cause AND effect
webinar series
WHY your students are struggling and HOW to intervene

Learning Disability Identification: Linking Assessment to Intervention

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Overview

IDEAs that Work
U.S. Office of Special Education Programs

- This webinar will present an alternative research-based operational definition of specific learning disability (SLD) that is consistent with the third option, or the pattern of strengths and weaknesses (PSW) approach, included in the federal regulations.
- Select subtests from the WISC-V, WIAT-III, KTEA-3, and CELF-5 will be used to demonstrate how to organize assessments to address referral concerns.
- Examples will be used to demonstrate how WISC-V-based cross-battery assessment findings can be linked to evidence-based educational strategies and interventions.

KTEA-3 WIAT-III WISC-V CELF-5

Today's Agenda

1. Operational Definition of SLD
2. Using Assessment Measures (WISC-V, CELF-5, WIAT-III, KTEA-3) in the context of an operational definition
3. Linking Assessment to Intervention
   - *Functional Manifestations* of Cognitive Ability Deficits
   - *Documenting* Manifestations through Qualitative Data
   - *Circumventing* the Full Impact of Cognitive Ability Weaknesses in the Learning Environment

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. . . ."

source: idea.ed.gov

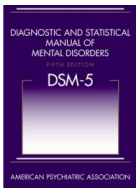
IDEIA

- 8 areas of Specific Learning Disability (SLD) in IDEIA:
  - Basic Reading Skills (BRS)
  - Reading Comprehension (RC)
  - Reading Fluency (RF)
  - Math Calculation (MC)
  - Math Problem Solving (MPS)
  - Written Expression (WE)
  - Oral Expression (OE)
  - Listening Comprehension (LC)

Specific Learning Disorder

(with specifiers; DSM-5)

1. Specific learning disorder *with impairment in reading* includes possible deficits in:
   - Word reading accuracy *(BRS)*
   - Reading rate or fluency *(RF)*
   - Reading comprehension *(RC)*
   - *DSM-5 diagnostic code 315.00.*



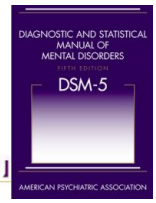
- **Note:** *Dyslexia* is an alternative term used to refer to a pattern of learning difficulties characterized by problems with accurate or fluent word recognition, poor decoding and poor spelling abilities.

Specific Learning Disorder

(with specifiers; DSM-5)

2. Specific learning disorder *with impairment in written expression* includes possible deficits in:
   - Spelling accuracy *(WE)*
   - Grammar and punctuation accuracy *(WE)*
   - Clarity or organization of written expression *(WE)*

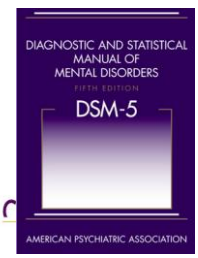
   DSM-5 diagnostic code 315.2.



Specific Learning Disorder

(with specifiers; DSM-5)

3. Specific learning disorder *with impairment in mathematics* includes possible deficits in:
   - Number sense *(MC/MPS)*
   - Memorization of arithmetic facts *(MC)*
   - Accurate or fluent calculation *(MC)*
   - Accurate math reasoning *(MPS)*
   - *DSM-5 diagnostic code 315.1.*



Other Diagnostic Labels for Specific Learning Disability

Learning Disability Association of America (LDA)

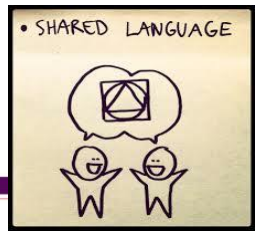
- LD Categories:
  - Auditory Processing Disorder *(LC)*
  - Dyscalculia *(MC, MPS)*
  - Dysgraphia *(WE)*
  - Dyslexia *(BRS, RF, RC)**
  - Language Processing Disorder *(OE, WE, LC)*
  - Nonverbal Learning Disabilities *(MC, MPS)*
  - Visual Perceptual/Visual Motor Deficit *(WE)*

Reading Disability Subtypes

- **Dysphonetic Dyslexia** – difficulty sounding out words in a phonological manner *(BRS)*
- **Surface Dyslexia** – difficulty with the rapid and automatic recognition of words in print *(RF)*
- **Mixed Dyslexia –** multiple reading deficits characterized by impaired phonological and orthographic processing skills. It is probably the most severe form of dyslexia. *(BRS/RF)*
- **Comprehension Deficits** – the mechanical side of reading is fine but difficulty persists deriving meaning from print *(RC)*

Feifer, S. (2011). How SLD Manifests in Reading Achievement. In Flanagan & Alfonso (Eds), *Essentials of Specific Learning Disability Identification*. Hoboken, NJ: Wiley.

Overall, it can be useful to adopt a "shared language" when speaking of SLD - - a group of terms that we can filter other diagnostic labels through so that we can readily understand what is being talked about



We Know SLD Categories, but How do we Diagnose it?

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

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

- Approaches and "PSW-ready" batteries.

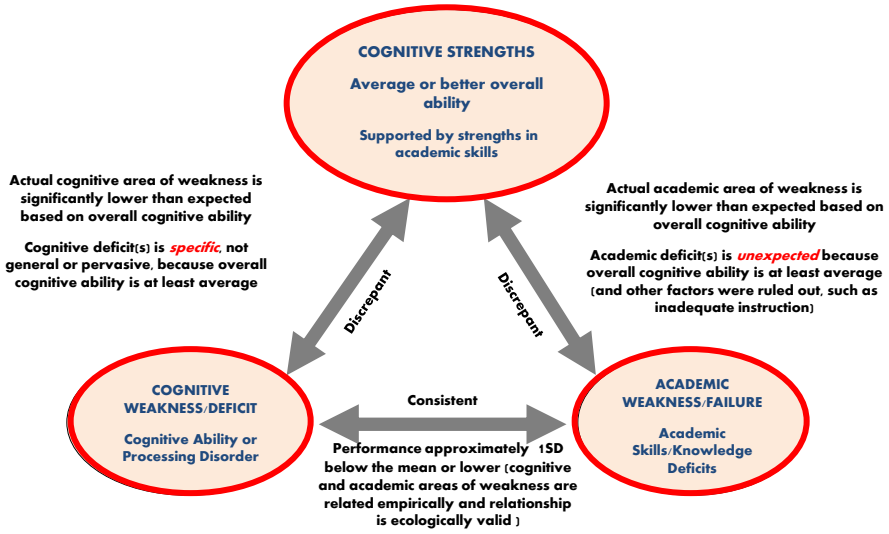
PATTERN OF STRENGTHS AND WEAKNESSES ANALYSIS

Area of Achievement Weakness	WIAT-III	Basic Reading: 84
Area of Processing Weakness	WISC-V	WMI: 82
Area of Processing Strength	WISC-V	VSI: 111

	Comparison	Relative Strength Score	Relative Weakness Score	Difference	Critical Value .01	Significant Difference Y/N	Supports SLD hypothesis? Yes/No
A	Processing Strength/ Achievement Weakness	111	84	27	12.00	Y	Yes
B	Processing Strength/ Processing Weakness	111	82	29	15.00	Y	Yes

The PSW model is intended to help practitioners generate hypotheses regarding clinical diagnoses. The analysis should always be used within a comprehensive evaluation that incorporates multiple sources of information.

Conceptual Similarities Among Alternative Research-based Approach to SLD



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

How is SLD Diagnosed Clinically: An Operational Definition

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)**

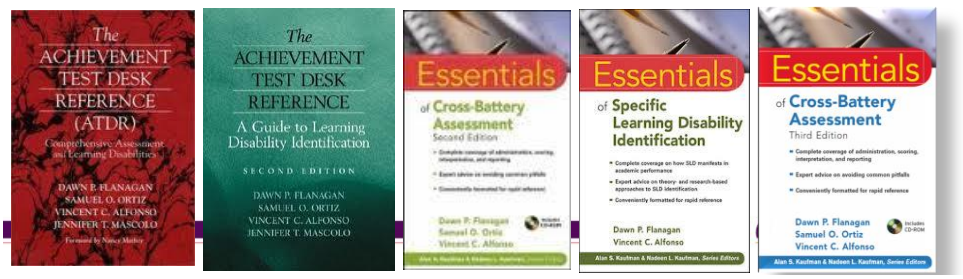


Table 1. The Dual Discrepancy/Consistency (DD-C) Operational Definition of SLD

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)[2] 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., *Grw-R (reading decoding, reading fluency, reading comprehension; Grw-W (spelling, written expression; Gq (math calculation, math problem solving; Gc (communication ability, listening ability*].	Response to quality instruction and intervention via progress monitoring, performance on norm-referenced, standardized achievement tests, evaluation of work samples, observations of academic performance, teacher/parent/student interview, history of academic performance, data from other members of Multidisciplinary Team (MDT) (e.g., speech-language pathologist, interventionist, reading specialist).	Performance in one or more academic areas is *weak or deficient*[3] (despite attempts at delivering quality instruction) as evidenced by converging data sources. Results from the WJ IV *intra-achievement variation* procedure may be used as one data source, especially when academic area(s) identified as a weakness has an associated standard score that is weak or deficient.	**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 ***Exclusionary Factors Form***, which may be downloaded from www.crossbattery.com under "resources."]	
III	A disorder in one or more of the basic psychological/neuro-psychological processes involved in understanding or in using language, spoken or written; such disorders are presumed to originate from central nervous system dysfunction.	**Cognitive Abilities & Processes:** Performance in cognitive abilities and processes (e.g., *Gv, Ga, Glr, Gsm, Gs*), 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 work 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 *weak or deficient*[3] as evidenced by converging data sources. Results from the WJ IV *intra-cognitive variation* and *intra-oral language variation* procedures may be use, especially when cognitive area(s) identified as a weakness has an associated standard score that is weak or	
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 *discrepancies*, 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. When using the WJ IV comparison and variation procedures the following procedures may be used to support a DD/C pattern: GIA/achievement, Gf-Gc/achievement, or SAPT/achievement discrepancy and Gf-Gc/Other (COG) Ability discrepancy (when ability is at least average and specific academic and cognitive areas of presumed weakness are below average or lower.	**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 *without* the assistance of individualized special education services.	**Necessary for Special Education Eligibility**

[1]This 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.
[2]Poor spelling with adequate ability to express ideas in writing is often typical of dyslexia and/or disgraphia. 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 & Mather, 2009).

