Advanced Interpretation of the Wechsler Adult Intelligence Scale-Fourth Edition and the
Wechsler Memory Scale-Fourth Edition
Gloria Maccow, Ph.D., Assessment Training Consultant

**ADVANCED INTERPRETATION**
Gloria Maccow, Ph.D.
Assessment Training Consultant

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**Agenda**
- Provide a brief overview of WAIS-IV and WMS-IV.
- Use sample data to describe cognitive abilities.
- Analyze data to determine functional implications.
- Identify appropriate interventions.

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**Brief Overview**
Wechsler’s Definition of Intelligence

“Intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment.”


WAIS-IV Content and Structure

Ages 16 – 90

Verbal Comprehension Scale
Core Subtests
Information
Similarities
Vocabulary
Supplemental Subtests
Comprehension

Perceptual Reasoning Scale
Core Subtests
Block Design
Matrix Reasoning
Visual Puzzles
New!
Supplemental Subtests
Picture Completion
Figure Weights (16-69)
New!

Working Memory Scale
Core Subtests
Arithmetic
Digit Span
Supplemental Subtests
Letter-Number Sequencing (16-69)

Processing Speed Scale
Core Subtests
Coding
Symbol Search
Supplemental Subtests
Cancellation (16-69)
New!

FSIQ
New!

New!
What is the GAI?

**GAI** = sum of scaled scores for VCI subtests and PRI subtests.

The WAIS–IV GAI provides the practitioner with a summary score that is less sensitive than the FSIQ to the influence of working memory and processing speed.

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GAI

- The GAI provides an estimate of general intellectual ability, with **reduced emphasis** on working memory and processing speed relative to the FSIQ.
- Theoretically, the GAI represents an individual’s overall cognitive ability if working memory and processing speed were similar to verbal and perceptual reasoning abilities.

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Use the GAI for Discrepancy Comparisons

- WAIS–IV GAI should be used for discrepancy comparisons
  - Ability and Memory
  - Ability and achievement
- **GAI is NOT** a replacement for FSIQ
**Generally, . . . When to Use the GAI**

Consider using the GAI if a significant and unusual discrepancy exists between
- VCI and WMI; or
- PRI and PSI; or
- WMI and PSI, or
- between subtests within WMI and/or PSI.

*Note:* The FSIQ is the most valid measure of overall cognitive ability and WM and PS are vital to comprehensive evaluation of cognitive ability.

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**General Ability Index – Note!**

- The GAI is used when neuropsychological deficits adversely impact performance on WM and PS.
- Impaired performance on WM and/or PS may mask actual differences between general cognitive ability (FSIQ) and other cognitive functions (e.g., memory).
- The GAI does not replace the FSIQ. Report and interpret GAI along with FSIQ.

[see WAIS-IV Technical Manual]

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**Deriving and Analyzing the GAI**

1. **Step 1.** Obtain the General Ability Sum of Scaled Scores
2. **Step 2.** Determine the GAI Score (Table C.1 – Tech Manual)
3. **Step 3.** Perform the FSIQ–GAI Discrepancy Comparison
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**Step 2 – Technical Manual**

<table>
<thead>
<tr>
<th>Table C.1</th>
<th>GAI Equivalents of Scaled Scores</th>
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<tr>
<td>Scaled Scores</td>
<td>GAI</td>
</tr>
<tr>
<td>40</td>
<td>60</td>
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**Step 3 – Technical Manual**

<table>
<thead>
<tr>
<th>Table C.2</th>
<th>Differences Between the FSIQ and the GAI Required for Statistical Significance (Critical Values), by Age Group and Overall Normative Sample</th>
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<tbody>
<tr>
<td>Age Group</td>
<td>Level of Significance</td>
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<tr>
<td>18-19</td>
<td>.5</td>
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<tr>
<td>20-21</td>
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<td>.5</td>
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<td>32-33</td>
<td>.5</td>
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</table>

**Updated Table C.2**

WAIS-IV Technical Manual

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Step 3 – Technical Manual

Table 15: Correlation Estimates of Normative Sample (Base-Rate) on the Verbal (WISC-IV) and Performance (WPPSI-IV) Scales, by Full Scale and K-RAI Ability Bands

