Beyond Vocabulary Scores: Interpreting Results from PPVT-5 and EVT-3

Gloria Maccow, Ph.D., Assessment Training Consultant

Disclosures

Financial
Gloria Maccow is an employee of Pearson.

Non-Financial
There is no relevant non-financial information to disclose.

Course Content
• Focuses primarily on PPVT-5 and EVT-3.
• No other similar assessments will be discussed during this presentation.

Pearson Clinical Assessment is the publisher of the assessments referenced during the presentation.

Learning Outcomes

1. List three reasons for assessing vocabulary.
2. Compare receptive and expressive vocabulary acquisition.
3. Describe how results from PPVT-5 and EVT-3 are used to plan intervention.
The Importance of Assessing Vocabulary

Vocabulary and Reading Comprehension

- Vocabulary size is a major correlate of comprehension.
- The relationship between comprehension and vocabulary is reciprocal.
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**Vocabulary and Reading Decoding**

- **Word-Level Processes (Phonics)**
- **Cognitive Processes (Comprehension)**

**Vocabulary is the Bridge!!**

- **Word-Level Processes (Phonics)**
- **Cognitive Processes (Comprehension)**

**Vocabulary and Verbal Ability**

- **Gc (Crystallized Ability)**
  - Language Development
  - Lexical Knowledge
  - General Information

  Depth and breadth of declarative and procedural knowledge and skills of one’s culture.

  Cattell-Horn-Carroll (CHC) model of cognitive abilities

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Information on Vocabulary Helps to...

- Detect vocabulary impairments that are one symptom of a possible language disorder
- Measure one aspect of semantic development, especially among non-readers
- Identify appropriate interventions to facilitate vocabulary development
- Identify students at risk for reading difficulties
- Identify English vocabulary level of English Language Learners (compared to a national sample of US speakers proficient in English)
- Determine if examinee’s production vocabulary is consistent with recognition vocabulary

Receptive and Expressive Vocabulary Score Differences

Factors to Consider when Analyzing Receptive–Expressive Performance

- Vocabulary Development
- Vocabulary by Part of Speech
- Individual Differences in Vocabulary Development
- Breadth and Depth of Vocabulary
- Vocabulary Development of Bilingual Children
- Characteristics of the Assessment Instrument
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Overview of Semantic Development (Selected Vocabulary Milestones)

<table>
<thead>
<tr>
<th>Age</th>
<th>Vocabulary Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-12 months</td>
<td>Understanding of 3-50 words</td>
</tr>
<tr>
<td>12-18 months</td>
<td>Avg. expressive vocab size 50-100 words at 18 months (words for agent, action, object, location, possession, rejection, disappearance, nonexistence, denial)</td>
</tr>
<tr>
<td>18-24 months</td>
<td>Avg. vocabulary size 200-300 at 24 months</td>
</tr>
<tr>
<td>24-30 months</td>
<td>Basic questions (Who? What? What X doing? Where X going?)</td>
</tr>
<tr>
<td>30-36 months</td>
<td>Understands basic spatial term (in, on, under)</td>
</tr>
<tr>
<td>36-42 months</td>
<td>Understands early temporal concepts, basic color words, basic kinship terms</td>
</tr>
<tr>
<td>42 to 48 months</td>
<td>Understands words for basic shapes, size (big, little)</td>
</tr>
<tr>
<td>48-60 months</td>
<td>Understands letter names and sounds, numbers, basic conjunction words (when, so, because, if)</td>
</tr>
</tbody>
</table>


Overview of Semantic Development (Selected Vocabulary Milestones – cont’d)

<table>
<thead>
<tr>
<th>Age</th>
<th>Vocabulary Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-7 years</td>
<td>Average expressive vocabulary size is 5000</td>
</tr>
<tr>
<td>7-9 years</td>
<td>• School introduces new words not encountered in conversation.</td>
</tr>
<tr>
<td></td>
<td>• Word definitions included synonyms and categories. Some words have multiple meanings.</td>
</tr>
<tr>
<td></td>
<td>• Capacity for figurative language increases.</td>
</tr>
<tr>
<td>9-12 years</td>
<td>• Vocabulary used in school texts is more abstract and specific than that used in conversation.</td>
</tr>
<tr>
<td></td>
<td>• Students are expected to acquire new information from written text.</td>
</tr>
<tr>
<td></td>
<td>• Asked to explain meanings of multiple meaning words. Most common idioms understood.</td>
</tr>
<tr>
<td>12-14 years</td>
<td>Abstract, dictionary definitions given for words</td>
</tr>
<tr>
<td>15-18 years</td>
<td>Average vocabulary size of high school graduate is 10,000 words</td>
</tr>
</tbody>
</table>


