





Pearson

Differentiating an Intellectual Disability from a Learning Difference

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Topics

- Selecting Appropriate Assessments
- Analyzing data to make diagnostic decisions
- Using data to determine educational need

 Pearson

Intellectual Disability or Learning Difference

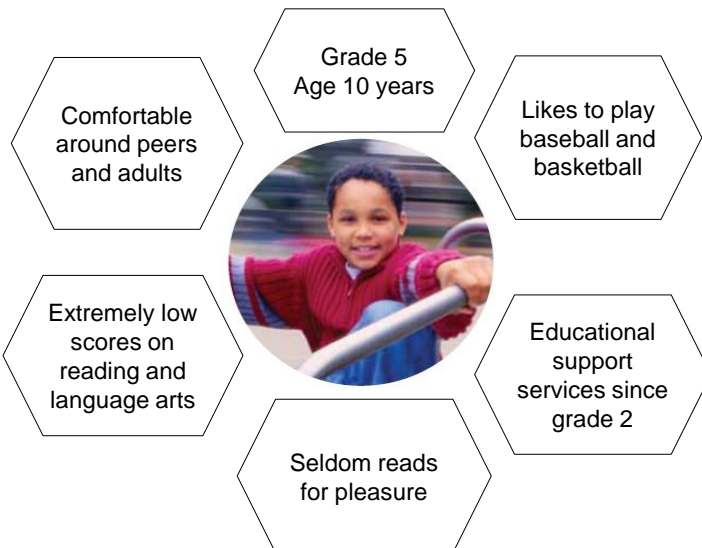
Reason for Referral

His teacher referred Aaron for a comprehensive psychoeducational evaluation due to concerns about Aaron's lack of engagement during class lessons and his consistently low performance on standardized group achievement tests and classroom tests.



Intellectual Disability or Learning Difference

Who is Aaron?



Intellectual Disability or Learning Difference

Family History

- Aaron lives with his parents and his two older brothers and younger sister.
- He enjoys spending time watching TV with his siblings.
- His parents reported that Aaron started speaking later than their other children.
- According to his parents, his daycare providers and preschool teacher expressed concern about Aaron's expressive language and drawing skills.



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Aaron's Report

- He says that he enjoys school but he is noticeably uncomfortable when talking about academic subjects and his own perceptions of his academic skill levels, especially in reading and writing.
- Aaron says that he does not really like to read much and does not pursue reading on his own as a source of enjoyment.
- He sees most schoolwork as difficult but says he does his best to learn in class and complete homework assignments.
- Mathematics is Aaron's favorite subject.



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Intervention

- Since second grade, Aaron has been receiving educational support services through district remediation programs.
- Consistent with the regular classroom whole language instructional program, the remedial program emphasizes improvement of reading comprehension skills rather than a systematic approach to word decoding skill development.



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Teacher Report

- Concerned with Aaron's poor performance in all academic areas.
- He does not do well on tests and does not participate in classroom discussions of material being taught.
- When asked a direct question during classroom instruction, Aaron smiles, but usually does not offer a response.
- He appears unengaged during class lessons and his performance on standardized group achievement tests and classroom tests has been consistently low.



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Selecting Appropriate Assessments

Assessment Questions

- Is Aaron achieving age and grade-level standards?
- Is his achievement unexpected relative to his cognitive abilities?
- Are there intra-individual academic and/or cognitive strengths and weaknesses?