<table>
<thead>
<tr>
<th>Amount of</th>
<th>Overall Sample</th>
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<tbody>
<tr>
<td></td>
<td>WISC-IV</td>
</tr>
<tr>
<td></td>
<td>FSIQ</td>
</tr>
<tr>
<td>10</td>
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<td>70</td>
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<tr>
<td>80</td>
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<td>90</td>
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<tr>
<td>100</td>
<td>0.9</td>
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</table>

Brief Overview

Memory and Learning

- **Learning** - process of acquiring new information.
- **Memory** - persistence of learning in a state that can be revealed at a later time” (Squire, 1987).
- WMS-IV measures ability to learn and remember information presented verbally and visually.
Process of Learning and Remembering

Encoding: External information is transformed into mental representations or memories and stored in STM.

Consolidation: Information from immediate memory is solidified into long-term memory stores.

Retrieval: Information is brought into conscious awareness.
Primary Subtest Scaled Score Profile

Index Score Profile

WMS-IV Scores
- Primary Subtest Scaled Scores (mean=10, sd = 3; range 1 – 19)
- Index Scores (mean=100, sd = 15; range 40 – 160)
- Process Scores (Scaled Score or Cumulative Percentage)
- Contrast Scaled Scores
Contrast Scores

Adjust one score based on performance on a previous or more basic task
- Delayed Memory adjusted for Immediate Memory
- Recall Memory adjusted for Recognition
- Recall Memory adjusted for Repetition

Contrast Scores – Note!

The basis of the comparison for contrast scores is other people of similar performance levels on the initial/control skill, not age-based peers.

Contrast Scores – Note!

If the client earns a scaled score of 13, then s/he is performing better than expected on the dependent variable compared to individuals of similar performance levels on control variable.
Contrast Scores – Note!

- The contrast score is based on relative standing on the control variable.
- It provides information about performance relative to the control variable skill area.

Contrast Score Overview

- Scored on 1-19 Scaled Score Metric.
- Does not replace normative scores.
- Answers specific hypothesis about an examinee’s performance relative to his/her performance on other measures.

Contrast Score Overview

- Normative score asks: Is this person’s delayed memory impaired?
- Contrast score asks: Is this person’s delayed memory impaired given his/her initial encoding ability?
Contrast Score Interpretation

Higher scores indicate better than expected performance on the dependent variable given performance on the control variable.

For example,

- Delayed Memory is better than expected given the examinee’s level of ability on immediate memory.
- Delayed Memory is superior when compared to individuals of similar encoding ability.

Low scores indicate poorer than expected performance on the dependent score given performance on the control score.

For example,
Contrast Score Interpretation

- Delayed Memory is impaired given the examinee’s level of ability on immediate memory.
- Delayed Memory is impaired when compared to individuals of similar encoding ability.

Scores in the average range (8-12) indicate no difference in performance between the control and dependent measures. For example,

- Delayed Memory performance is similar to encoding ability.

Ability & Memory
WAIS-IV and WMS-IV

- Is the examinee’s memory ability in <WMS area> unusually high or low, given cognitive ability?
  - Predicted-difference methodology recommended - not simple difference
- Evaluate statistical significance and base rate.
Ability & Memory
WAIS-IV and WMS-IV

Use GAI for this comparison rather than FSIQ.
- Reduces impact of WM and PS from ability results.
- However, when reporting ability information, use FSIQ – GAI is NOT a short-form.

APPLICATION

Dr. Wechsler: What we measure with tests of intelligence is... the capacity of the individual to understand the world around him and his ability to cope with its challenges.

Remember: Many Factors can Influence Performance!
- Acuity
- Attention
- Executive Functioning
- Working Memory
- Language Impairment
- Visual-Spatial Processing
- Fatigue
- Poor Effort
- Impulsivity
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Input and Output Demands of the Tasks

Verbal Comprehension Scale
Core Subtests
Information
Similarities
Vocabulary
Supplemental Subtests
Comprehension

Perceptual Reasoning Scale
Core Subtests
Block Design
Matrix Reasoning
Visual Puzzles
Supplemental Subtests
Figure Completion
Figure Weights (16-69) New!