Vocabulary Development: Receptive and Expressive

<table>
<thead>
<tr>
<th>Age</th>
<th>Receptive Vocabulary</th>
<th>Expressive Vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 months</td>
<td>100–200 words</td>
<td>&lt; 50 words</td>
</tr>
<tr>
<td>6 years</td>
<td>20,000–24,000 words</td>
<td>2600–7000</td>
</tr>
</tbody>
</table>

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Vocabulary by Part of Speech

<table>
<thead>
<tr>
<th>Nouns</th>
<th>Verbs</th>
<th>Adjectives</th>
<th>Function words</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 50 words</td>
<td>40%</td>
<td>&lt;10%</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>Productive Vocabulary &gt; 500 words</td>
<td>40%</td>
<td>25%</td>
<td>15%</td>
</tr>
</tbody>
</table>


Receptive–Expressive Differences
(Typically-Developing Students in CELF-5 Normative Sample)

<table>
<thead>
<tr>
<th>Sample</th>
<th>RLI &gt; ELI</th>
<th>ELI &gt; RLI</th>
<th>No Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normative Sample</td>
<td>47.6%</td>
<td>47.7%</td>
<td>4.7%</td>
</tr>
</tbody>
</table>

Receptive Language Index; Expressive Language Index

Receptive–Expressive Performance
(when difference is 10+ SS points)

<table>
<thead>
<tr>
<th>Sample</th>
<th>RLI &gt; ELI</th>
<th>ELI &gt; RLI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normative Sample</td>
<td>17.5%</td>
<td>17.9%</td>
</tr>
<tr>
<td>Language Disorder</td>
<td>27.2%</td>
<td>9.3%</td>
</tr>
</tbody>
</table>

Receptive Language Index; Expressive Language Index
Individual Differences in Vocabulary Development

Home Factors

School Factors

Differences in Vocabulary Acquisition


Breadth and Depth of Vocabulary

Breadth
- Number of words known
- Word families

Depth
Degree of various kinds of word knowledge
Vocabulary Development of Bilingual Children

Vocabularies of bilingual children develop at the same rate as vocabularies of monolingual children when *both their languages are taken into account.*

What are the implications for assessment?

Implications for Assessment

Examiners must understand how to score responses that are provided in a different language.

Examiners must understand how to score dialectal or regional responses that do not match the target response.

EVT-3 and Dialectal Differences

Extensive review was conducted by experts familiar with dialectal variations in the

- US
- Australia
- Canada
- France
- India
- Spain
- Spanish-influenced English
- Asian languages influenced by English
EVT-3: Scoring responses provided in another language and Scoring dialectal/regional responses that do not match the target

See the EVT-3 Examiner’s Manual for initial guidance of items scored as “correct.” Some examples:

- Intelligible responses with pronunciation errors (e.g., “free” for three)
- Foreign words part of American Vocabulary (e.g., “amigo” for friend)
- Slang terms or shortened terms of words that are considered acceptable forms (e.g., “copter” for “helicopter”)
- Diminutives (e.g., “birdie” for bird)

For scoring EVT-3 responses provided in another language and dialectal/regional responses that do not match the target

Responses scored as incorrect on EVT-3

- Responses that do not match the pictured context (e.g., “bonnet” for hat—bonnet can be a synonym for hat, but the hat pictured is not a bonnet)
- Responses too broad for the pictured content (e.g., If the expected response is “travel” and the response is walk)

For more in-depth understanding of scoring responses that do not match the target (when testing English learners or speakers of a dialect other than Standard American English),

See ASHA.org and search “dialect and assessment”

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See ASHA.org and search “dialect and assessment”


Assessing Recognition Vocabulary:
Characteristics of The Assessment Instrument

• Each PPVT item consists of two parts: the stimulus word, and an array of four pictures.

• One picture depicts the stimulus word, and the other three are distractors that are appealing choices for examinees who are unsure of the correct answer.

Assessing Production Vocabulary:
Characteristics of The Assessment Instrument

• Examiner shows a picture to the examinee and asks something about the picture.

• The examinee must respond with one word that provides an acceptable label for the picture, that answers a specific question about the picture, or that provides a synonym for a word that fits the pictured context.
**Receptive (PPVT-5) Better Than Expressive (EVT-3)**

**Hypothesis 1**
Good at using partial knowledge of the meanings of words to rule out distractors or pick correct responses.

**Hypothesis 2**
Word finding or word retrieval difficulties.

**Receptive (PPVT-5) Better Than Expressive (EVT-3)**

**Hypothesis 3**
Reluctance to speak.

**Hypothesis 4**
Broad experiential background.

**What if Expressive is Better Than Receptive??**

Type your hypotheses into the chat box.
Expressive (EVT-3) Better Than Receptive (PPVT-5)

- Seems to be more "capable" or knowledgeable when allowed to speak or "put things in own words."
- Difficulties processing information presented verbally and visually or in identifying fine details among four pictures.
- Lack of automaticity.
- Deep (active) processing vs. superficial processing.
- Will engage if activity is active (speaking) and not passive (listening).
- Background knowledge.
- Can choose own words when speaking.

