Learning Disability Identification: Linking Assessment to Intervention

Jennifer Mascolo PsyD NCSP

Overview

• 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.
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 \((RC)\)


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          |

<table>
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<tr>
<th>Comparison</th>
<th>Relative Strength Score</th>
<th>Relative Weakness Score</th>
<th>Difference</th>
<th>Critical Value</th>
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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

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 Disciplinary/Consistency (DD-C) Operational Definition of SLD

<table>
<thead>
<tr>
<th>Level</th>
<th>Nature of SLD</th>
<th>Focus of Evaluation</th>
<th>Examples of Evaluation Methods and Data Sources</th>
<th>Criteria for SLD</th>
<th>SLD Classification and Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>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</td>
<td>Academic Achievement: Performance in specific academic skills (e.g., GRO-6 reading decoding, reading fluency, reading comprehension; GRO-6 spelling, written expression, Gm (math calculation, math problem solving); Gs (communication ability, listening ability).</td>
<td>Response to quality instruction and intervention via progress monitoring 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).</td>
<td>Performance is one or more academic areas in weak or deficient (despite attempts at differentiation) 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 variables identified as a weakness has an associated standard score that is weak or deficient.</td>
<td>Necessary</td>
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<td>II</td>
<td>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.</td>
<td>Exclusionary Factors: Identification of potential primary causes of academic skill weaknesses or deficits, including intellectual disability, cultural or linguistic difference, sensory impairment, ineffective instruction or opportunity to learn, organic or physical health factors, social/emotional or psychological disturbance.</td>
<td>Data from the methods and sources listed at Levels I and III.</td>
<td>Performance is not primarily attributed to those exclusionary factors, although one or more of them may contribute to learning difficulties. (Consider using the Exclusionary Factors Form, which may be downloaded from <a href="http://www.schoolfamily.com">www.schoolfamily.com</a> under &quot;resources&quot;).</td>
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<tr>
<td>III</td>
<td>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.</td>
<td>Cognitive Abilities &amp; Processes: Performance in cognitive abilities and processes (e.g., Gf, Gv, Gf, Gs, Gm, Gs), specific neuropsychological processes (e.g., attention, executive functioning, orthographic processing; RAN; RANs) and learning efficiency (e.g., associated memory; free recall memory, meaningful memory).</td>
<td>Performance on non-referenced tests, evaluation of work samples, observations of cognitive performance, task analysis, testing limits, teacher/parent/student interview, history of academic performance, records review.</td>
<td>Performance is one or more cognitive abilities and/or neuropsychological processes related to academic skill deficiency (weak or deficient) as evidenced by converging data sources. Results from the WJ IV intra-achievement variation and intra-language variation procedures may be used, especially when cognitive areas identified as a weakness has an associated standard score that is weak or deficient.</td>
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<tr>
<td>IV</td>
<td>The specific learning disability is a distinct condition, differentiated from general learning disability 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.</td>
<td>Pattern of Strengths and Weaknesses Marked by a Dual-Discrepancy/Consistency (DD-C)</td>
<td>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).</td>
<td>Converged over average cognitive consistency, i.e., related cognitive processes and academic skills are generally about SD below the mean or lower), converged ability achievement and ability-cognitive trait discrepancy, with cognitive areas of strength represented by standard scores that are generally &gt;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/organization, compensatory strategies, and accommodations, such as that his or her performance level 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 SDC patient: GI/加工 achievement, GI/加工 achievement, or SAP/加工 achievement discrepancy and GI/Gs/OE (COG) ability discrepancy (when ability is at least average and specific academic and cognitive areas of processed weaknesses are below average or lower.</td>
<td>Sufficient For SLD Identification</td>
</tr>
<tr>
<td>V</td>
<td>Specific learning disability has an adverse impact on educational performance.</td>
<td>Special Education Eligibility: Determination of Least Restrictive Environment (LRE) for delivery of instruction and educational resources.</td>
<td>Data from all previous levels and MTI testing, including parent's.</td>
<td>Student demonstrates significant difficulties in daily academic activities that cannot be remediates, accommodated, or otherwise compensated for without the assistance of individualized special education services.</td>
<td>Necessary for Special Education Eligibility</td>
</tr>
</tbody>
</table>