FSIQ

Processing Speed Scale
Core Subtests
Coding
Symbol Search
Supplemental Subtests
Cancellation (16-69) New!

Working Memory Scale
Core Subtests
Arithmetic
Digit Span
Letter-Number Sequencing (16-69)

Abilities Measured

Verbal Comprehension Scale
Core Subtests
Information
Similarities
Vocabulary
Supplemental Subtests
Comprehension

Perceptual Reasoning Scale
Core Subtests
Block Design
Matrix Reasoning
Visual Puzzles
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Core Subtests
Arithmetic
Digit Span
Letter-Number Sequencing (16-69)

Application

SEVEN TEEN
AGE 17 YEARS 1 MONTH
FUNCTIONAL ENVIRONMENT
HIGH SCHOOL

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Intake Information

- Seven is a white male who is a Junior in high school.
- He is looking at college options.
- His SAT scores are very good.
- His grades are variable.
- His parents and teachers requested a psychological evaluation to identify factors that might explain the variability in his school performance.

Contextual Analysis

- Highschool - Junior
- Challenges related to learning
- In acquiring new information, is he able to encode, consolidate, retrieve information presented verbally/visually?
- What factors impact his ability to receive, perceive, store, and remember information?

Procedures Used

- Clinical Interview
- Self-Report of Personality-Adolescent
- WAIS-IV
- WMS-IV
- WIAT-III
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### WAIS-IV Scores

<table>
<thead>
<tr>
<th>Index/Subtest</th>
<th>Composite Score/ Scaled Score</th>
<th>Index/Subtest</th>
<th>Composite Score/ Scaled Score</th>
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<tr>
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<td>120</td>
<td>Perceptual Reasoning</td>
<td>115</td>
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<tr>
<td>Information</td>
<td>11</td>
<td>Block Design</td>
<td>12</td>
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<tr>
<td>Similarities</td>
<td>14</td>
<td>Matrix Reasoning</td>
<td>13</td>
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<tr>
<td>Vocabulary</td>
<td>16</td>
<td>Visual Puzzles</td>
<td>13</td>
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<tr>
<td>Working Memory</td>
<td>95</td>
<td>Processing Speed</td>
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<td>Digit Span</td>
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<td>Symbol Search</td>
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<td>Full Scale IQ</td>
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<td>General Ability Index</td>
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### Discrepancy Comparisons

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Score 1</th>
<th>Score 2</th>
<th>Diff.</th>
<th>Critical Value .05</th>
<th>Sign. Diff. Y/N</th>
<th>Base Rate*</th>
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<tbody>
<tr>
<td>VCI - PRI</td>
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<td>111</td>
<td>4</td>
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<tr>
<td>WMI - PSI</td>
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<td>FSIQ - GAI</td>
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<td>121</td>
<td>-7</td>
<td>3.96</td>
<td>Y</td>
<td>8.1</td>
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*Overall Sample

### Subtest-Level Ss and Ws

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<tr>
<th>Subtest</th>
<th>Subtest Scaled Score</th>
<th>Mean Scaled Score</th>
<th>DIFF</th>
<th>Critical Value .05</th>
<th>S or W</th>
<th>Base Rate</th>
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<td>1.9</td>
<td>2.82</td>
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<td>Digit Span</td>
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<td>Vocabulary</td>
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## Process Analysis

### Perceptual Reasoning Process Score Summary

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<th>Process</th>
<th>Raw Score</th>
<th>Scaled Score</th>
<th>Percentile Rank</th>
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<tr>
<td>Block Design No Time Bonus</td>
<td>43</td>
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<td>63</td>
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### Working Memory Process Score Summary

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<th>Raw Score</th>
<th>Scaled Score</th>
<th>Percentile Rank</th>
<th>Base Rate</th>
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<tbody>
<tr>
<td>Digit Span Forward</td>
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<td>8</td>
<td>25</td>
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<tr>
<td>Digit Span Backward</td>
<td>8</td>
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<td>37</td>
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<td>Digit Span Sequencing</td>
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<td>9</td>
<td>37</td>
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## Process Analysis

### Process Level Discrepancy Comparisons

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<th>Process Comparison</th>
<th>Score 1</th>
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<th>Critical Value</th>
<th>Sign.</th>
<th>Diff. Value</th>
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<td>1</td>
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<td>--</td>
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<td>LDSB - LDSS</td>
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<td>7</td>
<td>-2</td>
<td>--</td>
<td>--</td>
<td>44</td>
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## Digit Span: Cognitive Processes

The shift from one Digit Span task to another requires cognitive flexibility and mental alertness.