Pearson SLD Solutions

Level I: Nature of SLD

- 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

Level I: Focus of Evaluation

- Academic Achievement
  - Performance in specific academic skills (e.g., reading decoding, reading fluency, reading comprehension, spelling, written expression, math calculations, math problem solving, oral expression, listening comprehension)
  - WIAT-III, KTEA-3, special purpose measures (KeyMath3, PAL-II)

Operationalizing Level I: WIAT-III/KTEA-3/CELF-5

SLD Area	Relevant Test
Basic Reading Skills	WIAT-III Word Reading WIAT-III Pseudoword Decoding WIAT-III Early Reading Skills (Ga – PC) KTEA-3 Letter Word Recognition KTEA-3 Phonological Processing KTEA-3 Nonsense Word Decoding KTEA-3 Letter Naming Facility (Glr – NA)
Reading Comprehension	WIAT-III Reading Comprehension KTEA-3 Reading Comprehension KTEA-3 Reading Vocabulary (Gc – VL) CELF-5 Reading Comprehension
Reading Fluency	WIAT-III Oral Reading Fluency KTEA-3 Silent Reading Fluency KTEA-3 Word Recognition Fluency KTEA-3 Decoding Fluency

Operationalizing Level I: WIAT-III/KTEA-3/CELF-5

SLD Area	Relevant Test
Written Expression	WIAT-III Essay Composition WIAT-III Sentence Composition WIAT-III Alphabet Writing Fluency WIAT-III Spelling KTEA-3 Written Expression KTEA-3 Spelling KTEA-3 Writing Fluency CELF-5 Structured Writing
Listening Comprehension	WIAT-III Listening Comprehension (Gc-VL, LS) KTEA-3 Listening Comprehension (Gc-LS) CELF-5 Receptive Language Index* CELF-5 Language Content Index*

Operationalizing Level I: WIAT-III/KTEA-3/CELF-5

SLD Area	Relevant Test
Oral Expression	WIAT-III Oral Expression (Gc – VL; Glr – FI) KTEA-3 Associational Fluency (Glr – FI) KTEA-3 Oral Expression (Gc – CM) CELF-5 Expressive Language Index*
Math Calculation	WIAT-III Numerical Operations WIAT-III Math Fluency: Addition (Gs – N) WIAT-III Math Fluency: Subtraction (Gs – N) WIAT-III Math Fluency: Multiplication (Gs – N) KTEA-3 Math Computation KTEA-3 Math Fluency (Gs – N)
Math Problem Solving	WIAT-III Math Problem Solving (Gf- RQ) KTEA-3 Math Concepts and Applications (Gf – RQ)

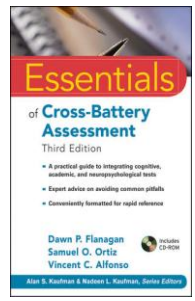
IDEIA Areas of Achievement	Corresponding KTEA-3 Subtests
Oral Expression	Oral Expression Subtest
Listening Comprehension	Listening Comprehension Subtest
Basic Reading Skills	Letter & Word Recognition Subtests Nonsense Word Decoding Subtest Reading Composite Decoding Composite
Reading Comprehension	Reading Comprehension Subtest Reading Understanding Composite
Reading Fluency Skills	Word Recognition Fluency Subtest Decoding Fluency Subtest Silent Reading Fluency Subtest Reading Fluency Composite
Written Expression	Written Expression Subtest Written Language Composite
Mathematics Calculation	Math Computation Subtest Math Fluency Subtest
Mathematics Problem-Solving	Math Concepts & Applications Subtest

KTEA-3 Scores and IDEIA

Variations in Task Characteristics of Reading Comprehension Tests (Mascolo, 2013)

Battery Subtest	Cloze Format	Open-Ended Questions	Multiple Choice	Literal Questions	Inferential Questions	Silent Reading	Oral Reading	Examiner Reads	Examinee Reads	Examiner/ Examinee Read	Time Limit	Examinee can refer back to text
Clinical Evaluation of Language Fundamentals – Fifth Edition (CELF-5)												
Reading Comprehension		✓		✓	✓	✓				✓		✓
Diagnostic Assessment Battery – Third Edition (DAB-3)		✓		✓	✓	✓				✓		
Reading Comprehension												
Gray Diagnostic Reading Test – Second Edition (GDRT-2)												
Meaningful Reading	✓					✓			✓			
Reading Vocabulary			✓			✓			✓			
Gray Oral Reading Test – Fifth Edition (GORT-5)												
Reading Comprehension			✓	✓	✓							
Illinois Test of Psycholinguistic Abilities – Third Edition (ITPA-3)												
Sentence Sequencing			✓			✓			✓			✓
Kaufman Tests of Educational Achievement – Second Edition (KTEA-III)												
Reading Comprehension		✓	✓	✓	✓	✓	✓			✓		✓
Reading Vocabulary			✓	✓		✓	✓			✓		
Oral and Written Language Scales – Second Edition (OWLS-II)												
Reading Comprehension	✓		✓	✓	✓	✓	✓			✓		✓
Phonics Based Reading Test (PRT)												
Comprehension		✓		✓			✓			✓		
Quick Picture Reading Test												
Quick Picture Reading Test			✓			✓			✓			
Test of Early Reading Ability – Third Edition (TERA-3)												
Meaning	✓	✓	✓	✓	✓		✓			✓		
Test of Reading Comprehension – Fourth Edition (TORC-4)[1]												
Paragraph Construction			✓	✓		✓			✓			✓
Relational Vocabulary			✓		✓	✓			✓			✓
Sentence Completion	✓		✓	✓		✓			✓			✓
Text Comprehension[2]			✓	✓	✓	✓			✓			✓
Wechsler Fundamental Academic Skills (WFAS)												
Reading Comprehension (Form A & B) Grades K – 1			✓	✓	✓	✓				✓	✓	

Full appendix available in:



Level I: Examples of Evaluation Methods and Data Sources

- Response to quality instruction and intervention via progress monitoring (RTI)
- *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 MDT members (speech language pathologist, reading specialist)

cause effect

OBSERVATIONAL RATING SCALE

Listening

T-Teacher, P-Parent, S-Student

	Never or Almost Never	Sometimes	Often	Always or Almost Always
1. Has trouble paying attention.		P1		
2. Has trouble following spoken directions.		P1		
3. Has trouble remembering things people say.		P1		
4. Has trouble understanding what people are saying.			P1	
5. Has to ask people to repeat what they have said.			P1	
6. Has trouble understanding the meanings of words.			P1	
7. Has trouble understanding new ideas.		P1		
8. Has trouble looking at people when talking or listening.		P1		
9. Has trouble understanding facial expressions, gestures, or body language.		P1		

CELF®5
Clinical Evaluation of Language Fundamentals

The KTEA-3 makes it convenient to document test-taking behaviors that may disrupt or enhance performance by providing a list of relevant behaviors on the back page of the Record Form. To determine whether the number of errors in a given category represents weak, average, or strong performance, error analysis norms are available for 10 of the KTEA-3 subtests.

Using the KTEA-3 standard report in Q-global, subtest-specific qualitative observations may be entered for 15 subtests. The standard report displays possible areas of cognitive processing weaknesses suggested by the qualitative observations.

Alternatively, the flash drive included in the KTEA-3 kit offers a Qualitative Observations Form for entering qualitative observations by hand. This form also lists the qualitative observations in Record Form order, which may be printed out for easy reference during test administration.

- List of *Relevant Behaviors* on the Back Page of the Record Form
- Q-global standard report allows for *subtest-specific qualitative observations* to be entered for 15 subtests
- *Qualitative Observation* Form available by Hand as well (Flash Drive)

Level I: Criteria for SLD

- Performance is *weak* or *deficient* (despite attempts at delivering quality instruction) as evidenced by *converging data sources*.
- Results from *intra-achievement variation* procedures may be used as *one data source*, especially when academic area(s) identified as a weakness has an associated standard score that is weak or deficient.

Practical Questions to Ask at Level I

1. Has a *normative weakness* been documented?
2. Is the "weakness" covered under *an area of SLD*? (e.g., spelling, math fluency)?
3. Is there *convergence within standardized test* data? (e.g., other low reading scores)?
4. Is there *convergence with other data* (e.g., teacher reports, test scores, parent reports, work samples, etc.)*
5. If *intra-achievement variation procedures* are used/reported, is the lower of the two scores a *normative weakness*, and what is the *base rate data*? (e.g., clinically meaningfulness <10%)

Level II: Nature of SLD

- 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

Level II: Focus of Evaluation

- 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

Level II: Examples of Evaluation Methods and Data Sources

- 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.

