RIAS Interpretive Report

Cecil R. Reynolds, PhD and Randy W. Kamphaus, PhD

<table>
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<tr>
<th>Name:</th>
<th>Gender:</th>
<th>Grade/Education:</th>
<th>Date Tested</th>
<th>Examinee:</th>
<th>Date of Birth</th>
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<tr>
<th>RIAS Subtest Scores/Index Summary</th>
<th>Age-Adjusted $T$ Scores</th>
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<tr>
<td></td>
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<td>RIAS Indexes</td>
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<td>RIAS Total Battery Scores</td>
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<td>Confidence Interval 95%</td>
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<td>Confidence Interval 90%</td>
<td>65-74</td>
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RIAS Profiles

RIAS Subtest T scores

RIAS Indexes

Score ≥ 90

Score ≥ 90

Score ≥ 160

Score ≥ 160

Scale

Index

GWH

VIX

VRZ

NIX

OIO

CIX

WHM

CMX

VRM

NVM

VIX

NIX

CIX

CMX

Score

9

33

29

60

50

64

56

92

71

114

≤ 10

≤ 40

≤ 10

≤ 40

≤ 10
RIAS Total Battery Profiles

RIAS Subtest T scores

Score ≥ 90

Score ≥ 90

RIAS Total Battery Scores

Score ≥ 160

Score ≥ 160

VRZ

VRM

NVM

WHM

OIO

TVB

TNB

TTB
Background Information

Client Sample is a 17-year-old female. She was referred by her guidance counselor for an initial learning disability evaluation. Client is currently in the 11th grade. The name of Client’s school was reported as “Lincoln High School.” Client’s parental educational attainment was reported as: “College.” The primary language spoken in Client’s home is English.

Client identified the following vision, hearing, language, and/or motor problems: “Requires prescription glasses for reading.” Client further identified the following learning problems: “None.” Finally, Client identified the following medical/neurological problems: “None.”

Behavioral Observations

Client arrived more than 15 minutes early. She was accompanied to the session by her legal guardian. During testing the following behavioral observations were made: “Client appeared easily distracted and was very fidgety.”

Caveat and Descriptive Text

The test scores, descriptions of performance, and other interpretive information provided in this computer report are predicated on the following assumptions. First, it is assumed that the various subtests were administered and scored correctly in adherence with the general and specific administration and scoring guidelines provided in chapter 2 of the RIAS/RIST Professional Manual (Reynolds & Kamphaus, 2003). Second, it also is assumed that the examinee was determined to be appropriately eligible for testing by the examiner according to the guidelines for testing eligibility provided in chapter 2 of the RIAS Professional Manual and that the examiner was appropriately qualified to administer and score the RIAS/RIST.

This report is intended for revelation, transmission to, and use by individuals appropriately qualified and credentialed to interpret the RIAS/RIST under the laws and regulations of their local jurisdiction and meeting the guidelines for use of the RIAS/RIST as stated in the RIAS Professional Manual (Reynolds & Kamphaus, 2003) (see chapter 2).

Client was administered the Reynolds Intellectual Assessment Scales (RIAS). The RIAS is an individually administered measure of intellectual functioning normed for individuals between the ages of 3 and 94 years. The RIAS contains several individual tests of intellectual problem solving and reasoning ability that are combined to form a Verbal Intelligence Index (VIX) and a Nonverbal Intelligence Index (NIX). The subtests that compose the VIX assess verbal reasoning ability along with the ability to access and apply prior learning in solving language-related tasks. Although labeled the Verbal Intelligence Index, the VIX also is a reasonable approximation of crystallized intelligence. The NIX comprises subtests that assess nonverbal reasoning and spatial ability. Although labeled the Nonverbal Intelligence Index, the NIX also provides a reasonable approximation of fluid intelligence. These two indexes of intellectual functioning are then combined to form an overall Composite Intelligence Index (CIX). By combining the VIX and the NIX to form the CIX, a stronger, more reliable assessment of general intelligence (g) is obtained. The CIX measures the two most important aspects of general intelligence according to recent theories and research findings: reasoning or fluid abilities and verbal or crystallized abilities. Each of these indexes is expressed as an age-corrected
standard score that is scaled to a mean of 100 and a standard deviation of 15. These scores are normally distributed and can be converted to a variety of other metrics if desired.