This column includes concepts inherent in the federal definition (IDEA, 2004, 2010, 2004 Edition), definitions, definitions, and other or other (IDEA, 2004; Bursuck, 2009; definitions, definitions, and other (IDEA, 2004; Bursuck, 2009; definitions, 2002; 2010; 2011). This table summarizes SLD standards are identified in all in this column. Poor spelling with adequate ability to express ideas in writing is often typical of dyslexia and/or dysgraphia. Even though IDEA 2004 includes only the broad category of written expression, poor spelling and handwriting are often symptoms of a specific writing disability and should not be ignored (Woolley & Mahler, 2005).
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**

<table>
<thead>
<tr>
<th>SLD Area</th>
<th>Relevant Test</th>
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</table>
| 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

<table>
<thead>
<tr>
<th>SLD Area</th>
<th>Relevant Test</th>
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</thead>
</table>
| 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

<table>
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<th>SLD Area</th>
<th>Relevant Test</th>
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| Oral Expression        | WIAT-III Oral Expression (Gc – VL; Glr – Fl)  
KTEA-3 Associational Fluency (Glr – Fl)  
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) |
### Variations in Task Characteristics of Reading Comprehension Tests (Mascolo, 2013)

<table>
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<th>Oral-Evaluated Questions</th>
<th>Multiple Choice</th>
<th>Invented Questions</th>
<th>Numeric Reading</th>
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Full appendix available in: [Cross-Battery Assessment](https://example.com)
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)

**OBSERVATIONAL RATING SCALE**

**Listening**

<table>
<thead>
<tr>
<th>T: Teacher, P: Parent, S: Student</th>
<th>Never or Almost Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always or Almost Always</th>
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</thead>
<tbody>
<tr>
<td>1. Has trouble paying attention.</td>
<td>P1</td>
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<tr>
<td>2. Has trouble following spoken directions.</td>
<td>P1</td>
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<tr>
<td>3. Has trouble remembering things people say.</td>
<td>P1</td>
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<tr>
<td>4. Has trouble understanding what people are saying.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Has to ask people to repeat what they have said.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Has trouble understanding the meanings of words.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Has trouble understanding new ideas.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Has trouble looking at people when talking or listening.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Has trouble understanding facial expressions, gestures, or body language.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.”]

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

<table>
<thead>
<tr>
<th>Evaluation and Consideration of Exclusionary Factors for SLD Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>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, 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, 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.</td>
</tr>
</tbody>
</table>


Form downloadable from CD that accompanies Essentials of Cross-Battery Assessment, 3e (Flanagan, Ortiz, & Alfonso, 2013)
Flanagan et al.’s DD/C Definition of SLD: Level II – Review of Exclusionary Factors

**Vision (Check All that Apply):**

- ☒ 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

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

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

**Hearing (Check All that Apply):**

- ☒ 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

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Form downloadable on CD that accompanies *Essentials of Cross-Battery Assessment, 3e* (Flanagan, Ortiz, & Alfonso, 2013)
Flanagan et al.’s DD/C Definition of SLD: Level II – Review of Exclusionary Factors

**Motor Functioning (Check All that Apply):**

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

**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
- □ Daily Living Skills
- □ Communication
- □ Behavior/Emotional Skills
- □ Socialization
- □ Other

**Notes:**

- No observed or reported difficulties
- Current evaluation ruled out subaverage intellectual functioning; no deficits in adaptive functioning based on parent/teacher reports and observations
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)

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.

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
- Environmental space issues (e.g., no space for studying, sleep disruptions due to shared sleeping space)
- Temporary Crisis Situation

Notes: There are currently no environmental or economic factors that interfere with Ayden’s academic performance as per parent interview.

Form downloadable on CD that accompanies Essentials of Cross-Battery Assessment, 3e (Flanagan, Ortiz, & Alfonso, 2013)
Flanagan et al.’s DD/C Definition of SLD: Level II – Review of Exclusionary Factors

Cultural/Linguistic Factors (Check All that Apply):  
- Limited Number of Years in U.S. 
- Language(s) Other than English Spoken at 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: (Dates: ______ 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, Ortiz, & Alfonso, 2013)

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

Physical/Health Factors (Check All that Apply):  
- 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, Ortiz, & 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 contribute to the student’s observed learning difficulties. Specify: ________________________________

☐ No factors listed here appear to be the primary cause of the student’s academic weaknesses and learning difficulties

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

What Combinations of Abilities Are Important for Different Achievements

- Fluid Reasoning – $G_f$
- Crystallized Knowledge – $G_c$
- Short-term Memory – $G_{sm}$
- Long-term Storage and Retrieval – $G_{lr}$
- Visual Processing – $G_v$
- Auditory Processing – $G_a$
- Processing Speed – $G_s$