Level II: Criteria for SLD

- Performance is not *primarily* attributed to these exclusionary factors, although one or more of them may *contribute* to learning difficulties. [Consider using the Exclusionary Factors Form, which may be downloaded from www.crossbattery.com under "resources."]

cause effect

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/hearing[1], or motor disabilities, intellectual disability (ID), social/emotional or psychological disturbance, environmental or economic disadvantage, cultural and linguistic factors (e.g., limited English proficiency), insufficient instruction or opportunity to learn and physical/health factors. These factors may be evaluated via behavior rating scales, parent and teacher interviews, classroom observations, attendance records, social/developmental history, family history, vision/hearing exams[1], medical records, prior evaluations, and interviews with current or past counselors, psychiatrists, and paraprofessionals who have worked with the student. Noteworthy is the fact that students with (and without) SLD often have one or more factors (listed below) that ***contribute*** to academic and learning difficulties. However, the practitioner must rule out any of these factors as being the ***primary*** 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.*

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

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

Vision (Check All that Apply):

☒ Vision test recent (within 1 year)	☐ History of visual disorder/disturbance
☐ Vision test outdated (> 1 year)	☐ Diagnosed visual disorder/disturbance
☐ Passed	Name of disorder: nearsighted
☐ Failed	☐ Vision difficulties suspected or observed
☒ Wears Glasses	(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)

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, Oritz, & Alfonso, 2013)

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

Hearing (Check All that Apply)[2]:

☒ Hearing test recent (within 1 year)	☐ History of auditory disorder/disturbance
☐ Hearing test outdated (> 1 year)	☐ Diagnosed auditory disorder/disturbance
☒ Passed	☐ Name of disorder:_____
☐ Failed	☐ Hearing difficulties suggested in the referral
☐ Uses Hearing Aids	(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)

NOTES: Information obtained from education records

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

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

Motor Functioning (Check All that Apply):

☐ Fine Motor Delay/Difficulty	☐ History of motor disorder
☐ Gross Motor Delay/Difficulty	☐ Diagnosed motor disorder
☐ Improper pencil grip (Specify type: _____)	Name of disorder: _____
☐ Assistive devices/aids used (e.g., weighted pens, pencil grip, slant board)	☐ 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

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

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

Cognitive and Adaptive Functioning (Check All that Apply):

☐ Significantly "subaverage intellectual functioning" (e.g., IQ score of 75 or below)

☐ Pervasive cognitive deficits (e.g., weaknesses or deficits in many cognitive areas, including *Gf and Gc*)

☐ Deficits in adaptive functioning (e.g., social, communication, self-care)

Areas of significant adaptive skill weaknesses (check all that apply):

☐ Motor Skill	☐ Communication	☐ Socialization
☐ Daily Living Skills	☐ Behavior/Emotional Skills	☐ 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, Oritz, & 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, Oritz, & 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, Oritz, & 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]:

☐ Limited Number of Years in U.S. (____)

☐ Language(s) Other than English Spoken in Home

☐ No History of Early or Developmental Problems in Primary Language

☐ Lack of or Limited Instruction in Primary Language (# of years _____)

☐ Current Primary Language Proficiency: (Dates: _____ Scores: _____)

☐ Current English Language Proficiency: (Date: _____ Scores: _____)

☐ Acculturative Knowledge Development (Circle one: High – Moderate – Low)

☐ 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, Oritz, & Alfonso, 2013)

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

Physical/Health Factors (Check All that Apply):

☐Limited access to healthcare ☐Minimal documentation of health history/status

☐Chronic health condition (Specify: _____) ☐Migraines

☐Temporary health condition (Date/Duration: _____) ☐Hospitalization (Dates: _____)

☐History of Medical Condition (Date Diagnosed _____)

☐Medical Treatments (Specify: _____)

☐Repeated visits to the school nurse ☐Repeated visits to doctor

☐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, Oritz, & Alfonso, 2013)

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

Instructional Factors (Check All that Apply):

☐ Interrupted schooling (e.g., mid-year school move) Specify why: _____

☐ New teacher (past 6 months) ☐ Retained or advanced a grade(s)

☐ Nontraditional curriculum (e.g., homeschooled) ☐ Accelerated curriculum (e.g., AP classes)

☐ Days Absent _____

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.

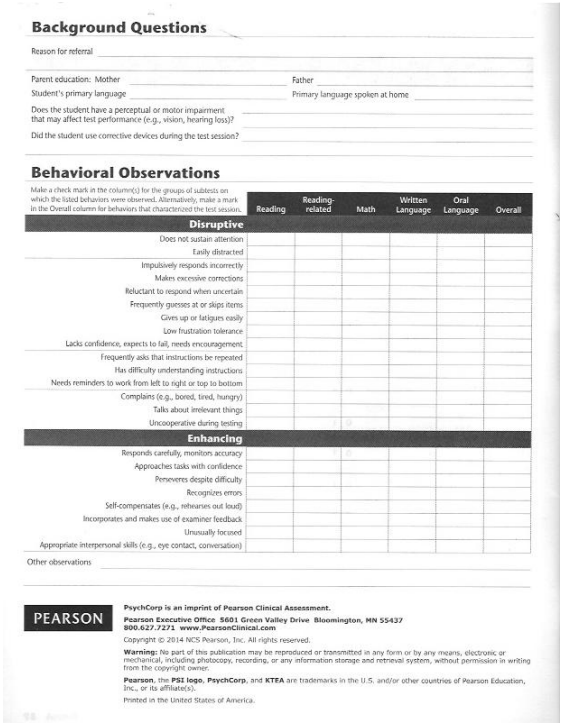
Determination of Primary and Contributory Causes of Academic Weaknesses and Learning Difficulties (Check One):

☐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, Oritz, & Alfonso, 2013)



Background Questions

Reason for referral

Parent education: Mother Father

Student's primary language Primary language spoken at home

Does the student have a perceptual or motor impairment that may affect test performance (e.g., vision, hearing loss)?

Did the student use corrective devices during the test session?

Behavioral Observations

Make a check mark in the column(s) for the groups of subtests on which the listed behaviors were observed. Alternatively, make a mark in the Overall column for behaviors that characterized the test session.

	Reading	Reading-related	Math	Written Language	Oral Language	Overall
Disruptive						
Does not sustain attention						
Easily distracted						
Impulsively responds incorrectly						
Makes excessive corrections						
Reluctant to respond when uncertain						
Frequently guesses at or skips items						
Gives up or fatigues easily						
Low frustration tolerance						
Lacks confidence, expects to fail, needs encouragement						
Frequently asks that instructions be repeated						
Has difficulty understanding instructions						
Needs reminders to work from left to right or top to bottom						
Complains (e.g., bored, tired, hungry)						
Talks about irrelevant things						
Uncooperative during testing						
Enhancing						
Responds carefully, monitors accuracy						
Approaches tasks with confidence						
Perseveres despite difficulty						
Recognizes errors						
Self-compensates (e.g., rehearses out loud)						
Incorporates and makes use of examiner feedback						
Unusually focused						
Appropriate interpersonal skills (e.g., eye contact, conversation)						

Other observations

PEARSON

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KTEA™-3

Exclusionary Criteria, Strength-Based Assessment

Level III: Nature of SLD

- A disorder in one or more of the *basic psychological/neuropsychological processes* involved in understanding or in using language, spoken or written; such disorders are presumed to originate from central nervous system dysfunction.

Level III: Focus of Evaluation

- Cognitive Abilities and Processes
  - Performance in cognitive abilities and processes (e.g., Gv, Ga, Glr, Gsm, Gs), specific neuropsychological processes (e.g., attention, executive functioning, orthographic processing; RAN: RAS) and learning efficiency (e.g., associative memory, free recall memory, meaningful memory)

Level III: Examples of Evaluation Methods and Data Sources

- Performance on *norm-referenced tests*, evaluation of work samples, observations of cognitive performance, task analysis, testing limits, teacher/parent/student interview, history of academic performance, records review

Level III Data Sources

- *WISC-V, CELF-5* scores, standardized scores from supplemental measures
- Hypothesis Generation *KTEA-3* (how behaviors might suggest cognitive ability weaknesses)

WISC-V/KTEA-3 Example

ANCILLARY & COMPLEMENTARY SUMMARY

Index Score Summary

Composite		Sum of Scaled/ Standard Scores	Index Score	Percentile Rank	95% Confidence Interval	Qualitative Description	*SEM*
Ancillary							
Quantitative Reasoning	QRI	18	94	34	88-101	Average	3.67
Auditory Working Memory	AWMI	14	84	14	78-92	Low Average	4.24
Nonverbal	NVI	57	96	39	90-102	Average	3.35
General Ability	GAI	52	103	58	97-109	Average	3.00
Cognitive Proficiency	CPI	32	85	16	79-93	Low Average	4.24
Complementary							
Naming Speed	NSI	154	76	5	70-87	Very Low	5.61
Symbol Translation	STI	317	100	66	99-112	Average	3.67
Storage & Retrieval	SRI	182	88	21	82-95	Low Average	4.24

Ancillary index scores are reported using scaled scores and complementary index scores are reported using standard scores.

KTEA–3 Qualitative Observations Hand Scoring Form *continued*

Oral Expression

YES	NO	Oral Expression	Grapho-motor	Visual Processing	Phonological Processing	Orthographic Processing	Language	Executive Functioning	Processing Speed	RAN / Long-term Memory	Working Memory
○	○	Responses indicated misinterpretation of the pictures		VP							
○	○	Responses were often illogical or not meaningful					L	EF			
○	○	Had difficulty using the target words correctly					L				WM
○	○	Frequently revised or reformulated response					L				WM
○	○	Had difficulty with word finding								RAN	
○	○	Most responses were complete sentences					L				
○	○	Paused to consider response before speaking						EF			

Level III: Criteria for SLD

- Performance in *one or more cognitive abilities* and/or neuropsychological processes (related to academic skill deficiency) is *weak* or *deficient* as evidenced by converging data sources.
- Results from *intra-cognitive variation* may be used, especially when cognitive area(s) identified as a weakness has an associated standard score that is weak or deficient.