Linking PPVT-5 and EVT-3 Results to Interventions

Student

- 9 years old
- Grade 4
- Struggling with academic subjects
Interpreting Results

Quantitatively

Qualitatively

Quantitative Interpretation

PPVT-5 Form A

EVT-3 Form A

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### Receptive vs. Expressive Performance

#### PPVT-5 Compared to EVT-3

<table>
<thead>
<tr>
<th>Standard Score Comparison</th>
<th>PPVT-5 A or B</th>
<th>EVT-3 A or B</th>
<th>Difference</th>
<th>Percentile Rank</th>
<th>Critical Value</th>
<th>Significant Level</th>
<th>Significant Difference</th>
<th>Prevalence in Normative Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>80</td>
<td>21</td>
<td>0</td>
<td>7.78</td>
<td>0</td>
<td>Yes</td>
<td>-5%</td>
<td></td>
</tr>
</tbody>
</table>

#### Score Profile

101 97-160 80 76-87

### Receptive Better Than Expressive: Hypotheses??

Word finding or word retrieval difficulties
Expressive difficulties

#### How would you confirm/refute one or more of the hypotheses?

### Qualitative Analysis

#### Receptive vs. Expressive Performance

Crossover vocabulary sampling between PPVT-5 and EVT-3.

#### Item Analysis

- Home versus school vocabulary
- Vocabulary by part of speech
- Three tier model of vocabulary
- STEM vocabulary
### Crossover Vocabulary

<table>
<thead>
<tr>
<th>Crossover word</th>
<th>PPVT-5 Form A Item</th>
<th>PPVT-5 Form B Item</th>
<th>EVT-3 Form A Item</th>
<th>EVT-3 Form B Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>cup</td>
<td>14</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pencil</td>
<td>23</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mouth</td>
<td>40</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>square</td>
<td>91</td>
<td></td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>fire</td>
<td>95</td>
<td></td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>spoon</td>
<td>102</td>
<td></td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>arrow</td>
<td>102</td>
<td></td>
<td>102</td>
<td></td>
</tr>
</tbody>
</table>

### Home vs. School Vocabulary

<table>
<thead>
<tr>
<th>Home/School</th>
<th>Test</th>
<th>Attempted</th>
<th>Correct</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>PPVT-5</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EVT-3</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>PPVT-5</td>
<td>82</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EVT-3</td>
<td>82</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Vocabulary by Part of Speech

<table>
<thead>
<tr>
<th>Part of Speech</th>
<th>Test</th>
<th>Attempted</th>
<th>Correct</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noun</td>
<td>PPVT-5</td>
<td>86</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EVT-3</td>
<td>86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verb</td>
<td>PPVT-5</td>
<td>86</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EVT-3</td>
<td>67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>PPVT-5</td>
<td>79</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EVT-3</td>
<td>67</td>
<td></td>
<td></td>
</tr>
</tbody>
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Three Tier Model of Vocabulary

<table>
<thead>
<tr>
<th>Three Tier Model</th>
<th>Test</th>
<th>Attempted</th>
<th>Correct</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>PPVT-5</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EVT-3</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tier 2</td>
<td>PPVT-5</td>
<td>86</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EVT-3</td>
<td>77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tier 3</td>
<td>PPVT-5</td>
<td>78</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EVT-3</td>
<td>76</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Science, Technology, Engineering, and Mathematics Vocabulary

Items that pertain to STEM have been identified in order to estimate the impact of STEM vocabulary knowledge on students’ academic progress.

<table>
<thead>
<tr>
<th>Test</th>
<th>Attempted</th>
<th>Correct</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPVT-5</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVT-3</td>
<td>44</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Suggested Interventions
Suggested Interventions

- Cooperative Learning/Peer Tutoring
- Robust Vocabulary Instruction
- Semantic Maps
- Prefix Instruction
- Morphemic Analysis
- Word Wizards

Morphemic Analysis

Word Families
The Bridge of Vocabulary 2

Explicit, research-based vocabulary intervention activities tied to academic standards.


Review
Learning Outcomes

1. List three reasons for assessing vocabulary.
2. Compare receptive and expressive vocabulary acquisition.
3. Describe how results from PPVT-5 and EVT-3 are used to plan intervention.

Questions
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Previous Webinar
The Importance of Assessing Vocabulary: PPVT-5 & EVT-3 Administration & Scoring.

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Questions
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