Determining the Existence of a Specific Learning Disability (IDEA § 300.309)

- | | |
|--|---|
| <p>1. Does not achieve age or grade-level standards in one or more of the following areas:</p> <ul style="list-style-type: none">• Oral Expression• Listening Comprehension• Written Expression• Basic Reading Skill• Reading Fluency Skills• Reading Comprehension• Mathematics Calculation• Mathematics Problem-Solving | <p>2. (i) Does not make sufficient progress to meet age or State approved grade-level standards in one or more of the 8 areas when using a process based on the child's response to scientific, research-based intervention.</p> <p>(ii) . . . exhibits a pattern of strengths and weaknesses in performance, achievement, or both, relative to age, State-approved grade level standards, or intellectual development, . . .</p> |
|--|---|

Inclusionary Criteria



Intellectual Disability or Learning Difference

Determining the Existence of a Specific Learning Disability (IDEA § 300.309)

- | | |
|---|---|
| <p>Rule out</p> <ul style="list-style-type: none">(i) A visual, hearing, or motor disability;(ii) Intellectual disability (Mental retardation);(iii) Emotional disturbance;(iv) Cultural factors;(v) Environmental or economic disadvantage; or(vi) Limited English proficiency. | <p>Rule out lack of instruction by documenting:</p> <ul style="list-style-type: none">• Appropriate instruction by qualified personnel• Repeated assessments |
|---|---|

Exclusionary Criteria



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Intellectual Disability - IDEA

Significantly subaverage intellectual functioning

Existing concurrently with deficits in adaptive behavior

Manifested during the developmental period

Adversely affects educational performance



Intellectual Disability or Learning Difference

Assessment Instruments

- Beery-Buktenica Developmental Test of Visual-Motor Integration, Sixth Edition (Beery VMI)
- Wechsler Individual Achievement Test-Third Edition (WIAT-III)
- Wechsler Intelligence Scale for Children-Fifth Edition (WISC-V)
- Wechsler Intelligence Scale for Children-Fifth Edition, Integrated (WISC-V Integrated)



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Assessment Questions

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Oral Language

Composite/Subtest	Standard Score	Percentile Rank
Listening Comprehension	96	39
Receptive Vocabulary	104	61
Oral Discourse Comprehension	90	25
Oral Expression	85	16
Expressive Vocabulary	100	50
Oral Word Fluency	80	9
Sentence Repetition	85	16

Written Expression

Composite/Subtest	Standard Score	Percentile Rank
Written Expression	64	1
Spelling	59	0.3
Sentence Composition	71	3
Sentence Combining	73	4
Sentence Building	71	3
Essay Composition	71	3
Word Count	73	4
Theme Development and Text Organization	76	5

Reading

Composite/ Subtest	Standard Score	Percentile Rank
Basic Reading	63	1
Word Reading	60	0.4
Pseudoword Decoding	67	1
Reading Comprehension and Fluency	72	3
Reading Comprehension*	87	19
Oral Reading Fluency*	64	1

*Raw score is based on a below grade level item set.

Mathematics

Composite/ Subtest	Standard Score	Percentile Rank
Mathematics	104	61
Math Problem Solving	113	81
Numerical Operations	95	37
Math Fluency	116	86
MF–Addition	116	86
MF–Subtraction	115	84
MF–Multiplication	112	79

Pattern of Academic Strengths and Weaknesses

Comparison	Diff.	Critical Value (0.05)	Sign. Diff. Y/N	Base Rate
Basic Reading vs. Mathematics	-41	6.26	Y	<=1%
Basic Reading vs. Math Fluency	-53	6.80	Y	<=1%
Reading Comprehension and Fluency vs. Mathematics	-32	8.66	Y	<=5%
Reading Comprehension and Fluency vs. Math Fluency	-44	9.06	Y	<=1%
Written Expression vs. Mathematics	-40	8.33	Y	<=1%
Written Expression vs. Math Fluency	-52	8.74	Y	<=1%
Mathematics vs. Math Fluency	-12	8.01	Y	>15%

Note: A negative difference indicates that the second composite has a higher score than the first composite listed in the comparison.

Assessment Questions

- Is Aaron achieving age and grade-level standards?
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- Are there intra-individual academic and/or cognitive strengths and weaknesses?