Putting the Abilities Together

- Students who Learn Quickly and Excel Academically
  - $G_c$ (good fund of knowledge; good vocabulary; communicate well)
  - $G_{lr}$ (learning is efficient; info is retrieved fluently)
  - $G_{sm} + G_f$ (able to hold retrieved info; transform it; interact it with new info and draw conclusions based on inductive and deductive reasoning)

See Flanagan, Ortiz, and Alfonso (2013). *Essentials of Cross-Battery Assessment*, 3e
Top Four Most Important Abilities for Learning and Academic Success

• 1. Fluid Reasoning (Gf)
• 2. Crystallized Knowledge (Gc)
  – Weaknesses in these abilities constrain learning and achievement
• (Executive Functions – weaknesses lead to inconsistencies in Learning and Achievement)
• 3. Short-Term Memory (Gsm) – Working Memory
• 4. Long-Term Storage and Retrieval (Glr)
  – Working Memory, Retrieval Fluency, and Learning Efficiency
  – Weaknesses in these abilities obstruct learning and achievement, but can be improved upon, bypassed, or compensated for at least to some degree

• Important Processes (related to reading)
  – Ga – Phonological Processing (encompasses many skills)
  – Visual Processing/Processing Speed – Orthographic Processing
    • Train processing deficits to point where they become skill

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

Composition of the WISC-V Full Scale IQ

FSIQ

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

Gc/VCI
Gv/VSI
Gf/FRI
Gsm/WMI
Gs/PSI

Similarities
Vocabulary
Block
Matrix
Figure
Digit Span
Coding

Allowable Substitutions for Core FSIQ Subtests

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

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)
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

A. Discrepant?
   Yes

Achievement Weakness
   WIAT-III Basic Reading
   SS = 84

B. Discrepant?
   Yes

Processing Weakness
   WISC-V Visual Spatial Index
   SS = 111

KTEA-3 PSW Analysis

Pattern of Strengths and Weaknesses

A. Discrepant?
   Yes/No

Achievement Weakness
   KTEA-3 Reading Composite
   SS = 73

B. Discrepant?
   Yes/No

Processing Weakness
   WISC-V_________Index
   SS = ________
### DATA ENTRY for g-Value

#### Step 1: Enter Composite Scores

Enter the obtained standard score for each of the seven broad ability composites listed in Appendix A for guidelines.

**CHC ABILITY COMPOSITES**

<table>
<thead>
<tr>
<th>Composite</th>
<th>Standard Score (Range: 40 - 160)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gc - Crystallized Knowledge</td>
<td>95</td>
</tr>
<tr>
<td>Gf - Fluid Reasoning</td>
<td>88</td>
</tr>
<tr>
<td>Gs - Long-term Storage &amp; Retrieval</td>
<td>77</td>
</tr>
<tr>
<td>Gm - Short-term Memory</td>
<td>96</td>
</tr>
<tr>
<td>Gv - Visual Processing</td>
<td>107</td>
</tr>
<tr>
<td>Ge - Auditory Processing</td>
<td>72</td>
</tr>
<tr>
<td>Gs - Processing Speed</td>
<td>84</td>
</tr>
</tbody>
</table>

*Note: If using T-Scores, convert them to Standard Scores (Deviation K2 metric) here.

### 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 constraints or inhibit learning and achievement.

#### Standard Score Range

<table>
<thead>
<tr>
<th>Category</th>
<th>Standard Score</th>
<th>Percentile Range</th>
<th>Classification</th>
<th>Functional Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 70</td>
<td></td>
<td>&lt;2nd</td>
<td>Extremely Below Average/Deficit</td>
<td>Markedly insufficient</td>
</tr>
<tr>
<td>70 - 79</td>
<td></td>
<td>2nd to 8th</td>
<td>Well Below Average/Deficit</td>
<td>Insufficient</td>
</tr>
<tr>
<td>80 - 89</td>
<td></td>
<td>9th to 24th</td>
<td>Below Average/Weakness</td>
<td>Insufficient to Sufficient</td>
</tr>
<tr>
<td>90 - 109</td>
<td></td>
<td>25th to 74th</td>
<td>Average</td>
<td>Sufficient</td>
</tr>
<tr>
<td>110 - 119</td>
<td></td>
<td>75th to 89th</td>
<td>Above Average/Strength</td>
<td>Proficient</td>
</tr>
<tr>
<td>120 - 129</td>
<td></td>
<td>90th to 97th</td>
<td>Well Above Average/Deficit</td>
<td>Proficient</td>
</tr>
<tr>
<td>≥ 130</td>
<td></td>
<td>&gt;97th</td>
<td>Extremely Above Average/Deficit</td>
<td>Markedly Proficient</td>
</tr>
</tbody>
</table>

1. Clinical judgment is required 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.

### Analysis and Interpretation of g-Value

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.

