

Interpretive Report of WAIS-IV and WMS-IV Testing

Examinee and Testing Information

| | | | |
|-------------------|--|--------------------|-------------------|
| Examinee Name | Sample Examinee | Date of Report | 7/1/2009 |
| Examinee ID | 12345 | Years of Education | 11 |
| Date of Birth | 3/24/1988 | Home Language | English |
| Gender | Male | Handedness | Right |
| Race/Ethnicity | White | Examiner Name | Sample Examiner |
| Test Administered | WAIS-IV (6/23/2009) | Age at Testing | 21 years 2 months |
| | WMS-IV (6/23/2009) | | 21 years 2 months |
| Retest? | No | | No |
| WAIS-IV Comments | Sample Comments. | | |
| WMS-IV Comments | The Examinee attended the session alone and was cooperative and gave his best effort during testing. | | |

Purpose for Evaluation

Sample was referred for an evaluation by Sample Referral, his counselor, secondary to School-Related difficulties specifically related to learning and attention.

Background

Sample is a 21-year-old single male who lives alone.

Sample completed the 11th grade.

Sample has a current diagnosis of ADHD and is currently being treated with medication. In addition to his current treatment, he has previously been treated with medication.

Sample has no major medical problems.

Sample is currently employed full-time as a(n) construction worker. It is reported that his work performance is unsatisfactory.

Test Session Behavior: WAIS-IV

Sample arrived on time for the test session unaccompanied. His appearance was neat. He was oriented to person, place, time and situation.

Sample exhibited difficulties with attention during testing which may have had a minimal effect on his ability to attend to the tasks and thus negatively affected his overall performance.

Test Session Behavior: WMS-IV

Sample arrived on time for the test session unaccompanied. His appearance was neat.

Interpretation of WAIS-IV Results

General Intellectual Ability

Sample's unique set of thinking and reasoning abilities make his overall intellectual functioning difficult to summarize by a single score on the Wechsler Adult Intelligence Scale-Fourth Edition (WAIS-IV). His nonverbal reasoning abilities are much better developed than his verbal reasoning abilities. Processing complex visual information by forming spatial images of part-whole relationships and/or by manipulating the parts to solve novel problems without using words is a strength. Making sense of complex verbal information and using verbal abilities to solve novel problems are less developed abilities for Sample.

Verbal Comprehension

Sample's verbal reasoning abilities as measured by the Verbal Comprehension Index (VCI) are in the average range and above those of approximately 68% of his peers (VCI = 107; 95% confidence interval = 101-112). The VCI is designed to measure verbal reasoning and concept formation. Sample performed comparably on the verbal subtests contributing to the VCI, suggesting that the various verbal cognitive abilities measured by these subtests are similarly developed. Furthermore, he may experience little or no difficulty in keeping up with his peers in situations that require verbal skills.

Perceptual Reasoning

Sample's nonverbal reasoning abilities as measured by the Perceptual Reasoning Index (PRI) are in the superior range and above those of approximately 94% of his peers (PRI = 123; 95% confidence interval = 116-128). The PRI is designed to measure fluid reasoning in the perceptual domain with tasks that assess nonverbal concept formation, visual perception and organization, visual-motor coordination, learning, and the ability to separate figure and ground in visual stimuli. Sample presents a diverse set of nonverbal abilities, performing much better on some nonverbal tasks than others. The degree of variability is unusual for individuals his age and may be noticeable to those who know him well. Sample performed much better on the Block Design subtest when speed of performance is considered (Block Design = 16; Block Design No Time Bonus = 14). This variability is quite unusual in general, and worthy of further investigation.

Sample's performance was significantly better on the Visual Puzzles and Block Design subtests than his own mean score. Furthermore, he performed much better than most of his peers, thus demonstrating very strong abilities on the Visual Puzzles and Block Design subtests.

The Block Design subtest required Sample to use two-color cubes to construct replicas of two-dimensional, geometric patterns. This subtest assesses nonverbal fluid reasoning and the ability to mentally organize visual information. More specifically, this subtest assesses his ability to analyze part-whole relationships when information is presented spatially. Performance on this task also may be influenced by visual-spatial perception and visual perception-fine motor coordination, as well as planning ability (Block Design scaled score = 16). The Visual Puzzles subtest required Sample to view a completed puzzle and select three response options that, when combined, reconstruct the puzzle, and

do so within a specified time limit. This subtest is designed to measure nonverbal reasoning and the ability to analyze and synthesize abstract visual stimuli. Performance on this task also may be influenced by visual perception, broad visual intelligence, fluid intelligence, simultaneous processing, spatial visualization and manipulation, and the ability to anticipate relationships among parts (Visual Puzzles scaled score = 15).

Working Memory

Sample's ability to sustain attention, concentrate, and exert mental control is in the average range. He performed better than approximately 30% of his peers in this area (Working Memory Index (WMI) = 92; 95% confidence interval 86-99).

Sample's abilities to sustain attention, concentrate, and exert mental control are a weakness relative to his nonverbal and verbal reasoning abilities. A relative weakness in mental control may make the processing of complex information more time-consuming for Sample, 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. Sample was referred for this evaluation because it is suspected that he may have attention difficulties. His score profile is consistent with this possibility. The pattern of weaker performance on mental control and processing speed tasks than on reasoning tasks occurs more often among individuals with attention deficits and hyperactive behavior than among those without these difficulties.

Processing Speed

Sample's ability in processing simple or routine visual material without making errors is in the low average range when compared to his peers. He performed better than approximately 14% of his peers on the processing speed tasks (Processing Speed Index [PSI] = 84; 95% confidence interval 77-94). Processing visual material quickly is an ability that Sample performs poorly as compared to his verbal and nonverbal reasoning ability. Processing speed is an indication of the rapidity with which Sample can mentally process simple or routine information without making errors. Because learning often involves a combination of routine information processing (such as reading) and complex information processing (such as reasoning), a weakness in the speed of processing routine information may make the task of comprehending novel information more time-consuming and difficult for Sample. Thus, this weakness in simple visual scanning and tracking may leave him less time and mental energy for the complex task of understanding new material. The learning difficulty noticed by Sample's counselor may be related to his lower mental control and processing speed abilities. This pattern of mental control and visual processing speed abilities that are both less developed than the individual's reasoning ability is more common among individuals with learning disabilities than among those without such disabilities.

Summary

Sample was referred for an evaluation by Sample Referral, his counselor, secondary to School-Related difficulties specifically related to learning and attention. Sample is a 21-year-old male who completed the WAIS-IV. His overall cognitive ability, as evaluated by the WAIS-IV, cannot easily be summarized because his nonverbal reasoning abilities are much better developed than his verbal reasoning abilities. Sample's reasoning abilities on verbal tasks are generally in the average range (VCI = 107), while his nonverbal reasoning abilities are significantly higher and in the superior range (PRI = 123). This pattern of scores is consistent with the learning difficulties noted by Sample's counselor. Sample's ability to sustain attention, concentrate, and exert mental control is in the average

range (WMI = 92). Sample's ability in processing simple or routine visual material without making errors is in the low average range when compared to his peers (PSI = 84).