Test Results Ability: WISC-V

WISC-V Index/Subtest	Composite Score/ Scaled Score	WISC-V Index/Subtest	Composite Score/ Scaled Score
Verbal Comprehension	76	Working Memory	88
<i>Similarities</i>	6	<i>Digit Span</i>	6
<i>Vocabulary</i>	5	Picture Span	10
(Information)	(7)	(Letter-Number Sequencing)	(5)
(Comprehension)	(6)	Processing Speed	86
Visual Spatial	86	Coding	5
<i>Block Design</i>	5	Symbol Search	10
Visual Puzzles	10	(Cancellation)	(9)
Fluid Reasoning	103		
<i>Matrix Reasoning</i>	11		
<i>Figure Weights</i>	10		
(Picture Concepts)	(9)		
(Arithmetic)	(13)		
Full Scale IQ 77			



Intellectual Disability or Learning Difference

Index-Level Strengths and Weaknesses

Index	Score	Comparison Score	Diff.	Critical Value	Strength/ Weakness	Base Rate
VCI	76	87.8	-11.8	9.45	W	<=15%
VSI	86	87.8	-1.8	10.34		>25%
FRI	103	87.8	15.2	9.45	S	<=2%
WMI	88	87.8	0.2	10.34		>25%
PSI	86	87.8	-1.8	11.95		>25%

Comparison score mean derived from the five index scores (MIS).

Statistical significance (critical values) at the 0.05 level.

Base rates are reported by ability level.



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Index-Level Pairwise Difference Comparisons

Index Comparison	Score1	Score2	Diff.	Critical Value	Sign. Diff.	Base Rate
VCI-VSI	76	86	-10	11.76	N	
VCI-FRI	76	103	-27	11.00	Y	2.3%
VCI-WMI	76	88	-12	11.76	Y	25.6%
VCI-PSI	76	86	-10	13.15	N	
VSI-FRI	86	103	-17	11.76	Y	4.0%
VSI-WMI	86	88	-2	12.47	N	
VSI-PSI	86	86	0	13.79	N	
FRI-WMI	103	88	15	11.76	Y	8.5%
FRI-PSI	103	86	17	13.15	Y	6.3%
WMI-PSI	88	86	2	13.79	N	



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WISC-V: Ancillary Indexes

WISC-V Index/Subtest	Composite Score/ Scaled Score	WISC-V Index/Subtest	Composite Score/ Scaled Score
Quantitative Reasoning	109	General Ability	82
Figure Weights	10	Block Design	5
Arithmetic	13	Similarities	6
Auditory Working Memory	75	Matrix Reasoning	11
Digit Span	6	Vocabulary	5
Letter-Number Sequencing	5	Figure Weights	10
Nonverbal	88	Cognitive Proficiency	84
Block Design	5	Digit Span	6
Matrix Reasoning	11	Coding	5
Coding	5	Picture Span	10
Figure Weights	10	Letter-Number Sequencing	5
Visual Puzzles	10		
Picture Span	10		

Significant and unusual discrepancy between WMI (88) and AWMI (75).



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WISC-V: Complementary Indexes

WISC-V Index/Subtest	Composite Score/ Standard Score
Naming Speed	89
Naming Speed Literacy	86
Naming Speed Quantity	97
Symbol Translation	98
Immediate Symbol Translation	101
Delayed Symbol Translation	95
Recognition Symbol Translation	102
Storage and Retrieval	91

Verbal Comprehension

WISC-V Subtest	WISC-V Integrated Subtest	Scaled Score	
Similarities	Similarities Multiple Choice	6	12
Comprehension	Comprehension Multiple Choice	6	15
Vocabulary	Vocabulary Multiple Choice	5	10
	Picture Vocabulary Multiple Choice		10
Information	Information Multiple Choice	7	7

Index Comparison	Score1	Score2	Diff.	Critical Value	Sign. Diff.	Base Rate
VCI-MCVCI	76	105	-29	13.45	Y	<=5%

Speech-Language Pathologist diagnosed Aaron with Severe Expressive Language Disorder.

