Intermediate Level Webinar:
Understanding Developmental Strengths and Needs
January 2013
Amy Dilworth Gabel, Ph.D., NCSP
Director, Training and Professional Development
Pearson Clinical Assessment

WPPSI-IV Informational Series
Other sessions available to view now!
1) Overview of the WPPSI-IV Revision Goals
2) Developmentally Appropriate Features of the WPPSI-IV
3) Working Memory
4) WPPSI-IV Factor Structure

www.PsychCorp.com/WPPSI-IV

Agenda
- Review of Test Structure
- Interpretation Case Study
  - Index Scores
  - GAI
  - Strength and Weakness Analysis
  - Link to Intervention
- Questions

Copyright © 2013. Pearson, Inc., and/or its affiliates. All rights reserved.
Test Structure (Younger Battery)

Ages 2:6–3:11

Full Scale
- Verbal Comprehension
  - Information
  - Vocabulary
- Visual Spatial
  - Block Design
  - Object Assembly
- Working Memory
  - Picture Memory
  - Word Span

Primary Index Scales
- Verbal Comprehension
  - Information
  - Vocabulary
- Visual Spatial
  - Block Design
  - Object Assembly
- Working Memory
  - Picture Memory
  - Word Span

Ancillary Index Scales
- Vocabulary Acquisition
  - Naming
- Block Design
  - Block Design

Test Structure (Older Battery)

Ages 4:6–7:7

Full Scale
- Verbal Comprehension
  - Information
  - Vocabulary
- Visual Spatial
  - Block Design
  - Object Assembly
- Working Memory
  - Picture Memory
  - Word Span
- Processing Speed
  - Picture Completion
  - Coding

Primary Index Scales
- Verbal Comprehension
  - Information
  - Vocabulary
- Visual Spatial
  - Block Design
  - Object Assembly
- Working Memory
  - Picture Memory
  - Word Span
- Processing Speed
  - Picture Completion
  - Coding

Ancillary Index Scales
- Vocabulary Acquisition
  - Naming
- Block Design
  - Block Design

Steps to Interpretation...
Complete Record Form

- Calculate Child’s Test Age
- Complete Summary Page
  - Calculate Raw Scores
  - Convert Raw to Scaled Scores
  - Obtain Sum of Scaled Scores
  - Derive Primary Index Scores and FSIQ
- Complete Primary Analysis page
  - Analyze Index- and subtest-level strengths and weaknesses
  - Analyze Index- and Subtest-level pairwise differences
- Complete ancillary analysis page
  - Obtain sums of scaled scores
  - Complete comparative analyses

Complete Summary Page

- Calculate Raw Scores
- Convert Raw to Scaled Scores
- Obtain Sum of Scaled Scores
- Derive Primary Index Scores and FSIQ

Raw Score to Scaled Score

<table>
<thead>
<tr>
<th>Raw Scores</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scaled</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>
WPPSI-IV Results: Child A Age 4:7

<table>
<thead>
<tr>
<th>Index/Subtest</th>
<th>Composite B Scaled Score</th>
<th>Index/Subtest</th>
<th>Composite B Scaled Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal Comprehension</td>
<td>132</td>
<td>Working Memory</td>
<td>97</td>
</tr>
<tr>
<td>Information</td>
<td>15</td>
<td>Picture Memory</td>
<td>10</td>
</tr>
<tr>
<td>Similarities</td>
<td>16</td>
<td>(Zoo Locations)</td>
<td>9</td>
</tr>
<tr>
<td>Visual Spatial</td>
<td>112</td>
<td>Processing Speed</td>
<td>91</td>
</tr>
<tr>
<td>Block Design</td>
<td>12</td>
<td>Bug Search</td>
<td>9</td>
</tr>
<tr>
<td>Object Assembly</td>
<td>12</td>
<td>(Cancellation)</td>
<td>8</td>
</tr>
<tr>
<td>Fluid Reasoning</td>
<td>114</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Matrix Reasoning</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Picture Concepts)</td>
<td>13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Full Scale IQ = 117
## Complete Primary Analysis Page

- Analyze Index- and Subtest-level strengths and weaknesses.
- Analyze Index- and Subtest-level pairwise differences.

## Guidelines in Selecting a Significance Level (Critical Value)

- Purpose of evaluation.
- Number of comparisons being made.

## Critical Value Options

![Critical Value Options Table]
### Which score for comparison? (Index)

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>z-score</th>
<th>t-score</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NG</td>
<td>105</td>
<td>12.3</td>
<td>1.1</td>
<td>2.5</td>
<td>0.05</td>
</tr>
<tr>
<td>PI</td>
<td>98</td>
<td>10.2</td>
<td>-0.5</td>
<td>1.2</td>
<td>0.3</td>
</tr>
<tr>
<td>WMI</td>
<td>47</td>
<td>5.6</td>
<td>1.3</td>
<td>2.8</td>
<td>0.07</td>
</tr>
<tr>
<td>PSI</td>
<td>62</td>
<td>6.8</td>
<td>0.2</td>
<td>0.5</td>
<td>0.6</td>
</tr>
</tbody>
</table>

### Which score for comparison? (Subtest)

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>z-score</th>
<th>t-score</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>77</td>
<td>9.4</td>
<td>1.3</td>
<td>2.8</td>
<td>0.07</td>
</tr>
<tr>
<td>Orientation</td>
<td>76</td>
<td>9.3</td>
<td>1.2</td>
<td>2.5</td>
<td>0.05</td>
</tr>
<tr>
<td>Reasoning</td>
<td>75</td>
<td>9.2</td>
<td>1.1</td>
<td>2.2</td>
<td>0.05</td>
</tr>
<tr>
<td>Memory</td>
<td>73</td>
<td>9.1</td>
<td>1.0</td>
<td>2.1</td>
<td>0.05</td>
</tr>
<tr>
<td>Coding</td>
<td>72</td>
<td>9.0</td>
<td>0.9</td>
<td>1.9</td>
<td>0.05</td>
</tr>
</tbody>
</table>