- **≥ 0.80**: Average overall ability is very likely
- **0.60 - 0.79**: More information needed
- **≤ 0.59**: 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, the 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, should enable learning and achievement, especially when specific cognitive weaknesses are minimized through compensatory efforts, accommodations, and the like.
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.

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)

<table>
<thead>
<tr>
<th>CHC Ability</th>
<th>Reading Achievement</th>
<th>Math Achievement</th>
<th>Writing Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gf</td>
<td>Inductive (I) and general sequential reasoning (RG) reasoning abilities are consistently very important for math problem solving at all ages.</td>
<td>Inductive (I) and general sequential reasoning (RG) reasoning abilities are consistently related to written expression at all ages.</td>
<td>Inductive (I) and general sequential reasoning (RG) reasoning abilities are consistently related to written expression at all ages.</td>
</tr>
<tr>
<td>Gc</td>
<td>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.</td>
<td>Language development (LD), lexical knowledge (VL), and listening abilities (LS) are important at all ages. These abilities become increasingly important with age.</td>
<td>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.</td>
</tr>
<tr>
<td>Gwm</td>
<td>Memory span (MS) and working memory capacity (WM) or attentional control. Gwm important for overall reading success.</td>
<td>Memory span (MS) and working memory capacity (WM) or attentional control. Gwm important for overall math success.</td>
<td>Memory span (MS) is important to writing, especially spelling skills whereas working memory has shown relations with advanced writing skills (e.g., written expression). Gwm important for overall writing success.</td>
</tr>
<tr>
<td>Gv</td>
<td>Orthographic Processing (often measured by tests of perceptual speed) – reading fluency</td>
<td>Orthographic Processing (often measured by tests of perceptual speed)</td>
<td>Orthographic Processing (often measured by tests of perceptual speed) – spelling</td>
</tr>
<tr>
<td>Ga</td>
<td>Phonetic coding (PC) or “phonological awareness/processing” is very important during the elementary school years for the development of basic reading skills.</td>
<td>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 2).</td>
<td>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 2).</td>
</tr>
<tr>
<td>Glr</td>
<td>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.</td>
<td>Naming facility (NA; or speed of lexical access). Associative Memory (MA) – rapid retrieval of basic math facts (necessary for higher level math problem solving)</td>
<td>Naming facility (NA) or “rapid automatic naming” (also called speed of lexical access) has demonstrated relations with written expression, primarily writing fluency.</td>
</tr>
<tr>
<td>Gs</td>
<td>Perceptual speed (P) abilities are important during all school years, particularly the elementary school years.</td>
<td>Perceptual speed (P) abilities are important during all school years, particularly the elementary school years.</td>
<td>Perceptual speed (P) abilities are important during all school years for basic writing and related to all ages for written expression.</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>CHC Broad Cognitive Abilities/Neuropsychological Functions</th>
<th>Brief Definition</th>
<th>General Manifestations of Cognitive/Neuropsychological Weakness</th>
<th>Specific Manifestations of Cognitive/Neuropsychological Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory Processing (Ga)</td>
<td>Ability to analyze and synthesize auditory information. One narrow aspect of Ga is a precursor to oral language comprehension (e.g., 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).</td>
<td>Difficulties with: Hearing information presented orally, initially processing oral information in the presence of background noise. Discerning the direction from which auditory information is coming. Discriminating between simple sounds. Foreign language acquisition.</td>
<td>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.</td>
</tr>
</tbody>
</table>

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”