Interpretation of WMS-IV Results

Sample was administered 10 subtests of the Adult battery of the Wechsler Memory Scale-Fourth Edition (WMS-IV), from which his index scores were derived. He was also administered the Brief Cognitive Status Exam (BCSE), an optional procedure measuring global cognitive functioning. Sample's scores on the WMS-IV indexes are discussed in the following sections of this report, as are discrepancies in performance across different modalities and categories of memory processes. In addition, specific strengths and deficits within modalities are discussed.

When interpreting performance on the WMS-IV, it is important to take into consideration factors that may have contributed to Sample's test performance, such as difficulties with vision, hearing, motor functioning, English language proficiency, and speech/language functioning. In addition, personal factors, such as physical illness, fatigue, headache, or factors specific to the testing session such as distractions or a lack of motivation, can affect performance on any given day. According to the information provided, Sample's performance may have been affected by the following issue. He experienced difficulties paying attention during testing, which may have diminished his concentration and ability to attend to instructions and stimuli and appeared to have a minimal effect on his overall performance.

Brief Cognitive Status Exam

The Brief Cognitive Status Exam (BCSE) evaluates basic cognitive functions through tasks that assess orientation to time, incidental recall, mental control, planning/visual perceptual processing, inhibitory control, and verbal productivity. Sample's global cognitive functioning, as measured by the BCSE, was in the Average range, compared to others, ages 16 to 29, with a similar educational background. This classification level represents 25-100% of cases within his age and education group. Functioning in this range is not typically associated with global impairments in cognitive functioning.

Auditory Memory

The Auditory Memory Index (AMI) is a measure of Sample's ability to listen to oral information, repeat it immediately, and then recall the information after a 20 to 30 minute delay. Compared to other individuals his age, Sample's auditory memory capacity is in the High Average range (AMI = 115, 95% Confidence Interval = 108-120) and exceeds that of approximately 84 percent of individuals in his age group. However, it is important to note that the severe attention difficulties that Sample appeared to experience during the assessment are suspected of having had a minimal effect on his ability to fully express his auditory memory capacity. In spite of these observed difficulties, Sample performed in the High Average range, and his scores in this area may have been even higher in the absence of these difficulties.

The interpretation of Sample's AMI score should account for the significant inconsistency in performance on specific measures within this domain. A closer look at these subtests is warranted. Within auditory memory, Sample exhibited a strength on the Logical Memory II subtest. At the same time, he displayed a relative weakness on the Verbal Paired Associates I subtest and a relative weakness on the Verbal Paired Associates II subtest. On Logical Memory II, Sample was asked to recall specific details of information presented orally in a story format in a single exposure after a 20

to 30 minute delay. This subtest measures the ability to recall verbal information that is conceptually organized and semantically related after a delay (Logical Memory II scaled score = 16). Verbal Paired Associates I required Sample to recall novel and semantically related word pairs. This subtest measures immediate learning of verbal associations over multiple exposures (Verbal Paired Associates I scaled score = 10). On Verbal Paired Associates II, Sample was required to recall novel and semantically related word pairs after a 20 to 30 minute delay. This subtest provides a measure of delayed cued recall for word associations (Verbal Paired Associates II scaled score = 9).

To determine if Sample's auditory memory capacity is consistent with his general intellectual ability, a comparison between his GAI and AMI index scores is recommended. Sample's performance on the GAI and AMI indicate that his ability to recall information presented orally is comparable to his level of general intellectual ability (GAI = 117; AMI = 115). Sample's ability to recall information presented orally is in the High Average range when compared others with similar general intellectual ability (75th percentile). This result indicates no significant difference between his auditory memory and general intellectual functioning (GAI vs. AMI Contrast Scaled Score = 12).

Sample's ability to recall information presented orally is in the High Average range when compared to others with similar verbal comprehension (84th percentile). This result indicates that his auditory memory is somewhat better than expected, given his level of verbal comprehension (VCI vs. AMI Contrast Scaled Score = 13).

Sample's ability to recall orally presented information is in the Superior range when compared to others with similar auditory working memory capacity (91st percentile). This result indicates that his auditory memory is much better than expected, given his level of auditory working memory (WMI vs. AMI Contrast Scaled Score = 14).

Visual Memory

On the Visual Memory Index (VMI), a measure of memory for visual details and spatial location, Sample performed in the Average range (VMI = 95, 95% Confidence Interval = 90-101). Sample's visual memory capacity exceeds that of approximately 37 percent of individuals in his age group. However, it is important to note that the attention difficulties that Sample appeared to experience during the assessment are suspected of having had a minimal effect on his ability to fully express his visual memory capacity. In spite of these observed difficulties, Sample performed in the Average range, and his scores in this area may have been even higher in the absence of these difficulties.

The interpretation of Sample's VMI score should account for the significant inconsistency in performance on specific measures within this domain. A closer look at these subtests is warranted. Within visual memory, Sample exhibited a strength on the Visual Reproduction II subtest. However, he displayed a weakness on the Designs I subtest.

On Designs I Sample was required to recall designs and their locations in a grid immediately after seeing them. This subtest measures spatial recall and memory for visual details (Designs I scaled score = 5). Visual Reproduction II required Sample to recall designs viewed and drawn 20 to 30 minutes earlier, without any visual cues. This subtest measures the ability to freely recall and reproduce visual information, without prompting, after a delay (Visual Reproduction II scaled score = 14).

To determine if Sample's visual memory function is consistent with his general intellectual ability, a comparison between his performance on the VMI and GAI is recommended. Sample's ability to recall

information presented visually is significantly lower than expected when compared to his general intellectual ability (GAI = 117; VMI = 95). Furthermore, such difference is rare and may be noticeable to those close to him. Sample's ability to recall orally presented information is in the Low Average range when compared to others with similar general intellectual functioning (9th percentile). This result indicates that his visual memory is lower than expected, given his level of general intellectual functioning (GAI vs. VMI Contrast Scaled Score = 6).

Sample's ability to recall information presented orally is in the Borderline range when compared to others with similar perceptual reasoning ability (5th percentile). This result indicates that his visual memory is much lower than expected, given his level of perceptual reasoning ability (PRI vs. VMI Contrast Scaled Score = 5).

Modality-Specific Memory Strengths and Weaknesses

Some individuals are better at recalling visual information than recalling auditory information, while for others the reverse is true. Compared to individuals with similar auditory memory capacity, Sample's visual memory performance is in the Average range (25th percentile), indicating no significant difference between his levels of visual and auditory memory functioning. The interpretation of Sample's modality-specific memory strengths and weaknesses should take into account the previously mentioned difficulties which may have affected his performance.

Visual Working Memory

On the Visual Working Memory Index (VWMI), a measure of his ability to temporarily hold and manipulate spatial locations and visual details, Sample performed in the Average range (VWMI = 94, 95% Confidence Interval = 87-102). Sample's visual working memory ability exceeds that of approximately 34 percent of individuals in his age group. However, it is important to note that the attention difficulties that Sample appeared to experience during the assessment are suspected of having had a minimal effect on his ability to fully express his visual working memory capacity. In spite of these observed difficulties, Sample performed in the High Average range, and his scores in this area may have been even higher in the absence of these difficulties.