TABLE 7.5 JASON'S IQ SCORES

Index Scores	Standard Score	Range	Percentile	Description of Range
Verbal Comprehension Index (VCI)	85	79 to 93	16	Low Average
Perceptual Reasoning Index (PRI)	102	94 to 109	25	Average
Working Memory Index (WMI)	88	81 to 97	21	Low Average
Processing Speed Index (PSI)	78	72 to 90	7	Borderline
Full Scale IQ	87	82 to 92	19	Low Average

Index	Subscales Included Under This Index	Subscale Score	Strength/ Weakness
Verbal Comprehension Index (VCI)	Similarities	5	Weakness
	Vocabulary	9	
	Comprehension	9	
Perceptual Reasoning Index (PRI)	Block Design	12	Relative Strength
	Picture Concepts	8	
	Matrix Reasoning	12	Relative Strength
Working Memory Index (WMI)	Digit Span	8	
	Letter-Number Sequence	8	
Processing Speed Index (PSI)	Coding	6	Weakness
	Symbol Search	6	Weakness

Example:

Cognitive Ability Weakness

Subtests versus Composites

- Subtest performance represents a *single task*, a single sampling of behavior
- Composites reflect an *overall estimate of ability for a particular domain* (e.g., WISC-V VCI, WISC-V FSIQ)
- Where possible, you want to *interpret at the composite level*, but you still must *consider variability and/or outliers, rather than take a composite at face value*

TABLE 7.5 JASON'S IQ SCORES

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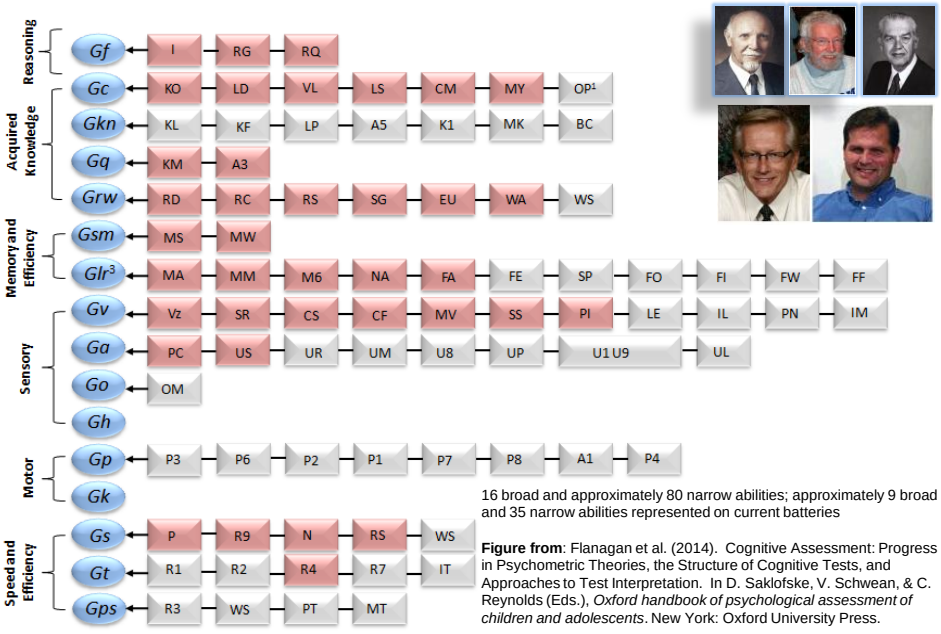
	Picture Concepts	8	
	Matrix Reasoning	12	Relative Strength
Working Memory Index (WMI)	Digit Span	8	
	Letter-Number Sequence	8	
Processing Speed Index (PSI)	Coding	6	Weakness
	Symbol Search	6	Weakness

So, What Abilities are We Interested In? What Abilities Should we Assess/Measure/Consider When SLD is suspected?

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



16 broad and approximately 80 narrow abilities; approximately 9 broad and 35 narrow abilities represented on current batteries

Figure from: Flanagan et al. (2014). Cognitive Assessment: Progress in Psychometric Theories, the Structure of Cognitive Tests, and Approaches to Test Interpretation. In D. Saklofske, V. Schwean, & C. Reynolds (Eds.), *Oxford handbook of psychological assessment of children and adolescents*. New York: Oxford University Press.

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*

cause effect

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)

cause effect

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

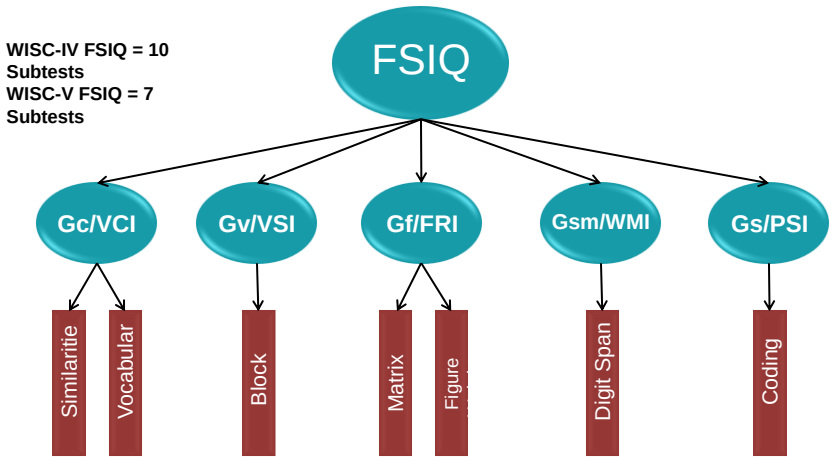
Important for overall learning and academic success

Important for acquiring basic reading skills

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

Composition of the WISC-V Full Scale IQ

WISC-IV FSIQ = 10 Subtests
WISC-V FSIQ = 7 Subtests



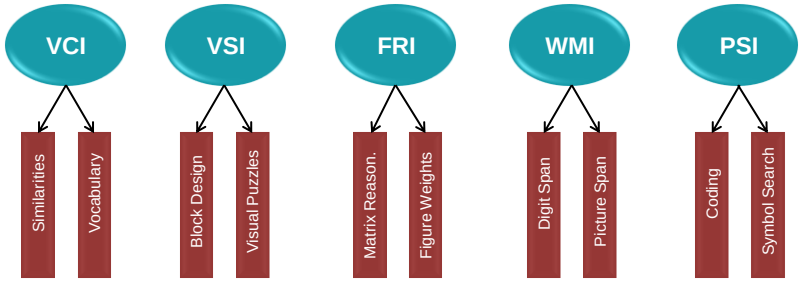
Allowable Substitutions for Core FSIQ Subtests

Information Comprehension	***Visual Puzzles***	***Picture Concepts Arithmetic***	***Picture Span Letter-Number Sequencing***	***Symbol Search Cancellation***

Flanagan, D. P., & McDonough, E.M. (2015). *WISC-V: Advances in assessment, interpretation, and clinical and web-based applications*. Presented at St. John's University, Queens, NY.

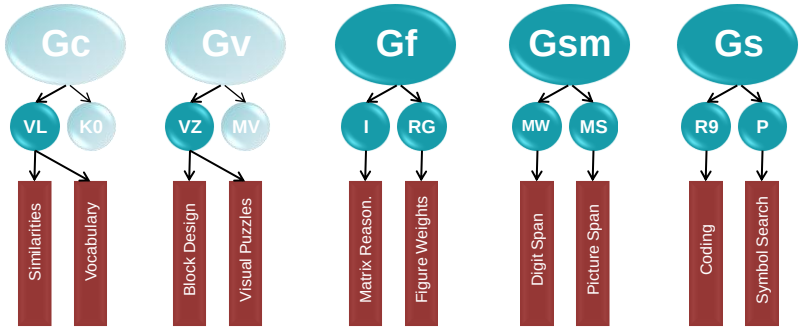
WISC-V Primary Index Scales

Based on 5-factor hierarchical analysis of primary and secondary subtests



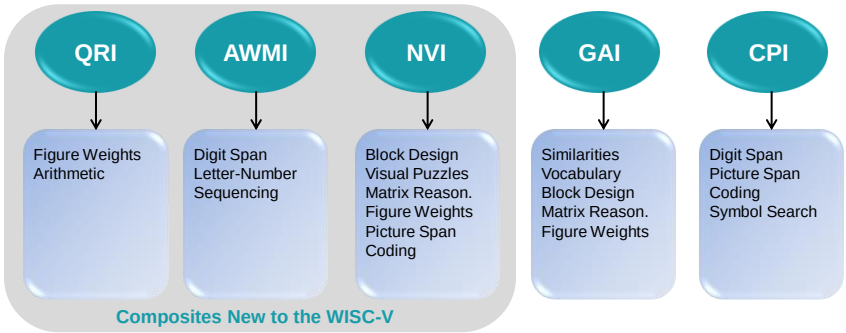
No Substitutions are Permitted

Based on construct validation literature; Extant factor analyses; CHC classifications



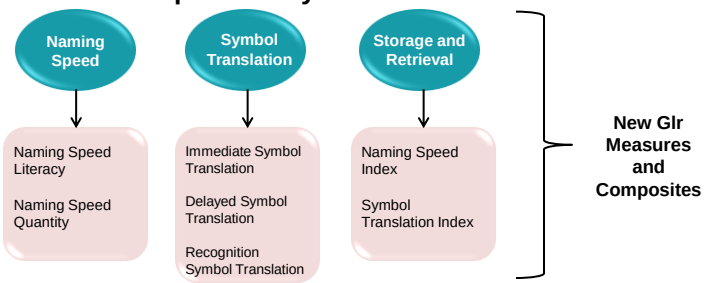
Flanagan, D. P., & McDonough, E.M. (2015). *WISC-V: Advances in assessment, interpretation, and clinical and web-based applications*. Presented at St. John's University, Queens, NY.

WISC-V Ancillary Index Scales



WISC-V Complementary Index Scales

Ancillary and Complementary Index Scales are based on logical classifications as guided by research



Flanagan, D. P., & McDonough, E.M. (2015). *WISC-V: Advances in assessment, interpretation, and clinical and web-based applications*. Presented at St. John's University, Queens, NY.

Level IV: Nature of SLD

- The specific learning disability is a *discrete condition differentiated from generalized learning failure* from generally average ability to think and reason and a learning skill profile exhibiting significant variability, indicating *processing areas of strength and weakness*.

Level IV: Focus of Evaluation

- 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 ability to think and reason*.

