

PLS-5 and CELF Preschool-2: Case Study
Adam Scheller, Ph.D.



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**Language Assessment
in Early Childhood:
Comparing PLS-5
and CELF P:2 Case
Studies**

Adam Scheller, Ph.D.
Senior Educational Consultant
Pearson



Disclosures

- Dr. Scheller is an employee of Pearson (financial), publisher of the PLS-5 and CELF P:2. No other language assessments will be presented in this presentation.



Agenda (1:00-2:00 PM Eastern)

1. Review of Best Practice Early Childhood Evaluation Procedures
2. Uses and score analysis: PLS-5 Case
3. Uses and score analysis: CELF Preschool-2 Case
4. Questions

Learning Outcomes

At the completion of the webinar:

1. Participants will be able to name at least one best practice procedure for evaluating a young child.
2. Participants will be able to describe at least one score profile based on a preschooler's performance on the PLS-5.
3. Participants will be able to describe at least one score profile based on a preschooler's performance on the CELF P:2.

Considerations and Best Practices in Early Childhood Assessment

Legal and Ethical Issues

- Federal Legislation affecting Preschool Assessment
 - IDEA
 - FERPA
- Ethical Issues
 - Test Validation
 - Informed Consent
 - Confidentiality

(ASHA, 2010; Demers & Fiorello, 1999; Wrightslaw, 2011)

Best Practices in Assessment of Young Children



Assessment Procedures with Preschoolers

- Preparing for testing
- Testing session

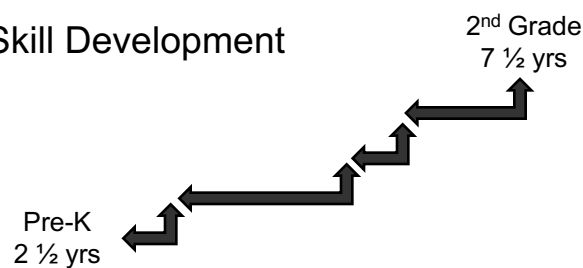
Assessment Procedures with Preschoolers

- Begin Testing
 - Interact with confidence
 - Begin testing when child is ready
 - Observe and record behavior
 - Be sensitive to the needs of the child
 - Give praise and reinforcement liberally, when indicated
 - Adjust speed of testing according to child's needs
 - Have a structure, but remain friendly
 - Based on child factors, determine length of testing session

(Romero, 1992)

Accounting for Age Specific Issues

- Trend of Skill Development



- Characteristics of Young Children
- Analyzing age specific abilities

Characteristics of Young Children

1. Variability
2. Motivation
3. Interest
4. Engagement





PLS-5 can be used to . . .

- Ages birth to 7:11
- Determine presence of a language delay/disorder.
 - Determine whether child has receptive or expressive language delay/disorder, or combination of both
- Determine eligibility for early intervention or speech/language services.



PLS-5 can be used to . . .


- Identify both receptive and expressive language skills in the areas of:
 - Attention, gesture, play, vocal development, social communication, vocabulary, concepts, language structure, integrative language, and emergent literacy.
- Identify a child's language strengths and weaknesses to develop appropriate interventions.



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PLS-5 Profile
Directions: Draw a line across the profile at the child's chronological age. Circle the items failed.


Age	Auditory Comprehension											
	Attention		Vocabulary	Play	Semantics					Language Structure		Emergent Literacy Skills
	Attention to Environment	Attention to People			Conceptual Speech	Qualitative Concepts	Spatial Concepts	Quantitative Concepts	Event Sequence Concepts	Morphology	Syntax	
0;0-0;2	3	1, 2										
0;3-0;5	4, 5	6		7								
0;6-0;8	10	9		8								
0;9-0;11		12	11									
1;0-1;5		13		16, 17	14, 15							
1;6-1;11			19	18								
2;0-2;5			22		20, 21, 22, 23, 24							
2;6-2;11				26	25, 27, 28				27			

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PLS-5 Profile
Directions: Draw a line across the profile at the child's chronological age. Circle the items failed.