Sample's performance on the Symbol Span subtest was significantly better than his performance on the Spatial Addition subtest, suggesting that his profile of memory functioning within visual working memory exhibits significant variability. Therefore, a closer look at these two subtests is warranted. On Spatial Addition, Sample was shown patterns of blue and red circles on two grids presented consecutively. He was then required to place cards with different colored circles in a grid according to a set of rules, based on the grids that he had been shown. This subtest measures spatial working memory and requires storage, manipulation, and the ability to ignore competing stimuli (Spatial Addition scaled score = 6). Symbol Span required Sample to identify a series of novel symbols, in order from left to right, immediately after seeing the symbols in their correct order. This subtest measures the capacity to keep a mental image of a symbol and its relative spatial position on the page in mind (Symbol Span scaled score = 12).

To determine if Sample's working memory capacity for visual information is consistent with his general intellectual ability, a comparison between his performance on the VWMI and GAI is recommended. Sample's working memory capacity for visual information is significantly lower than expected, given his general intellectual ability (GAI = 117; VWMI = 94). Furthermore, such difference is rare and may be noticeable to those close to him. Sample's working memory capacity for

visual information is in the Low Average range when compared to others with similar general intellectual functioning (9th percentile). This result indicates that his working memory capacity for visual information is lower than expected, given his level of general intellectual functioning (GAI vs. VWMI Contrast Scaled Score = 6).

Sample's working memory capacity for visual information is in the Borderline range when compared to others of similar perceptual reasoning ability (5th percentile). This result indicates that his working memory capacity for visual information is much lower than expected, given his level of perceptual reasoning ability (PRI vs. VMI Contrast Scaled Score = 5).

To determine if Sample's auditor working memory function is consistent with his visual working memory ability, a comparison between his WMI and VWMI index scores is recommended. Sample's working memory capacity for visual information is in the Average range when compared to others with similar auditory working memory capacity (50th percentile). This result suggests that there is no significant difference between his working memory capacity for visually or orally presented information (WMI vs. VWMI Contrast Scaled Score = 10).

Specificity of Episodic Visual Memory Abilities Compared to Visual Working Memory Abilities

Comparing episodic visual memory to visual working memory performance can help determine the relative influence of visual memory on visual working memory (e.g., to determine if a low VMI score is due to deficits in visual working memory or to episodic visual memory deficits). Compared to individuals with similar visual working memory capacity, Sample's visual memory performance is in the Average range (50th percentile), indicating no significant difference between his levels of visual memory and visual working memory functioning.

Immediate and Delayed Memory

The Immediate Memory Index (IMI) is a measure of Sample's ability to recall verbal and visual information immediately after the stimuli is presented. Compared to other individuals his age, Sample's immediate memory capacity is in the Average range (IMI = 102, 95% Confidence Interval = 96-108) and exceeds that of approximately 55 percent of individuals in his age group. On the Delayed Memory Index (DMI), a measure of the ability to recall verbal and visual information after a 20 to 30 minute delay, Sample performed in the High Average range (DMI = 110, 95% Confidence Interval = 103-116). Sample's delayed memory capacity exceeds that of approximately 75 percent of individuals in his age group. However, it is important to note that the severe attention difficulties that Sample appeared to experience during the assessment are suspected of having had a minimal effect on his immediate and delayed memory functioning. In spite of these observed difficulties, Sample performed in the Average range of immediate memory functioning and in the High Average range of delayed memory functioning, and his scores in these areas may have been even higher in the absence of these difficulties.

The interpretation of Sample's IMI score should account for the significant inconsistency in performance on specific measures within this domain. A closer look at these subtests is warranted. Within immediate memory, Sample exhibited a strength on the Logical Memory I subtest. He displayed a weakness on the Designs I subtest. Logical Memory I required Sample to recall specific details of information presented orally in a story format after only a single exposure. This subtest

measures the ability to recall verbal information that is conceptually organized and semantically related immediately after hearing it (Logical Memory I scaled score = 15).

To determine if Sample's immediate memory recall ability is consistent with his general intellectual functioning, a comparison between his performance on the GAI and IMI is recommended. Sample's performance indicates that his ability to recall information immediately after its presentation is comparable to his level of general intellectual functioning (GAI = 117; IMI = 102). Sample's ability to recall information immediately after its presentation is in the Average range when compared to others of similar general intellectual functioning (25th percentile). This result suggests there is no significant difference between his immediate memory recall and general intellectual functioning (GAI vs. IMI Contrast Scaled Score = 8).

In order to determine if Sample's memory recall after a 20–30 minute delay is consistent with his general intellectual ability, a comparison between his GAI and DMI index scores is recommended. Sample's performance indicates that his ability to recall information after a delay is comparable to his level of general intellectual functioning (GAI = 117; DMI = 110). Sample's ability to recall information after a delay is in the Average range when compared to others of similar general intellectual ability (50th percentile). This result suggests there is no significant difference between his delayed memory recall and general intellectual functioning (GAI vs. DMI Contrast Scaled Score = 10).

Retention of Information

Some individuals lose information between immediate and delayed recall, while others actually improve their memory performance over time. The overall amount of forgetting and consolidation that occurred between the immediate and delayed tasks is indicated by the level of Sample's delayed memory performance given his immediate memory performance. Compared to individuals with a similar level of immediate memory capacity, Sample's delayed memory performance is in the High Average range (84th percentile), indicating that his delayed memory is somewhat better than expected, given his level of initial encoding.

Specific Auditory Memory Abilities

Auditory Process Scores

On a measure of his ability to answer specific questions about details from a previously heard story, Sample performed in the high average range (LM II Recognition cumulative percentage = >75%). Sample performed in the extremely low range on a measure of his ability to identify previously presented word associations (VPA II Recognition cumulative percentage = ≤2%). When asked to recall as many words as he could remember from a previously presented list of word pairs, without being required to correctly associate the words, Sample performed in the average range (VPA II Word Recall scaled score = 8).

Auditory Forgetting and Retrieval Scores

The degree to which Sample may benefit from story details being presented in a recognition format instead of a free recall format can be determined by comparing his delayed cued recall performance to that of individuals with a similar level of recognition memory (LM II Recognition vs. Delayed Recall contrast scaled score = 16). This comparison suggests that Sample may have 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. The degree to which Sample forgot the story details he learned during the immediate condition of Logical Memory I can be determined by comparing his delayed recall performance to that of others with a similar level of immediate recall (LM II Immediate Recall vs. Delayed Recall contrast scaled score = 13). This comparison indicates that Sample has relatively good delayed recall, given his initial level of recall.

The degree to which Sample may benefit from word associations being presented in recognition format versus cued recall can be determined by comparing his delayed cued recall performance to that of individuals with a similar level of recognition memory (VPA II Recognition vs. Delayed Recall contrast scaled score = 16). Based on this comparison, Sample's cued recall for word associations may be better than his recognition memory. This is unusual, and suggests that for Sample, the recognition format may interfere with memory retrieval. The degree to which Sample forgot the word associations he learned during immediate recall of Verbal Paired Associates I can be determined by comparing his delayed recall performance to that of others with a similar level of immediate recall (VPA II Immediate Recall vs. Delayed Recall contrast scaled score = 8). This comparison indicates that Sample is able to recall cued word associations after a delay as well as expected, given his level of immediate recall.