---

OBSERVATIONAL RATING SCALE

Listening

T-Teacher, P-Parent, S-Student

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

KTEA-3

Qualitative Observations Hand Scoring Form

Name ____________________________

Grade ______ Test Date ____________ Form □ A □ B

<table>
<thead>
<tr>
<th>Written Expression</th>
<th>Graphomotor</th>
<th>Visual Processing</th>
<th>Phonological Processing</th>
<th>Orthographic Processing</th>
<th>Language</th>
<th>Executive Functioning</th>
<th>Processing Speed</th>
<th>RAM/Working Memory</th>
<th>Working Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ Spacing between letters was too close or too far away</td>
<td>GM</td>
<td></td>
<td></td>
<td></td>
<td>L</td>
<td>EF</td>
<td></td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>○ Letter formation was laborious</td>
<td>GM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>○ Letter formation was difficult to read</td>
<td>GM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>○ Showed fatigue from writing</td>
<td>GM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>○ Began writing quickly without evidence of planning</td>
<td>EF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>○ Reread responses to check for errors</td>
<td>EF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>○ Made more spelling errors when writing sentences than when spelling single words</td>
<td>WM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>○ Many responses had grammatical/structural errors</td>
<td>L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>○ Transposed words within sentences</td>
<td>WM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>○ Tended to omit word endings (-s, -ed, -ing)</td>
<td>WM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>CHC Broad Cognitive Abilities/Neuropsychological Functions</td>
<td>General Manifestations of Cognitive/Neuropsychological Weakness</td>
<td>Specific Manifestations of Cognitive/Neuropsychological Weakness</td>
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<tr>
<td>Visual Processing (Gv)</td>
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<td></td>
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</tr>
<tr>
<td>Ability to analyze and synthesize visual information.</td>
<td>Difficulties with:</td>
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<tr>
<td>The ability to make use of simulated mental imagery (often in conjunction with currently perceived images) to solve problems (Schneider &amp; McGraw, 2012).</td>
<td>Recognizing patterns</td>
<td>Reading Difficulties:</td>
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<tr>
<td>There are many narrow Gv abilities, some of which include:</td>
<td>Reading maps, graphs, charts</td>
<td>Orthographic coding (using visual features of letters to decode)</td>
<td></td>
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</tr>
<tr>
<td>Visualization, Speeded Rotation, Closure Speed, Flexibility of Closure, Visual Memory, and Spatial Scanning.</td>
<td>Attending to fine visual detail</td>
<td>Sight-word acquisition</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Recalling visual information</td>
<td>Using charts and graphs within a text in conjunction with reading</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Appreciation of spatial characteristics of objects (e.g., size, length)</td>
<td>Comprehension of text involving spatial concepts (e.g., social studies text describing physical boundaries, movement of troops along a specified route)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Recognition of spatial orientation of objects</td>
<td>Math Difficulties:</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Number alignment during computations</td>
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<tr>
<td></td>
<td></td>
<td>Reading and interpreting graphs, tables, and charts</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Writing Difficulties:</td>
<td>Inconsistent size, spacing, position, and slant of letters</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>


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

<table>
<thead>
<tr>
<th>CHC Broad Cognitive Abilities/Neuropsychological Functions</th>
<th>General Manifestations of Cognitive/Neuropsychological Weakness</th>
<th>Specific Manifestations of Cognitive/Neuropsychological Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Long-Term Retrieval (Gir)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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 Gir tasks, information leaves immediate awareness long enough for the contents of primary memory to be displaced completely. In other words, Gir tasks (unlike Gsm tasks) do not allow for information to be maintained continuously in primary memory (Schneider &amp; McGrew, 2012). Gir abilities may be categorized as either “learning efficiency” or “fluency.” Learning efficiency narrow abilities include: working memory, meaningful memory, and free recall memory. Fluency narrow abilities involve 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 &amp; McGrew, 2012).</td>
<td>Difficulties with: Learning new concepts, retrieving or recalling information by using association, performing consistently across different task formats (e.g., recognition versus recall formats), reading retrieval of information, learning information quickly, paired learning (visual-auditory), reading specific information (words, facts), and generating ideas rapidly.</td>
<td>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.</td>
</tr>
</tbody>
</table>

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**BRIEF, BASC-2**

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

<table>
<thead>
<tr>
<th>CHC Broad Cognitive Abilities/Neuropsychological Functions</th>
<th>General Manifestations of Cognitive/Neuropsychological Weakness</th>
<th>Specific Manifestations of Cognitive/Neuropsychological Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attention</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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,</td>
<td>Easily distracted: Lacks attention to detail; Difficulty focusing demands of a task (e.g., where to begin or how to get started); May only be able to attend to tasks in short intervals; Difficulty changing activities; Difficulty applying different strategies 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.</td>
<td>Reading Difficulties: Loses his or her place easily; Easily distracted while reading; May 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.</td>
</tr>
</tbody>
</table>

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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.