Level IV: Examples of Evaluation Methods and Data Sources

- 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 demands analysis and limits testing)

Level IV: Criteria for SLD

- Circumscribed below average aptitude-achievement consistency (i.e., *related cognitive processes and academic skills* are generally about 1 SD below the mean or lower)
- Circumscribed ability-achievement and ability-cognitive aptitude achievement discrepancies, with *cognitive areas of strength represented by areas that are generally ≥ 90*

Level IV: Criteria for SLD (cont'd)

- 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.
- *Note: WIAT-III has processing strengths and weakness section of interpretive report; XBA 3 and X-Bass have as well*

Level IV Data Sources

- *WIAT-III, KTEA-3, WISC-V, CELF-5* scores, standardized scores from supplemental measures
- *PSW Analyses* offered by Pearson scoring programs
- *Qualitative Reporting features* of Pearson batteries
- *Hypothesis Generation* KTEA-3 (how behaviors might suggest cognitive ability weaknesses)

PATTERN OF STRENGTHS AND WEAKNESSES ANALYSIS

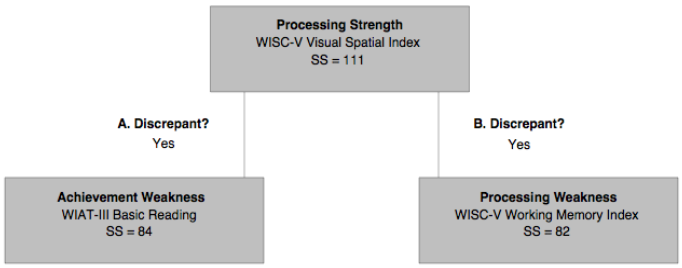
Area of Achievement Weakness	WIAT-III	Basic Reading: 84
Area of Processing Weakness	WISC-V	WMI: 82
Area of Processing Strength	WISC-V	VSI: 111

	Comparison	Relative Strength Score	Relative Weakness Score	Difference	Critical Value .01	Significant Difference Y/N	Supports SLD hypothesis? Yes/No
A	Processing Strength/ Achievement Weakness	111	84	27	12.00	Y	Yes
B	Processing Strength/ Processing Weakness	111	82	29	15.00	Y	Yes

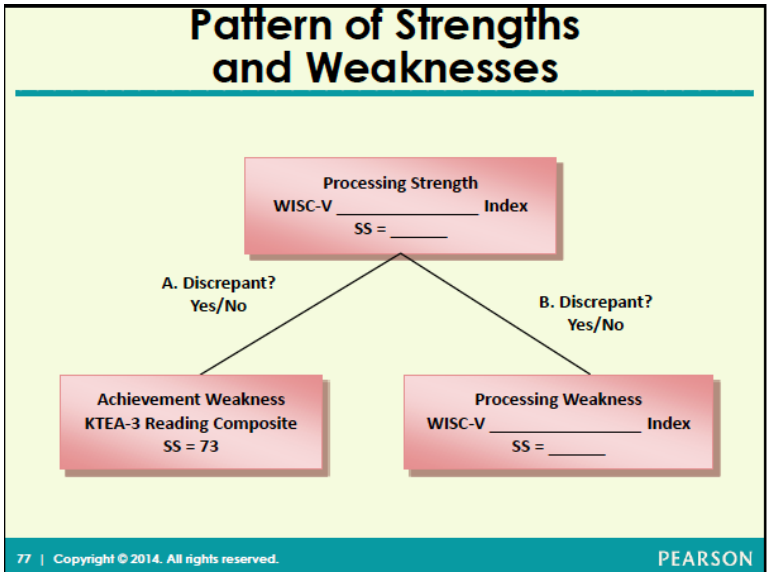
The PSW model is intended to help practitioners generate hypotheses regarding clinical diagnoses. The analysis should always be used within a comprehensive evaluation that incorporates multiple sources of information.

Pattern of Strengths and Weaknesses Model

WIAT-III Example

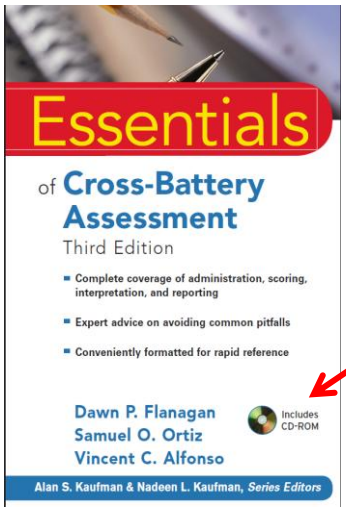


KTEA-3 PSW Analysis



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



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	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 nagivate 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

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
Gc - Crystallized Knowledge	95	(•) Yes ( ) No
Gf - Fluid Reasoning	88	(•) Yes ( ) No
Glr - Long-Term Storage & Retrieval	77	( ) Yes (•) No
Gsm - Short-Term Memory	96	(•) Yes ( ) No
Gv - Visual Processing	107	(•) Yes ( ) No
Ga - Auditory Processing	72	( ) Yes (•) No
Gs - Processing Speed	84	( ) Yes (•) 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 achievment.

*Note: If using T-Scores, convert them to Standard Scores (Deviation IQ metric) here: <--T-Score = Std. Score-->

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

[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.*

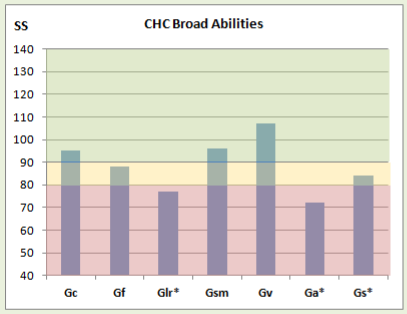
Name: *Ayden* **Grade:** *5*

Return to *g*-Value Data Entry

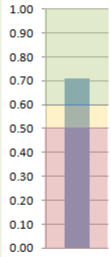
Analysis and Interpretation of *g*-Value

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.



***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.

≥ .60 = average overall ability is very likely
.51 - .59 = more information needed
≤ .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.

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.

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. "N/A" 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 "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.

0.71
g-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.

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	◉ Composite ○ 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	◉ Composite ○ Subtest; Reading Comprehension

Name: *Ayden* **Grade:** *5*

Return to PSW Data Entry | Return to g-Value Data Entry | View PSW-A Summary | 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
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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 = 0.71
96

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
20.04	10.19

Yes, domain specific
Critical value set at 5%

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
27.16	13.78

Yes, unexpected underachievement
Critical value set at 5%

Is the difference statistically significant? *p* < .05
YES YES

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:
Long-term Storage and Retrieval

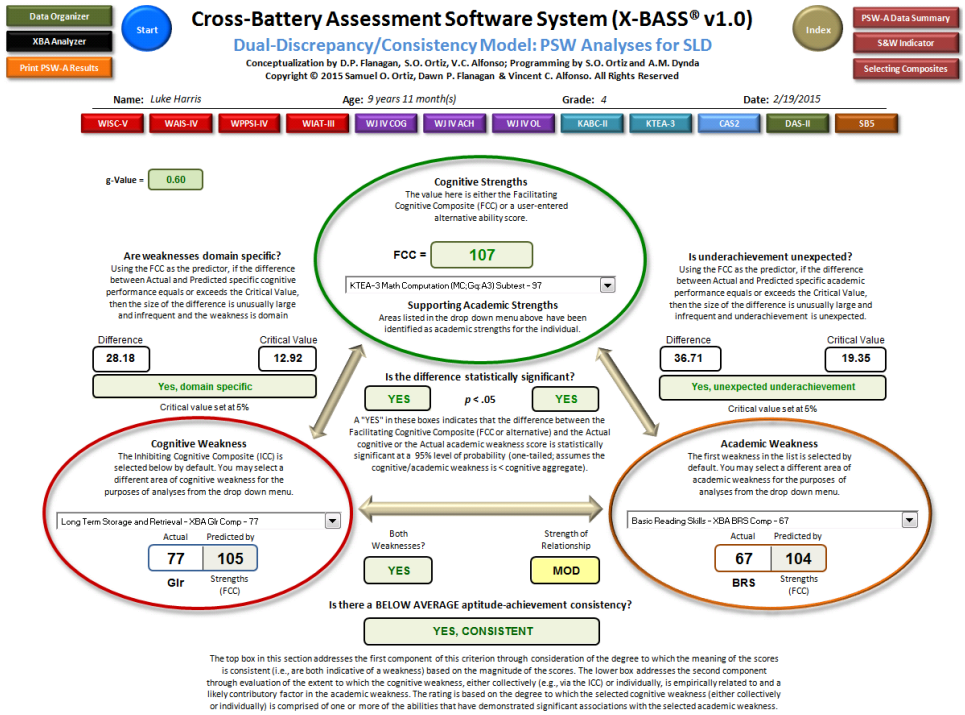
Actual	Predicted
77	97

Academic Weakness
Below are the individual's Actual and Predicted performances in the area of:
Reading Comprehension

Actual	Predicted
70	97

YES

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.



Practical Questions to Ask at Level IV

1. Are the *normative weakness(es)* documented in Levels I and III logically related?
2. Is there *convergence within standardized test* data? (e.g., other low scores on theoretically similar academic/cognitive tasks, not just a single subtest)?
3. Is there *convergence with other data* (e.g., teacher reports, test scores, parent reports, work samples, etc.)*
4. Is there evidence of *otherwise normal ability*?

Logically Related Normative Weaknesses

- Ability Scores
- Academic Scores

Knowing theoretical classifications of tasks and relationship between cognitive/ability domains allows you to evaluate consistency across measures

cause & effect

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 (K0) are important primarily after about the 2nd 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 (necessary for higher level math problem solving)**	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.**

Convergence with Standardized Test Data

- Are the data consistent?
  - There is a demonstrated consistency across theoretically similar measures (e.g., not one weakness on a processing speed task, but performance on two or more tasks is weak, composite is weak, and/or other timed measures are weak (or follow a pattern of lowered performance)
  - Performance varies in a consistent manner based on task format (e.g., performance on *auditory* tasks generally lower than *visual* ones)

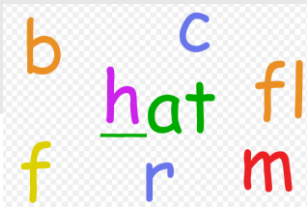
Convergence with Other Data

- Functional Manifestations
  - "Real world" impact
  - Singular versus Multiple (e.g., test taking)
- Objective Reports (e.g., parents, teachers)
- Records Reviews
- Work Samples
- Class Observations

How Can we Document Functional Manifestations in the Context of an SLD Evaluation?

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)	Ability to analyze and synthesize auditory information. One narrow aspect of Ga is a precursor to oral language comprehension (i.e., parsing speech sounds or Phonetic Coding). 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).	***Difficulties with:*** 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	***Reading Difficulties:*** Acquiring phonics skills Sounding out words Using phonetic strategies ***Math Difficulties:*** Reading word problems ***Writing Difficulties:*** Spelling Note-taking Poor quality of writing



cause&effect

Mascolo, Flanagan, and Alfonso (2014). A systematic method of analyzing assessment results for tailoring interventions (SMAARTI), in Mascolo, Alfonso, & Flanagan, *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners* (pp. 3-55). Hoboken, NJ: Wiley.