Specific Visual Memory Abilities

Visual Process Scores

Sample's immediate and delayed memory for visual details are both below average, suggesting that he may have general difficulties recalling specific visual information when compared to individuals his age (DE I Content scaled score = 4, DE II Content scaled score = 7). When required to recall designs and their locations in a grid, Sample's immediate and delayed memory for the locations of cards placed in the grid, regardless of his ability to recall the visual details of the cards, are both below average, suggesting that he may have general difficulty recalling spatial locations when compared to individuals his age (DE I Spatial scaled score = 3, DE II Spatial scaled score = 7). On a measure of his ability to recognize designs previously presented and the correct locations for the designs, Sample performed in the high average range when compared to others his age (DE II Recognition cumulative percentage = >75%).

When required to simply copy designs as he looked at them, Sample was able to perform the task as well as or better than 3-9% percent of individuals his age. It should be noted that Sample's performance on the memory portions of the Visual Reproduction subtest may be confounded by his poor copying ability.

Visual Forgetting and Retrieval Scores

Sample's immediate recall of visual details is below average when compared to others with similar levels of immediate spatial memory ability. His delayed recall of visual details is average when compared to others with similar levels of delayed spatial memory ability. Sample's level of free recall for visual details and spatial locations relative to his recognition memory for this visual information can be determined by comparing his delayed recall performance to that of individuals with a similar level of recognition memory (DE II Recognition vs. Delayed Recall contrast scaled score = 5). This comparison indicates that his free recall for visual information is lower than expected, given his recognition memory. The degree to which Sample forgot the visual details and spatial locations he

learned during the immediate condition of the Designs subtest can be determined by comparing his delayed recall performance to that of individuals with a similar level of immediate memory (DE Immediate Recall vs. Delayed Recall contrast scaled score = 11). Based on this comparison, Sample is able to recall visual details and spatial locations after a delay as well as expected, given his level of immediate recall.

When compared to others with a similar level of simple copying ability, Sample's ability to immediately recall and draw the details and relative spatial relationships among elements of a design is very good considering his level of copying ability (VR II Copy vs. Immediate Recall contrast scaled score = 15). The degree to which Sample forgot the details and relative spatial relationship among elements of the designs presented during the immediate recall of the Visual Reproduction subtest can be determined by comparing his ability to recall and draw the designs after a delay to that of individuals with a similar level of immediate ability (VR Immediate Recall vs. Delayed Recall contrast scaled score = 14). Based on this comparison, his delayed recall for this type of visual information is above average. This suggests that the interval between immediate and delayed recall may benefit Sample by providing time for him to consolidate his ability to recall and draw the designs.

Summary of WMS-IV Memory Abilities

Sample is a 21-year-old male who completed the WMS-IV. Sample was referred for an evaluation by Sample Referral, his counselor, secondary to School-Related difficulties specifically related to learning and attention. When reviewing Sample's results, it is important to keep in mind the previously noted factors that may have affected his test performance.

Sample was administered 10 subtests of the Adult battery of the WMS-IV. Sample's global cognitive functioning as measured by the BCSE was in the Average range, compared to others ages 16 to 29 and of a similar educational background. Sample's ability to listen to oral information and repeat it immediately, and then recall the information after a 20 to 30 minute delay is in the High Average range. His memory for visual details and spatial location is in the Average range. His ability to temporarily hold and manipulate spatial locations and visual details is in the Average range. Sample's ability to recall verbal and visual information immediately after the stimuli is presented is in the Average range. His ability to recall verbal and visual information after a 20 to 30 minute delay is in the High Average range. Sample displayed a notable amount of consolidation between the immediate and delayed tasks of the WMS-IV. Compared to individuals with a similar level of immediate memory capacity, Sample's delayed memory performance is in the High Average range, indicating that his delayed memory is somewhat better than expected given his level of initial encoding.

Summary of Intellectual and Memory Abilities

A comparison of Sample's auditory memory ability (AMI) to his results on WAIS-IV revealed that he performed within the expected range when compared to his general intellectual functioning. The adjustment of Sample's AMI result by his verbal comprehension ability generated a contrast scaled score in the High Average range, indicating that his auditory memory is somewhat better than expected. The adjustment of Sample's AMI result by his working memory ability (WMI) generated a contrast scaled score in the Superior range, indicating that his auditory memory is much better than expected.

A comparison of Sample's visual memory (VMI) to his results on WAIS-IV revealed that he performed significantly outside the expected range when compared to his general intellectual

functioning. The adjustment of Sample's VMI result by his general intellectual ability (GAI) generated a contrast scaled score in the Low Average range, indicating that his visual memory is lower than expected. The adjustment of Sample's VMI result by his perceptual reasoning (PRI) generated a contrast scaled score is in the Borderline range, indicating that his visual memory is much lower than expected.

A comparison of Sample's visual working memory (VWMI) to his results on WAIS-IV revealed that he performed significantly outside the expected range when compared to his general intellectual functioning. The adjustment of Sample's VWMI results by his general intellectual ability generated a contrast scaled score is in the High Average range, indicating that his visual working memory is lower than expected. The adjustment of Sample's VWMI result by his perceptual reasoning ability (PRI) generated a contrast scaled score in the Borderline range, indicating that his visual working memory is much lower than expected.

A comparison of Sample's immediate memory recall (IMI) to his results on WAIS-IV revealed that he performed within the expected range when compared to his general intellectual functioning. A comparison of Sample's delayed memory recall (DMI) to his results on the WAIS-IV revealed that he performed within the expected range when compared to his general intellectual functioning.

Recommendations

Sample is encouraged to study or work in an area with few visual and auditory distractions.

Provide Sample with a mixture of tasks that are of both high- and low-interest to him.

This report is valid only if signed by a qualified professional:

Score Report

WAIS-IV Results

Composite Score Summary

| Scale | Sum of Scaled Scores | Composite Score | Percentile Rank | 95% Confidence Interval | Qualitative Description |
|----------------------|----------------------|-----------------|-----------------|-------------------------|-------------------------|
| Verbal Comprehension | 34 | VCI 107 | 68 | 101-112 | Average |
| Perceptual Reasoning | 42 | PRI 123 | 94 | 116-128 | Superior |
| Working Memory | 17 | WMI 92 | 30 | 86-99 | Average |
| Processing Speed | 14 | PSI 84 | 14 | 77-94 | Low Average |
| Full Scale | 107 | FSIQ 104 | 61 | 100-108 | Average |
| General Ability | 76 | GAI 117 | 87 | 112-121 | High Average |