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

**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**
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**

• **Modification**: Changes content of material to be taught or measured. Changes the depth, breadth, and complexity of learning and measurement goals. For example:
  – Reducing the amount of material that a student is required to learn
  – Simplifying test instructions and content or the material to be learned

• **Accommodation**: changes conditions under which learning occurs or is measured, but does not change or reduce learning or assessment expectations. For example:
  – Extending time on exams
  – Providing separate room to work
  – Aligning math problems vertically, as opposed to horizontally
• **Remediation**: techniques or programs used to ameliorate cognitive and academic deficits. For example:
  – Techniques and materials from the *Reading Rockets* and *What Works Clearinghouse* websites
  – *CogMed* (from Pearson) – intervention designed to improve working memory capacity

• **Compensation**: procedures, techniques, and strategies intended to bypass or minimize the affects of a cognitive or academic deficits: For example:
  – Teaching the use of mnemonic devices
  – Teaching a student to outline or use graphic organizers
  – Providing the student with guided notes

---

**Methods of Tailoring Interventions:** *MARC*

<table>
<thead>
<tr>
<th>Tailoring Method</th>
<th>Brief Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Modification</strong></td>
<td>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.</td>
<td>Reducing the amount of material that a student is required to learn.&lt;br&gt;Simplifying material to be learned&lt;br&gt;Requiring only literal (as opposed to critical/evaluative) questions from an end-of-chapter comprehension check.&lt;br&gt;Simplifying test instructions and content.</td>
</tr>
<tr>
<td><strong>Accommodation</strong></td>
<td>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.</td>
<td>Extending time on exams&lt;br&gt;Assigning a project in advance or allowing more time to complete a project&lt;br&gt;Aligning math problems vertically, as opposed to horizontally&lt;br&gt;Providing a separate room to work&lt;br&gt;Having a student dictate responses to a scribe.</td>
</tr>
<tr>
<td><strong>Remediation</strong></td>
<td>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.</td>
<td>Evidence-based programs listed at <em>What Works Clearinghouse</em>: <a href="http://ies.ed.gov/ncee/wwc">http://ies.ed.gov/ncee/wwc</a>&lt;br&gt;Reading programs appearing on the Florida Center for Reading Research website: <a href="http://www.flcr.org">www.flcr.org</a>&lt;br&gt;Techinques and materials from the <em>Reading Rockets</em> website: <a href="http://www.readingrockets.org">www.readingrockets.org</a>&lt;br&gt;<em>CogMed</em> (Pearson)&lt;br&gt;<em>Spotlight on Listening: Comprehension</em> (Linguistics, 2006)</td>
</tr>
<tr>
<td><strong>Compensation</strong></td>
<td>Procedures, techniques, and strategies that are intended to bypass or minimize the impact of a cognitive or academic deficit.</td>
<td>Teaching the use of mnemonic devices&lt;br&gt;Organizational aids or techniques&lt;br&gt;Teaching a student to outline or use graphic organizers.</td>
</tr>
</tbody>
</table>
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
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
  - 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
- **Long-Term Storage and Retrieval (Glr)** – weakness (A,M,C)
  - Weaknesses in these abilities obstruct learning, but can be bypassed or compensated for at least to some degree
- **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