The RIAS also contains subtests designed to assess verbal memory and nonverbal memory. Depending on the age of the individual being evaluated, the verbal memory subtest consists of a series of sentences, age-appropriate stories, or both, read aloud to the examinee. The examinee is then asked to recall these sentences or stories as precisely as possible. The nonverbal memory subtest consists of the presentation of pictures of various objects or abstract designs for a period of 5 seconds. The examinee is then shown a page containing six similar objects or figures and must discern which object or figure was previously shown. The scores from the verbal memory and nonverbal memory subtests are combined to form a Composite Memory Index (CMX), which provides a strong, reliable assessment of working memory and also may provide indications as to whether or not a more detailed assessment of memory functions may be required. In addition, the high reliability of the verbal and nonverbal memory subtests allows them to be compared directly to each other.

For reasons described in the RIAS/RIST Professional Manual (Reynolds & Kamphaus, 2003), it is recommended that the RIAS subtests be assigned to the indices described above (e.g., VIX, NIX, CIX, and CMX). For those who do not wish to consider the memory scales as a separate entity and prefer to divide the subtests strictly according to verbal and nonverbal domains, the RIAS subtests can be combined to form a Total Verbal Battery (TVB) score and a Total Nonverbal Battery (TNB) score. The subtests that compose the Total Verbal Battery score assess verbal reasoning ability, verbal memory, and the ability to access and apply prior learning in solving language-related tasks. Although labeled the Total Verbal Battery score, the TVB also is a reasonable approximation of measures of crystallized intelligence. The TNB comprises subtests that assess nonverbal reasoning, spatial ability, and nonverbal memory. Although labeled the Total Nonverbal Battery score, the TNB also provides a reasonable approximation of fluid intelligence. These two indexes of intellectual functioning are then combined to form an overall Total Test Battery (TTB) score. By combining the TVB and the TNB to form the TTB, a stronger, more reliable assessment of general intelligence (g) is obtained. The TTB measures the two most important aspects of general intelligence according to recent theories and research findings: reasoning, or fluid, abilities and verbal, or crystallized, abilities. Each of these scores is expressed as an age-corrected standard score that is scaled to a mean of 100 and a standard deviation of 15. These scores are normally distributed and can be converted to a variety of other metrics if desired.

**Composite Norm-Referenced Interpretations**

On testing with the RIAS, Client earned a Composite Intelligence Index or CIX of 71. On the RIAS, this level of performance falls within the range of scores designated as moderately below average and exceeds the performance of 3% of individuals at Client’s age. The chances are 90 out of 100 that Client’s true CIX falls within the range of scores from 67 to 77.

Client earned a Verbal Intelligence Index (VIX) of 56, which falls within the significantly below average range of verbal intelligence skills and exceeds the performance of less than one percent of individuals Client’s age. The chances are 90 out of 100 that Client’s true VIX falls within the range of scores from 53 to 64.

Client earned a Nonverbal Intelligence Index (NIX) of 92, which falls within the average range of nonverbal intelligence skills and exceeds the performance of 30% of individuals Client’s age. The chances are 90 out of 100 that Client’s true NIX falls within the range of scores from 87 to 98.
Client earned a Composite Memory Index (CMX) of 114, which falls within the above average range of working memory skills. This exceeds the performance of 82% of individuals Client’s age. The chances are 90 out of 100 that Client’s true CMX falls within the range of scores from 108 to 119.

On testing with the RIAS, Client earned a Total Test Battery or TTB score of 83. This level of performance on the RIAS falls within the range of scores designated as below average and exceeds the performance of 13% of individuals at Client’s age. The chances are 90 out of 100 that Client’s true TTB falls within the range of scores from 79 to 88.

