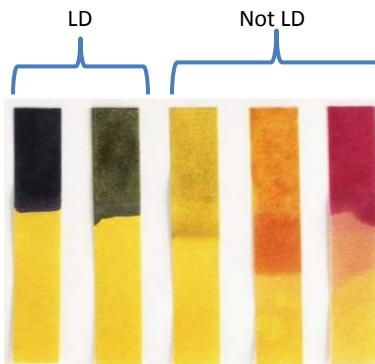


Normal Variation: To Err is Human

- *To Err is Human: “Abnormal” Neuropsychological Scores and Variability are Common in Healthy Adults*
 - Binder, Iverson, and Brooks (2009)
- At least two statistically significant differences in one’s cognitive ability profile is common in the general population
 - McGrew and Knopik (1996) – WJ-R Standardization data
 - Oakley (2000) – WJ III Standardization Data

Don't Forget

- ***There is no LD litmus test;*** the more well-versed you are in different approaches and methods, the more information you will gain about the child (including how to best help him or her)

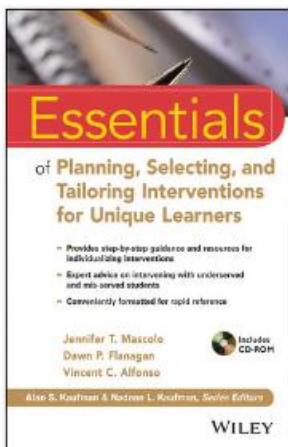


Determining Which CHC Ability Scores to Enter into the PSW-A v1.0

- Use Information about the referral
- Use other data sources (e.g., observations) to aid in interpretation and to support decisions
- Use research to aid in interpretation and to support decisions
- Use your own clinical experience to aid in interpretation and to support decisions
- ***Use the “decision flowchart” for guidance (see X-BASS®)***

The PSW-A

- Psychometrically Sound
- Brings Consistency and Accountability to the Decision-Making Process for SLD Identification
- Clinical Tool
 - Clinical judgment is involved
 - Determining what scores to enter
 - Judgment is bolstered by support from converging data sources
 - Final analysis must be viewed within the context of the entire case (e.g., exclusionary factors)

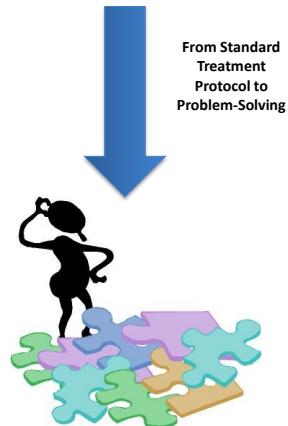


Chapter 1. *A Systematic Method of Analyzing Assessment Results for Tailoring Intervention (SMAART)*

Jennifer T. Mascolo, Dawn P. Flanagan, and Vincent C. Alfonso (2014)

What's First? Evidence-based Intervention

- Evidence-based remedial programs often used first
 - Subject to rigorous evaluation
 - Found to be effective
 - Lead to positive outcomes
- What about when they don't work?
 - Not all evidence-based interventions address academic needs of every student effectively
 - Must then move on from *planning to tailoring* interventions



Planning vs. Tailoring

- **Planning:** process of identifying evidence-based interventions that are most often used in standard service delivery models to address manifest academic difficulties that are revealed via universal screening and progress monitoring



- **Tailoring:** understanding the student's pattern of cognitive and academic strengths and weaknesses and *how this pattern interacts with the instructional materials, classroom instructional factors, environmental factors, and other factors that may facilitate or inhibit learning*

– Goals:

- *Use information about a variety of intrinsic and extrinsic factors to tailor specific interventions*
- *Ensure student has appropriate access to the curriculum by minimizing or bypassing adverse affects that weaknesses have on student's learning*



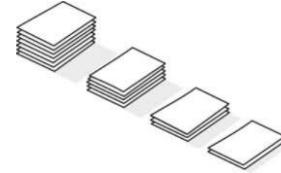
<i>Rapid Reference 1.1 Methods of Tailoring Interventions</i>		
Tailoring Method	Brief Description	Examples
Modification	Changes content of material to be taught or measured; typically involves changing or reducing learning or measurement expectations. May change the depth, breadth, and complexity of learning and measurement goals.	Reducing the amount of material that a student is required to learn Simplifying material to be learned Requiring only literal (as opposed to critical/inferential) questions from an end-of-chapter comprehension check Simplifying test instructions and content Extending time on exams
Accommodation	Changes conditions under which learning occurs or is measured, but does not change or reduce learning or assessment expectations. Accommodations may include timing, flexible scheduling, presentation, setting, and response accommodations.	Assigning a project in advance or allowing more time to complete a project Aligning math problems vertically, as opposed to horizontally Providing a separate room to work Having a student dictate responses to a scribe
Remediation	Techniques or programs used to ameliorate cognitive and academic deficits. Academic interventions typically focus on developing a skill, increasing automaticity of skills, or improving the application of skills. Cognitive interventions typically focus on improving cognitive processes such as working memory capacity and phonological processing. There are many techniques, published programs, and software designed for the purpose of remediation.	Evidence-based programs listed at What Works Clearing House: http://ies.ed.gov/ncee/wwc Reading programs appearing on the Florida Center for Reading Research website: www.fcrr.org Techniques and materials from the Reading Rockets website: www.readingrockets.org CogMed (Pearson) Spotlight on Listening Comprehension (Linguisystems, 2006)
Compensation	Procedures, techniques, and strategies that are intended to bypass or minimize the impact of a cognitive or academic deficit.	Teaching the use of mnemonic devices Organizational aids or techniques Teaching a student to outline or use graphic organizers

Methods of Tailoring Interventions: MARC

- **Modification:** Changes content of material to be taught or measured. Changes the depth, breadth, and complexity of learning and measurement goals.

For example:

- Reducing the amount of material that a student is required to learn
- Simplifying test instructions and content or the material to be learned



- **Accommodation:** changes conditions under which learning occurs or is measured, but does not change or reduce learning or assessment expectations. For example:

- Extending time on exams
- Providing separate room to work
- Aligning math problems vertically, as opposed to horizontally



Methods of Tailoring Interventions: MARC

- **Remediation:** techniques or programs used to ameliorate cognitive and academic deficits. For example:
 - Techniques and materials from the *Reading Rockets* and *What Works Clearinghouse* websites
 - CogMed (from Pearson) – intervention designed to improve working memory capacity
- **Compensation:** procedures, techniques, and strategies intended to bypass or minimize the affects of a cognitive or academic deficits: For example:
 - Teaching the use of mnemonic devices
 - Teaching a student to outline or use graphic organizers
 - Providing the student with guided notes



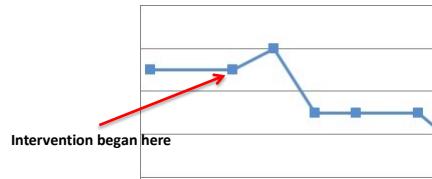
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SMAARTI

A Systematic Method of Analyzing Assessment Results for Tailoring Interventions
 (Mascolo, Flanagan, & Alfonso, 2014; Mascolo, 2008)

- Involves the organization, analysis, and synthesis of assessment data to aid in understanding the cognitive basis of students' learning difficulties
- Based on multiple data sources
- Assists in tailoring interventions to make instruction more accessible to the student
- *Used when a student does not respond as expected to evidence-based interventions*
- *Or whenever a comprehensive evaluation is necessary*



Evidence-based Interventions

- Work for most students, but not all students (e.g., Reading Recovery)
- Students with specific learning disabilities should respond to interventions
 - Many cognitive *capabilities*
- Failure to RTI is not a diagnostic model for SLD
 - Students fail to respond as expected for many reasons



Students who fail to RTI should have a comprehensive evaluation

“At the *current state of scientific knowledge*, it is only through a comprehensive evaluation of a student’s cognitive and psychological abilities and processes that insights into the underlying proximal and varied root causes of [academic] difficulties can be ascertained and then specific interventions be provided targeted to each student’s individual needs, *a process long advocated*”



Reynolds and Shaywitz (2009)

Rapid Reference 1.5 General and Specific Manifestations of Fluid Reasoning (*Gf*) Weaknesses

CHC Broad Cognitive Abilities/ Neuropsychological Functions	Brief Definition	General Manifestations of Cognitive/ Neuropsychological Weakness	Specific Manifestations of Cognitive/ Neuropsychological Weakness
Fluid Reasoning (Gf)	<p>Novel reasoning and problem solving ability to solve problems that are unfamiliar.</p> <p>Processes are minimally dependent on prior learning.</p> <p>Involves manipulating rules, abstracting, generalizing, and identifying logical relationships.</p> <p>Fluid reasoning is evident in inferential reasoning, concept formation, classification of unfamiliar stimuli, categorization, and extrapolation of reasonable estimates in ambiguous situations (McGrew, 2012).</p> <p>Includes Induction, reasoning, quantitative</p>	<p>Difficulties with:</p> <ul style="list-style-type: none"> 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 	<p>Reading Difficulties:</p> <ul style="list-style-type: none"> Drawing inferences from text Abstracting main idea(s) <p>Math Difficulties:</p> <ul style="list-style-type: none"> Reasoning with quantitative information (word problems) Internalizing procedures and processes used to solve problems Apprehending relationships between numbers <p>Writing Difficulties:</p> <ul style="list-style-type: none"> Essay writing and generalizing concepts Developing a theme Comparing and contrasting ideas



 *Rapid Reference 1.6 General and Specific Manifestations of Crystallized Intelligence (Gc) Weaknesses*

CHC Broad Cognitive Abilities/ Neuropsychological Functions	Brief Definition	General Manifestations of Cognitive/ Neuropsychological Weakness	Specific Manifestations of Cognitive/ Neuropsychological Weakness
Crystallized Intelligence (Gc)	<p>Breadth and depth of knowledge and skills that are valued by one's culture.</p> <p>Developed through formal education as well as general learning experiences.</p> <p>Stores of information and declarative and procedural knowledge.</p> <p>Reflects the degree to which a person has learned practically useful knowledge and mastered valued skills (Schneider & McGrew,</p> 	<p>Difficulties with:</p> <ul style="list-style-type: none"> Vocabulary acquisition Knowledge acquisition Comprehending language or understanding what others are saying Fact-based/informational questions Using prior knowledge to support learning Finding the right words to use/say 	<p>Reading Difficulties:</p> <ul style="list-style-type: none"> Decoding (e.g., word student is attempting to decode is not in his/her vocabulary) Comprehending (e.g., poor background knowledge about information contained in text) <p>Math Difficulties:</p> <ul style="list-style-type: none"> Understanding math concepts and the "vocabulary of math" <p>Writing Difficulties:</p> <ul style="list-style-type: none"> Grammar (syntax) Bland writing with limited descriptors Verbose writing with limited descriptors Inappropriate word usage <p>Language Difficulties:</p> <ul style="list-style-type: none"> Understanding class lessons Expressive language—"poverty of thought"

 *Rapid Reference 1.7 General and Specific Manifestations of Auditory Processing (Ga) Weaknesses*

CHC Broad Cognitive Abilities/ Neuropsychological Functions	Brief Definition	General Manifestations of Cognitive/ Neuropsychological Weakness	Specific Manifestations of Cognitive/ Neuropsychological Weakness
Auditory Processing (Ga)	<p>Ability to analyze and synthesize auditory information.</p> <p>One narrow aspect of Ga is a precursor to oral language comprehension (i.e., parsing speech sounds or Phonetic Coding).</p> <p>In addition to Phonetic Coding, other narrow Ga abilities include Speech Sound Discrimination, Resistance to Auditory Stimulus Distortion, Memory for Sound Patterns (and others related to music).</p> 	<p>Difficulties with:</p> <ul style="list-style-type: none"> Hearing information presented orally, initially processing oral information Paying attention especially in the presence of background noise Discerning the direction from which auditory information is coming Discriminating between simple sounds Foreign-language acquisition 	<p>Reading Difficulties:</p> <ul style="list-style-type: none"> Acquiring phonics skills Sounding out words Using phonetic strategies <p>Math Difficulties:</p> <ul style="list-style-type: none"> Reading word problems <p>Writing Difficulties:</p> <ul style="list-style-type: none"> Spelling Note-taking Poor quality of writing

Rapid Reference 1.8 General and Specific Manifestations of Long-Term Retrieval (Glr) Weaknesses