Age	Auditory Comprehension											
	Attention		Vocabulary	Play	Semantics					Language Structure		Emergent Literacy Skills
	Attention to Environment	Attention to People			Conceptual Speech	Qualitative Concepts	Spatial Concepts	Quantitative Concepts	Event Sequence Concepts	Morphology	Syntax	
3;0-3;5				29	30, 31	32						
3;6-3;11							33		36		34, 35	
4;0-4;5						37	39			38		
4;6-4;11					40	42	41		40			
5;0-5;5					44		45					43
5;6-5;11					48				46			47
6;0-6;5							50	52			49	51
6;6-6;11								54			56, 57, 58	52, 54, 55, 59
7;0-7;11									65	62	60, 61, 64	63

Note: Some item numbers are included in more than one category.

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1 month norms for 2:6 – 2:11

- Children transitioning from EI to school services often referred for testing at age 2:11.
 - 6 month norm interval potentially inflated scores
 - With 1 month interval, child is being compared to his/her 1 month age group rather than 6 month age group
- Score will (likely) differ if you derive Standard Scores using 6-month or 1-month interval
 - Best Practice: use same interval consistently for all children in this age range.
 - Specify if that you are using 1-month norm intervals.

PLS-5 Sensitivity/Specificity Example:

-1.5 SD Cutoff (StS=78); Lang. Disorder (≈10% prevalence)


	Language Disorder (.92)	No Language Disorder (.74)	Total
Positive Test Results	920	1,600	2,520
Negative Test Results	80	7,400	7,480
Total	1,000	9,000	10,000



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**PLS-5 Case
Example
Discussion: Brock**

Male


2 yrs. 10 mo.




 **Scoring and Interpretation**

Record Form

	Year	Month	Day
Test Date	2011	06	13
Birth Date	2008	08	13
Chronological Age	2	10	0


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Scoring and Interpretation


	Raw Score Calculation		Norm-Referenced Scores				
			Standard Score (SS)	SS Confidence Interval (90% level)	Percentile Rank (PR)	PIs for SS Confidence Interval Values	Age Equivalent
Auditory Comprehension	Last AC item administered	51					
	Minus (-) number of 8 scores	- 7					
	AC Raw Score	44	70	66 to 79	2	1 to 8	
Expressive Communication	Last EC item administered	49					
	Minus (-) number of 8 scores	- 8					
	EC Raw Score	41	67	63 to 75	1	1 to 5	
Total Language Score	AC Standard Score	70					
	Plus (+) EC Standard Score	+ 67					
	Standard Score Total	137	67	63 to 74	1	1 to 4	
	AC Raw Score + EC Raw Score	85					


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Scoring and Interpretation

Score Summary			
Standard Scores	AC	EC	TLS
	70	67	67
+3SD	150	---	---
	145	---	---
	140	---	---
	135	---	---
+2SD	130	---	---
	125	---	---
	120	---	---
+1SD	115	---	---
	110	---	---
	105	---	---
Mean	100	---	---
	95	---	---
	90	---	---
-1SD	85	---	---
	80	---	---
	75	---	---
-2SD	70	---	---
	65	---	---
	60	---	---
-3SD	55	---	---
	50	---	---


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Scoring and Interpretation

Discrepancy Comparison	AC Standard Score	IC Standard Score	Difference	Critical Value	Significant Difference? (Y or N)*	Prevalence in the Normative Sample**	Level of Significance
	70	67	3	11	Y or <input checked="" type="radio"/>	38.6	.05 <input checked="" type="radio"/>

*See Table D.1 in the Administration and Scoring Manual to determine if the difference between AC and IC scores is significant.

**See Table D.2 to determine prevalence in the normative sample.

Growth Scale Values (GSV)			
Date: 06 / 13 / 11	Date: ___ / ___ / ___	Date: ___ / ___ / ___	Date: ___ / ___ / ___
464 AC 452 EC	AC EC	AC EC	AC EC
1st administration	2nd administration	3rd administration	4th administration



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Growth Scale Values: Interpretation Scenarios 1 & 2

Scale	Standard Score Time 1	GSV Time 1	Standard Score Time 2	GSV Time 2
Auditory Comprehension	79	492	85	520
Expressive Communication	75	482	75	515



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**Growth Scale Values:
Interpretation Scenario 3**

Scale	Standard Score Time 1	GSV Time 1	Standard Score Time 2	GSV Time 2
Auditory Comprehension	85	427	79	460

**Growth Scale Values:
Interpretation Scenarios 4 & 5**

Scale	Standard Score Time 1	GSV Time 1	Standard Score Time 2	GSV Time 2
Expressive Communication	90	492	75	492
Auditory Comprehension	85	482	72	475