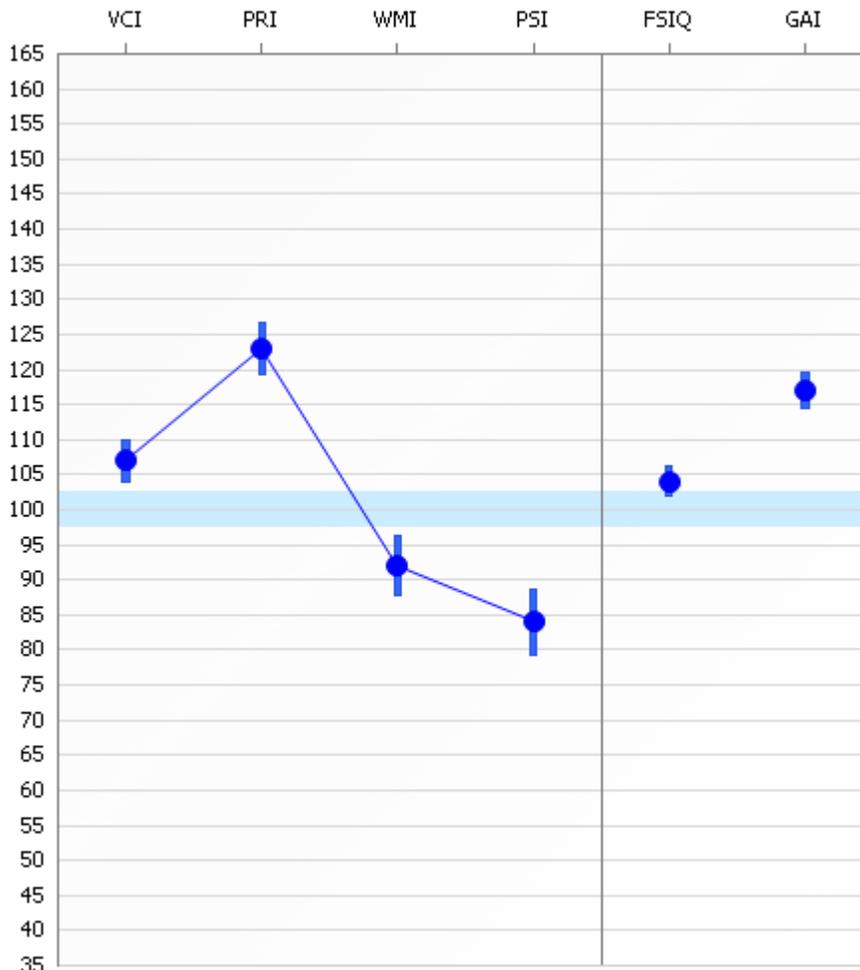
Confidence Intervals are based on the Overall Average SEMs. Values reported in the SEM column are based on the examinee's age.

The GAI is an optional composite summary score that is less sensitive to the influence of working memory and processing speed. Because working memory and processing speed are vital to a comprehensive evaluation of cognitive ability, it should be noted that the GAI does not have the breadth of construct coverage as the FSIQ.

Composite Score Profile

Composite Scores and Standard Error of Measurement

| Composite | Score | SEM |
|-----------|-------|------|
| VCI | 107 | 3 |
| PRI | 123 | 3.67 |
| WMI | 92 | 4.24 |
| PSI | 84 | 4.74 |
| FSIQ | 104 | 2.12 |
| GAI | 117 | 2.6 |



The vertical bars represent the standard error of measurement (*SEM*).

Index Level Discrepancy Comparisons

| Comparison | Score 1 | Score 2 | Difference | Critical Value .05 | Significant Difference Y / N | Base Rate Overall Sample |
|------------|---------|---------|------------|--------------------|------------------------------|--------------------------|
| VCI - PRI | 107 | 123 | -16 | 9.29 | Y | 11.9 |
| VCI - WMI | 107 | 92 | 15 | 10.18 | Y | 12.2 |
| VCI - PSI | 107 | 84 | 23 | 10.99 | Y | 8 |
| PRI - WMI | 123 | 92 | 31 | 10.99 | Y | 1.3 |
| PRI - PSI | 123 | 84 | 39 | 11.75 | Y | 0.6 |
| WMI - PSI | 92 | 84 | 8 | 12.46 | N | 30.1 |
| FSIQ - GAI | 104 | 117 | -13 | 3.5 | Y | 0.4 |

Base rate by overall sample.

Statistical significance (critical value) at the .05 level.

Verbal Comprehension Subtests Summary

| Subtest | Raw Score | Scaled Score | Percentile Rank | Reference Group Scaled Score | SEM |
|--------------|-----------|--------------|-----------------|------------------------------|------|
| Similarities | 24 | 10 | 50 | 10 | 1.16 |
| Vocabulary | 39 | 12 | 75 | 11 | 0.73 |
| Information | 16 | 12 | 75 | 12 | 0.9 |

Perceptual Reasoning Subtests Summary

| Subtest | Raw Score | Scaled Score | Percentile Rank | Reference Group Scaled Score | SEM |
|------------------|-----------|--------------|-----------------|------------------------------|------|
| Block Design | 63 | 16 | 98 | 16 | 1.2 |
| Matrix Reasoning | 21 | 11 | 63 | 12 | 1.04 |
| Visual Puzzles | 23 | 15 | 95 | 15 | 0.95 |
| (Figure Weights) | 21 | 13 | 84 | 13 | 1.04 |

Working Memory Subtests Summary

| Subtest | Raw Score | Scaled Score | Percentile Rank | Reference Group Scaled Score | SEM |
|------------|-----------|--------------|-----------------|------------------------------|-----|
| Digit Span | 24 | 8 | 25 | 8 | 0.9 |
| Arithmetic | 13 | 9 | 37 | 9 | 1.2 |

Processing Speed Subtests Summary

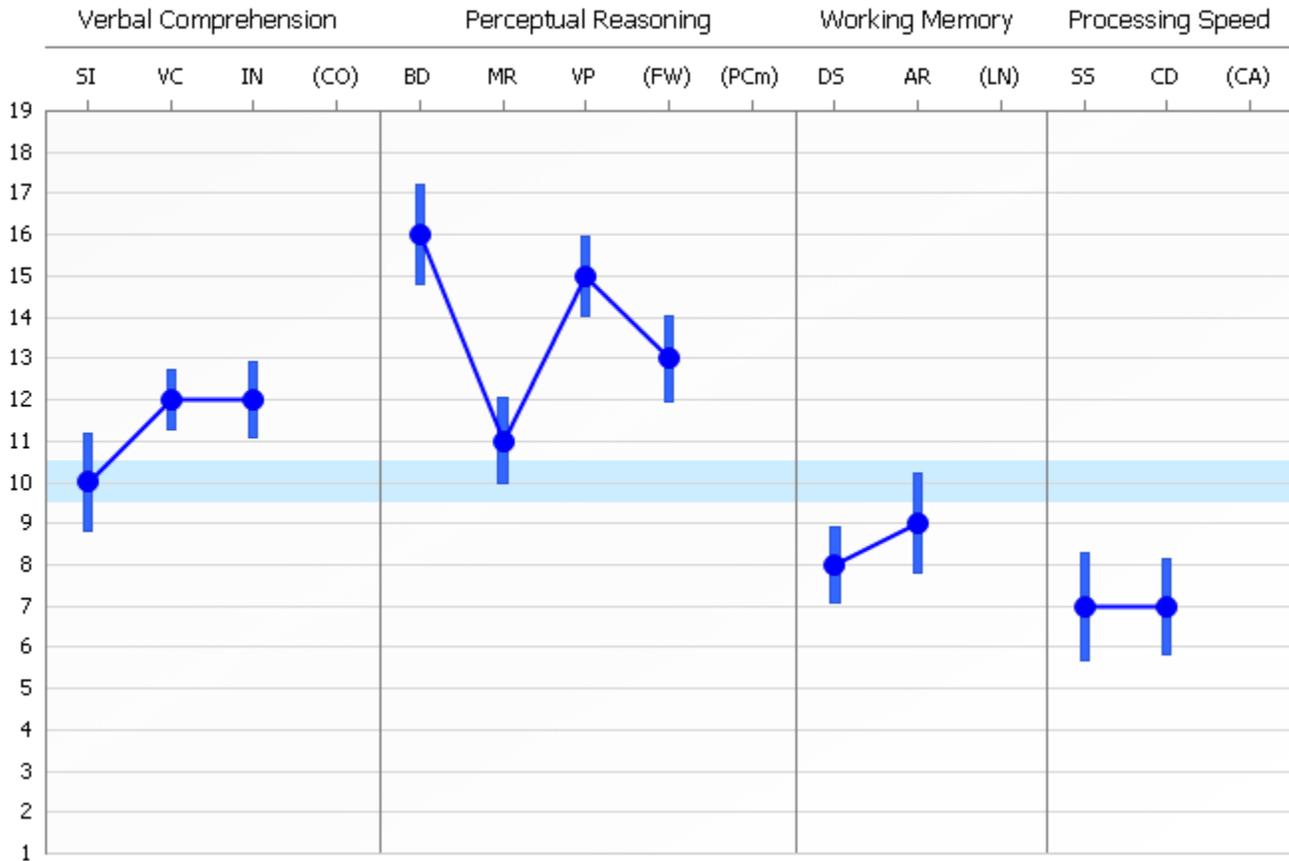
| Subtest | Raw Score | Scaled Score | Percentile Rank | Reference Group Scaled Score | SEM |
|---------------|-----------|--------------|-----------------|------------------------------|------|
| Symbol Search | 26 | 7 | 16 | 7 | 1.31 |
| Coding | 53 | 7 | 16 | 7 | 1.16 |