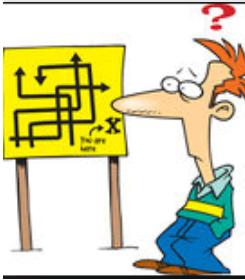
CHC Broad Cognitive Abilities/ Neuropsychological Functions	Brief Definition	General Manifestations of Cognitive/ Neuropsychological Weakness	Specific Manifestations of Cognitive/Neuropsychological Weakness
Long-Term Retrieval (Glr)	<p>Ability to store information (e.g., concepts, words, facts), consolidate it, and fluently retrieve it at a later time (e.g., minutes, hours, days, and years) through association.</p> <p>In Glr tasks, information leaves immediate awareness long enough for the contents of primary memory to be displaced completely. In other words, Glr tasks (unlike Gsm tasks) do not allow for information to be maintained continuously in primary memory (Schneider & McGrew, 2012).</p>  <p>Glr abilities may be categorized as either "learning efficiency" or "fluency." Learning efficiency narrow abilities include Associative Memory, Meaningful Memory, and Free Recall Memory; fluency narrow abilities involve either the production of ideas (e.g., Ideational Fluency, Associational Fluency), the recall of words (e.g., Naming Facility, Word Fluency), or the generation of figures (e.g., Figural Fluency, Figural Flexibility) (Schneider & McGrew, 2012).</p>	<p>Difficulties with:</p> <ul style="list-style-type: none"> Learning new concepts Retrieving or recalling information by using association Performing consistently across different task formats (e.g., recognition versus recall formats) Rapid retrieval of information Leaving information quickly Paired learning (visual-auditory) Recalling specific information (words, facts) Generating ideas rapidly 	<p>Reading Difficulties: Accessing background knowledge to support new learning while reading Slow to access phonological representations during decoding Retelling or paraphrasing what one has read</p> <p>Math Difficulties: Memorizing math facts Recalling math facts and procedures</p> <p>Writing Difficulties: Accessing words to use during essay writing Specific writing tasks (compare and contrast; persuasive writing) Note-taking Idea generation/production</p> <p>Language Difficulties: Expressive—circumlocutions, speech filters, "interrupted" thought, pauses Receptive—making connections throughout oral presentations (e.g., class lecture)</p>

Rapid Reference 1.9 General and Specific Manifestations of Processing Speed (Gs) Weaknesses

CHC Broad Cognitive Abilities/ Neuropsychological Functions	Brief Definition	General Manifestations of Cognitive/ Neuropsychological Weakness	Specific Manifestations of Cognitive/ Neuropsychological Weakness
Processing Speed (Gs)	<p>Speed of processing particularly when required to focus attention for 1–3 minutes.</p> <p>Usually measured by tasks that require the ability to perform simple repetitive cognitive tasks quickly and accurately.</p> <p>Narrow Gs abilities include Perceptual Speed, Rate-of-Test-Taking, Number Facility, Reading Speed, and Writing Speed (note that the latter two abilities are also listed under other broad CHC domains, including Gw).</p> 	<p>Difficulties with:</p> <ul style="list-style-type: none"> Efficient processing of information Quickly perceiving relationships (similarities and differences between stimuli or information) Working within time parameters Completing simple, rote tasks quickly 	<p>Reading Difficulties: Slow reading speed, which interferes with comprehension Need to reread for understanding</p> <p>Math Difficulties: Automatic computations Computational speed is slow despite accuracy Slow speed can result in reduced accuracy due to memory decay</p> <p>Writing Difficulties: Limited output due to time factors Labored process results in reduced motivation to produce</p> <p>Language Difficulties: Cannot retrieve information quickly—slow, disrupted speech; cannot get out thoughts quickly enough Is slow to process incoming information, puts demands on memory store that can result in information overload and loss of meaning</p>

 *Rapid Reference 1.10 General and Specific Manifestations of Visual Processing (Gv) Weaknesses*

CHC Broad Cognitive Abilities/ Neuropsychological Functions	Brief Definition	General Manifestations of Cognitive/ Neuropsychological Weakness	Specific Manifestations of Cognitive/ Neuropsychological Weakness
Visual Processing (Gv)	<p>Ability to analyze and synthesize visual information.</p> <p>The ability to make use of simulated mental imagery (often in conjunction with currently perceived images) to solve problems (Schneider & McCrew, 2012).</p> <p>There are many narrow Gv abilities, some of which include Visualization, Speeded Rotation, Closure Speed, Flexibility of Closure, Visual Memory, and Spatial Scanning.</p>	<p>Difficulties with:</p> <ul style="list-style-type: none"> Recognizing patterns Reading maps, graphs, charts Attending to fine visual detail Recalling visual information Appreciation of spatial characteristics of objects (e.g., size, length) Recognition of spatial orientation of objects 	<p>Reading Difficulties:</p> <ul style="list-style-type: none"> Orthographic coding (using visual features of letters to decode) Sight-word acquisition Using charts and graphs within a text in conjunction with reading Comprehension of text involving spatial concepts (e.g., social studies text describing physical boundaries, movement of troops along a specified route) <p>Math Difficulties:</p> <ul style="list-style-type: none"> Number alignment during computations Reading and interpreting graphs, tables, and charts <p>Writing Difficulties:</p> <ul style="list-style-type: none"> Spelling sight words Spatial planning during writing tasks (e.g., no attention to margins, words that overhang a line) Inconsistent size, spacing position, and slant of letters



 *Rapid Reference 1.11 General and Specific Manifestations of Short-Term Memory (Gsm) Weaknesses*

CHC Broad Cognitive Abilities/ Neuropsychological Functions	Brief Definition	General Manifestations of Cognitive/ Neuropsychological Weakness	Specific Manifestations of Cognitive/ Neuropsychological Weakness
Short-Term Memory (Gsm)	<p>Ability to hold information in immediate awareness and use or transform it within a few seconds.</p>	<p>Difficulties with:</p> <ul style="list-style-type: none"> Following multistep oral and written instructions Remembering information long enough to apply it Remembering the sequence of information Rote memorization Maintaining one's place in a math problem or train of thought while writing 	<p>Reading Difficulties:</p> <ul style="list-style-type: none"> Reading comprehension (i.e., understanding what is read) Decoding multisyllabic words Orally retelling or paraphrasing what one has read <p>Math Difficulties:</p> <ul style="list-style-type: none"> Rote memorization of facts Remembering mathematical procedures Multistep problems and regrouping Extracting information to be used in word problems <p>Writing Difficulties:</p> <ul style="list-style-type: none"> Spelling multisyllabic words Redundancy in writing (word and conceptual levels) Identifying main idea of a story Note-taking



= Rapid Reference 1.12 Manifestations of Attention Weaknesses and Examples of Recommendations and Interventions

CHC Broad Cognitive Abilities/ Neuropsychological Functions	Brief Definition	General Manifestations of Cognitive/ Neuropsychological Weakness	Specific Manifestations of Cognitive/ Neuropsychological Weakness
Attention	<p>Attention is a complex and multifaceted construct used when an individual must focus on certain stimuli for information processing. In order to regulate thinking and to complete tasks of daily living such as schoolwork, it is necessary to be able to attend to both auditory and visual stimuli in the environment. Attention can be viewed as the foundation of all other higher-order processing. Attention can be divided into five subareas: selective/focused attention, shifting attention, divided attention, sustained attention, and attentional capacity (Miller).</p> <p>It is important to identify the exact nature of the attentional problem(s) prior to selecting an intervention, teaching strategies, modifying the curriculum, or making accommodations.</p>	<p>Easily distracted Lacks attention to detail; makes careless mistakes Difficulty discerning demands of a task (e.g., where to begin or how to get started) May only be able to attend to task in short intervals Difficulty changing activities Difficulty applying a different strategy when task demands change Difficulty attending to more than one thing or task at a time Cannot perform well when faced with multiple stimuli or an abundance of detail</p>	<p>Reading Difficulties: Loses his or her place easily Easily distracted while reading Does not pick up important details in text</p> <p>Math Difficulties: Does not consistently attend to math signs Frequent mistakes on word problems</p> <p>Writing Difficulties: Has difficulty completing long assignments; difficulty following timelines</p>

= Rapid Reference 1.13 Manifestations of Executive Functioning Weaknesses and Examples of Recommendations and Interventions

CHC Broad Cognitive Abilities/Neuropsychological Functions	Brief Definition	General Manifestations of Cognitive/ Neuropsychological Weakness	Specific Manifestations of Cognitive/ Neuropsychological Weakness
Executive Functioning	<p>Executive functioning is often understood as two broadly conceptualized areas that are related to the brain's frontal lobes: cognitive control and behavioral/emotional control. The cognitive aspects of executive functioning include concept generation (Gc/Gf); problem solving (Gf); attentional shifting (attention; Gs); planning; organizing; working memory (Gsm); and retrieval fluency (Gf). The behavioral/emotional aspects of executive functioning relate to the inhibitory controls of behavior (e.g., impulsivity, regulation of emotional tone, etc.) (see Miller, 2010).</p>	<p>Difficulty with: Learning new activities, generating concepts, and solving problems Identifying goals and setting goals Planning (e.g., begin project without necessary materials; does not allocate sufficient time to complete task) Sequencing (e.g., may skip steps in multistep problems) Prioritizing (e.g., not sure what's important when taking notes) Organization (e.g., loses important papers; fails to turn in completed work; creates unrealistic schedule) Initiation (e.g., has difficulty getting started on tasks, assignments, etc.) Pace (e.g., often runs out of time on seatwork and exams; has difficulty completing homework due to unrealistic timeline) Shifting between activities flexibly; coping with unforeseen events Self-monitoring (e.g., doesn't check to insure that each step was completed; doesn't check work before submitting it) Emotional control (e.g., may exhibit inappropriate or over-reactive response to situations)</p>	<p>Reading Difficulties: Sequencing; telling a story chronologically Prioritizing; extracting main idea and other important information Problem solving; drawing inferences from text</p> <p>Math Difficulties: Sequencing; remembering order of operations Prioritizing; figuring out what is important when solving word problems Shifting; attending to math signs on a page</p> <p>Writing Difficulties: Generating ideas to write about Sequencing a story Prioritizing main events in a story</p>

Source: Adapted from Leslie E. Packer (Schoolbehavior.com); see also Packer and Pruitt's book, *Challenging Kids, Challenged Teachers* (Woodbine Press, 2010).

A Case Study: Ayden Murphy

- **Background information**

- Lives with mother, stepfather, grandmother, younger sister and gets along well with them
- **Seems to be in good health; wears glasses for nearsightedness**
- Had trouble with reading in all grades except for first grade in which he had a “strict” teacher that the mother thinks was helpful to him
- **Currently receives pull-out services (meeting with remedial reading teacher for one period 3 times a week for 30 minutes) – teacher helps with incomplete seatwork assignments**
- Described as cooperative, even-tempered, friendly, happy, affectionate
- **Enjoys playing football, soccer, and X-box; least favorite activities are reading independently and social studies homework**
- Attends Operation Exodus, which is an after-school program to help him complete his homework and explore various educational activities

Table 1.2 DOTI Form for Ayden with Primary Data Only

CHC Cognitive/Academic Ability or Processing Domain	Normative Weakness and Information About Intervention	Within Normal Limits	Normative Strength and Information About Intervention
Fluid Reasoning (Gf)		Fluid Reasoning Factor = 88 ± 4	
Target for Intervention? Crystallized Intelligence (Gc)		Comprehension-Knowledge Factor = 95 ± 4	
Target for Intervention? Long-Term Retrieval (Glr)	Long-term Storage and Retrieval Factor = 77 ± 5		
Target for Intervention? Short-Term Memory (Gsm)		Short-term Memory Factor = 96 ± 6	
Target for Intervention? Visual Processing (Gv)		Visual Processing Factor = 107 ± 4	
Target for Intervention? Auditory Processing (Ga)	Auditory Processing Factor = 72 ± 5		
Target for Intervention? Processing Speed (Gs)	Processing Speed Factor = 84 ± 4		
Target for Intervention? Reading (Grw-R)	Passage Comprehension 70 ± 5 Reading Fluency 83 ±	Letter-Word Identification 90 ± 4	
Type of Skill Targeted Writing (Grw-W)	Writing Samples 74 ± 6	Spelling 87 ± 5 Writing Fluency 95 ± 5	
Type of Skill Targeted Mathematics (Gq)	Applied Problems 81 ± 4 Fluency 80 ± 4	Calculation 107 ± 4	
Type of Skill Targeted			