- **Digit Span Forward** involves rote learning and memory, attention, encoding, and auditory processing.
- **Digit Span Backward** involves working memory, transformation of information, mental manipulation, and visuospatial imaging.
- **Digit Span Sequencing** is similar to other tasks that are designed to measure working memory and mental manipulation.
Seven’s performance on the verbal subtests contributing to the VCI presents a diverse set of verbal abilities. He performed much better on some verbal tasks than others.

The degree of variability is unusual and may be noticeable to those who know him well. Examination of Seven’s performance on individual subtests provides additional information regarding his specific verbal abilities.

Seven may exhibit inconsistent performance when solving problems requiring verbal processes. His performance may depend on specific task demands, such as intact language production (e.g., I < C and V), abstract reasoning (e.g., I < S), and response precision.
VCI: Further Assessment

The clinical relevance of this finding should be addressed in terms of:

- demands in Seven's current environment,
- any co-occurring physical factors (e.g., recent onset of visual or auditory acuity difficulties or physical impairments) or emotional status (e.g., depression, anxiety).

VCI: Vocabulary

- Seven achieved his best performance among the verbal reasoning tasks on the Vocabulary subtest (scaled score = 16).
- His performance on V suggests well-developed verbal comprehension abilities, ability to verbalize meaningful concepts, and ability to retrieve information from LTM.

WMI: Strengths and Needs

Seven's abilities to sustain attention, concentrate, and exert mental control are a weakness relative to his nonverbal and verbal reasoning abilities.
WMI: Functional Implication

A weakness in mental control may make the processing of complex information more time-consuming for Seven, draining his mental energies more quickly as compared to others at his level of ability, and perhaps result in more frequent errors on a variety of learning or complex work tasks.

WMI: Clinical Review

- Seven's performance on the Working Memory Index is a weakness relative to his performance on other indexes.
- This score may indicate poor working memory abilities.
- Consider other possible reasons for poor performance - poor vigilance, poor sequential reasoning, or poor number or letter skills.

Individuals with ADHD

Executive functioning deficits have been identified with the most consistent findings related to

- response inhibition,
- sustained attention,
- working memory, and
- planning

(Willcutt, Doyle, Nigg, Faraone, & Pennington, 2005).
Individuals with ADHD

Processing speed deficits are also commonly reported in studies of ADHD.
(Frazier, Demaree, & Youngstrom, 2004; Nigg et al., 2005).

Additional cognitive deficits have been identified including
- verbal working memory (Muir-Broaddus, Rosenstei, Medina, & Soderberg, 2002),
- single-trial learning deficits for word lists (Marchetta, Hurks, Krabbendam, & Jolles, 2008),
- story recall (Muir-Broaddus et al., 2002), and
- CVLT List Learning (e.g., Muir-Broaddus et al., 2002).

WAIS-IV Clinical Studies: ADHD

<table>
<thead>
<tr>
<th>Composite</th>
<th>Clinical Mean</th>
<th>Control Mean</th>
<th>Mean Diff.</th>
<th>p value</th>
<th>Effect Size</th>
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<tr>
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<td>.51</td>
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<td>102.4</td>
<td>5.52</td>
<td>.02</td>
<td>.39</td>
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</tbody>
</table>

n = 44 (ages 18-31)
Questions

● How does the relative weakness in working memory affect Seven’s learning?
  – Attention/Focus?
  – Effort/Recruitment of resources?
● Is the relative weakness modality specific?

WAIS-IV and Learning

Further assessment of memory and perhaps elements of attention and executive functioning is necessary to determine if the identified weakness in encoding of verbal information is a real weakness.