Client’s Total Verbal Battery (TVB) score of 68 falls within the range of scores designated as significantly below average and exceeds the performance of 2% of individuals her age. The chances are 90 out of 100 that Client’s true TVB falls within the range of scores from 65 to 74.

Client’s Total Nonverbal Battery (TNB) score of 100 falls within the range of scores designated as average and exceeds the performance of 50% of individuals her age. The chances are 90 out of 100 that Client’s true TNB falls within the range of scores from 95 to 105.

### Subtest Norm-Referenced Interpretations

The Guess What subtest measures vocabulary knowledge in combination with reasoning skills that are predicated on language development and acquired knowledge. On testing with the RIAS, Client earned a T score of 9 on Guess What.

Odd-Item Out measures analytical reasoning abilities within the nonverbal domain. On testing with the RIAS, Client earned a T score of 29 on Odd-Item Out.

Verbal Reasoning measures analytical reasoning abilities within the verbal domain. English vocabulary knowledge is also required. On testing with the RIAS, Client earned a T score of 33 on Verbal Reasoning.

What’s Missing measures spatial and visualization abilities. On testing with the RIAS, Client earned a T score of 60 on What’s Missing.

Verbal Memory measures the ability to encode, briefly store, and recall information in the verbal domain. English vocabulary knowledge also is required. On testing with the RIAS, Client earned a T score of 50 on Verbal Memory.

Nonverbal Memory measures the ability to encode, briefly store, and recall information in the nonverbal and spatial domains. On testing with the RIAS, Client earned a T score of 64 on Nonverbal Memory.

### RIAS Discrepancy Score Summary Table

<table>
<thead>
<tr>
<th>Discrepancy Score</th>
<th>Score Difference</th>
<th>Statistically Significant?</th>
<th>Prevalence in Standardization Sample</th>
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</thead>
<tbody>
<tr>
<td>VIX &lt; NIX</td>
<td>36</td>
<td>yes</td>
<td>1.20%</td>
</tr>
<tr>
<td>CIX &lt; CMX</td>
<td>43</td>
<td>yes</td>
<td>1.30%</td>
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<tr>
<td>VRM &lt; NVM</td>
<td>14</td>
<td>yes</td>
<td>38.80%</td>
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<tr>
<td>TVB &lt; TNB</td>
<td>32</td>
<td>yes</td>
<td>4.70%</td>
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</table>
VIX is the Verbal Intelligence Index, NIX is the Nonverbal Intelligence Index, CIX is the Composite Intelligence Index, CMX is the Composite Memory Index, VRM is the Verbal Memory Subtest, NVM is the Nonverbal Memory Subtest, TVB is the Total Verbal Battery Index, and TNB is the Total Nonverbal Battery Index.

Discrepancy Norm-Referenced Interpretations

Although the CIX is a good estimate of Client’s general intelligence, a statistically significant discrepancy exists between her NIX of 92 and her VIX of 56, demonstrating better developed nonverbal intelligence or spatial abilities. The magnitude of the difference observed between these two scores is potentially important and should be considered when drawing conclusions about Client’s current status. A difference of this size is relatively uncommon, occurring in only one percent of cases in the general population. In such cases, interpretation of the CIX or general intelligence score may be of less value than viewing Client’s verbal and nonverbal abilities separately.

When compared to Client’s measured level of general intelligence as reflected in Client’s CIX, it can be seen that her CIX falls significantly below her CMX. This result indicates that Client is able to use immediate recall and working memory functions at a level that significantly exceeds her ability to engage in intellectual problem solving and general reasoning tasks. The magnitude of the difference seen in this instance may take on special diagnostic significance due to its relative infrequency in the general population. A difference between CIX and CMX of this magnitude occurs in only one percent of the population.

Within the subtests making up the CMX, Client’s performance in the nonverbal memory domain significantly exceeded her level of performance within the verbal memory domain. This difference is reliable and indicates that Client functions at a significantly higher level when asked to recall or engage in working memory tasks that are easily adapted to visual-spatial cues and other nonverbal memory features, as opposed to tasks relying on verbal linguistic strategies. Although most likely representing a real difference in Client’s abilities in these two areas, the magnitude of this difference is relatively common, occurring in 39% of the population at Client’s age. Therefore, this difference may or may not be indicative of the presence of a psychopathological condition, depending on the results of other clinical assessment information.