Step 1
Organize Primary Data Using DOTI Form

Step 2: Review Relations between Cognitive and Achievement Areas

	Reading Achievement	Math Achievement	Writing Achievement
Gf	Inductive (I) and general sequential reasoning (RG) abilities play a moderate role in reading comprehension .	Inductive (I) and general sequential (RG) reasoning abilities are consistently very important for math problem solving at all ages.	Inductive (I) and general sequential reasoning abilities (RG) are consistently related to written expression at all ages.
Gc	Language development (LD), lexical knowledge (VL), and listening ability (LS) are important at all ages for reading acquisition and development . These abilities become increasingly important with age.	Language development (LD), lexical knowledge (VL), and listening abilities (LS) are important at all ages. These abilities become increasingly important with age.	Language development (LD), lexical knowledge (VL), and general information (KI) are important primarily after about the 2 nd grade. These abilities become increasingly important with age.
Gwm	Memory span (MS) and working memory capacity (WM) or attentional control. Gwm important for overall reading success .	Memory span (MS) and working memory capacity (WM) or attentional control. Gmw important for overall math success .	Memory span (MS) is important to writing, especially spelling skills whereas working memory has shown relations with advanced writing skills (e.g., written expression). Gmw important for overall writing success .
Gv	Orthographic Processing (often measured by tests of perceptual speed) – reading fluency	Visualization (VZ) is important primarily for higher level or advanced mathematics (e.g., geometry, calculus).	Orthographic Processing (often measured by tests of perceptual speed) - spelling
Ga	Phonetic coding (PC) or “phonological awareness/processing” is very important during the elementary school years for the development of basic reading skills .		Phonetic coding (PC) or “phonological awareness/processing” is very important during the elementary school years for both basic writing skills and written expression (primarily before about grade 5).
Glr	Naming facility (NA) or “rapid automatic naming” (also called speed of lexical access) is very important during the elementary school years . Associative memory (MA) is also important.	Naming Facility (NA; or speed of lexical access); Associative Memory (MA) – rapid retrieval of basic math facts	Naming facility (NA) or “rapid automatic naming” (also called speed of lexical access) has demonstrated relations with written expression, primarily writing fluency .
Gs	Perceptual speed (P) abilities are important during all school years, particularly the elementary school years.	Perceptual speed (P) abilities are important during all school years, particularly the elementary school years.	Perceptual speed (P) abilities are important during all school years for basic writing and related to all ages for written expression.

Step 3: Review Manifestations and Organize Secondary Data

Table I.3 DOTI Form for Ayden Murphy With Primary and Secondary Data

CHC Cognitive/Academic Ability or Processing Domain	Normative Weakness and Information About Intervention	Within Normal Limits	Normative Strength and Information About Intervention
Fluid Reasoning (Gf)		Fluid Reasoning Factor = 88 ± 4	
Target for Intervention? Crystallized Intelligence (Gc)		Teacher Report: sometimes has difficulty generalizing what he has learned C (Compensation) Comprehension-Knowledge = 95 ± 4	
Target for Intervention? Long-Term Retrieval (Glr)	Long-term Storage and Retrieval = 77 ± 5 Teacher Report: seems to do better on multiple-choice tests as compared to essays; difficulty remembering previously taught information Parent Report: spends hours studying—more than his friends; often has difficulty getting out what he wants to say		
Target for Intervention?	M (Modification) A (Accommodation) C (Compensation)	Short-term Memory = 96 ± 6	
Short-Term Memory (Gsm)		107 \pm 4	
Target for Intervention? Visual Processing (Gv)		TOC Orthographic Ability = 103 ± 3	

(continued)

Step 3: Review Manifestations and Organize Secondary Data

Gv Continued

Table I.3 (Continued)

CHC Cognitive/Academic Ability or Processing Domain	Normative Weakness and Information About Intervention	Within Normal Limits	Normative Strength and Information About Intervention
Target for Intervention?			
Auditory Processing (Ga)	<p>Auditory Processing = 72 ± 5</p> <p>Reading Specialist: does not use phonetic strategies consistently; relies more on visual features and contextual cues to decode</p> <p>Teacher Report: mishears words frequently</p>		<p>Teacher Report: seems to do better with visual information (e.g., charts and graphs in math and science)</p> <p>Ayden: "I love to draw."</p> <p>Emphasize in program planning to the extent possible</p>
Target for Intervention?	R (Remediation)		
Processing Speed (Gs)	<p>Processing Speed = 84 ± 4</p> <p>Teacher Report: has difficulty working within time limits</p> <p>Parent Report: takes a long time to complete homework</p>		
Target for Intervention?	A (Accommodation) M (Modification)		
Reading (Grw-R)	<p>Passage Comprehension 70 ± 5</p> <p>Teacher Report: has difficulty retelling what he has read for monthly book reports</p> <p>Reading Fluency 83 ± 5</p> <p>Reading Specialist and School Psychologist Observation: oral reading is slow and laborious</p> <p>Ayden: "I can't read fast."</p>	<p>Letter-Word Identification 90 ± 4</p>	

Step 3: Identify Targets for Intervention (Cognitive)

Table I.3 DOTI Form for Ayden Murphy With Primary and Secondary Data

CHC Cognitive/Academic Ability or Processing Domain	Normative Weakness and Information About Intervention	Within Normal Limits	Normative Strength and Information About Intervention
Fluid Reasoning (Gf)			
Target for Intervention?			
Crystallized Intelligence (Gc)			
Target for Intervention?			
Long-Term Retrieval (Glr)	<p>Long-term Storage and Retrieval = 77 ± 5</p> <p>Teacher Report: seems to do better on multiple-choice tests as compared to essays; difficulty remembering previously taught information</p> <p>Parent Report: spends hours studying—more than his friends; often has difficulty getting out what he wants to say</p>		<p>Fluid Reasoning Factor = 88 ± 4</p> <p>Teacher Report: sometimes has difficulty generalizing what he has learned</p> <p>C (Compensation): Comprehension-Knowledge = 95 ± 4</p>
Target for Intervention?	M (Modification) A (Accommodation) C (Compensation)		
Short-Term Memory (Gsm)		Short-term Memory = 96 ± 6	
Target for Intervention?			
Visual Processing (Gv)		107 \pm 4 TOC Orthographic Ability = 103 ± 3	

(continued)

Step 3: Identify Targets for Intervention (Cognitive)

Table I.3 (Continued)

CHC Cognitive/Academic Ability or Processing Domain	Normative Weakness and Information About Intervention	Within Normal Limits	Normative Strength and Information About Intervention
Target for Intervention?			
<u>Auditory Processing (Ga)</u>	Auditory Processing = 72 ± 5 Reading Specialist: does not use phonetic strategies consistently; relies more on visual features and contextual cues to decode Teacher Report: mishears words frequently R (Remediation)		Teacher Report: seems to do better with visual information (e.g., charts and graphs in math and science) Ayden: "I love to draw." Emphasize in program planning to the extent possible
<u>Target for Intervention?</u> <u>Processing Speed (Gs)</u>	Processing Speed = 84 ± 4 Teacher Report: has difficulty working within time limits Parent Report: takes a long time to complete homework A (Accommodation) M (Modification)		
Target for Intervention?			
<u>Reading (Grw-R)</u>	Passage Comprehension 70 ± 5 Teacher Report: has difficulty retelling what he has read for monthly book reports Reading Fluency 83 ± 5 Reading Specialist and School Psychologist Observation: oral reading is slow and laborious Ayden: "I can't read fast."	Letter-Word Identification 90 ± 4	

Step 3: Identify Targets for Intervention (Achievement)

Table I.3 (Continued)

CHC Cognitive/Academic Ability or Processing Domain	Normative Weakness and Information About Intervention	Within Normal Limits	Normative Strength and Information About Intervention
Target for Intervention?			
<u>Auditory Processing (Ga)</u>	Auditory Processing = 72 ± 5 Reading Specialist: does not use phonetic strategies consistently; relies more on visual features and contextual cues to decode Teacher Report: mishears words frequently R (Remediation)		Teacher Report: seems to do better with visual information (e.g., charts and graphs in math and science) Ayden: "I love to draw." Emphasize in program planning to the extent possible
<u>Target for Intervention?</u> <u>Processing Speed (Gs)</u>	Processing Speed = 84 ± 4 Teacher Report: has difficulty working within time limits Parent Report: takes a long time to complete homework A (Accommodation) M (Modification)		
Target for Intervention?			
<u>Reading (Grw-R)</u>	Passage Comprehension 70 ± 5 Teacher Report: has difficulty retelling what he has read for monthly book reports Reading Fluency 83 ± 5 Reading Specialist and School Psychologist Observation: oral reading is slow and laborious Ayden: "I can't read fast."	Letter-Word Identification 90 ± 4	

Step 3: Identify Targets for Intervention (Achievement)

Reading Continued

Type of Skill Targeted <u>Writing (Grw-W)</u>	H (Higher Level Application) F (Fluency) Writing Samples 74 ± 6 Teacher Report: does not use vocabulary words in writing assignments; note-taking is difficult for him—verbatim note-taking as opposed to paraphrasing	Spelling 87 ± 5 Writing Fluency 95 ± 5
Type of Skill Targeted <u>Mathematics (Gq)</u>	H (Higher Level Application) Applied Problems 81 ± 4 Parent and Teacher Reports: difficulty with word problems Fluency 80 ± 4 Teacher Report: slow but accurate Classroom Tests: Grade of "D" on all Mad Math Minutes	B (Basic Skill) - spelling Calculation 107 ± 4
Type of Skill Targeted <u>Other</u>	H (Higher Level Application) F (Fluency) Ayden has recently begun to avoid reading for pleasure and seems to be developing anxiety related to reading aloud in school	Ayden is highly motivated to learn and puts forth considerable effort in all educational activities; does well with hands-on activities Capitalize on his motivation and incorporate interests into remedial activities
Target for Intervention?		

Consider Tertiary Data, Which Are Comprised of Information About Factors That Affect Learning and Achievement and That Are Largely External to the Student

- Already have good understanding of nature of Ayden's learning difficulties, but need to consider other important data sources to meet his unique needs
- *Other data sources:*
 - Classroom instruction
 - Instructional materials
 - Environmental factors
 - Strategies



Other data sources...

- These data gathered via classroom observations and teacher/parent/student interviews
- May be prudent to conduct additional classroom observations or interviews after practitioner has more complete understanding of presumed causes of student's learning difficulties
 - Practitioners should also familiarize themselves with relevant instructional materials to give guidance on how to facilitate learning
- See Rapid References 1.14 to 1.20



<i>Rapid Reference 1.14 Recommendations That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Fluid Reasoning (Gf) Deficit</i>			
Classroom Instruction	Instructional Materials	Environmental	Strategies
Use demonstrations to externalize the reasoning process (think-alouds)	Expanded answer keys containing the "reason" for correct/incorrect choices	Problem-solving charts (hanging or taped to desk)	Use metacognitive strategies (mnemonics that are memorable and that accurately represent the learning task)
Gradually offer guided practice (e.g., guided questions list) to promote internalization of procedures or process(es)	Guided lists for implementing procedures, formulas	Procedural charts/lists (hanging or taped to desk)	Use tools that help them categorize objects and concepts to assist in drawing conclusions (e.g., graphic organizers, concept maps)
Offer targeted, explicit feedback	Models/examples	Preferred seating arrangements that provide easy access to a peer model with strong reasoning skills (e.g., for cooperative learning activities)	Listen to and separate the steps in completing a problem from the actual content used in a problem
Offer opportunities for learning formats that allow for reasoning to be modeled for the student (e.g., cooperative learning, reciprocal teaching)	Text features (boldface, italics)		
Compare new concepts to previously learned concepts (same vs. different)	Graphic organizers that allow for a visual depiction of relationships between and among concepts		
Use analogies, similes, metaphors, paired with concrete explanations, to support understanding when presenting tasks (e.g., "We are going to learn our math facts with lightning speed, that means we are going to learn them fast")	Manipulatives to demonstrate relationships (e.g., part to whole relationships)		

 *Rapid Reference 1.15 Factors That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Crystallized Intelligence (Gc) Deficit*