Example: Gabriella, 3rd Grade

- Standardized Testing
  - CTOPP2 Phonological Awareness Component Scores SS = 80
  - WIAT-III Word Reading SS = 74
  - KTEA-3 Letter and Word Recognition SS = 82
- Report Card
  - K: "*Gabriella continues to show effort in reading. Continue to work on rhyming activities*"
  - 1st: Graded as "Needing Improvement" in "*Decoding Unfamiliar Words*"
- Observation
  - Little strategy use in decoding
  - During class reading, relied primarily on adult support, saying, "I don't know this word"

cause effect

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
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cause effect

Mascolo, Flanagan, and Alfonso (2014). A systematic method of analyzing assessment results for tailoring interventions (SMAARTI), in Mascolo, Alfonso, & Flanagan, *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners* (pp. 3-55). Hoboken, NJ: Wiley.

OBSERVATIONAL RATING SCALE

Listening

T-Teacher, P-Parent, S-Student

	Never or Almost Never	Sometimes	Often	Always or Almost Always
1. Has trouble paying attention.		P1		
2. Has trouble following spoken directions.		P1		
3. Has trouble remembering things people say.		P1		
4. Has trouble understanding what people are saying.			P1	
5. Has to ask people to repeat what they have said.			P1	
6. Has trouble understanding the meanings of words.			P1	
7. Has trouble understanding new ideas.		P1		
8. Has trouble looking at people when talking or listening.		P1		
9. Has trouble understanding facial expressions, gestures, or body language.		P1		

CELF®5
Clinical Evaluation of Language Fundamentals

KTEA-3

Qualitative Observations Hand Scoring Form

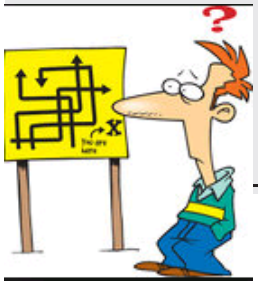
Name _____

Grade _____ Test Date _____ Form ❑ A ❑ B

YES	NO	Written Expression	Grapho-motor	Visual Processing	Phonological Processing	Orthographic Processing	Language	Executive Functioning	Processing Speed	RAN / Long-term Memory	Working Memory
○	○	Letter formation was slow and labored	GM								
○	○	Spacing between letters was too close or too far away	GM	VP							
○	○	Letter formation was difficult to read	GM								
○	○	Showed fatigue from writing	GM								
○	○	Began writing quickly without evidence of planning						EF			
○	○	Reread responses to check for errors						EF			
○	○	Made more spelling errors when writing sentences or an essay than when spelling single words									WM
○	○	Many responses had grammar/structure errors					L				WM
○	○	Transposed words within sentences									WM
○	○	Tended to omit word endings (*–s, –ed, –ing*)					L				WM

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)	Ability to analyze and synthesize visual information. The ability to make use of simulated mental imagery (often in conjunction with currently perceived images) to solve problems (Schneider & McGrew, 2012). There are many narrow Gv abilities, some of which include Visualization, Speeded Rotation, Closure Speed, Flexibility of Closure, Visual Memory, and Spatial Scanning.	***Difficulties with:*** 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	***Reading Difficulties:*** 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) ***Math Difficulties:*** Number alignment during computations Reading and interpreting graphs, tables, and charts ***Writing Difficulties:*** 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



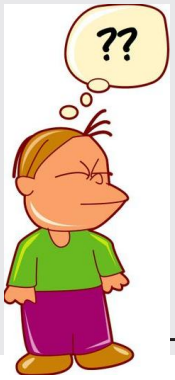
Mascolo, Flanagan, and Alfonso (2014). A systematic method of analyzing assessment results for tailoring interventions (SMAARTI), in Mascolo, Alfonso, & Flanagan, *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners* (pp. 3-55). Hoboken, NJ: Wiley.

KTEA–3 Qualitative Observations Hand Scoring Form *continued* 2

Oral Expression

YES	NO	Oral Expression	Grapho-motor	Visual Processing	Phonological Processing	Orthographic Processing	Language	Executive Functioning	Processing Speed	RAN / Long-term Memory	Working Memory
○	○	Responses indicated misinterpretation of the pictures		VP							
○	○	Responses were often illogical or not meaningful					L	EF			
○	○	Had difficulty using the target words correctly					L				WM
○	○	Frequently revised or reformulated response					L				WM
○	○	Had difficulty with word finding								RAN	
○	○	Most responses were complete sentences					L				
○	○	Paused to consider response before speaking						EF			

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) 	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. 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). 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).	***Difficulties with:*** 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 Learning information quickly Paired learning (visual-auditory) Recalling specific information (words, facts) Generating ideas rapidly	***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 ***Math Difficulties:*** Memorizing math facts Recalling math facts and procedures ***Writing Difficulties:*** Accessing words to use during essay writing Specific writing tasks (compare and contrast; persuasive writing) Note-taking Idea generation/production ***Language Difficulties:*** Expressive—circumlocutions, speech fillers, "interrupted" thought, pauses Receptive—making connections throughout oral presentations (e.g., class lecture)

Mascolo, Flanagan, and Alfonso (2014). A systematic method of analyzing assessment results for tailoring interventions (SMAARTI), in Mascolo, Alfonso, & Flanagan, *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners* (pp. 3-55). Hoboken, NJ: Wiley.

BRIEF, BASC-2

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	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). 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,	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	***Reading Difficulties:*** Loses his or her place easily Easily distracted while reading Does not pick up important details in text ***Math Difficulties:*** Does not consistently attend to math signs Frequent mistakes on word problems ***Writing Difficulties:*** Has difficulty completing long assignments; difficulty following timelines

Mascolo, Flanagan, and Alfonso (2014). A systematic method of analyzing assessment results for tailoring interventions (SMAARTI), in Mascolo, Alfonso, & Flanagan, *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners* (pp. 3-55). Hoboken, NJ: Wiley.

BRIEF, BASC-2

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	*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/ Glr); problem solving (Gf); attentional shifting (attention; Gs); planning; organizing; working memory (Gsm); and retrieval fluency (Glr). 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).	***Difficulty with:*** Learning new activities, generating concepts, and solving problems Identifying goals and setting goals Planning (e.g., begins 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)	***Reading Difficulties:*** Sequencing; telling a story chronologically Prioritizing; extracting main idea and other important information Problem solving; drawing inferences from text ***Math Difficulties:*** Sequencing; remembering order of operations Prioritizing; figuring out what is importing when solving word problems Shifting; attending to math signs on a page ***Writing Difficulties:*** Generating ideas to write about Sequencing a story Prioritizing main events in a story

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

Mascolo, Flanagan, and Alfonso (2014). A systematic method of analyzing assessment results for tailoring interventions (SMAARTI), in Mascolo, Alfonso, & Flanagan, *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners* (pp. 3-55). Hoboken, NJ: Wiley.

Evidence of Otherwise Normal Ability

- Differential diagnosis
  - Intellectual Disability
  - General Learning Difficulty
  - Specific Learning Disability

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.

Level V: Nature of SLD

- Specific learning disability has an adverse impact on educational performance

Level V: Focus of Evaluation

- Special Education Eligibility
  - Determination of Least Restrictive Environment (LRE) for delivery of instruction and educational resources

Level V: Examples of Evaluation Methods and Data Sources

- Data from all previous levels and MDT meeting, including parents

Level V: Criteria for SLD

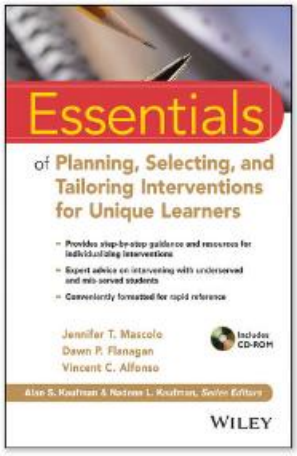
- Student demonstrates significant difficulties in daily academic activities that cannot be remediated, accommodated, or otherwise compensated for *without* the assistance of individualized special education services.

Putting it All Together: A Brief Overview of How to Practically Apply the Levels

5 Steps in Considering Findings

1. Evaluate Scores from a Normative Perspective
2. Understand/Ask What the Test/Composite Measures Theoretically
3. Consider Convergence/Consistency
4. Consider Expected Functional Manifestations of Ability Weaknesses and Review Evidence Supporting their Presence
5. Evaluate Limitations and Accommodations Needed in the Context of the Curriculum/Program

How Do We Use Data to Intervene?



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- **Ramey, Sparling, & Ramey**

Chapter 1. ***A Systematic Method of Analyzing Assessment Results for Tailoring Intervention (SMAARTI)***
Jennifer T. Mascolo, Dawn P. Flanagan, and Vincent C. Alfonso (2014)

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***

cause effect

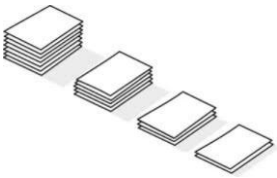
Planning vs. Tailoring

- **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

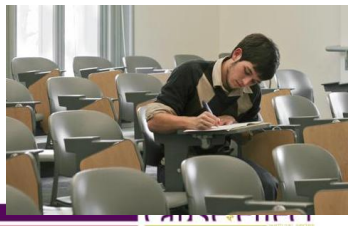
- **Tailoring**: understanding the student's pattern of cognitive and academic strengths and weaknesses and *how this pattern interacts with the instructional materials, classroom instructional factors, environmental factors, and other factors that may facilitate or inhibit learning*
  - ***Goals:***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

Methods of Tailoring Interventions: *MARC*

- ***M****odification:* 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



- ***A****ccommodation:* 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*

- ***R**emediation:* 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
- ***C**ompensation:* 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

H uron
O ntario
M ichigan
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S uperior

cause effect

Methods of Tailoring Interventions: *MARC*

Rapid Reference 1.1 Methods of Tailoring Interventions

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
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.	Extending time on exams 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

5 Steps of SMAARTI

1. Organize *primary* data
2. Determine *relations* between *academic-cognitive weaknesses*
3. Review *manifestations* of cognitive weaknesses, organize *secondary* data, identify *initial targets of intervention*
4. Consider *tertiary* data (information about classroom instruction, instructional materials, environment, strategies)
5. *Integrate* all data from 1 through 4 to *design an intervention*

Table 1.2 DOTI Form for Ayden with Primary Data Only

Step 1
Organize Primary Data Using DOTI Form

WISC-V:
Fluid Reasoning (Gf)
Verbal Comprehension (Gc)
Storage and Retrieval Index (Glr)
Working Memory (Gsm)
Visual Spatial (Gv)
Processing Speed (Gs)

CELF-5:
Language Composites

KTEA-3/WIAT-III/CELF-5:
Composite Scores for Reading, Writing,
Math

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			

What are Ayden's Cognitive Strengths and Weaknesses?