Although the TTB is a good estimate of Client’s general intelligence, a significant discrepancy exists between her TNB score of 100 and her TVB score of 68, demonstrating better developed nonverbal intelligence or spatial abilities. The magnitude of the difference observed between these two scores is potentially important and should be considered when drawing conclusions about Client’s current status. A difference of this size is relatively uncommon, occurring in only 5% of cases in the general population. In such cases, interpretation of the TTB or general intelligence score may be of less value than viewing Client’s verbal and nonverbal abilities separately.

If interested in comparing the TTB and CIX scores or the TTB and CMX scores, it is better to compare the CIX and CMX directly. As noted in the RIAS/RIST Professional Manual (Reynolds & Kamphaus, 2003), the TTB is simply a reflection of the sum of the T scores of the subtests that compose the CIX and CMX. Thus, it is more appropriate to make a direct comparison of the CMX and CIX because any apparent discrepancy between the TTB and the CIX or the TTB and the CMX will in fact be a reflection of discrepancies between the CIX and the CMX, so this value is best examined directly. To compare the CMX or CIX to the TTB may exaggerate some differences inappropriately.
General Interpretive Caveats

Examiners should be familiar with the cultural and linguistic background of Client (which may radically alter the suggestions contained herein) and be certain to consider these factors before arriving at a final decision regarding any diagnosis, classification, or related decision and before making any form of recommendations.

School Feedback and Recommendations

Composite Score Feedback and Recommendations

Client’s CIX score of 71 indicates moderate deficits in overall development of general intelligence relative to others her same age and her TTB score of 83 indicates mild deficits in overall development of general intelligence relative to others at Client’s age. Individuals earning general intelligence scores in this range frequently experience at least some difficulty acquiring information through traditional educational methods provided in the classroom setting.

The TTB measures the same general construct as the CIX with the exception that six tests are included rather than four. Evidence in the RIAS/RIST Professional Manual (Reynolds & Kamphaus, 2003) documents the equivalence of these two scores based on evidence that a first factor solution is defensible at all age levels of the RIAS whether four or six subtests are used. There also is evidence from a variety of intelligence tests to suggest the “indifference of the indicator” (Kamphaus, in press).

In other words, general intelligence may be assessed using a variety of cognitive tests providing further evidence that for most individuals the TTB and CIX will be interchangeable. There will be exceptions to this well-documented scientific finding, in the case of severe brain injury, for example, where significant memory impairment may be present, but these cases will be exceptions rather than the rule.

Since most instructional programs presume at least average intellectual ability and involve lecture, note taking and other typical instructional approaches, with the exception of demonstrative and repetitive methods commonly used with young children, difficulties in acquiring information when these methods are used is anticipated. Given Client’s deficits, special teaching methods might be considered, including special class placement for severe deficits in general intellectual development.

Teachers should prepare an individualized curriculum designed for students who learn at a slower rate then others of the same age and grade level. Alternative methods of instruction should be considered that involve the use of repeated practice, spaced practice, concrete examples, guided practice, and demonstrative techniques. Individuals with general intelligence scores in this range often benefit from repeated practice approaches to training because of problems with acquisition and long-term retrieval, as well as an individualized instructional method that differs significantly from that of their age-mates. It also will be important to assist Client in developing strategies for learning and studying. Although it is important for all students to know how to learn and not just what to learn, low scores on general intelligence indices make the development of learning and study strategies through direct instruction even more important. If confirmed through further testing, co-occurring deficits in adaptive behavior and behavioral problems should be added to the school intervention program.

Client’s VIX score of 56 and TVB score of 68 indicate severe deficits in the development of verbal intellect relative to others at Client’s age. Individuals at this score level on the TVB nearly always have accompanying verbal memory difficulties that can easily be moderate to severe in nature. Special
attention to Client’s VRM score is necessary, as well as considerations for any extant verbal memory problems and their accompanying level of severity in making specific recommendations.