Classroom Instructional Factors	Instructional Materials	Environmental Factors	Strategies
Provides an environment rich in language and experiences	Contains chapter Glossaries	Word-of-the-day calendar	Use KWL strategy to increase background knowledge
Incorporates frequent practice with and exposure to words	E-Glossaries available	Word walls	Use context when reading to ascertain meaning
Reads aloud to children	Provides vocabulary building activities (print or online)		Capitalize on opportunities to practice new words (listening for their use in television shows and other media, purposely using them in conversation)
Varies reading purpose (leisure, information)	Contains tools for priming background knowledge (e.g., Harcourt)	Distraction-free seating	Engage in activities such as word searches containing related terms (e.g., travel terms) and crosswords (note: puzzlemaker.com can create customized puzzles)
Works on vocabulary building	Includes story starters	Closed doors	Write a new word and its definition along with a drawing
Teaches morphology	Includes text features (boldface, italics)	Closed windows	
Capitalizes on opportunities to define words within instruction (e.g., "the composition of igneous rock, that is, what it is made of, is . . .")	Availability of video clips		

Puzzlemaker



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Try a Pre-Made Puzzle

Gc Continued

Rapid Reference 1.15 Factors That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Crystallized Intelligence (Gc) Deficit

Includes supportive modalities (e.g., visuals, gestures) to increase understanding of language used	Audio glossaries	CULTURE (KUL chur) n. the developed pattern of one's knowledge, beliefs and behavior Sounds like: VULTURE
Embeds instruction within a meaningful context (e.g., relating words to learner experiences, increasing listening ability through game-like format)	Dictionaries	
Develops vocabulary through naturalistic extension of language (e.g., if a student asks, "Can I start my work," the teacher might respond, "Yes, you can begin your work," naturally building synonym knowledge)	Thesaurus	
Uses extension and expansion strategies (Mather, Lynch, & Richards, 2001)	Encyclopedias	
	Use vocabulary cartoons (Burchers, 2000)	 "VULTURES with CULTURE"
	Use lead talks	<ul style="list-style-type: none"> The CULTURE of ancient Egypt has been studied perhaps more than any in mankind's history. It is in most CULTURES to be nice to your fellow man. A CULTURED person often reads great literature, appreciates fine art, and eats good food.

Rapid Reference 1.16 Factors That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of an Auditory Processing (Ga) Deficit

Classroom Instructional Factors	Instructional Materials	Environmental Factors	Strategies
Enunciates sounds in words in an emphatic manner when teaching new words for reading or spelling	Video clips	Rules for talking and listening	Use comprehension monitoring (e.g. Does the word I heard/read make sense in context?)
Uses instructional techniques (e.g., work preview/text preview) to clarify unknown words	Read aloud texts/features	Spelling lists	Engage in self-advocacy (e.g., asking for information to be repeated and/or clarified in regard to the misheard part)
Provides instructional supports (e.g., guided notes) during note-taking activities	Audio glossaries	Closed doors	Physically positioning oneself toward/close to the speaker
Builds in time for clarification questions related to "missed" or "misheard" items during lecture	Supplement oral instructions with written instructions	Closed windows	Attending to speaker's mouth and/or gestures, facial expressions, during the delivery of information
Shortens instructions	Phonemic awareness activities	Distraction-free seating	Recording notes via audio methods to allow a mechanism for being able to fill in notes for completeness
Makes an effort to minimize background noise via the use of instructional commands (e.g., work quietly, refrain from talking with your neighbor)	Electronic textbooks	Noise minimizers (carpet, noise-reducing headphones)	Following along with written directions/text during the provision of oral instruction
Repeats or rephrases questions asked by other students to ensure that all students "hear" the question that is associated with the teacher's given response	Guided notes, graphic organizers	Preferential seating (close to teacher, away from heaters, fans)	Practicing spelling lists with visually based techniques
Emphasizes sight-word reading		Localize sound source for student by standing closer when delivering instructions	Use visualization strategies to remember things
Pauses when delivering oral instruction to allow time for student to process auditory information			Use written mediums (e.g., email, text) to preserve content/integrity of information communicated

Rapid Reference 1.17 Factors That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Long-Term Retrieval (Lr) Deficit

Classroom Instructional Factors	Instructional Materials	Environmental Factors	Strategies
Uses close-ended questions, yes/no, true/false	Guided lists for implementing procedures, formulas	Procedural charts	Organizes material to be learned using visual aids (e.g., diagrams, flowcharts), auditory aids (e.g., chunking), or other tangibles (e.g., flash cards)
Uses consistent instructional routines	Practice guides	Word walls	Makes connections by relating material to be learned to oneself
Offers repeated practice with and review of newly presented information	Online review	Desk organizers	Relates concepts to be learned to one another via tools such as a concept map
Teaches memory strategies and encourages their use (verbal rehearsal to support encoding, use of mnemonic devices; Dehn, 2010)	Glossaries (electronic, audio, printed)	External memory aids (lists, audible timers)	Creates a schedule for distributed practice of material to be learned
Uses multiple modalities when teaching new concepts (pair written or visual with verbal information) to support dual recoding (Dehn, 2010)	Study guides	Calendars with visual references to due dates	Plans for regular review of material
Limits the amount of new material to be learned; introduces new concepts gradually and with a lot of context	Review sheets	Visual reminders (Post-its, color-coded systems)	Rehearses material to be learned via recitation, repetition

(continued)

Glr Continued

Rapid Reference 1.17 Factors That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Long-Term Retrieval (Ltr) Deficit

(continued)

Is mindful of when new concepts are presented	Dictionaries (to support word retrieval)	Quiet environment or noise-reduction aids (headphones, cubicles, study carrels)	Studies and completes homework in a designated location with necessary materials
Makes associations between newly learned and prior information explicit	Thesaurus (to build vocabulary and minimize impact of retrieval weaknesses)	Preferential seating to minimize distractions when encoding	Uses active learning strategies (note-taking, flash cards, concept maps, chunking) in review sessions
Uses lists to facilitate recall (prompts)			
Expands vocabulary to minimize impact of word retrieval deficits			Studies and reviews learning material immediately prior to sleeping
Builds in wait-time for student when fluency of retrieval is an issue			Uses organizational strategies such as semantic clustering (Dehn, 2010)
Uses text previews to "prime" knowledge			Uses verbal association strategies (e.g., elaboration, Dehn, 2010)
Provides background knowledge first before asking a question to "prime" student for retrieval			Implements dual coding strategies (visual to verbal and vice versa)
			Engages in self-testing
			Uses specific strategies for academic tasks (e.g., PQRST, for reading comprehension; Dehn 2010)

 Rapid Reference 1.18 Factors That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Processing Speed (Gs) Deficit

Classroom Instructional Factors	Instructional Materials	Environmental Factors	Strategies
Focuses on features of work products that are unrelated to time parameters (e.g., quality or accuracy of a response)	Practice guides	Clocks	Plan for long-term projects by using a realistic schedule that allows for consistent movement toward completion
Repeated practice	Online review	Written schedules	Preview important parts of text (end-of-chapter questions, title, subtitles, glossary of terms) to facilitate reading speed
Offers speed drills		Desk organizers	Apply planning and time management strategies
Extended time	Use computer activities that require quick, simple decisions		Use techniques such as skimming and scanning for reading activities
Reduces the quantity of work required (including homework)	Books on tape Online activities/games (e.g., http://www.academicskillbuilders.com/games/)		Use an outlining strategy for note-taking
Increases wait-times both after questions are asked and after responses are given			
Choral repeated reading			

www.acADEmics.com



The website features a navigation bar with links for Games, Plus, Success, About, ARCADE SKILL BUILDERS™, Sign Up, and Login. The main banner highlights "Academics + Arcade = Fun Learning!" and encourages boosting student engagement with free multiplayer educational games, math games, language arts games, and more. A "Grand Prix Multiplication" game is showcased, where players race cars to solve multiplication problems like 4×2 . The game interface includes a play button, a question display, and a finish line. To the right, a "Today's Top Scores" chart lists the top performers: Wyatt (45.59 sec), Sparky (45.84 sec), player02021 (46.03 sec), Player929 (46.10 sec), GR (46.13 sec), and Kingandy (46.13 sec). Below the banner, a "Play Free Games" section offers "Academics PLUS" features like custom games, data reports, video lessons, and achievements, with a "Try One Month Free" button. At the bottom, links are provided for All Subjects (Shapes, Counting, Addition, Subtraction, Multiplication, Division, Integers, Money, Time, Decimals, Fractions, Ratio & Proportion, Algebra, Language Arts, Spelling, Typing, Geography), All Grades (Grade 1, Grade 2, Grade 3, Grade 4, Grade 5, Grade 6), and a search bar.

Gs weakness – Build Accuracy and Rate

Play Free Games

All Subjects Shapes Counting Addition Subtraction Multiplication **Division** Integers Money Time
Decimals Fractions Ratio & Proportion Algebra Language Arts Spelling Typing Geography

All Grades Grade 1 Grade 2 Grade 3 Grade 4 **Grade 5** Grade 6

Demolition Division Division Derby Drag Race Division Pony Division





Game Results

Rank	Name	Time
2nd:	Lacrosse	51.31 sec
3rd:	Computer 11	59.48 sec
4th:	Sparks	59.75 sec
5th:	Computer 9	60.50 sec
6th:	Computer 5	

Accuracy 88% **Rate** 22/min

Missed Questions

- $49 \div 7 = 7$
- $24 \div 6 = 4$
- $36 \div 3 = 12$

PRINT TROPHY **CONTINUE** **END GAME**

Game Results

Rank	Name	Time
1st:	Mmmeeeeeee	56.73 sec
2nd:	Sparks	57.17 sec
3rd:	MysteryGirl	57.37 sec
4th:	Computer 7	57.43 sec
5th:	Computer 10	

PRINT TROPHY

Accuracy
91% **Rate**
23/min

Missed Questions
 $24 \div 8 = 3$
 $36 \div 3 = 12$

CONTINUE **END GAME**

Data Tracking with Academics PLUS

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Customize Game Content
Customize game content to fit your lesson plans, and assign different content to different students.

Data Tracking Reports
Monitor student progress and zoom in on problem areas with our performance reports.

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If students struggle with a specific problem, they can watch a video that shows a lesson on the problem.

Awards

- 2013 SIIA CODIE FINALIST
- AWARDS OF EXCELLENCE TECHLEARNING
- TECHNOLOGY FOR THE CLASSROOM
- COOL TOOL AWARD 2013 FROM DIGEST
- District Administration TOP 100 PRODUCTS
- Homeschooling 2013 Seal of Approval
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Academics Plus Awards



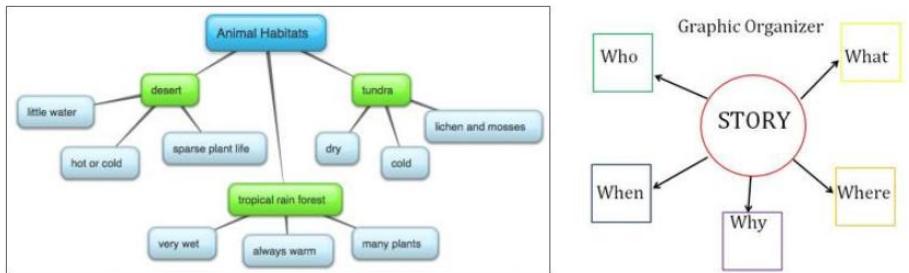
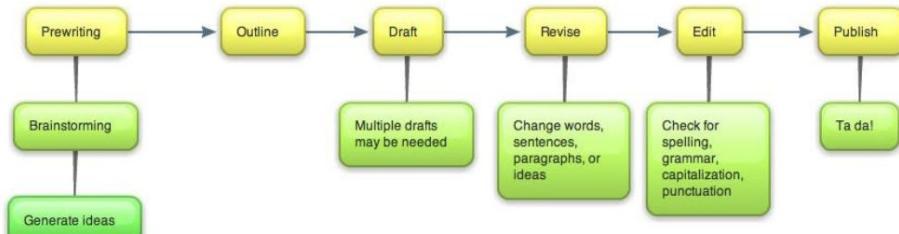
Play on the iPad and Android

Academics games are now available for the iPad and Android tablets. Download the apps to your iPad through the App Store or to your Android tablet through Google Play.