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Scoring and Interpretation

Articulation Screener Raw Scores			
Age	Performance Typical of Age-Level Peers	Further Evaluation Indicated	Further Evaluation Strongly Indicated
2;6-2;11	6 or more	1-5	0
3;0-3;5	10 or more	5-9	4 or less
3;6-3;11	13 or more	5-12	4 or less
4;0-4;5	14 or more	12-13	11 or less
4;6-4;11	15 or more	12-14	11 or less
5;0-5;5	16 or more	12-15	11 or less
5;6-5;11	17 or more	15-16	14 or less
6;0-6;5	17 or more	15-16	14 or less
6;6-6;11	18 or more	16-17	15 or less
7;0-7;5	20 or more	18-19	17 or less
7;6-7;11	21 or more	19-20	18 or less

Supplemental Measures

Articulation Screener Raw Score 5

Typical

Further evaluation indicated

Further evaluation strongly indicated

Language Sample Checklist


Reinforces PLS-5 results


Differs greatly from PLS-5 results

Home Communication Questionnaire

Reinforces PLS-5 results


Differs greatly from PLS-5 results

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CELF[®]
PRESCHOOL 2

Clinical Evaluation of Language Fundamentals
Preschool – SECOND EDITION

 1

Index Scores

- Receptive Language Index (RLI)
 - A measure of listening and auditory comprehension skills
 - Derived by summing the scaled scores of three receptive subtests

- Expressive Language Index (ELI)
 - A measure of overall expressive language skills
 - Derived by summing the scaled scores of three expressive subtests

Index Scores (cont.)

- Language Content Index (LCI)
 - A measure of semantic development
 - Vocabulary
 - Concept development
 - Comprehension of word associations and relationships
 - Comprehension of simple and complex sentences

- Language Structure Index (LSI)
 - An overall measure of the ability to interpret and produce word and sentence structure

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CELF P:2 Sensitivity/Specificity Example:

-1.0 SD Cutoff (StS=85); Lang. Disorder (≈10% prevalence)

	Language Disorder (.85)	No Language Disorder (.82)	Total
Positive Test Results	850	800	1,650
Negative Test Results	150	8,200	8,350
Total	1,000	9,000	10,000

CELF Preschool–2 Assessment at Each Level...what level?

1. Identify whether or not there is a language disorder.
2. Describe the nature of the disorder.
3. Evaluate early classroom and literacy fundamentals.
4. Evaluate language and communication in context.

CELF-P:2 Case Study 1

- Male, age 3 years, 7 months
- Previously diagnosed with a mixed receptive/expressive language disorder at age 3 years, 6 months
- At time of evaluation he was receiving services from SLP, OT and PT

Level I – Core Language Index

- Core Language Index = 69 (confidence interval of 62 to 76 at 90% conf. int.)
 - Sentence Structure = 4
 - Word Structure = 3
 - Expressive Vocabulary = 7

Core Language Index

- Does child have a language disorder?
 - Evidence to support decision

Level II – Nature of the Disorder

- Receptive Language Index = 73
- Expressive Language Index = 73
- Language Content Index = 79
- Language Structure Index = 67

Level II – Nature of the Disorder

- Receptive Language vs. Expressive Language (scores are identical and there is not a statistically significant difference)
- Language Content vs. Language Structure (12 point difference is significant at the .05 level and frequency is 9.9%)

Level II – Nature of the Disorder

- Receptive and expressive skills are commensurate with one another
- Mixed receptive/expressive Disorder present
- Language content is a relative strength compared to language structure
- Language content and language structure are both delayed

Level III – Early Classroom and Literacy Skills

- Recalling Sentences in Context (< 1st to 24th percentile)
- Pre-Literacy Rating Scale (Did not meet criterion)

Level III – Early Classroom and Literacy Skills

- Scores in both areas are low
- Recommendations

Level IV – Language and Communication in Context

- Pragmatic profile not administered
- Why?