- ***Fluid Reasoning (Gf)* - *relative weakness (C)***
- ***Crystallized Knowledge (Gc)***
  - Weaknesses in these abilities *constrain* learning and achievement
- ***Short-Term Memory (Gsm) – Working Memory***
- ***Long-Term Storage and Retrieval (Glr)* – *weakness (A,M,C)***
  - Working Memory, Retrieval Fluency, and Learning Efficiency
  - Weaknesses in these abilities *obstruct* learning, but can be bypassed or compensated for at least to some degree

Most Important for overall learning and academic success

- **Important Processes (related to reading)**
  - ***Ga – Phonetic Coding* – *weakness (R)***
  - ***Gs/Gv – Rate/Fluency/Orthographic Processing* – *weakness (R, A)***
    - Train processing deficits to point where they become skill

Important for acquiring basic reading skills

cause effect

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

Step 2: Determine Whether Academic Weaknesses are Empirically Related to the Cognitive Weaknesses

	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. 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 primarily after about the 2nd grade. These abilities become increasingly important with age.**
Gsm	Memory span (MS) and **working memory capacity.**	Memory span (MS) and **working memory capacity.**	Memory span (MS) is important to writing, especially **spelling** skills whereas working memory has shown relations with advanced writing skills (e.g., written expression).
Gv	Orthographic Processing – **reading fluency**	Visualization is important primarily for higher level or **advanced mathematics** (e.g., geometry, calculus).	Orthographic Processing - **spelling**
Ga	**Phonetic coding (PC) or "phonological awareness/processing" is very important during the elementary school years.**	May interfere with comprehension of word problems (e.g., poor decoding)	**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" 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 **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.**

Why Step 2?

- Information on cognitive-achievement relationships assists in interpreting data entered on DOTI form
- *Specific learning disabilities are caused by underlying cognitive processing weaknesses or deficits*
  - Knowing cognitive correlates of academic difficulties assists in **diagnosis**

- *When empirical data support a relationship between areas of cognitive and academic weakness, interventions can be tailored in an attempt to minimize the effects of cognitive weaknesses on learning*
  - Knowing cognitive correlates of academic difficulties assists with **intervention**

Results of Step 2

- Empirically supported relationship between cognitive weakness in Gs (e.g., Wechsler Coding and other sustained/focused attention-type tasks) and academic fluency in reading and math – Ayden lacks automaticity
- Empirically supported relationship between weakness in Ga (Phonetic Coding) and reading decoding and spelling
- Weakness in retrieval fluency aspect of Glr (e.g., speed of lexical access – also related to Gs), which is empirically related to the development of basic academic skills
- Weakness in learning efficiency aspect of Glr (e.g., associative memory), which is empirically related to higher level application of basic academic skills
- Deficit in Glr and relative weakness in Gf together affect reading comprehension, math problem solving, and written expression adversely

Review of Step 3

- a) Review manifestations of cognitive weaknesses;
  - Consult Rapid References 1.5 to 1.13 to determine whether identified cognitive-academic relationships are ecologically valid
- b) Organize secondary data on DOTI form;

> Secondary data constitute any information that can relate potentially to a specific aspect of the student's cognitive functioning that was not already included as primary data

- c) Identify initial targets for intervention and record on DOTI form;
- d) Identify types of academic skill deficits for remediation and record on DOTI form.

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)	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. 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). 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).	***Difficulties with:*** 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 Learning information quickly Paired learning (visual-auditory) Recalling specific information (words, facts) Generating ideas rapidly	***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 ***Math Difficulties:*** Memorizing math facts Recalling math facts and procedures ***Writing Difficulties:*** Accessing words to use during essay writing Specific writing tasks (compare and contrast; persuasive writing) Note-taking Idea generation/production ***Language Difficulties:*** Expressive—circumlocutions, speech fillers, "interrupted" thought, pauses Receptive—making connections throughout oral presentations (e.g., class lecture)

Mascolo, Flanagan, and Alfonso (2014). A systematic method of analyzing assessment results for tailoring interventions (SMAARTI), in Mascolo, Alfonso, & Flanagan, *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners* (pp. 3-55). Hoboken, NJ: Wiley.

Results of Step 3 for Ayden: Review Manifestations and Organize Secondary Cognitive Data

Table 1.3 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 **Teacher Report:** sometimes has difficulty generalizing what he has learned	
Target for Intervention?		**C** (Compensation)	
Crystallized Intelligence (Gc)		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 (Gsm)		Short-term Memory = 96 ± 6	
Target for Intervention?			
Visual Processing (Gv)		107 ± 4 TOC Orthographic Ability = 103 ± 3	

(continued)

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)	Ability to analyze and synthesize auditory information. One narrow aspect of Ga is a precursor to oral language comprehension (i.e., parsing speech sounds or Phonetic Coding). 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).	***Difficulties with:*** 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	***Reading Difficulties:*** Acquiring phonics skills Sounding out words Using phonetic strategies ***Math Difficulties:*** Reading word problems ***Writing Difficulties:*** Spelling Note-taking Poor quality of writing

Mascolo, Flanagan, and Alfonso (2014). A systematic method of analyzing assessment results for tailoring interventions (SMAARTI), in Mascolo, Alfonso, & Flanagan, *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners* (pp. 3-55). Hoboken, NJ: Wiley.

Results of Step 3 for Ayden: Review Manifestations and Organize Secondary Cognitive Data

Table 1.3 (*Continued*)

Gv Continued

CHC Cognitive/Academic Ability or Processing Domain	Normative Weakness and Information About Intervention	Within Normal Limits	Normative Strength and Information About Intervention
		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	
Target for Intervention?			
Auditory Processing (Ga)	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		
Target for Intervention?	**R** (Remediation)		
Processing Speed (Gs)	Processing Speed = 84 ± 4 **Teacher Report:** has difficulty working within time limits **Parent Report:** takes a long time to complete homework		
Target for Intervention?	**A** (Accommodation) **M** (Modification)		
Reading (Grw-R)	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	

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)	Speed of processing, particularly when required to focus attention for 1–3 minutes. Usually measured by tasks that require the ability to perform simple repetitive cognitive tasks quickly and accurately. 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 Grw).	***Difficulties with:*** Efficient processing of information Quickly perceiving relationships (similarities and differences between stimuli or information) Working within time parameters Completing simple, rote tasks quickly	***Reading Difficulties:*** Slow reading speed, which interferes with comprehension Need to reread for understanding ***Math Difficulties:*** Automatic computations Computational speed is slow despite accuracy Slow speed can result in reduced accuracy due to memory decay ***Writing Difficulties:*** Limited output due to time factors Labored process results in reduced motivation to produce ***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

Mascolo, Flanagan, and Alfonso (2014). A systematic method of analyzing assessment results for tailoring interventions (SMAARTI), in Mascolo, Alfonso, & Flanagan, *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners* (pp. 3-55). Hoboken, NJ: Wiley.

Sources of Secondary Data

- KTEA-3 *Behavior Observation* Form
- CELF-5 *Observational Rating* Scale
- WIAT-III/KTEA-3 *Error Analysis*
- KTEA-3 *Clinical Observation* Checklist
- WISC-V *Behavioral Observations* Form/Record Form *Abbreviations*

Abbreviations

Abbreviation	Use
Q	Query
P	Prompt
DK	Don't know
NR	No response
IR	Item repeated
RR	Requested repetition (not repeated)
SV	Observable Sub-vocalization
SC	Self-corrected

PEARSON

OBSERVATIONAL RATING SCALE

Listening

T-Teacher, P-Parent, S-Student

	Never or Almost Never	Sometimes	Often	Always or Almost Always
1. Has trouble paying attention.		P1		
2. Has trouble following spoken directions.		P1		
3. Has trouble remembering things people say.		P1		
4. Has trouble understanding what people are saying.			P1	
5. Has to ask people to repeat what they have said.			P1	
6. Has trouble understanding the meanings of words.			P1	
7. Has trouble understanding new ideas.		P1		
8. Has trouble looking at people when talking or listening.		P1		
9. Has trouble understanding facial expressions, gestures, or body language.		P1		

CELF®5
Clinical Evaluation of Language Fundamentals

www.helloq.com

ASSESS: It is where you administer your test batteries. Assess is chock-full...

ASSESS is what you use at administration time. It's chock-full of helpful tools and features such as:

- An integrated timer
- Response capture via: handwriting, audio recording, and various design interfaces created specifically for each subtest type
- A notepad to facilitate easy note-taking and recording of observations
- "To-do" list that aggregates items with unresolved recording and/or scoring needs
- Quick-use manual content
- On-the-fly battery adaptation
- Real-time scoring
- Prompts and rule assistance

◀ 1/4 ▶ Snapshot of the clinician's assessment status with a quick view of assessment battery for Ms. Q.

Snapshot of the clinician's assessment status with a quick view of assessment battery for Ms. Q.