Subtest Level Discrepancy Comparisons

| Subtest Comparison | Score 1 | Score 2 | Difference | Critical Value .05 | Significant Difference Y / N | Base Rate |
|-------------------------|---------|---------|------------|-----------------------|------------------------------------|--------------|
| Digit Span - Arithmetic | 8 | 9 | -1 | 2.57 | N | 42.2 |
| Symbol Search - Coding | 7 | 7 | 0 | 3.41 | N | |

Statistical significance (critical value) at the .05 level.

Subtest Scaled Score Profile



The vertical bars represent the standard error of measurement (SEM)

Determining Strengths and Weaknesses

Differences Between Subtest and Overall Mean of Subtest Scores

| Subtest | Subtest Scaled Score | Mean Scaled Score | Difference | Critical Value .05 | Strength or Weakness | Base Rate |
|------------------|----------------------|-------------------|------------|--------------------|----------------------|-----------|
| Block Design | 16 | 10.70 | 5.3 | 2.85 | S | 1-2% |
| Similarities | 10 | 10.70 | -0.7 | 2.82 | | >25% |
| Digit Span | 8 | 10.70 | -2.7 | 2.22 | W | 15-25% |
| Matrix Reasoning | 11 | 10.70 | 0.3 | 2.54 | | >25% |
| Vocabulary | 12 | 10.70 | 1.3 | 2.03 | | >25% |
| Arithmetic | 9 | 10.70 | -1.7 | 2.73 | | >25% |
| Symbol Search | 7 | 10.70 | -3.7 | 3.42 | W | 10-15% |
| Visual Puzzles | 15 | 10.70 | 4.3 | 2.71 | S | 5% |
| Information | 12 | 10.70 | 1.3 | 2.19 | | >25% |
| Coding | 7 | 10.70 | -3.7 | 2.97 | W | 10% |

Overall: Mean = 10.7, Scatter = 9, Base rate = 16.7.

Base Rate for Intersubtest Scatter is reported for 10 Full Scale Subtests.

Statistical significance (critical value) at the .05 level.

Perceptual Reasoning Process Score Summary

| Process Score | Raw Score | Scaled Score | Percentile Rank | SEM |
|----------------------------|-----------|--------------|-----------------|------|
| Block Design No Time Bonus | 48 | 14 | 91 | 1.31 |

Working Memory Process Score Summary

| Process Score | Raw Score | Scaled Score | Percentile Rank | Base Rate | SEM |
|-----------------------------|-----------|--------------|-----------------|-----------|------|
| Digit Span Forward | 10 | 9 | 37 | -- | 1.34 |
| Digit Span Backward | 8 | 9 | 37 | -- | 1.34 |
| Digit Span Sequencing | 6 | 6 | 9 | -- | 1.27 |
| Longest Digit Span Forward | 5 | -- | -- | 97.5 | -- |
| Longest Digit Span Backward | 4 | -- | -- | 92 | -- |
| Longest Digit Span Sequence | 3 | -- | -- | 98.5 | -- |

Process Level Discrepancy Comparisons

| Process Comparison | Score 1 | Score 2 | Difference | Critical Value .05 | Significant Difference Y / N | Base Rate |
|---|---------|---------|------------|-----------------------|------------------------------------|--------------|
| Block Design - Block Design No Time Bonus | 16 | 14 | 2 | 3.08 | N | 3.1 |
| Digit Span Forward - Digit Span Backward | 9 | 9 | 0 | 3.65 | N | |
| Digit Span Forward - Digit Span Sequencing | 9 | 6 | 3 | 3.6 | N | 21.1 |
| Digit Span Backward - Digit Span Sequencing | 9 | 6 | 3 | 3.56 | N | 20.5 |
| Longest DS Forward - Longest DS Backward | 5 | 4 | 1 | -- | -- | 83.5 |
| Longest DS Forward - Longest DS Sequence | 5 | 3 | 2 | -- | -- | 34.5 |
| Longest DS Backward - Longest DS Sequence | 4 | 3 | 1 | -- | -- | 15 |

Statistical significance (critical value) at the .05 level.