**What would you
recommend?**

CELF-P:2 Case Study 2

- Female, age 6 years, 1 month
- Just starting first grade
- Previously diagnosed with a moderate-to-severe language disorder at age 5 years, 4 months using the TOLD-P,3
- Currently identified with a CD and LD
- Receiving services from LD teacher, SLP and OT

Level I – Core Language Index

- Core Language Index = 63 (confidence interval of 56 to 70 at 90% conf. int.)
 - Sentence Structure = 4
 - Word Structure = 3
 - Expressive Vocabulary = 4

Core Language Index

- Does child have a language disorder?
 - Evidence to support decision

Level II – Nature of the Disorder

- Receptive Language Index = 83
- Expressive Language Index = 65
- Language Content Index = 79
- Language Structure Index = 65

Level II – Nature of the Disorder

- Receptive Language vs. Expressive Language (18 point difference is statistically significant at the .05 level and the frequency is 4.1%)
- Language Content vs. Language Structure (12 point difference is significant at the .05 level and frequency is 6.6%)

Level II – Nature of the Disorder

- Receptive skills > Expressive Language
- Receptive language is a relative strength
- Primarily expressive problems
- Language content is a relative strength compared to language structure
- Language content and language structure are both delayed

Subtest Scores

- Sentence Structure = 4
- Word Structure = 3
- Expressive Vocabulary = 4
- Concepts and Following Directions = 7
- Recalling Sentences = 5
- Word Classes – Receptive = 11
- Word Classes – Expressive = 8
- Word Classes – Total = 9

Level III – Early Classroom and Literacy Skills

- Basic Concepts (Did not meet criterion)
- Recalling Sentences in Context (< 1st to 4th percentile)
- Phonological Awareness (Did not meet criterion)
- Pre-Literacy Rating Scale (Did not meet criterion)


Level III – Early Classroom and Literacy Skills


- Scores in all areas are low
- Strength in using content of what she hears and weakness in the area of mastery of the linguistic rules for structure (morphology and syntax)
- Weakness in recalling sentences may be related to deficits in the area of language structure

Level IV – Language and Communication in Context

- Descriptive Pragmatics Profile (Met criterion)

**What would you
recommend?**


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**CELF P:2 Case
Study 3: Penelope**

Female

Age:
4 Years 6 Months



Case Study Points

- Head Start program and receives speech and language services for a receptive and expressive language delay.
- The child speaks Spanish-influenced English, but English is her first language and the primary language spoken in the home.
- There are no identifiable sensory, behavioral, or emotional concerns.
- The child has developmentally appropriate articulation and phonological skills.

Your interpretation of...

1.
2.
3.
4.


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TABLE 1 Assessment Results for Internet Case Study 1

Scores	Standard Score		Percentile Rank	Percentile Rank	
	M = 100 SD = 15	Confidence Interval 90% Level		Confidence Interval 90% Level	Confidence Interval 90% Level
Core Language score	75	69-81	5	2-10	
Receptive Language Index	81	74-88	10	4-21	
Expressive Language Index	79	73-85	8	4-16	
Language Content Index	73	66-80	4	1-9	
Language Structure Index	86	80-92	18	9-30	


Subtests	Scaled Score		Percentile Rank	Percentile Rank	
	M = 10 SD = 3	Confidence Interval 90% Level		Confidence Interval 90% Level	Confidence Interval 90% Level
Sentence Structure	8	6-10	25	9-50	
Word Structure	5	3-7	5	1-16	
Expressive Vocabulary	4	2-6	2	0.4-9	
Concepts & Following Directions	5	3-7	5	1-16	
Recalling Sentences	10	9-11	50	37-63	
Basic Concepts	7	4-10	16	2-50	
Word Classes-Receptive	6	4-8	9	2-25	
Word Classes-Expressive	4	3-5	2	1-5	
Word Classes-Total	5	4-6	5	2-9	

Phonological Awareness:	Did not meet criterion
Pre-Literacy Rating Scale:	Did not meet criterion
Recalling Sentences in Context:	60th to 64th percentile


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Appendix

When to chose: PLS-5 vs. CELF P:2

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Correlations: CELF Preschool-2/PLS-5


CELF Preschool-2	PLS-5						CELF Preschool-2	
	Auditory Comprehension		Expressive Communication		Total Language		Mean	SD
	<i>r</i>	Adj <i>r</i> ²	<i>r</i>	Adj <i>r</i> ²	<i>r</i>	Adj <i>r</i> ²		
Core Language	.65	.74	.70	.78	.71	.79	100.1	11.9
Expressive Language	.67	.75	.74	.82	.75	.82	102.0	11.6
Receptive Language	.64	.70	.66	.74	.69	.76	100.4	11.8
PLS-5 Mean	105.3		105.9		105.5			
PLS-5 SD	12.5		12.2		12.6			


Note. Adj = adjusted. All scores are based on age norms; units are standard scores.
*All correlations were corrected for the variability of the norm group, based on the standard deviation obtained on the first administration, using the variability correction of Cohen et al. (2003, p. 58).






|

What is the referral question?