### Primary Analysis

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>z-score</th>
<th>t-score</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NG</td>
<td>105</td>
<td>12.3</td>
<td>1.1</td>
<td>2.5</td>
<td>0.05</td>
</tr>
<tr>
<td>PI</td>
<td>98</td>
<td>10.2</td>
<td>-0.5</td>
<td>1.2</td>
<td>0.3</td>
</tr>
<tr>
<td>WMI</td>
<td>47</td>
<td>5.6</td>
<td>1.3</td>
<td>2.8</td>
<td>0.07</td>
</tr>
<tr>
<td>PSI</td>
<td>62</td>
<td>6.8</td>
<td>0.2</td>
<td>0.5</td>
<td>0.6</td>
</tr>
</tbody>
</table>
**Base Rate - What is it?**

- **Overall Sample**
  - VCI<VSI by 15 points = 14.9%
  - VCI>VSI by 15 points = 14.1%
  - WMI<PSI by 15 points = 18.2%
  - WMI>PSI by 15 points = 17.6%

- **FSIQ < 79**
  - VCI<VSI by 15 points = 10.8%
  - VCI>VSI by 15 points = 9.4%
  - WMI<PSI by 15 points = 5.7%
  - WMI>PSI by 15 points = 20.7%
Complete Ancillary Analysis Page

- Obtain sums of scaled scores.
- Complete comparative analyses.
Ancillary Indexes

### C Sum of Scaled Scores to Index Score Conversion

<table>
<thead>
<tr>
<th>Scale</th>
<th>Scaled Score</th>
<th>Index Score</th>
<th>Percentile</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocabulary Acquisition</td>
<td>50</td>
<td>127</td>
<td>96</td>
<td>112-152</td>
</tr>
<tr>
<td>Nonverbal</td>
<td>66</td>
<td>104</td>
<td>70</td>
<td>101-114</td>
</tr>
<tr>
<td>General Ability</td>
<td>68</td>
<td>124</td>
<td>95</td>
<td>117-122</td>
</tr>
<tr>
<td>Cognitive Proficiency</td>
<td>36</td>
<td>112</td>
<td>90</td>
<td>85-100</td>
</tr>
</tbody>
</table>

VAI - When and how to use

NVI - When and Why Use it?
Using GAI and CPI

Consider deriving and interpreting the GAI and the CPI in a number of clinical situations, not limited to, but including the following:

- GAI and CPI
- PSI and CPI
- WMI and PSI
- Compare WMI and PSI to Other Indexes
  - a significant and unusual discrepancy exists between either of the comparisons below:
    - WMI and PSI, or
    - the subtests that contribute to either the WMI or to the PSI, or
    - a Working Memory or Processing Speed subtest and the MSS-I or MSS-F.

GAI and CPI

Additionally, consider using GAI and CPI if a significant and unusual discrepancy exists between
- WMI and PSI, or
- the subtests that contribute to either the WMI or to the PSI, or
- a Working Memory or Processing Speed subtest and the MSS-I or MSS-F.
Using GAI and CPI

Linking Assessment Results to Intervention for Child A

Importance of Working Memory

Working memory is important to the measure of intellectual ability

- related to fluid reasoning (Burgess & Braver, 2010; Hornung, 2011; Martinez et al., 2011)
- implicated in a wide variety of academic problems and clinical conditions affecting young children (e.g., Archibald & Gathercole, 2006a, 2007; Borella, Caretti, & Pellegrina, 2010; Hutchinson, Bavin, Efron, & Sciberras, 2012; Fitzpatrick & Pagini, 2012)
Consider impact of PSI deficits

- Rate based tasks such as early reading and math fluency.
- Ability to keep up with pace and transitions in classroom.
- General responding delays.

Recommendations for Child A

- Provide cues to A to pay attention.
- Teach her self-monitoring strategies to make sure that she stays “on track” with various tasks.
- Reduce assigned work so that A has a better chance to practice essential skills without becoming frustrated by not finishing all of the assigned work.
- If A’s family is interested in building on A’s attention and working memory capabilities, they may wish to explore the Cogmed program [http://www.cogmed.com/consumers](http://www.cogmed.com/consumers)

WPPSI-IV Subtest Interpretation: Reminders for Clinicians

- Each subtest has different task demands; typically measures more than one cognitive function.
- The abilities used to perform a task can vary based on the processing abilities of the individual child.
- The abilities needed to perform a task can vary based on the age of the child.
To Summarize-

Primary index scores can be conceptualized as representing various abilities that are clinically useful to assess because of their proven utility in various types of psychological evaluations, and their relationship to clinical conditions and to neurodevelopment.

---

To Summarize--

Performance can be used as a starting point in hypotheses generation about neuropsychological processing deficits, and can also be conceptualized and interpreted using a neuropsychological perspective (Hale & Fiorello, 2004; Miller & Maricle, 2012).

---

Q & A
For Customers in the USA

For more information regarding WPPSI-IV availability and pricing please call...

1-800-627-7271 (USA)

Specific Webinar-Related Comments or Questions
Amy Dilworth Gabel, PhD, NCSP
Pearson Clinical Assessment
amy.gabel@pearson.com

For Customers in Canada

For more information regarding WPPSI-IV availability and pricing please call...

1-866-335-8418 (Canada)

or email...
Customer Care Canada:
cs.canada@pearson.com

Thank you for Attending!