[Download from App Store](#) [Download from Google Play](#)

≡ *Rapid Reference 1.19 Factors That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Visual Processing (Gv) Deficit*

Classroom Instructional Factors	Instructional Materials	Environmental Factors	Strategies
Provide oral explanation for visual concepts	Video clips	Color-coded Information	Uses orthographic strategies for decoding (e.g., word length, shape of word); Uses "cover-copy-compare" technique—go to: http://www.amblesideprimary.com/ambleweb/lookcover/lookcover.html
Reviews spatial concept and supports comprehension through use of hands-on activities and manipulatives (e.g., using models to demonstrate the moon's orbital path).	Enlarged text (via online zoom feature or alternative print copy of textbook/ worksheet)	Preferential seating aimed at allowing the student to access visual material (e.g., smart board) manipulatives, visual aids, and other materials to support learning	Capitalizes on intact or strong auditory skills during learning/studying (e.g., uses phonemic skills for decoding tasks)
Provides verbal label for visual representations (e.g., "The shaded red bars represent women's votes, the green bars represent men's votes)	Highlights margins during writing tasks	Assigned note-taking buddy	Pairs visual information with verbal (mnemonics)
Provides written copies of oral instructions, lectures	Provides direct handwriting practice	Readers or scribes, where needed	Labels visual charts/graphs with verbal labels
Auditory cueing to supplement visual information/cues (e.g., "Look at the bar graph for weekly sales")	Provides visual supports (graphic organizers, graph paper)	Reduce visual distraction	Highlights or color codes important information

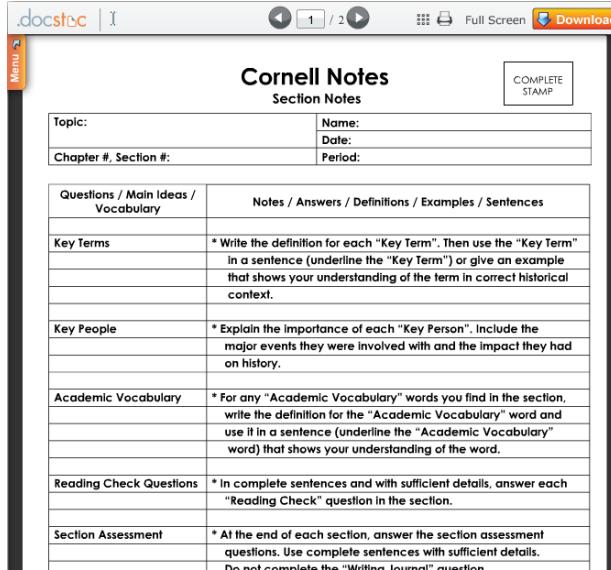
Bubbl.us**Map a process****Gv Continued**

≡ Rapid Reference 1.19 Factors That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Visual Processing (Gv) Deficit

Provides graph-paper to assist with number alignment	Alternative lighting (natural light, non-fluorescent lighting)	Uses aids to support visual tracking (finger, index card, ruler)
Books on tape		Spaces items on a page
Text-to-speech technology (screen and text readers)		Uses applications or supports that allow for enlargement of fonts
Reading/scanning pens		Uses note-taking strategies (e.g., Cornell, outlining)

 Cornell Notes Template -
Get Now DOC Docstoc.com

[DOWNLOAD](#) [PRINT](#)



The screenshot shows a web-based Cornell Notes template. At the top, there are fields for 'Topic', 'Name', 'Date', 'Chapter #', 'Section #', and 'Period'. Below these are several sections with instructions:

- Key Terms:** Write the definition for each "Key Term". Then use the "Key Term" in a sentence (underline the "Key Term") or give an example that shows your understanding of the term in correct historical context.
- Key People:** Explain the importance of each "Key Person". Include the major events they were involved with and the impact they had on history.
- Academic Vocabulary:** For any "Academic Vocabulary" words you find in the section, write the definition for the "Academic Vocabulary" word and use it in a sentence (underline the "Academic Vocabulary" word) that shows your understanding of the word.
- Reading Check Questions:** In complete sentences and with sufficient details, answer each "Reading Check" question in the section.
- Section Assessment:** At the end of each section, answer the section assessment questions. Use complete sentences with sufficient details. Do not complete the "Writing Journal" question.

Rapid Reference 1.20 Factors That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Short-Term Memory (Gsm) Deficit

Classroom Instructional Factors	Instructional Materials	Environmental Factors	Strategies
Offers repetition of information	Practice guides	Color-coded Information	Apply rote strategies (e.g., basic rehearsal, simple repetition) for information to be learned in the short-term
Reviews information and newly presented concepts often	Guided study	Math-facts tables (e.g., multiplication)	Encourage use of relational strategies (e.g., mnemonics)
Delivers information in manageable parts	Online review	Written schedules	Use elaborative rehearsal (associating new information with prior knowledge)
Evidences use of consistent instructional routines	Flash cards	Visual schedules (e.g., pictures)	Semantic rehearsal (creating a sentence using things to be remembered)
Uses meaningful stimuli to assist with encoding and allow for experiential learning (i.e., learning while doing)	Multisensory materials to facilitate encoding	Written reminders (homework)	Chunking
Provides opportunities for repeated practice and review			Paraphrasing
Provides supports (e.g., lecture notes, guided notes, study guides, written directions) to supplement oral instruction			Visual mnemonics (imagery, pegwords, loci, keyword method; Dehn)

Gsm Continued

 *Rapid Reference 1.20 Factors That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Short-Term Memory (Gsm) Deficit*

Breaks down instructional steps for student	Chaining
Provides visual support (e.g., times table) to support acquisition of basic math facts	First-letter mnemonics
Outlines math procedures for student and provides procedural guides or flashcards for the student to use when approaching problems	Use tangible reminders (alarms, to do lists, calendar schedules)
Highlights important information within a word problem	Apply specific academic strategies (e.g., write out all math computations, use a calculator, spellchecker)
Has students write all steps and show all work for math computations	
Uses writing programs or techniques that emphasize drafting first (e.g., Draft Builder 6)	
Teaches chunking strategies	

Source: Adapted from LD Online. Copyright 2008 by the National Center for Learning Disabilities, Inc. All rights reserved.

A Review of Ayden's DOTI Form - Example

- Consult Rapid Reference 1.17, which includes information on students whose learning difficulties are affected adversely by a deficit in **Long-term Storage and Retrieval**
 - Must tailor instruction specifically for Ayden
- Consider strengths
 - Ayden has **strength in Gv**, so should use the following relevant recommendations for Glr from RR 1.17:
 - Pairing verbal information with visuals
 - Organizing materials to be learned using visual aids
 - Providing visual reminders

 *Rapid Reference 1.17 Factors That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Long-Term Retrieval (Glr) Deficit*

Classroom Instructional Factors	Instructional Materials	Environmental Factors	Strategies
Uses close-ended questions, yes/no, true/false	Guided lists for implementing procedures, formulas	Procedural charts	Organizes material to be learned using visual aids (e.g., diagrams, flowcharts), auditory aids (e.g., chunking) or other tangibles (e.g., flash cards)
Uses consistent instructional routines	Practice guides	Word walls	Makes connections by relating material to be learned to oneself
Offers repeated practice with and review of newly presented information	Online review	Desk organizers	Relates concepts to be learned to one another via tools such as a concept map
Teaches memory strategies and encourages their use (verbal rehearsal to support encoding, use of mnemonic devices; Dehn, 2010)	Glossaries (electronic, audio, printed)	External memory aids (lists, audible timers)	Creates a schedule for distributed practice of material to be learned
Uses multiple modalities when teaching new concepts (pair written or visual with verbal information) to support dual recoding (Dehn, 2010)	Study guides	Calendars with visual references to due dates	Plans for regular review of material
Limits the amount of new material to be learned; introduces new concepts gradually and with a lot of context	Review sheets	Visual reminders (Post-its, color-coded systems)	Rehearses material to be learned via recitation, repetition

(continued)

Glr Continued

 *Rapid Reference 1.17 Factors That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Long-Term Retrieval (Glr) Deficit*

(continued)

Is mindful of when new concepts are presented	Dictionaries (to support word retrieval)	Quiet environment or noise-reduction aids (headphones, cubicles, study carrels)	Studies and completes homework in a designated location with necessary materials
Makes associations between newly learned and prior information explicit	Thesaurus (to build vocabulary and minimize impact of retrieval weaknesses)	Preferential seating to minimize distractions when encoding	Uses active learning strategies (note-taking, flash cards, concept maps, chunking) in review sessions
Uses lists to facilitate recall (prompts)			Studies and reviews learning material immediately prior to sleeping
Expands vocabulary to minimize impact of word retrieval deficits			Uses organizational strategies such as semantic clustering (Dehn, 2010)
Builds in wait-time for student when fluency of retrieval is an issue			Uses verbal association strategies (e.g., elaboration; Dehn, 2010)
Uses text previews to "prime" knowledge			Implements dual coding strategies (visual to verbal and vice versa)
Provides background knowledge first before asking a question to "prime" student for retrieval			Engages in self-testing
			Uses specific strategies for academic tasks (e.g., PQRST, for reading comprehension; Dehn 2010)

Step 5: Integrate Data From All Previous Steps, Design and Implement an Intervention, and Monitor Its Effectiveness

- **Integrate all data** from Steps 1 through 4 to design and implement interventions (MARC)
- **Use information** from DOTI form to assist in selecting or developing educational strategies and tailoring interventions
- **Develop a plan** for monitoring interventions and evaluating their benefit
 - Summarize outcome of recommendations and suggest next steps
 - Use one of three actions
 - Retain (RT)
 - Refine (RF)
 - Reduce/Eliminate (RD/E)

MARC = Modification, Accommodation, Remediation, Compensation

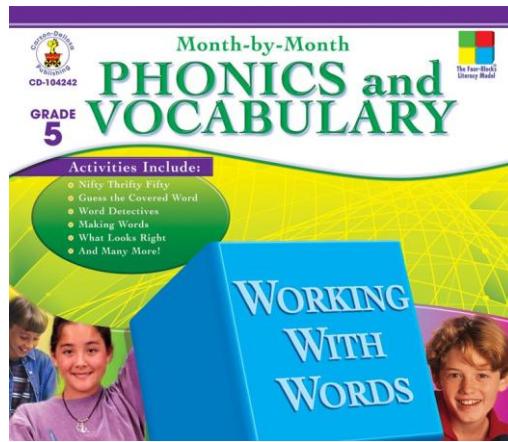
DOTI = Data Organization and Targets for Intervention



Rapid Reference 1.2 | Review of Ayden's Cognitive Weakness–Academic Weakness Relationships

Academic Targets for Intervention (Step 1)	Suggested Remedial Program	Related Cognitive Weakness(es) (Step 2)	Manifestations of Cognitive Weakness(es) (Step 3)	Suggested MARC Interventions and Recommendations (Step 4)
Reading Decoding	Great Leaps <i>Month-by-Month Phonics and Vocabulary, Grade 5</i> (Cunningham, Loman, & Arens, 2007)	Ga—Phonetic Coding	Does not use phonetic strategies consistently	Audio glossaries Preferential seating
Reading Fluency	Great Leaps	Gs, Gfr	Reading is slow and laborious	Shortened passages Text preview
Reading Comprehension	Great Leaps <i>Supplement with activities designed to build sight words</i>	Gfr, Gf	Has difficulty retelling what he has read in monthly book reports	Think-alouds Cooperative reading Cause/effect graphic organizers
Math Fluency	Academics	Gs	Is accurate but slow	Abbreviated math minutes with charting

(continued)



Month-by-Month Phonics and Vocabulary, Grade 5 Paperback
by Patricia M. Cunningham (Author), Karen L. Loman (Author), Amanda B. Arens (Author)

Find 5th grade sight words at: www.tarpy.cusd.com
Go to www.dolchwords.org for all grade levels

Fifth Grade Sight Words

**Must know 5 words in a sentence.

LIST #1

antique
equivalent
qualify
quantity
quite
request

LIST #2

fir
toe
capitol
weather
enquire
equator

LIST #3

quotient
unique
it's
knight
brake
fur

Supplement Reading Interventions with activities
designed to build sight words

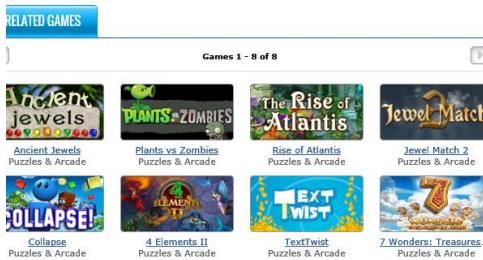
Sight words

- Speed of word recognition is an important marker for reading skill (Perfetti, 1985)
- Development of rapid word recognition skills is primary factor when distinguishing skilled from less skilled reading performance (Chabot et al 1984)
- Sight word efficiency is primary reason for decreased reading fluency (Torgeson, 2002)

Activities to build sight words (and more)

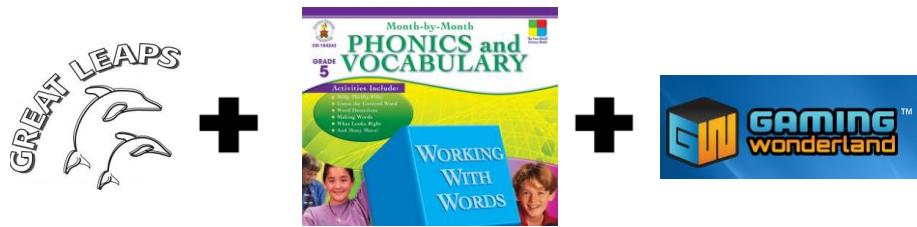


Oh Yes! IT'S
FREE



Currently receives pull-out services (meeting with remedial reading teacher for one period 3 times a week for 30 minutes) – teacher helps with incomplete seatwork assignments

Replace Homework/seatwork Help With.....