WMS-IV Results

Brief Cognitive Status Exam Classification

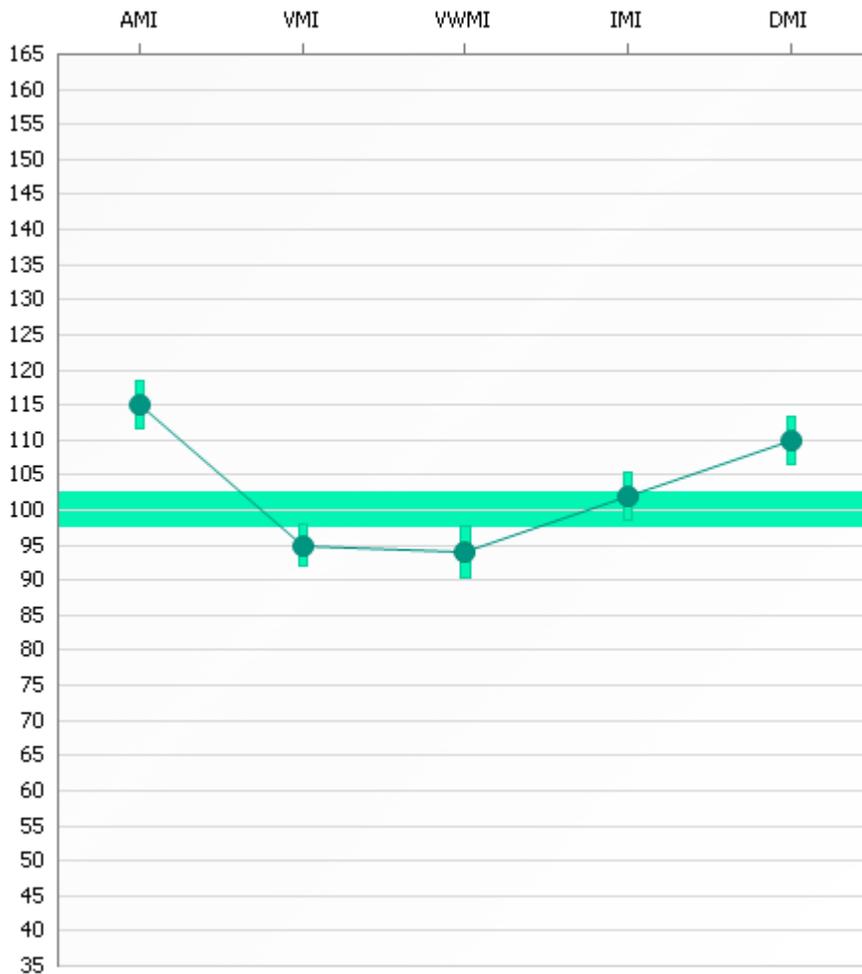
| Age | Years of Education | Raw Score | Classification Level | Base Rate |
|-------------------|--------------------|-----------|----------------------|-----------|
| 21 years 2 months | 11 | 53 | Average | 100.0 |

Index Score Summary

| Index | Sum of Scaled Scores | Index Score | Percentile Rank | 95% Confidence Interval | Qualitative Description |
|-----------------------|----------------------|-------------|-----------------|-------------------------|-------------------------|
| Auditory Memory | 50 | AMI 115 | 84 | 108-120 | High Average |
| Visual Memory | 37 | VMI 95 | 37 | 90-101 | Average |
| Visual Working Memory | 18 | VWMI 94 | 34 | 87-102 | Average |
| Immediate Memory | 41 | IMI 102 | 55 | 96-108 | Average |
| Delayed Memory | 46 | DMI 110 | 75 | 103-116 | High Average |

Index Score Profile

Index Scores and Standard Error of Measurement



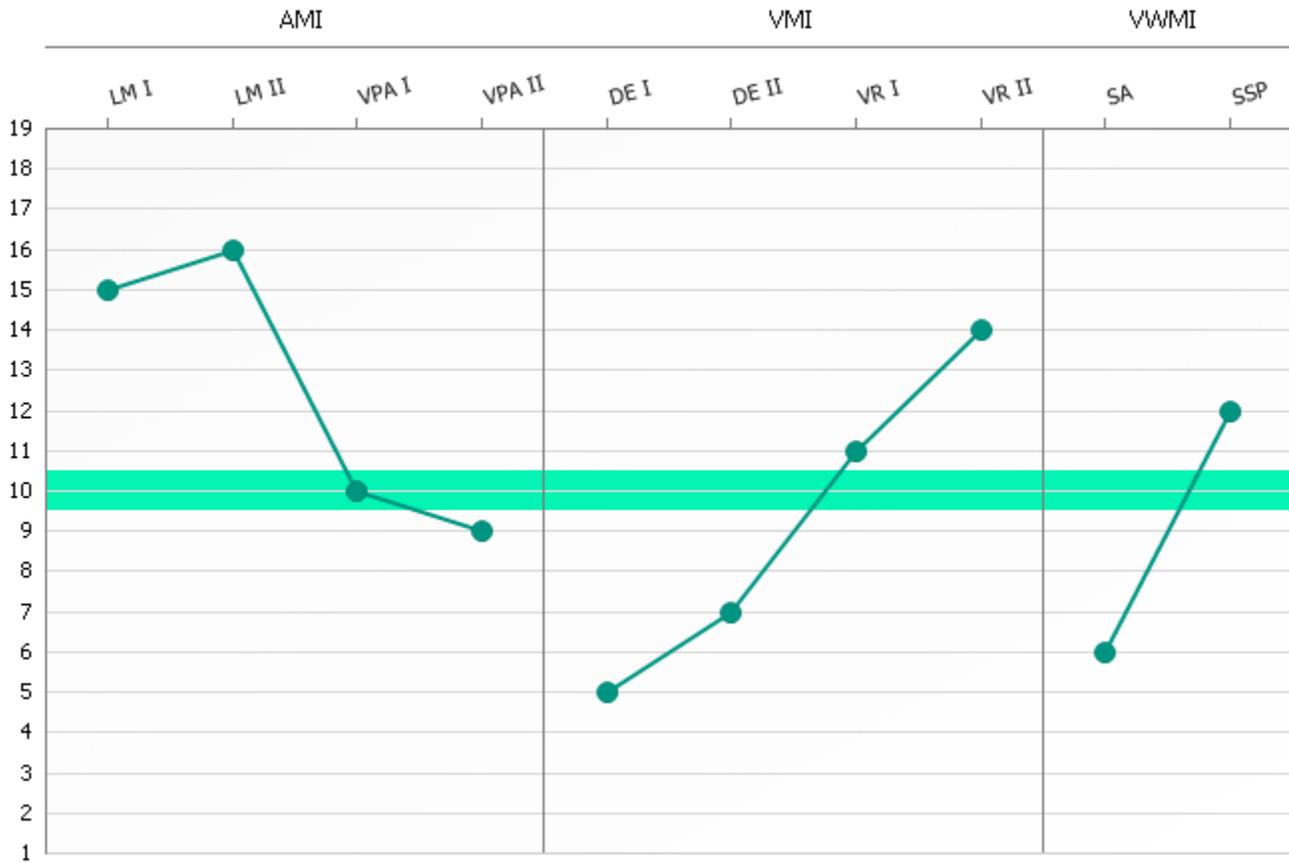
| Index | Score | SEM |
|-------|-------|------|
| AMI | 115 | 3.35 |
| VMI | 95 | 3 |
| VWMI | 94 | 3.67 |
| IMI | 102 | 3.35 |
| DMI | 110 | 3.35 |

The vertical bars represent the standard error of measurement (*SEM*).