WMS-IV Scores: AMI

<table>
<thead>
<tr>
<th>Index/Subtest</th>
<th>Composite Score/Scaled Score</th>
<th>Index/Subtest</th>
<th>Composite Score/Scaled Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory Memory</td>
<td>100</td>
<td>Visual Working Memory</td>
<td>112</td>
</tr>
<tr>
<td>Logical Memory I</td>
<td>13</td>
<td>Spatial Addition</td>
<td>11</td>
</tr>
<tr>
<td>Logical Memory II</td>
<td>15</td>
<td>Symbol Span</td>
<td>13</td>
</tr>
<tr>
<td>Verbal Paired Associates I</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal Paired Associates II</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Auditory Memory

Ability to listen to oral information, repeat it immediately, and then recall the information after a 20 to 30 minute delay is within the Average range.

Subtest-Level Differences

<table>
<thead>
<tr>
<th>Auditory Memory</th>
<th>Index</th>
<th>Subtest</th>
<th>Scaled Score</th>
<th>AMI Mean Score</th>
<th>Diff. from Mean</th>
<th>Critical Value</th>
<th>Base Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logical Memory I</td>
<td></td>
<td>13</td>
<td>10.00</td>
<td>3.00</td>
<td>2.64</td>
<td>5-10%</td>
<td></td>
</tr>
<tr>
<td>Logical Memory II</td>
<td></td>
<td>15</td>
<td>10.00</td>
<td>5.00</td>
<td>2.48</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Verbal Paired Associates I</td>
<td>5</td>
<td>10.00</td>
<td>-.50</td>
<td>1.90</td>
<td>&lt;1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal Paired Associates II</td>
<td>7</td>
<td>10.00</td>
<td>-.00</td>
<td>2.48</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Subtest-Level Differences

- His ability to recall verbal information that is conceptually organized and semantically related immediately after hearing it and after a delay is a relative strength.
- His ability to immediately learn verbal associations over multiple exposures and to recall these after a delay is a relative weakness.
### Ability-Memory Analysis: AMI

**Ability Memory Analysis: GAI = 121**

<table>
<thead>
<tr>
<th>Index</th>
<th>Predicted WMS-IV Index Score</th>
<th>Actual WMS-IV Index Score</th>
<th>DIFF.</th>
<th>Critical Value</th>
<th>Sign.</th>
<th>Diff.</th>
<th>Y / N</th>
<th>Base Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory Memory</td>
<td>111</td>
<td>100</td>
<td>11</td>
<td>10.3</td>
<td>Y</td>
<td>10.3</td>
<td>Y</td>
<td>20%</td>
</tr>
</tbody>
</table>

### Contrast Scaled Score

<table>
<thead>
<tr>
<th>Score</th>
<th>Score 1</th>
<th>Score 2</th>
<th>Contrast Scaled Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAI vs. AMI</td>
<td>121</td>
<td>100</td>
<td>8</td>
</tr>
<tr>
<td>VCI vs. AMI</td>
<td>120</td>
<td>100</td>
<td>7</td>
</tr>
<tr>
<td>WMI vs. AMI</td>
<td>95</td>
<td>100</td>
<td>10</td>
</tr>
</tbody>
</table>

- Seven’s ability to recall information presented orally is below what would be expected, given his general intellectual ability (GAI = 121; AMI = 100). However, such a difference is not rare in general and may not be noticeable to those close to him.
- Seven’s ability to recall information presented orally is in the Average range when compared to others with similar general intellectual ability (25th percentile). There is no significant difference between his auditory memory and general intellectual functioning (GAI vs. AMI Contrast Scaled Score = 8).

- Seven’s ability to recall information presented orally is in the Low Average range when compared to others with similar verbal comprehension (16th percentile). His auditory memory is lower than expected, given his level of verbal comprehension (VCI vs. AMI Contrast Scaled Score = 7).
- Seven’s ability to recall orally presented information is in the Average range when compared to others with similar auditory working memory capacity (50th percentile). There is no significant difference between his auditory memory and auditory working memory (WMI vs. AMI Contrast Scaled Score = 10).
Auditory Forgetting and Retrieval

Subtest-Level Contrast Scaled Scores indicate:

- Seven has relatively good delayed recall, given his initial level of recall.
- On LM, he demonstrated better free recall than recognition for story details. This is unusual, because most individuals perform better when asked specific questions about a story than when asked to recall story details with no cues.