Which early speech and language skills has the child acquired? What are the gaps in developmental language skills?

Is this preschooler able to handle the language demands of the classroom? Which specific language skills is this preschooler missing?


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At what ages can children be tested to obtain normed scores?



Birth through 7;11



3;0 through 6;11

What is the test purpose?



Identify a child with a language delay or disorder that interferes with communication. Screen children for possible articulation delays.



Identify a language delay or disorder that has a negative impact on classroom success.

What information about the child's language does this test provide?



A broad overview of developmental language skills (verbal and nonverbal) in language domains affecting communication. For younger children, caregivers provide information about the child's communication abilities in the home.

In-depth assessment of semantics, morphology, and syntax, with checklists used to assess pragmatics and emerging literacy.

Which tool provides the most information about the child's level of language ability?



PLS-5 can be used to assess children with moderate to severe delays. Provides more detailed information about a child's language skills when the child

- Is functioning at a pre-linguistic level, at a 1- or 2- word level, or using sentence structures far below the level of age-peers
- Exhibits deficits across multiple language domains
- Is placed in supported classroom environments (e.g., early childhood settings) with or without adaptations
- Has difficulty participating in regular education settings due to very limited communication skills or social interaction skills

CELF Preschool-2 can be used to assess children with mild to moderate delays. Provides more detailed information about a child's language skills when the child

- Uses morphological and syntactic forms somewhat below the level of age-peers
- Exhibits deficits in 1-2 language domains (e.g. morphology or semantics)
- Has difficulty mastering curriculum requirements in regular education classroom environments with or without adaptations
- Has difficulty participating in classroom activities due to atypical social interaction skills

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Which speech and language skills are tested?



Provides a broad survey of pre-linguistic skills through emergent literacy skills, including

- Attention to environment and people
- Gesture
- Play
- Vocal development
- Social communication
- Vocabulary
- Concepts
- Morphology
- Syntax
- Integrative language skills (e.g., analogies, inferences)

Includes an articulation screening

In-depth assessment of preschool- and early school-level language skills in the areas of

- Vocabulary
- Concepts
- Following directions
- Word relationships
- Morphology
- Syntax
- Pragmatics
- Phonological awareness
- Pre-literacy



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How is this test structured?



Two scales: Auditory Comprehension and Expressive Communication
Supplemental Measures: Articulation Screener, Home Communication Questionnaire, and Language Sample Checklist.

11 subtests
Pre-Literacy Rating Scale
Descriptive Pragmatics Profile



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How do I elicit language behaviors?



Interactive, play based tasks using manipulatives, and simple picture pointing and question-answering formats.
There are two to six items per task.



Child-friendly, but highly structured tasks.
There are 13 to 24 test items per subtest.



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What languages are available?



English Edition
Spanish Edition (dual language format for bilingual children)



English Edition
Spanish Edition



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How similar is the normative group to my population?



Year normative sample collected: 2012

- Race/ethnicity
 - 53.7% White; 46.3% Non-white
 - Parent education
 - 40.7% Parent Education: 12 years or less
 - 59.4% Parent Education: 13+ years
- *May not sum to 100% due to rounding

Year normative sample collected: 2002

- Race/ethnicity
 - 62.1% White; 37.9% Non-white
 - Parent education
 - 45.5% Parent Education: 12 years or less
 - 54.5% Parent Education: 13+ years
- *May not sum to 100% due to rounding



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What normative scores are available?



Standard scores, percentile ranks, age equivalents, growth scale values.

Standard scores, percentile ranks, age equivalents, growth scale values.



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Why do PLS-5 and CELF Preschool-2 sometimes result in different scores?



- The two tests are normed on two different normative populations eight years apart. Demographic characteristics have shifted significantly since the publication of CELF Preschool-2 in 2003.
- PLS-5 is a play-based assessment for children at the younger ages, and provides many more verbal cues and supports than CELF-Preschool 2. CELF Preschool-2, while child-friendly, has more structured tasks and provides fewer cues and supports.
- PLS-5 provides credit for interpersonal communication-based tasks; CELF Preschool-2 normative scores are based on subtests focusing on semantics, morphology, and syntax.

Questions?

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