Visuomotor Coordination

WISC-V Subtest	WISC-V Integrated Subtest	Scaled Score	
Block Design	Block Design Multiple Choice	5	10
Coding	Coding Copy	5	5

Score	Base Rate
Coding Recall Cued Symbol	60.0%
Coding Recall Free Symbol	58.0%
Coding Recall Cued Digit	66.0%
Coding Recall Pairing	62.0%

Visual-Motor Integration standard score = 75
 (Beery-Buktenica Developmental Test of Visual-Motor Integration)



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Working Memory

WISC-V Subtest	WISC-V Integrated Subtest	Scaled Score	
Digit Span	Spatial Span	6	9

Index Comparison	Score1	Score2	Diff.	Critical Value	Sign. Diff.	Base Rate
WMI-VWMI	88	97	-9	12.49	N	
AWMI-VWMI	75	97	-22	12.06	Y	<=5%

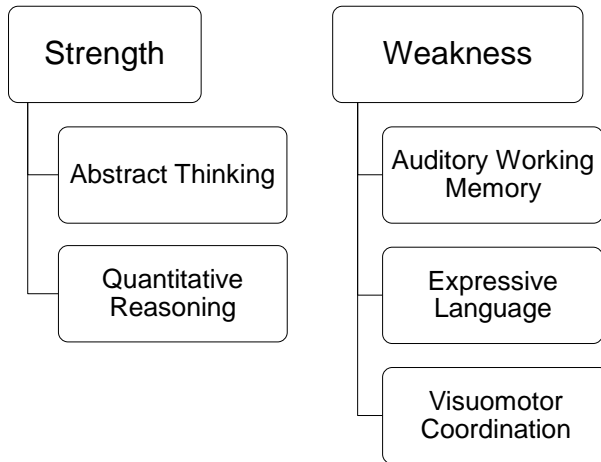
Sum of Scaled Scores to Index Score Conversion

Scale	Sum of Scaled Scores	Index Score	Percentile Rank	Confidence Interval
Visual Working Memory PS 10 + SSP 9 = 19	VWMI 97	42	89-106	

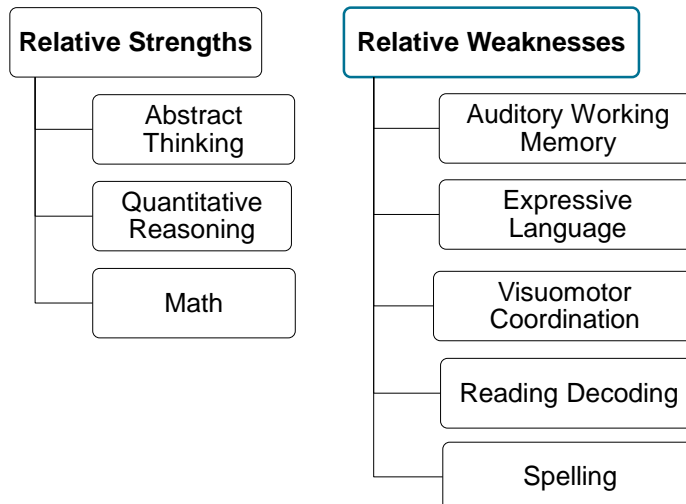


Intellectual Disability or Learning Difference

Pattern of Cognitive Strengths and Weaknesses



Academic and Cognitive Data



Cognitive Processes and Reading

- Verbal comprehension and working memory were the best WISC–III/WISC–IV predictors of reading ability.
- Children diagnosed with SLD-R show reduced verbal working memory (Kibby & Cohen, 2008) and processing speed deficits (Shanahan et al., 2006).

Cognitive Processes and Reading

- Rapid automatic naming measures, similar to Naming Speed Literacy, significantly predict reading ability in both younger and older children with reading disorder (Park & Lombardino, 2013).
- Children with reading disorders perform poorly on verbal learning measures (Kibby & Cohen, 2008) and on paired associate learning tasks that involve pairing a visual input (i.e., a symbol) with a verbal response, that is, a word or nonword (Litt & Nation, 2014; Messbauer & de Jong, 2003).