WMS-IV Scores: VWMI

<table>
<thead>
<tr>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
### Ability-Memory Analysis: VWMI

#### Contrast Scores Indicate:
- There is no significant difference between visual working memory and general intellectual functioning (GAI vs. VWMI Contrast Scaled Score = 10) or between working memory capacity for visual information and perceptual reasoning ability (PRI vs. VWMI Contrast Scaled Score = 10).
- Working memory capacity for visual information is somewhat better than expected, given working memory capacity for orally presented information (WMI vs. VWMI Contrast Scaled Score = 13).

### AMI: Strengths and Needs

- LM – relative strength; VPA – relative weakness.
- The clinical relevance of this score variability should be addressed in terms of Seven’s
  - premorbid abilities,
  - demands in his current environment, and other co-occurring physical factors (e.g.,
    recent onset of auditory acuity difficulties or physical impairments) or
  - emotional status (e.g., depression, anxiety).
WMS-IV Clinical Studies: ADHD

<table>
<thead>
<tr>
<th>WMS-IV Index</th>
<th>Clinical Mean</th>
<th>Control Mean</th>
<th>Mean Diff.</th>
<th>p value</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMI</td>
<td>96.1</td>
<td>102.4</td>
<td>6.25</td>
<td>.05</td>
<td>0.43</td>
</tr>
<tr>
<td>VMI</td>
<td>96.8</td>
<td>106.9</td>
<td>10.10</td>
<td>&lt;.01</td>
<td>0.77</td>
</tr>
<tr>
<td>VWMi</td>
<td>98.3</td>
<td>100.3</td>
<td>2.00</td>
<td>.57</td>
<td>0.13</td>
</tr>
<tr>
<td>IMI</td>
<td>95.1</td>
<td>104.1</td>
<td>8.97</td>
<td>&lt;.01</td>
<td>0.67</td>
</tr>
<tr>
<td>DMI</td>
<td>97.5</td>
<td>106.9</td>
<td>0.47</td>
<td>&lt;.01</td>
<td>0.67</td>
</tr>
<tr>
<td>GAI</td>
<td>103.8</td>
<td>103.4</td>
<td>-0.45</td>
<td>.88</td>
<td>-0.03</td>
</tr>
</tbody>
</table>

n = 33 (ages 18-29)

Recommendations

- Seven shows numerous characteristics of attention deficit-hyperactivity disorder; therefore it is recommended that he be medically evaluated. Medication, combined with counseling and home/school interventions, is usually very effective in alleviating the symptoms of this condition.
- It is recommended that Seven be screened by a neuropsychologist to rule out any neurological factors that might underlie his attention and learning difficulties.

Recommendations

Seven may benefit from the following instructional strategies to assist in his attentional difficulties:
- providing outlines, key concepts, and vocabulary prior to lesson preparation;
- breaking lessons into smaller parts and/or increasing the pace of lessons;
- actively involving him in lesson presentation; and
- emphasizing key concepts and material by explicitly attending to them.
Recommendations

- Seven may benefit from using associative linkages when encoding information. By linking new information to what has been previously learned, he may be able to gain a more global understanding of the information and improve recall.
- When Seven first encounters new information, he should link it in as many ways as possible to already known information. This strategy creates several avenues for remembering the information later.

Recommendations

- Tests for Seven should be structured so that they require recognition rather than recall of information. They should be structured in multiple choice or other selected-response formats, rather than in extended short-answer and essay. Test formats such as these will assist him in retrieving previously learned information.
- Seven should be encouraged to use a "memory book" that would include information such as his daily schedule; important names, addresses, and phone numbers.

Summary

- Interpretation should always consider the individual’s functional environment.
- Identify the abilities that are necessary for an individual to respond effectively to the demands of the environment.
- Identify the individual’s abilities.
- The difference between required abilities and the individual’s abilities will direct clinician to interventions.
References


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1-800-211-8378 (USA)
1-866-335-8418 (Canada)

Webinar-Specific Questions
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