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

<table>
<thead>
<tr>
<th></th>
<th>Reading Achievement</th>
<th>Math Achievement</th>
<th>Writing Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gf</strong> Inductive (I) and general sequential reasoning (RG) abilities play a moderate role in reading comprehension.</td>
<td>Inductive (I) and general sequential (RG) reasoning abilities are consistently very important for math problem solving at all ages.</td>
<td>Inductive (I) and general sequential reasoning abilities (RG) are consistently related to written expression at all ages.</td>
<td></td>
</tr>
<tr>
<td><strong>Gc</strong> Language development (LD), lexical knowledge (VL), and listening ability (LS) are important at all ages. These abilities become increasingly important with age.</td>
<td>Language development (LD), lexical knowledge (VL), and listening abilities (LS) are important at all ages. These abilities become increasingly important with age.</td>
<td>Language development (LD), lexical knowledge (VL), and general information (KI) are important primarily after about the 2nd grade. These abilities become increasingly important with age.</td>
<td></td>
</tr>
<tr>
<td><strong>Gsm</strong> Memory span (MS) and working memory capacity, Orthographic Processing – reading fluency</td>
<td>Memory span (MS) and working memory capacity.</td>
<td>Memory span (MS) is important to writing, especially spelling skills whereas working memory has shown relations with advanced writing skills (e.g., written expression).</td>
<td></td>
</tr>
<tr>
<td><strong>Gv</strong> Orthographic Processing – reading fluency</td>
<td>Orthographic Processing – spelling</td>
<td>Orthographic Processing – spelling</td>
<td></td>
</tr>
<tr>
<td><strong>Ga</strong> Phonetic coding (PC) or “phonological awareness/processing” is very important during the elementary school years.</td>
<td>May interfere with comprehension of word problems (e.g., poor decoding)</td>
<td>Phonological 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).</td>
<td></td>
</tr>
<tr>
<td><strong>Glr</strong> Naming facility (NA) or “rapid automatic naming” is very important during the elementary school years. Associate memory (MA) is also important</td>
<td>Naming Facility (NA); Associate Memory (MA)</td>
<td>Naming facility (NA) or “rapid automatic naming” has demonstrated relations with written expression, primarily writing fluency.</td>
<td></td>
</tr>
<tr>
<td><strong>Gs</strong> Perceptual speed (P) abilities are important during all school years, particularly the elementary school years.</td>
<td>Perceptual speed (P) abilities are important during all school years, particularly the elementary school years.</td>
<td>Perceptual speed (P) abilities are important during all school years for basic writing and related to all ages for written expression.</td>
<td></td>
</tr>
</tbody>
</table>
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.

Mascolo, Flanagan, and Alfonso (2014). A systematic method of analyzing assessment results for tailoring interventions (SMAART), in Mascolo,
### 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

<table>
<thead>
<tr>
<th>CHC Cognitive/Academic Ability or Processing Domain</th>
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<tbody>
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<td>Fluid Reasoning (Gf)</td>
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<td>Target for Intervention?</td>
<td>Crystallized Intelligence (Gc)</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Comprehension-Knowledge = 95 ± 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target for Intervention?</td>
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<td></td>
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<td>Target for Intervention?</td>
<td>Short-Term Memory (Gm)</td>
<td></td>
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</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Target for Intervention?</td>
<td>Visual Processing (Gv)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>107 ± 4&lt;br&gt;TOC Orthographic Ability = 103 ± 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued)

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

<table>
<thead>
<tr>
<th>CHC Broad Cognitive Abilities/Neuropsychological Functions</th>
<th>General Manifestations of Cognitive/Neuropsychological Weakness</th>
<th>Specific Manifestations of Cognitive/Neuropsychological Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory Processing (Ga)</td>
<td>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).</td>
<td><strong>Difficulties:</strong> Hearing information&lt;br&gt;Presented orally; initially processing oral information&lt;br&gt;Paying attention especially in the presence of background noise&lt;br&gt;Discerning the direction from which auditory information is coming&lt;br&gt;Discriminating between simple sounds&lt;br&gt;Foreign-language acquisition</td>
</tr>
</tbody>
</table>

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

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**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q</td>
<td>Query</td>
</tr>
<tr>
<td>P</td>
<td>Prompt</td>
</tr>
<tr>
<td>DK</td>
<td>Don’t know</td>
</tr>
<tr>
<td>NR</td>
<td>No response</td>
</tr>
<tr>
<td>IR</td>
<td>Item repeated</td>
</tr>
<tr>
<td>RR</td>
<td>Requested repetition (not repeated)</td>
</tr>
<tr>
<td>SV</td>
<td>Observable Sub-vocalization</td>
</tr>
<tr>
<td>SC</td>
<td>Self-corrected</td>
</tr>
</tbody>
</table>

**OBSERVATIONAL RATING SCALE**

**Listening**

<table>
<thead>
<tr>
<th>T: Teacher, P: Parent, S: Student</th>
<th>Never or Almost Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always or Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Has trouble paying attention.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Has trouble following spoken directions.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Has trouble remembering things people say.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Has trouble understanding what people are saying.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Has to ask people to repeat what they have said.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Has trouble understanding the meanings of words.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Has trouble understanding new ideas.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Has trouble looking at people when talking or listening.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Has trouble understanding facial expressions, gestures, or body language.</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Results of Step 3 for Ayden: Identify Targets for Intervention (Cognitive)