Cognitive Processes and Math

- Difficulties in verbal comprehension, working memory, and processing speed (Willcutt et al., 2013).
- General cognitive functioning, processing speed, and components of working memory are longitudinal predictors of math achievement (Geary, 2011).
- Difficulties with working memory (Geary, 2010), attention (Raghubar et al., 2009), and semantic-retrieval and visuospatial skills (Cirino, Morris, & Morris, 2007) are related to mathematics difficulties.

Cognitive Processes and Math

- Early number skills and conceptual reasoning skills predict math achievement (Fuchs, Geary, Compton, Fuchs, Hamlett, & Bryant, 2010).
- Language, nonverbal reasoning, and attention are significantly related to performance on math word problems (Fuchs, Geary, Compton, Fuchs, Hamlett, Seethaler, et al., 2010; Tolar et al., 2012).

Cognitive Hypothesis Testing

PATTERN OF STRENGTHS AND WEAKNESSES ANALYSIS

Area of Achievement Weakness	WIAT-III	Basic Reading: 63
Area of Processing Weakness	WISC-V and WISC-V Integrated	AWMI: 75
Area of Processing Strength	WISC-V and WISC-V Integrated	FRI: 103

Comparison	Relative Strength Score	Relative Weakness Score	Difference	Critical Value .05	Significant Difference Y/N	Supports SLD hypothesis? Yes/No
A Processing Strength/Achievement Weakness	103	63	40	9.00	Y	Yes
B Processing Strength/Processing Weakness	103	75	28	12.00	Y	Yes

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



Intellectual Disability or Learning Difference

Rule Out Intellectual Disability?

(WISC-V Special Group Study)

Composite	Clinical Mean	Control Mean	Mean Diff.	p value	Std. Diff.
VCI	66.0	96.1	30.14	<.01	2.16
VSI	66.0	101.1	35.14	<.01	2.82
FRI	67.0	99.3	32.34	<.01	2.35
WMI	65.1	98.7	33.60	<.01	2.64
PSI	71.6	97.3	25.78	<.01	1.87
FSIQ	60.9	98.0	37.07	<.01	2.92
QRI	64.2	98.1	33.86	<.01	2.67
AWMI	62.2	99.2	36.96	<.01	2.91
NVI	62.1	99.5	37.40	<.01	3.02
GAI	63.5	97.9	34.46	<.01	2.71
CPI	63.4	97.6	34.19	<.01	2.66

n = 74; ages 6-16



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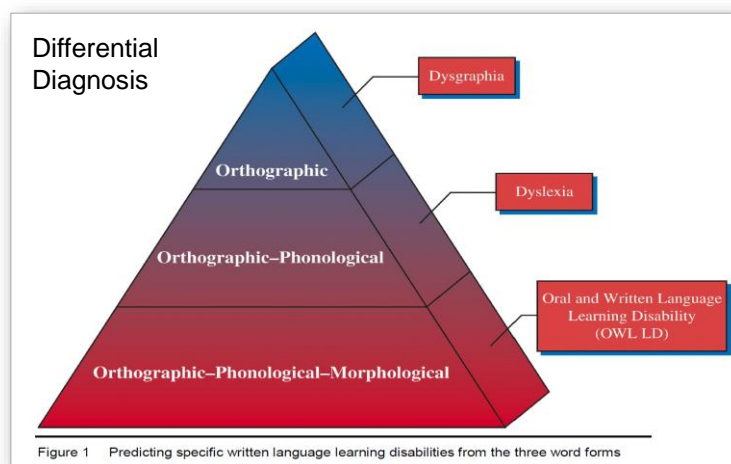
Summary of Findings

- Aaron's achievement in math is consistent with his average FRI score on the WISC-V.
- His low reading scores are consistent with his lower VCI score on the WISC-V.
- He demonstrates difficulties across the spectrum of reading skills. His performance is typical of students with specific reading disorders.
- He is unable to integrate the phonological and orthographic features of words (Pseudoword Decoding) so that his difficulties with decoding also affect his spelling (encoding).