Primary Subtest Scaled Score Summary

| Subtest | Domain | Raw Score | Scaled Score | Percentile Rank |
|-----------------------------|--------|-----------|--------------|-----------------|
| Logical Memory I | AM | 39 | 15 | 95 |
| Logical Memory II | AM | 39 | 16 | 98 |
| Verbal Paired Associates I | AM | 40 | 10 | 50 |
| Verbal Paired Associates II | AM | 11 | 9 | 37 |
| Designs I | VM | 53 | 5 | 5 |
| Designs II | VM | 52 | 7 | 16 |
| Visual Reproduction I | VM | 41 | 11 | 63 |
| Visual Reproduction II | VM | 40 | 14 | 91 |
| Spatial Addition | VWM | 10 | 6 | 9 |
| Symbol Span | VWM | 32 | 12 | 75 |

Primary Subtest Scaled Score Profile



Auditory Memory Process Score Summary

| Process Score | Raw Score | Scaled Score | Percentile Rank | Cumulative Percentage (Base Rate) |
|--------------------|-----------|--------------|-----------------|-----------------------------------|
| LM II Recognition | 29 | - | - | >75% |
| VPA II Recognition | 26 | - | - | ≤2% |
| VPA II Word Recall | 16 | 8 | 25 | - |

Visual Memory Process Score Summary

| Process Score | Raw Score | Scaled Score | Percentile Rank | Cumulative Percentage (Base Rate) |
|-------------------|-----------|--------------|-----------------|-----------------------------------|
| DE I Content | 26 | 4 | 2 | - |
| DE I Spatial | 9 | 3 | 1 | - |
| DE II Content | 30 | 7 | 16 | - |
| DE II Spatial | 10 | 7 | 16 | - |
| DE II Recognition | 21 | - | - | >75% |
| VR II Copy | 40 | - | - | 3-9% |

Auditory Memory Index

| Subtest | Scaled Score | AMI Mean | | Critical Value | Base Rate |
|-----------------------------|--------------|----------|----------------------|----------------|-----------|
| | | Score | Difference from Mean | | |
| Logical Memory I | 15 | 12.50 | 2.50 | 2.64 | 15% |
| Logical Memory II | 16 | 12.50 | 3.50 | 2.48 | 2-5% |
| Verbal Paired Associates I | 10 | 12.50 | -2.50 | 1.90 | 15% |
| Verbal Paired Associates II | 9 | 12.50 | -3.50 | 2.48 | 5% |

Statistical significance (critical value) at the .05 level.

Visual Memory Index

| Subtest | Scaled Score | VMI Mean | | Critical Value | Base Rate |
|------------------------|--------------|----------|----------------------|----------------|-----------|
| | | Score | Difference from Mean | | |
| Designs I | 5 | 9.25 | -4.25 | 2.38 | 2% |
| Designs II | 7 | 9.25 | -2.25 | 2.38 | 15-25% |
| Visual Reproduction I | 11 | 9.25 | 1.75 | 1.86 | >25% |
| Visual Reproduction II | 14 | 9.25 | 4.75 | 1.48 | 2-5% |

Statistical significance (critical value) at the .05 level.

Immediate Memory Index

| Subtest | Scaled Score | IMI Mean | | Critical Value | Base Rate |
|----------------------------|--------------|----------|----------------------|----------------|-----------|
| | | Score | Difference from Mean | | |
| Logical Memory I | 15 | 10.25 | 4.75 | 2.59 | 2-5% |
| Verbal Paired Associates I | 10 | 10.25 | -0.25 | 1.82 | >25% |
| Designs I | 5 | 10.25 | -5.25 | 2.42 | 1-2% |
| Visual Reproduction I | 11 | 10.25 | 0.75 | 1.91 | >25% |

Statistical significance (critical value) at the .05 level.

Delayed Memory Index

| Subtest | Scaled Score | DMI Mean | | Critical Value | Base Rate |
|-----------------------------|--------------|----------|----------------------|----------------|-----------|
| | | Score | Difference from Mean | | |
| Logical Memory II | 16 | 11.50 | 4.50 | 2.44 | 5% |
| Verbal Paired Associates II | 9 | 11.50 | -2.50 | 2.44 | 15-25% |
| Designs II | 7 | 11.50 | -4.50 | 2.44 | 5% |
| Visual Reproduction II | 14 | 11.50 | 2.50 | 1.57 | 15-25% |

Statistical significance (critical value) at the .05 level.

Subtest Discrepancy Comparison

| Comparison | Score 1 | Score 2 | Difference | Critical Value | Base Rate |
|--------------------------------|---------|---------|------------|----------------|-----------|
| Spatial Addition – Symbol Span | 6 | 12 | -6 | 2.74 | 8.4 |

Statistical significance (critical value) at the .05 level.

Logical Memory

| Score | Score 1 | Score 2 | Contrast Scaled Score |
|--|---------|---------|-----------------------|
| LM II Recognition vs. Delayed Recall | >75% | 16 | 16 |
| LM Immediate Recall vs. Delayed Recall | 15 | 16 | 13 |

Verbal Paired Associates

| Score | Score 1 | Score 2 | Contrast Scaled Score |
|---|---------|---------|-----------------------|
| VPA II Recognition vs. Delayed Recall | ≤2% | 9 | 16 |
| VPA Immediate Recall vs. Delayed Recall | 10 | 9 | 8 |

Designs

| Score | Score 1 | Score 2 | Contrast Scaled Score |
|--|---------|---------|-----------------------|
| DE I Spatial vs. Content | 3 | 4 | 6 |
| DE II Spatial vs. Content | 7 | 7 | 8 |
| DE II Recognition vs. Delayed Recall | >75% | 7 | 5 |
| DE Immediate Recall vs. Delayed Recall | 5 | 7 | 11 |

Visual Reproduction

| Score | Score 1 | Score 2 | Contrast Scaled Score |
|--|---------|---------|-----------------------|
| VR Copy vs. Immediate Recall | 3-9% | 11 | 15 |
| VR Immediate Recall vs. Delayed Recall | 11 | 14 | 14 |

Index-Level Contrast Scaled Scores

WMS-IV Indexes

| Score | Score 1 | Score 2 | Contrast Scaled Score |
|---|---------|---------|-----------------------|
| Auditory Memory Index vs. Visual Memory Index | 115 | 95 | 8 |
| Visual Working Memory Index vs. Visual Memory Index | 94 | 95 | 10 |
| Immediate Memory Index vs. Delayed Memory Index | 102 | 110 | 13 |

Ability-Memory Analysis

Ability Score Type: GAI
 Ability Score: 117

Predicted Difference Method

| Index | Predicted WMS-IV Index Score | Actual WMS-IV Index Score | Difference | Critical Value | Significant Difference Y / N | Base Rate |
|-----------------------|------------------------------|---------------------------|------------|----------------|------------------------------|-----------|
| Auditory Memory | 109 | 115 | -6 | 9.35 | N | |
| Visual Memory | 110 | 95 | 15 | 8.95 | Y | 10-15% |
| Visual Working Memory | 111 | 94 | 17 | 10.61 | Y | 5-10% |
| Immediate Memory | 111 | 102 | 9 | 9.78 | N | |
| Delayed Memory | 110 | 110 | 0 | 9.57 | N | |

Statistical significance (critical value) at the .01 level.

Contrast Scaled Scores

| Score | Score 1 | Score 2 | Contrast Scaled Score |
|--|---------|---------|-----------------------|
| General Ability Index vs. Auditory Memory Index | 117 | 115 | 12 |
| General Ability Index vs. Visual Memory Index | 117 | 95 | 6 |
| General Ability Index vs. Visual Working Memory Index | 117 | 94 | 6 |
| General Ability Index vs. Immediate Memory Index | 117 | 102 | 8 |
| General Ability Index vs. Delayed Memory Index | 117 | 110 | 10 |
| Verbal Comprehension Index vs. Auditory Memory Index | 107 | 115 | 13 |
| Perceptual Reasoning Index vs. Visual Memory Index | 123 | 95 | 5 |
| Perceptual Reasoning Index vs. Visual Working Memory Index | 123 | 94 | 5 |
| Working Memory Index vs. Auditory Memory Index | 92 | 115 | 14 |
| Working Memory Index vs. Visual Working Memory Index | 92 | 94 | 10 |