Rapid Reference 1.2 | Review of Ayden's Cognitive Weakness-Academic Weakness Relationships

Academic Targets for Intervention (Step 1)	Suggested Remedial Program	Related Cognitive Weakness(es) (Step 2)	Manifestations of Cognitive Weakness(es) (Step 3)	Suggested MARC Interventions and Recommendations (Step 4)
Reading Decoding	Great Leaps Month-by-Month Phonics and Vocabulary, Grade 5 (Cunningham, Loman, & Arens, 2007)	Ga—Phonetic Coding	Does not use phonetic strategies consistently	Audio glossaries (C) Preferential seating (A)
Reading Fluency	Great Leaps	Gs, Gfr	Reading is slow and laborious	Shortened passages (M) Text preview
Reading Comprehension	Great Leaps Supplement with activities designed to build sight words	Gfr, Gf	Has difficulty retelling what he has read in monthly book reports	Think-alouds Cooperative reading Cause/effect graphic organizers
Math Fluency	Arcademics	Gs	Is accurate but slow	Abbreviated math (M) minutes with charting

(continued)

Academic Targets for Intervention (Step 1)	Suggested Remedial Program	Related Cognitive Weakness(es) (Step 2)	Manifestations of Cognitive Weakness(es) (Step 3)	Suggested MARC Interventions and Recommendations (Step 4)
(continued)				
Math Problem Solving		Glr, Gf	Difficulty with word problems	Math mnemonics Math concept card Procedural chart
Spelling	Folding-in technique; cover-copy-compare	Ga—Phonetic Coding	Mishears words frequently	Word wall Spellchecker Spelling dictionary with graph Preferential seating
Written Expression	Inspiration	Glr, Gf	Does not use newly learned vocabulary in writing assignments; note-taking is verbatim	Sentence strips Word bank Word wall Thesaurus Feedback Guided notes

Recommendations for Ayden: Reading Decoding

- “Does not apply phonetic coding strategies; instead, relies on visual features of words”
 - Fairly successful, but struggles in areas where terms do not lend themselves easily to visuals
 - Use **audio glossaries** so he can hear words and definitions read to him before a new lesson (compensatory strategy for Ga-PC weakness)
 - **Preferential seating** will give him access to help more readily and teacher can monitor need for help (general accommodation)



Science Glossary[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

Grade 5 ▾

**salinity**

Saltiness of the ocean

<http://www.harcourtschool.com/glossary/science/index5.html>**Recommendations for Ayden: Reading Decoding and Fluency**

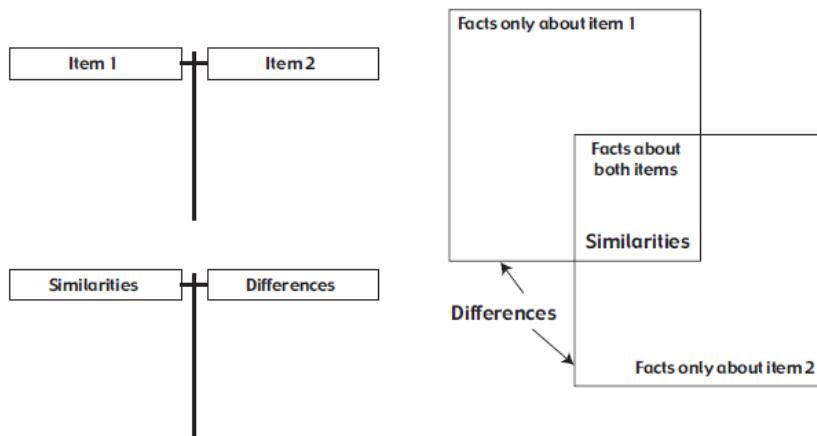
- “Does not apply phonetic coding strategies; instead, relies on visual features of words”
 - **Great Leaps program** recommended for continued use to address difficulties with reading fluency, in particular (remediation of Ga-PC and Glr/Gs Fluency weaknesses)
 - Add **supplemental phonemic awareness activity** (remediation of Ga-PC weakness)

Recommendations for Ayden: Reading Comprehension

- **Great Leaps Program**
- Continue to use **cooperative reading groups**, but pair Ayden with a student with strong reasoning skills who can serve as model during guided **think-alouds**; use **graphic organizers**, specifically those that allow for relationships to be readily seen
(compensatory strategies – minimize the affects of Gf weakness on reading comprehension)

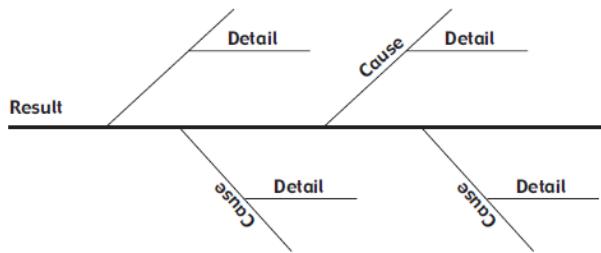
www.uen.org

Compare and Contrast Graphic Organizers



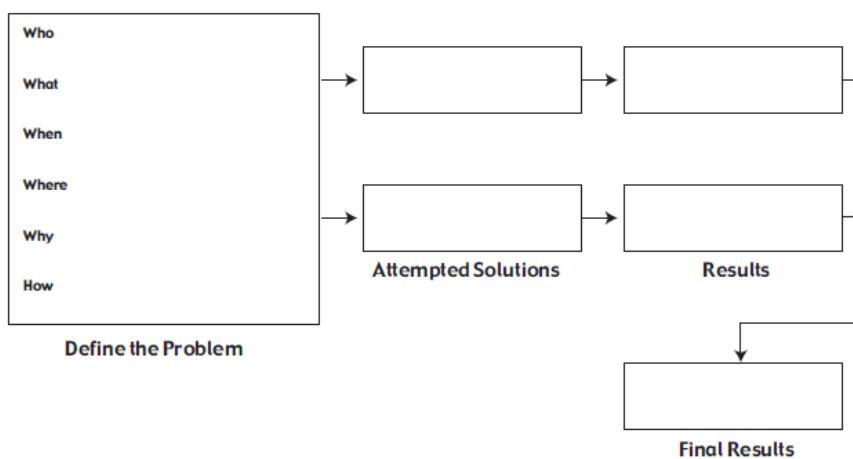
www.uen.org

Cause and Effect Graphic Organizers



www.uen.org

Problem and Solution Graphic Organizer



Recommendations for Ayden: Reading Comprehension

- Use **shortened passages** to build confidence by allowing him to finish work at similar rate to his peers, facilitate comprehension, and makes homework time similar to that of most peers (modification of some class work and homework – minimizes the affect of Gs-Fluency weakness)
- Use **text preview** to review information in a chapter prior to reading passages in class – facilitates comprehension

See Also...



<http://www.curriculumsupport.education.nsw.gov.au/literacy/assets/pdf/packages/combook.pdf>

See Also...

The Savy Teacher's Guide: Reading Interventions That Work

Jim Wright

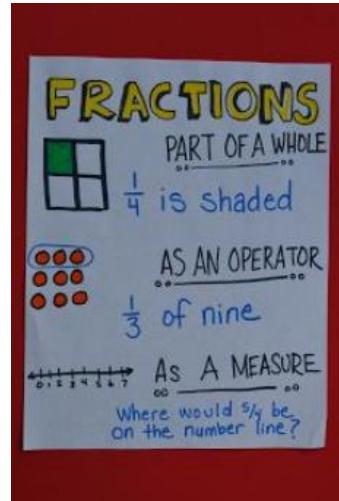
Download manual at: <http://www.jimwrightonline.com/pdfdocs/brouge/rdngManual.PDF>

Recommendations for Ayden: Processing Speed

- **Modify Math minutes** (i.e., less problems) to build confidence and facilitate engagement in task
 - Have him **graph his progress** to build confidence and focus on individual progress
- Encourage repeated practice at home through web-based program, called **Arcademics**
 - Math games presented in arcade-like format
 - Available on apps to increase mobility of intervention
 - Provide visual feedback

Recommendations for Ayden: Reasoning and Long-term Storage and Retrieval

- Teach **mnemonics** to assist with retrieving steps or sequences needed to compute problems
- Externalize the reasoning process: Use **math concept cards**
- Allow time to practice strategies until they are internalized



Recommendations for Ayden: Gf, Glr, and Writing

- Use **Inspiration software** during independent writing tasks (externalizes reasoning; facilitates learning through use of visuals)
 - Allows him to see relationships between concepts/ideas given graphic organizer type format
- Provide Ayden with **word banks** (minimizes the affects of retrieval fluency weakness)
- Remind him to reference classroom **word wall**, which contains cumulative listing of weekly vocabulary words
- Important to build vocabulary
 - Have teacher provide **feedback** on writing by circling specific words and offering synonym as well as circling one or two words for Ayden to offer alternative
 - Allow him to use **thesaurus**
 - Build vocabulary through the use of multiple associations (e.g., vocabulary cartoons, vocabulary word maps) – assists with encoding information more effectively, which in turn facilitates retrieval at a later time

Recommendations for Ayden: Writing

- Allow him to use **sentence strips** during writing tasks
 - Can write discrete thoughts or facts and then physically manipulate strips into organized, cohesive sentence
- Provide him with **guided notes** (if feasible)

Recommendations for Ayden: Spelling

- Remind him of **word wall**
- Allow him to use **spellchecker function**
- Have him build a **spelling dictionary**, with a new entry for each newly mastered word
- Use **folding-in technique** to build sight-word reading/spelling skills
 - Present 10 words, 7 of which are known and 3 of which are “unknown”
 - Reinforce with repeated practice via **cover-copy-compare web-based program**

Ayden in Perspective

- Academic difficulties
- Intrinsic factors that may be related to academic difficulties (e.g., Ga-PC, Gs-Fluency and rate, Glr- fluency and learning efficiency, relative weakness in Gf)
- Extrinsic factors – no remediation or tailored intervention; only help with homework
- MARC interventions carefully selected to meet Ayden's educational needs
- Implement interventions and monitor effectiveness
- One question not addressed – **Does Ayden have a specific learning disability?**

Cross-Battery Pattern of Strengths and Weaknesses Analyzer (XBA PSW-A[®] v1.0)
Conceptualization by D.P. Flanagan, S.O. Ortiz, V.C. Alfonso; Programming by S.O. Ortiz and A.M. Dynda
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Essentials
of Cross-Battery
Assessment
Third Edition

- Complete coverage of administration, scoring, interpretation, and reporting
- Expert advice on avoiding common pitfalls
- Conveniently formatted for rapid reference

Dawn P. Flanagan
Samuel O. Ortiz
Vincent C. Alfonso

Includes CD-ROM

Alan S. Kaufman & Nadeen L. Kaufman, Series Editors

Cross-Battery Pattern of Strengths and Weaknesses Analyzer (XBA PSW-A® v1.0)
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Details on the conceptualization, use, and interpretation of the information and values produced by XBA PSW-A® are found in *Essentials of Cross-Battery Assessment, Third Edition* (Flanagan, Ortiz & Alfonso, 2013). Begin by following the steps outlined below. After entering the required information, click on the "Go to g-Value Data Entry Tab" button to move to the next tab.