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Written Language Problems and the Three Word Forms (Berninger, 2003)



Intellectual Disability or Learning Difference

Summary of Findings

- Overall, results of the WISC–V Integrated suggest that the impression that Aaron has limited verbal intelligence is partly because he has considerable difficulty expressing himself in words at an age-appropriate level, and partly because his reading difficulties may impede the acquisition of new verbal knowledge.
- When verbal material and interactions are more structured, such as with multiple-choice paradigms, Aaron has a better opportunity to reveal his verbal reasoning abilities and knowledge.

Recommendations

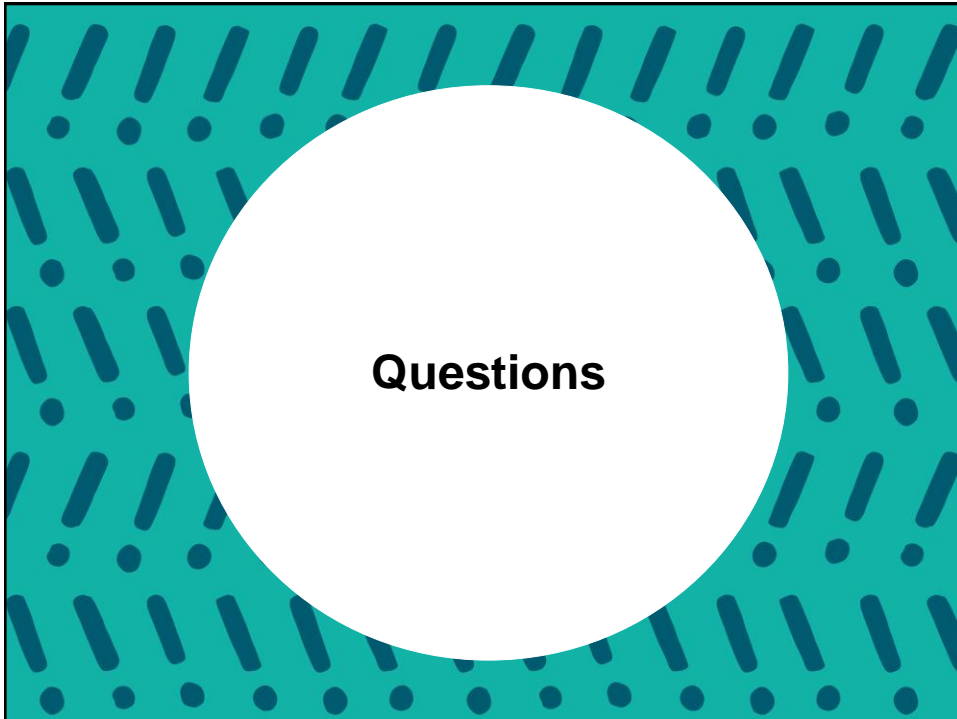
- The IEP team would want to consider a classification of Specific Learning Disability in reading and written expression.
- Also consider offering speech as a related service to help improve his ability to express his thoughts effectively in class and occupational therapy services to help improve his visual-motor skills (if supported by OT evaluation).

Recommendations

- Remedial reading instruction specifically designed to address his severe word recognition difficulties.
- Books on tape to help him use his effective listening skills to keep up with content typically addressed through independent reading assignments.
- Test-taking accommodations (e.g., read-aloud) that would enable Aaron to have math test questions read to him.

Classroom Accommodations

Through the discussion of the assessment results, his teacher arrived at the insight that rather than asking Aaron specific questions about what he had retained from a lesson, she would ask a question and provide two or more alternative answers from which he could choose.



Contact Information

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Webinar-Specific Questions

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ALWAYS LEARNING