Table 1.3 DOTI Form for Ayden Murphy With Primary and Secondary Data

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<thead>
<tr>
<th>CHC Cognitive/Academic Ability or Processing Domain</th>
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<td></td>
<td>C (Compensation)</td>
</tr>
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</tr>
<tr>
<td>M (Modification)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A (Accommodation)</td>
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(continued)
### Results of Step 3 for Ayden: Identify Targets for Intervention (Cognitive)

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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Auditory Processing (Ga)</strong></td>
<td><strong>Auditory Processing = 72 ± 5</strong></td>
<td></td>
<td>Teacher Report: seems to do better with visual information (e.g., charts and graphs in math and science)</td>
</tr>
<tr>
<td></td>
<td><strong>Reading Specialist: does not use phonemic strategies consistently; relies more on visual features and contextual cues to decode</strong></td>
<td></td>
<td>Ayden: “I love to draw,” Emphasize in program planning to the extent possible</td>
</tr>
<tr>
<td><strong>Target for Intervention:</strong></td>
<td><strong>R (Remediation)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Processing Speed (Ga)</strong></td>
<td><strong>Processing Speed = 84 ± 4</strong></td>
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<td></td>
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<td><strong>Teacher Report: has difficulty working within time limits</strong></td>
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<td><strong>Parent Report: takes a long time to complete homework</strong></td>
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<td><strong>Reading (Gw-R)</strong></td>
<td><strong>Passage Comprehension 70 ± 5</strong></td>
<td></td>
<td>Letter-Word Identification 90 ± 4</td>
</tr>
<tr>
<td></td>
<td><strong>Teacher Report: has difficulty retelling what he has read for monthly book reports</strong></td>
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<td></td>
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<td></td>
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### Results of Step 3 for Ayden, Achievement Data

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## Results of Step 3 for Ayden, Achievement Data

### Reading Continued

<table>
<thead>
<tr>
<th>Type of Skill Targeted</th>
<th>Writing (Gen-W)</th>
<th>Mathematics (Gq)</th>
<th>Other</th>
</tr>
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<td><strong>Mathematics (Gq)</strong></td>
<td><strong>Other</strong></td>
</tr>
<tr>
<td>H (Higher Level Application)</td>
<td>Spelling 87 ± 5</td>
<td>Applied Problems 81 ± 4</td>
<td>Ayden has recently begun to avoid reading for pleasure and seems to be developing anxiety related to reading aloud in school</td>
</tr>
<tr>
<td>F (Fluency)</td>
<td>Writing Fluency 95 ± 5</td>
<td>Parent and Teacher Reports: difficulty with word problems Fluency 80 ± 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teacher Reports: slow but accurate Classroom Tests: Grade of &quot;D&quot; on all Mad Math Minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type of Skill Targeted: H (Higher Level Application)</td>
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<td></td>
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<tr>
<td></td>
<td>F (Fluency)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### How Can Pearson Measures be Used at Step 3?

Ayden is highly motivated to learn and puts forth considerable effort in all educational activities, does well with hands-on activities, capitalizes on his motivation and incorporates interests into remedial activities.
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)

## KTEA-3 Error Analysis Norms

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Error Classification Method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Item-level (Automatic)</td>
</tr>
<tr>
<td>Lellar &amp; Word Recognition</td>
<td>X</td>
</tr>
<tr>
<td>Nonsense Word Decoding</td>
<td>X</td>
</tr>
<tr>
<td>Spelling</td>
<td>X</td>
</tr>
<tr>
<td>Math Computation</td>
<td>X</td>
</tr>
<tr>
<td>Oral Expression</td>
<td>X</td>
</tr>
<tr>
<td>Phonological Processing</td>
<td>X</td>
</tr>
<tr>
<td>Written Expression</td>
<td>X</td>
</tr>
<tr>
<td>Math Concepts &amp; Applications</td>
<td>X</td>
</tr>
<tr>
<td>Listening Comprehension</td>
<td>X</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>X</td>
</tr>
</tbody>
</table>
Error Analysis

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

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.
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)

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
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
Recommendations for Ayden: Reading Decoding

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

---

**Science Glossary**

- **Salinity**
  - Saltiness of the ocean

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

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

Recommendations for Ayden: Reading Comprehension

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


---

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

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

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Gc Continued

![Diagram](image)

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 *why* helps with figuring out *how to help*

• 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*
References


Available in April!

Go to: Crossbattery.com

Scroll to the bottom for information
Thank you for listening!

Contact Information

Jennifer Mascolo, PsyD, NCSP
jmascolo@verizon.net