IDENTIFYING INFORMATION					
You must select the student's grade from the drop down menu to begin analysis. Entering additional data is optional.					
Step 1. Student Name	Ayden	Enter student's name	Step 4. Student Grade	5	REQUIRED: The student's current grade level (K to 12+) must be selected here.
Step 2. Date of Birth		Enter date of birth in mm/dd/yyyy format	Step 5. School Name		Enter the name of the student's school
Step 3. Date of Evaluation		Enter date of evaluation in mm/dd/yyyy format	Step 6. Evaluator Name		Enter the name of the evaluator
Step 7. Data Entry	Go to g-Value Data Entry Tab		After entering the student's grade and any other desired information, click the blue button to go to the g-Value Data Entry tab and continue entering the requested information.		
Chronological Age:		The student's chronological age is calculated automatically.			
Quick Access Navigation	g-Value Data Entry	g-Value	g-Value Summary	Use the buttons in this section to navigate to any tab in the program quickly.	
	PSW Data Entry	PSW Analyzer	PSW Summary		
Optional Save data/file:	Save Data and File As...			To save your data as a file for future use, click the GREEN button. Give the file a unique name and save to your desired location.	
Optional Start over/erase:	Clear Data on ALL Tabs			To start over or to enter new student data, click the RED button. All data that have been entered will be deleted.	
Go to Notes, Instruction, and Development Tab				Click the GRAY button to access instructions on how to use the program and for additional notes and information.	

Name: Ayden		Grade: 5	
Return to Identifying Info		Continue to g-Value	
Step 1: Enter Composite Scores		In the left-hand column below enter the obtained standard score for each of the seven broad ability composites listed (see Appendix H for guidelines).	
Step 2: Indicate "Yes" or "No"		In the right-hand column below indicate whether ability is "sufficient" by clicking on either the "Yes" or "No" button.	
CHC ABILITY COMPOSITES		Enter Standard Scores (Range 40 - 160)*	Select Yes or No
Gc - Crystallized Knowledge		95	<input type="radio"/> Yes <input type="radio"/> No
Gi - Fluid Reasoning		88	<input type="radio"/> Yes <input type="radio"/> No
Glr - Long-Term Storage & Retrieval		77	<input type="radio"/> Yes <input checked="" type="radio"/> No
Gsm - Short-Term Memory		96	<input type="radio"/> Yes <input type="radio"/> No
Gv - Visual Processing		107	<input type="radio"/> Yes <input type="radio"/> No
Ga - Auditory Processing		72	<input type="radio"/> Yes <input checked="" type="radio"/> No
Gs - Processing Speed		84	<input type="radio"/> Yes <input checked="" type="radio"/> No
Determining Sufficiency: An ability is considered "sufficient" when it is judged by the evaluator to contribute meaningfully to the individual's overall cognitive functioning, particularly for the purpose of facilitating academic performance (e.g., acquisition and development of academic skills). Typically, standard scores around 90 or higher are sufficient, as abilities associated with scores in this range (≥ 90) often contribute meaningfully to the individual's overall cognitive functioning and, therefore, support learning. When standard scores are around 90 or lower, clinical judgment is necessary to determine if the broad ability constrains or inhibits learning and achievement.			
*Note: If using T-Scores, convert them to Standard Scores (Deviation IQ metric) here: <input type="text"/>		<-T-Score = Std. Score-> <input type="text"/>	
Standard Score Range	Percentile Range	Classification	Functional Description
< 70	<2nd	Extremely Below Average/Normative Deficit	Markedly Insufficient
70 - 79	2nd to 8th	Well Below Average/Normative Deficit	Insufficient
80 - 89	9th to 24th	Below Average/Weakness ²	Insufficient to Sufficient ¹
90 - 109	25th to 74th	Average ²	Sufficient
110 - 119	75th to 89th	Above Average/Strength ²	Efficient
120 - 129	90th to 97th	Well Above Average/Normative Strength	Proficient
≥ 130	> 97th	Extremely Above Average/Normative Strength	Markedly Proficient
<small>¹Clinical judgment is likely necessary to determine if an ability reflected by a score in this range constrains learning and achievement for the individual.</small>			
<small>²Scores between 85-115 (inclusive) fall within the normal limits of functioning.</small>			

Name: Ayden Grade: 5

[Return to g-Value Data Entry](#) [Analysis and Interpretation of g-Value](#) [Go to PSW Data Entry](#)

Based on data entered in prior tabs, a g-Value is computed and displayed here. Users are advised to refer to the Notes, Instruction, and Development tab and to the relevant text in *Essentials of Cross-Battery Assessment, Third Edition* for a detailed discussion regarding the full meaning and proper use of the g-Value.

SS	CHC Broad Abilities
140	
130	
120	
110	
100	
90	
80	
70	
60	
50	
40	
Gc	92
Gf	88
Glr*	76
Gsm	94
Gv	106
Ga*	72
Gs*	83

g-Value = 0.71

The g-Value reflects overall cognitive ability based on the broad CHC abilities judged by the evaluator to be "sufficient." The g-Value is interpreted according to the likelihood that an individual possesses at least average overall cognitive ability.

$\geq .60$ = average overall ability is very likely
 $.51 - .59$ = more information needed
 $\leq .50$ = average overall ability is unlikely

Note: An asterisk (*) next to a broad ability code indicates that the ability was judged as "insufficient" by the evaluator.

Interpretation of g-Value = 0.71

How likely is it that the individual's pattern of strengths indicates at least average overall cognitive ability?

LIKELY. Despite the presence of weaknesses in one or more cognitive ability domains, this individual displays average or better functioning in cognitive ability domains considered important for acquiring the academic skills typical for this grade level. The individual's overall cognitive ability is very likely to be average or better and, therefore, ought to enable learning and achievement, especially when specific cognitive weaknesses are minimized through compensatory efforts, accommodations, and the like.

1a. Intact Ability Estimate
This composite is calculated using median reliabilities and intercorrelations among the CHC broad ability scores judged as sufficient on the g-Value tab.

96 The composite represents the individual's overall cognitive ability without the attenuating effects of the CHC abilities judged to be areas of weakness or deficit.

1b. Alternative Ability Estimate
You may enter an alternative value if desired or when the IA-e is not believed to be a good estimate of general ability.

96 The Intact Ability Estimate (IA-e) appears in green when it is ≥ 90 and the g-Value $\geq .60$. The IA-e appears in yellow when it is between 85-89, inclusive, or the g-Value is between .51-.59, inclusive. "N/A" will appear if the IA-e is < 85 or the g-Value $\leq .50$, or if there were too few abilities judged to be sufficient (i.e., <3). When "N/A" appears in the box no further analyses can or should be performed. When an alternative value is entered below, double dashes "--" are displayed.

Note: If you would like the program to use a value other than the IA-e, you may enter an alternative score here. Be sure that the value you enter here is an adequate representation of the individual's overall cognitive ability and is greater than or equal to 85. Simply delete this value if you wish to return to using the IA-e.

2a. Cognitive Weakness
Enter the scaled/standard score and subtest or composite name in the boxes on the right that best represents the student's cognitive weakness or deficit. If using T-Scores, convert to Standard Scores before entering (use Tab 2A).

This score should be the best estimate of a cognitive weakness or deficit. Indicate whether the score is a composite/subtest and select the cognitive area it represents. For example, if you entered a "working memory" composite, check "Composite" and select "Gsm-Short-Term Memory" from the drop down menu.

Actual Score	Conv. Score	Enter the name of the composite or subtest that is the best estimate of the individual's cognitive weakness.	Indicate score type and domain area					
77	77	Long-term Storage and Retrieval			<input checked="" type="radio"/> Composite <input type="radio"/> Subtest			Glr-Long Term Storage and Retrieval
		<input checked="" type="radio"/> Composite <input type="radio"/> Subtest						
		Glr-Long Term Storage and Retrieval						

2b. Frequency of Difference
Select the level to be used in PSW analysis for determining if the size of a difference is infrequent or uncommon. The default value is 5% and will be adjusted for test unreliability. A more conservative or liberal value may be selected. If a second comparison is being made or a subtest is used, consider using a stricter value.

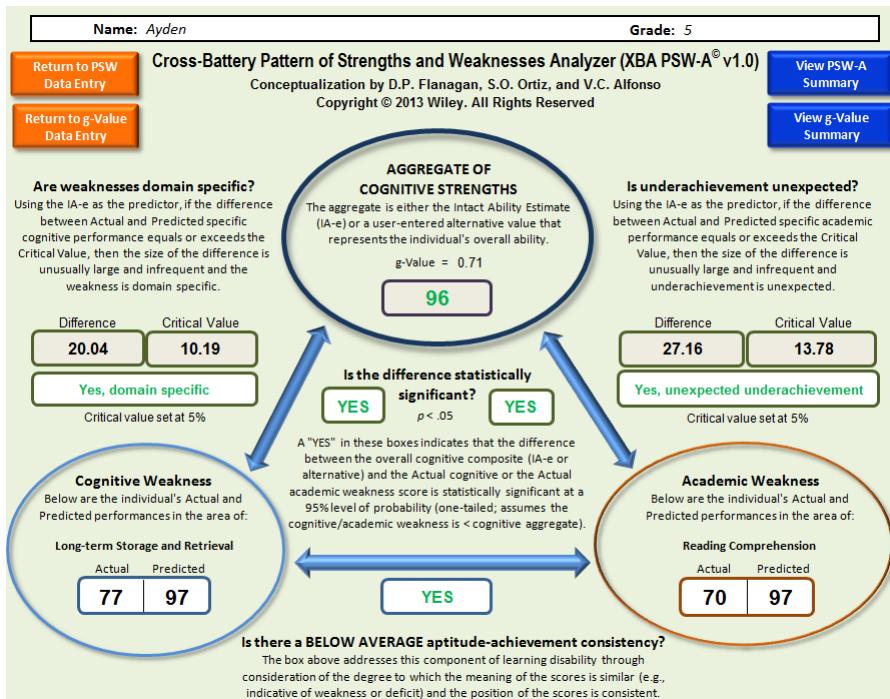
Select the initial probability level to evaluate the rarity (i.e., frequency) of the size of the difference between actual and predicted cognitive performance. The default starting value is .05, meaning a difference should occur about 5% of the time or less. The final value, however, will be corrected statistically to account for test unreliability.

Difference occurs about 1% of the time in the general population (best for subtests or tests with low reliability)
 Difference occurs about 5% of the time in the general population (recommended value, best for composites and reliable tests)
 Difference occurs about 10% of the time in the general population (liberal value increases false positive rate--not recommended)

3a. Academic Weakness
Enter a scaled/standard score (required) and the name of the subtest or composite (optional) in the boxes at the right that represents a significant area of academic weakness or deficit for the individual.

The score should be the best estimate of an academic weakness or deficit. Indicate whether the score is a composite/subtest and select the SLD area it represents. For example, if you entered a "word reading" scaled score, check the "Subtest" button and select "Basic Reading Skills" from the drop down menu.

Actual Score	Conv. Score	Enter the name of the composite or subtest that is the best estimate of the individual's academic weakness.	Indicate score type and domain area					
70	70	Reading Comprehension			<input checked="" type="radio"/> Composite <input type="radio"/> Subtest			Reading Comprehension
		<input checked="" type="radio"/> Composite <input type="radio"/> Subtest						
		Reading Comprehension						



Flanagan et al.'s Operational Definition: Level II – Review of Exclusionary Factors

Evaluation and Consideration of Exclusionary Factors for SLD Identification

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/hearing¹, 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/developmental history, family history, vision/hearing exams¹, 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 cause of a student's academic and learning difficulties to maintain SLD as a viable classification/diagnosis.

Form published in Flanagan, Alfonso, Mascolo, & Sotelo-Dyngena (2012). Use of Intelligence Tests in the Identification of Specific Learning Disabilities Within the Context of An Operational Definition. In Flanagan & Harrison (Eds.), *Contemporary Intellectual Assessment: Theories, Tests, and Issues (3rd edition)*. New York: Guilford.