Results of Step 3 for Ayden: Identify Targets for Intervention (Cognitive)

Table 1.3 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 **Teacher Report:** sometimes has difficulty generalizing what he has learned	
Target for Intervention?		C (Compensation)	
Crystallized Intelligence (Gc)		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 (Gsm)		Short-term Memory = 96 ± 6	
Target for Intervention?			
Visual Processing (Gv)		107 ± 4 TOC Orthographic Ability = 103 ± 3	

(continued)

Results of Step 3 for Ayden: Identify Targets for Intervention (Cognitive)

Table 1.3 (*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?		**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	
Auditory Processing (Ga)	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		
Target for Intervention?	R (Remediation)		
Processing Speed (Gs)	Processing Speed = 84 ± 4 **Teacher Report:** has difficulty working within time limits **Parent Report:** takes a long time to complete homework		
Target for Intervention?	A (Accommodation) M (Modification)		
Reading (Grw-R)	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	

Results of Step 3 for Ayden, Achievement Data

Table 1.3 (*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?		**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	
Auditory Processing (Ga)	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		
Target for Intervention?	R (Remediation)		
Processing Speed (Gs)	Processing Speed = 84 ± 4 **Teacher Report:** has difficulty working within time limits **Parent Report:** takes a long time to complete homework		
Target for Intervention?	A (Accommodation) M (Modification)		
Reading (Grw-R)	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	

Results of Step 3 for Ayden, Achievement Data

Reading Continued

Type of Skill Targeted	**H** (Higher Level Application) **F** (Fluency)		
Writing (Grw-W)	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	**H** (Higher Level Application)	**B** (Basic Skill) - spelling	
Mathematics (Gq)	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	Calculation 107 ± 4	
Type of Skill Targeted	**H** (Higher Level Application) **F** (Fluency)		
Other	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
Target for Intervention?			Capitalize on his motivation and incorporate interests into remedial activities

How Can Pearson Measures be Used at Step 3?

Step 3 Data Sources

- *WIAT-III, KTEA-3, CELF-5* scores, standardized scores from supplemental measures
- *Qualitative Reporting features* of Pearson batteries
- *Intervention Goal Statements* of Pearson batteries (e.g., WIAT-III/KTEA-3 reports provide specific goal statements based on strengths and weaknesses analysis)

cause effect

KTEA-3 Error Analysis Norms

Error Analysis Methods Used by KTEA–3 Subtests

Subtest	Error Classification Method	
	Item-level (Automatic)	Within-Item
Letter & Word Recognition		X
Nonsense Word Decoding		X
Spelling		X
Math Computation	X	X
Oral Expression		X
Phonological Processing	X	
Written Expression	X	
Math Concepts & Applications	X	
Listening Comprehension	X	
Reading Comprehension	X	

cause effect

Error Analysis

WIAT-III Skills Analysis Report

Reading Comprehension
Grade 7 Item Set

Skill	Total Errors by Skill	Max. Errors by Skill	% Correct by Skill
Literal	4	11	64%
Inferential	5	11	55%

Word Reading

Feature	Skill	Total Errors by Skill	Max. Errors by Skill	% Correct By Skill	% Correct By Feature
Morphology Types	Common Prefixes/ Word Beginnings	0	5	100%	94%
	Common Suffixes/ Word Endings	1	12	92%	
Vowel Types	VCE Syllables	0	4	100%	94%
	Irregular Vowels	1	11	91%	
	Single Short Vowels	0	12	100%	
	Single Long Vowels	0	7	100%	
	Schwa Vowel Sounds	1	16	94%	
	Vowel Digraphs	1	9	89%	
	Diphthongs	1	3	67%	
	R-Controlled Vowels	0	3	100%	
	Silent Vowels	0	5	100%	

Error analysis also helps you:
Describe performance on a subtest at the specific skill level relative to a norm-reference peer group
Compare skill proficiency across subtests with similar error categories (e.g., math Computation and Math Concepts & Applications)
Develop teaching objectives and interventions

cause effect

KTEA-3 Interventions

Interventions

- Intervention statements are provided along with error analysis results as part of the Clinician Report to give teachers and clinicians helpful instructional recommendations.
- In addition, Parent intervention suggestions are available as part of the Parent Report to provide parents with fun, playful educational activities to strengthen their child's basic academic skills at home.

KTEA™ -3 Parent Report, Age-Based Norms
05/20/2014, Page 5 11111

Parent-Child Intervention Suggestions

The following activities can be used at home to support learning in core reading, writing, math, and/or oral language areas.

Written Expression

Grades: 3 - 5

1. Engage your child in writing frequently and for a variety of purposes, such as writing thank you notes, birthday cards, holiday cards, and invitations.

2. Have your child write shopping lists and search and check off needed items, or list amounts needed on a preprinted list.

3. Help build editing skills in a fun way. For example, provide your child with an editing checklist (self-created or online) and ask him or her to assume the role of editing inspector. As he or she reviews each sentence, you can read the requirements, such as "Is there ending punctuation?" or "Do all sentences begin with a capital?"

4. Build sequencing skills that are important to writing by cutting apart comic strips, mixing them up, and having your child arrange them to tell a logical story.

5. Remind your child that writing is a process that involves steps. Let him or her see you draft something and, later, show him or her the refined piece. Alternatively, save drafts of his or her writing to show later and compare it to the final product so that your child can see how his or her writing developed.

Step 4: 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 tertiary data to meet a student's unique needs

- *Types of Tertiary Data*:
  - Classroom instruction
  - Instructional materials
  - Environmental factors
  - Strategies

Step 4: Continued…

- Tertiary Data typically 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
- Consult Resources (e.g. Factors that May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Cognitive Ability Deficit - - *Rapid References 1.14 to 1.20*)

cause effect

A Review of Ayden's DOTI Form - Example

- Consult resource which includes information on students whose learning difficulties are affected adversely by a deficit in Long-term Storage and Retrieval (e.g., Rapid Reference 1.17)
  - 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

cause effect

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*)

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 (*also KTEA-3/WIAT-III/CELF-5/WISC-V reports*)
- 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 1.21 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, Glr	Reading is slow and laborious	Shortened passages (M) Text preview
Reading Comprehension	Great Leaps	Glr, Gf	Has difficulty retelling what he has read in monthly book reports	Think-alouds Cooperative reading Cause/effect graphic organizers (C)
Math Fluency	Arcademics	Gs	Is accurate but slow	Abbreviated math minutes with charting (M)

Supplement with activities designed to build sight words

(continued)

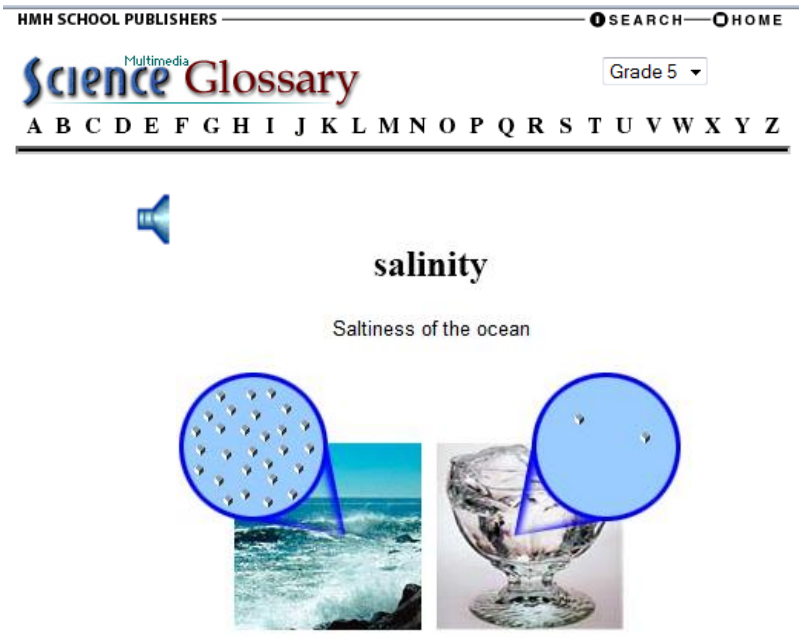
cause effect

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

Mascolo, Flanagan, and Alfonso (2014). A systematic method of analyzing assessment results for tailoring interventions (SMAARTI), in Mascolo, Alfonso, & Flanagan, *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners* (pp. 3-55). Hoboken, NJ: Wiley.

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)



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)

Recommendations for Ayden: Reading Comprehension

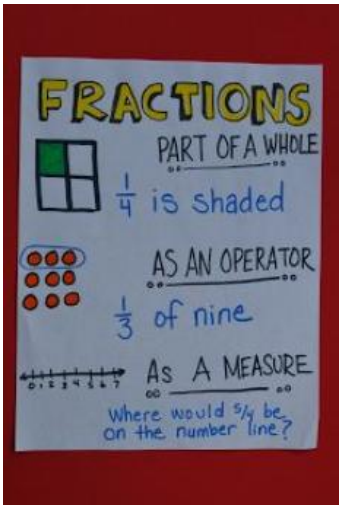
- Use **shortened passages** to build confidence by allowing him to finish work at similar rate to his peers, facilitate comprehension, and makes homework time similar to that of most peers (modification of some class work and homework – minimizes the affect of Gs-Fluency weakness)
- Use **text preview**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

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

cause effect

Rapid Reference 1.14 Recommendations That May Facilitate Learning and Aid in Bypassing or Minimizing the Effects of a Fluid Reasoning (Gf) Deficit

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 categorizes 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)		

cause effect

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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		

cause&effect

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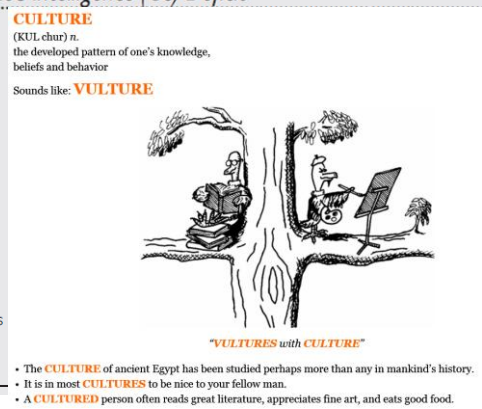
Gc Continued

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	
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)	
	Use text talks	



cause&effect

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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

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Final Thoughts

- Academic and Cognitive Tests Inform Intervention
  - Academic measures can assist in identifying *where* a student is struggling
  - Cognitive tests assist in understanding *why* a student is struggling
- Knowing <u>why</u> helps with figuring out <u>how to help</u>
- Many accommodations, modifications, compensatory strategies, and remedial programs can be offered
- ***Understand the features of the batteries that we use and actively incorporate them into our SLD identification and intervention planning efforts***

Assessment Informs Intervention

References

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Thank you for listening!

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