Form downloadable on CD that accompanies *Essentials of Cross-Battery Assessment, 3e* (Flanagan, Ortiz, & Alfonso, 2013)

Flanagan et al.'s DD/C Definition of SLD: Level II – Review of Exclusionary Factors

Vision (Check All that Apply):

- | | |
|--|---|
| <input checked="" type="checkbox"/> Vision test recent (within 1 year) | <input type="checkbox"/> History of visual disorder/disturbance |
| <input type="checkbox"/> Vision test outdated (> 1 year) | <input type="checkbox"/> Diagnosed visual disorder/disturbance |
| <input type="checkbox"/> Passed | Name of disorder: <u>nearsighted</u> |
| <input type="checkbox"/> Failed | <input type="checkbox"/> 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) |
| <input checked="" type="checkbox"/> Wears Glasses | |

NOTES: Ayden wears glasses throughout the school day; glasses were worn throughout the evaluation

Form downloadable on CD that accompanies *Essentials of Cross-Battery Assessment*, 3e (Flanagan, Ortiz, & Alfonso, 2013)

Flanagan et al.'s DD/C Definition of SLD: Level II – Review of Exclusionary Factors

Hearing (Check All that Apply):²

- | | |
|---|---|
| <input checked="" type="checkbox"/> Hearing test recent (within 1 year) | <input type="checkbox"/> History of auditory disorder/disturbance |
| <input type="checkbox"/> Hearing test outdated (> 1 year) | <input type="checkbox"/> Diagnosed auditory disorder/disturbance |
| <input checked="" type="checkbox"/> Passed | <input type="checkbox"/> Name of disorder: _____ |
| <input type="checkbox"/> Failed | <input type="checkbox"/> 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) |
| <input type="checkbox"/> Uses Hearing Aids | |

NOTES: Information obtained from education records

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Flanagan et al.'s DD/C Definition of SLD: Level II – Review of Exclusionary Factors

<u>Motor Functioning (Check All that Apply):</u>	
<input type="checkbox"/> Fine Motor Delay/Difficulty	<input type="checkbox"/> History of motor disorder
<input type="checkbox"/> Gross Motor Delay/Difficulty	<input type="checkbox"/> Diagnosed motor disorder
<input type="checkbox"/> Improper pencil grip (Specify type: _____)	Name of disorder: _____
<input type="checkbox"/> Assistive devices/aids used (e.g., weighted pens, pencil grip, slant board)	<input type="checkbox"/> 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)
NOTES: No observed or reported difficulties _____ _____	

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Flanagan et al.'s DD/C Definition of SLD: Level II – Review of Exclusionary Factors

<u>Cognitive and Adaptive Functioning (Check All that Apply):</u>		
<input type="checkbox"/> Significantly “subaverage” intellectual functioning” (e.g., IQ score of 75 or below)	<input type="checkbox"/> Communication	<input type="checkbox"/> Socialization
<input type="checkbox"/> Pervasive cognitive deficits (e.g., weaknesses or deficits in many cognitive areas, including <i>Gf and Gc</i>)	<input type="checkbox"/> Behavior/Emotional Skills	<input type="checkbox"/> Other
Deficits in adaptive functioning (e.g., social, communication, self-care)		
Areas of significant adaptive skill weaknesses (check all that apply):		
<input type="checkbox"/> Motor Skill	<input type="checkbox"/> Daily Living Skills	<input type="checkbox"/> Other
NOTES: Current evaluation ruled out subaverage intellectual functioning; no deficits in adaptive functioning based on parent/teacher reports and observations _____ _____		

Form downloadable on CD that accompanies *Essentials of Cross-Battery Assessment*, 3e (Flanagan, Ortiz, & Alfonso, 2013)

Flanagan et al.'s DD/C Definition of SLD: Level II – Review of Exclusionary Factors

Social-Emotional/Psychological Factors (Check All that Apply):

- Diagnosed psychological disorder (Specify: _____)
 - Date 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
 - Emotional Stress
 - Autism
 - Present Medications (type, dosage, frequency, duration) _____
 - Prior Medication Use (type, dosage, frequency, duration) _____
 - Hospitalization for psychological difficulties (date(s)): _____
 - Deficits in social, emotional, or behavioral [SEB] functioning (e.g., as assessed by standardized rating scales)
Significant scores from SEB measures: _____
- NOTES:** No evidence of social-emotional difficulties or psychological disorder based on parent and teacher
BASC and interview with Ayden; Ayden is beginning to feel frustrated with school because "he can't
keep up" with all of his assignments.

Form downloadable on CD that accompanies *Essentials of Cross-Battery Assessment*, 3e (Flanagan, Ortiz, & Alfonso, 2013)

Flanagan et al.'s DD/C Definition of SLD: Level II – Review of Exclusionary Factors

Environmental/Economic Factors (Check All that Apply):

- Limited access to educational materials in the home History of educational neglect
 - Caregivers unable to provide instructional support Frequent transitions (e.g., shared custody)
 - Economic considerations precluded treatment of identified issues (e.g., filling a prescription, replacing broken glasses, tutoring) Environmental space issues (e.g., no space for studying, sleep disruptions due to shared sleeping space)
 - Temporary Crisis Situation
- NOTES:** There are currently no environmental or economic factors that interfere with Ayden's academic performance as per parent interview

Form downloadable on CD that accompanies *Essentials of Cross-Battery Assessment*, 3e (Flanagan, Ortiz, & Alfonso, 2013)

Flanagan et al.'s DD/C Definition of SLD: Level II – Review of Exclusionary Factors

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

- | | |
|---|---|
| <input type="checkbox"/> Limited Number of Years in U.S. (_____) | <input type="checkbox"/> Language(s) Other than English Spoken in Home |
| <input type="checkbox"/> No History of Early or Developmental Problems in Primary Language | <input type="checkbox"/> Lack of or Limited Instruction in Primary Language
(# of years _____) |
| <input type="checkbox"/> Current Primary Language Proficiency:
(Dates: _____ Scores: _____) | <input type="checkbox"/> Current English Language Proficiency:
(Date: _____ Scores: _____) |
| <input type="checkbox"/> Acculturative Knowledge Development
(Circle one: High – Moderate – Low) | <input type="checkbox"/> Parental Educational and Socio-Economic Level
(Circle one: High – Moderate – Low) |

NOTES: There are currently no cultural and linguistic factors that interfere with Ayden's academic performance as per parent/teacher interview and observation

Form downloadable on CD that accompanies *Essentials of Cross-Battery Assessment*, 3e (Flanagan, Ortiz, & Alfonso, 2013)

Flanagan et al.'s DD/C Definition of SLD: Level II – Review of Exclusionary Factors

Physical/Health Factors (Check All that Apply):

- | | |
|--|---|
| <input type="checkbox"/> Limited access to healthcare | <input type="checkbox"/> Minimal documentation of health history/status |
| <input type="checkbox"/> Chronic health condition (Specify: _____) | <input type="checkbox"/> Migraines |
| <input type="checkbox"/> Temporary health condition (Date/Duration: _____) | <input type="checkbox"/> Hospitalization (Dates: _____) |
| <input type="checkbox"/> History of Medical Condition (Date Diagnosed _____) | |
| <input type="checkbox"/> Medical Treatments (Specify: _____) | |
| <input type="checkbox"/> Repeated visits to the school nurse | <input type="checkbox"/> Repeated visits to doctor |
| <input type="checkbox"/> Medication (type, dosage, frequency, duration: _____) | |

NOTES: There are currently no physical/health factors that interfere with Ayden's academic performance as per parent interview

Form downloadable on CD that accompanies *Essentials of Cross-Battery Assessment*, 3e (Flanagan, Ortiz, & Alfonso, 2013)

Flanagan et al.'s DD/C Definition of SLD: Level II – Review of Exclusionary Factors

Instructional Factors (Check All that Apply):

- | | |
|---|--|
| <input type="checkbox"/> Interrupted schooling (e.g., mid-year school move) | Specify why: _____ |
| <input type="checkbox"/> New teacher (past 6 months) | <input type="checkbox"/> Retained or advanced a grade(s) |
| <input type="checkbox"/> Nontraditional curriculum (e.g., homeschooled) | <input type="checkbox"/> Accelerated curriculum (e.g., AP classes) |
| <input type="checkbox"/> Days <u>Absent</u> _____ | |

NOTES: *There are currently no instructional factors that interfere with Ayden's academic performance as per teacher interview and observation. However, Ayden's time in supplemental remedial reading instruction is spent on completing in-class assignments, rather than instruction in reading.*

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 student's observed learning difficulties. 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

Form downloadable on CD that accompanies *Essentials of Cross-Battery Assessment*, 3e (Flanagan, Ortiz, & Alfonso, 2013)

Federal Regulations Permit the Use of a PSW Model

(34 CFR 300.311(a)(5)), (34 CFR 300.309(a)(2(ii)).

- Evaluation documentation must consider whether the student exhibits a pattern of strengths and weaknesses
- In performance, achievement or both
- Relative to age, State approved grade levels standards, *or intellectual development*
- That is determined by the group to be relevant to the identification of SLD using appropriate instruments

Ayden is a student with a Specific Learning Disability

Academic and Cognitive Tests Inform Intervention

- Cognitive tests assist in understanding why a student is struggling
- Knowing why helps with figuring out how
- Many accommodations, modifications, compensatory strategies, and remedial programs suggested here will help all students in Ayden's grade
 - without them, most students will not struggle;
without them, Ayden will struggle

Individual differences are important

Individual Differences ARE Important

- **Why do some children fail to respond?**
 - Perhaps because interventions are being applied "blindly" as a one size fits all method without understanding whether or not specific cognitive deficits exist
- A neuropsychological process that is important to reading skills development is working memory – it is a crucial process for early reading recognition and later reading comprehension. ***One must assess it if one is to develop the most appropriate method of intervention*** (Teeter et al., 1997).
- Given the findings from the neuroimaging and neuropsychological fields of deficient performance on measures of ***working memory, processing speed, auditory processing ability, and executive functions***, evaluation of these skills is necessary to determine the most appropriate program to fit the individual child's need.

Semrud-Clikeman (2005)

Individual Difference ARE Important

- The danger with not paying attention to **individual differences** is that we will repeat the current practice of simple assessments in curricular materials to evaluate a complex learning process and to plan for interventions with children and adolescents with **markedly different needs and learning profiles** (Semrud-Clikeman, 2005).

The Value of Assessing Cognitive Abilities and Processes...

Even if a student never enters the special education system, the general education teacher, the student's parents, and the student him- or herself would receive valuable information regarding **why** there was such a struggle in acquiring academic content, to the point of possibly needing special education

Kavale, Holdnack, & Mostert (2005, p. 12) – *comment on Flanagan et al.'s approach to SLD identification*

The Value of Understanding Strengths and Weaknesses

Identification of (children's) overall pattern of cognitive strengths and weaknesses is in itself *therapeutic*, especially when coupled with exploration of their feelings about their particular information processing weaknesses... and in my clinical experience has been *crucial to the academic and psychological health* of those whom I have assessed. (*Suhr, 2008*)



Comprehensive Assessment Drives Intervention



Dr. Alan Kaufman

... there is a demand for the comprehensive assessment to drive intervention. This is the way it has always been, and this is the way it will always be because the referral questions for children with SLD have always asked, What is wrong? And how can we help? These questions demand differential diagnosis, a large part of which is determined by the cognitive abilities present in the individual child (p. 211).

Source: Kaufman, A. S., Lichtenberger, E. O., Fletcher-Janzen, E., & Kaufman, N. L. (2005). *Essentials of the K-ABC-II Assessment*. New York: John Wiley & Sons.

Why Do So Many of our Colleagues Question the Utility of Cognitive Measures?

“If these tests will give us a basis from which we can start to understand a child’s difficulties, they will have justified the time spent on them. Anything which helps educators or parents to *understand* any phase of development or lack of development is of immeasurable value” (p. 189).

Source:

Stanger, M. A., & Donohue, E. K. (1937). *Prediction and prevention of reading difficulties*. New York: Oxford University Press.



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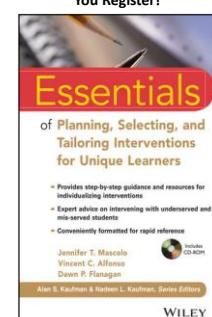
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