Verbal ability is important for virtually every aspect of activity because language is key to nearly all areas of human endeavor. A multitude of research investigations have documented the importance of verbal ability for predicting important life outcomes. Verbal ability should be considered equivalent to the term “crystallized intelligence” (Kamphaus, in press). As assessed by the RIAS, verbal ability (like crystallized intelligence) is highly related to general intelligence, and as such its relationship to important life outcomes is easily correlated. Verbal ability also is the foundation for linguistic knowledge, which is necessary for many types of learning.

With the exception of the early grades, along with kindergarten and pre-K settings, school is principally a language-oriented task. Given Client’s relative verbal deficits, special teaching methods might be considered, including special class placement in the case of severe deficits in verbal intellectual development. The examiner should also consider either conducting, or making a referral for, an evaluation for the presence of a language disorder. Alternative methods of instruction that emphasize “show me” rather than “tell me” techniques, or as a minimum pair these two general approaches, are preferred.

Although linguistic stimulation likely cannot counteract the effects of verbal ability deficits that began in infancy or preschool years, verbal stimulation is still warranted to either improve adaptation or at least prevent an individual from falling further behind peers. Verbal concept and knowledge acquisition should continue to be emphasized. A simple word-for-the-day program may be beneficial for some students. Verbal knowledge builders of all varieties may be helpful including defining words, writing book reports, a book reading program, and social studies and science courses that include writing and oral expression components. Alternatively, assistive technology (e.g., personal digital assistance devices, tape recorders, MP3 players, or IPODs) may be used to enhance functioning in the face of the extensive verbal demands required for making adequate academic progress.

In addition, teachers should rely more heavily on placing learning into the student’s experiential context, giving it meaning and enabling Client to visualize incorporating each newly learned task or skill into her life experience. The use of visual aids should be encouraged and made available to Client whenever possible. Academic difficulties are most likely to occur in language-related areas (e.g., the acquisition of reading), especially early phonics training. The acquisition of comprehension skills also is aided when the verbal ability falls into this level by the use of language experience approaches to reading, in particular. Frequent formal and informal assessment of Client’s reading skills, as well as learning and study strategies (the latter with an instrument, e.g., the School Motivation and Learning Strategies Inventory; SMALSI; Stroud & Reynolds, 2006) is recommended. This should be followed by careful direct instruction in areas of specific skill weaknesses and the use of high interest, relevant materials. It also will be important to assist Client in developing strategies for learning and studying. Although it is important for all students to know how to learn and not just what to learn, low scores within the verbal intelligence domains make the development of learning and study strategies through direct instruction even more important.

**Discrepancy Feedback and Recommendations**

The magnitude of discrepancy between Client’s VIX score of 56 and NIX score of 92 as well as the magnitude of the discrepancy between her TVB score of 68 and TNB score of 100 is relatively unusual within the normal population. Although this is the most common pattern within referral populations,
the magnitude of the discrepancy occurring for Client makes the difference noteworthy. In general, this pattern represents substantially disparate skills in the general domains of verbal and nonverbal reasoning, with clear superiority evident in the nonverbal domain. Relative to their verbal reasoning and general language skills, individuals who display this pattern will experience greater success in tasks involving spatial reasoning, visualization skills, the use of mental rotation, reading of nonverbal cues, and related aspects of nonverbal reasoning and communication usually including nonverbal and visual memory skills. Nonverbal ability is less influential in other’s appraisal of general intellectual functioning. Because NIX and TNB are greater than VIX and TVB, Client’s general intellectual functioning may appear lower than is reflected by her CIX and TTB scores. Whenever possible, one should take advantage of Client’s relatively higher levels of performance in the nonverbal domain by always providing visual cues and explanations of tasks, expectations, or demonstrations of what is expected to be learned. Experiential learning is typically superior to traditional lecture and related pedagogical methods for individuals with this score pattern. Synthesis of information as opposed to analysis is often a relative strength, as well.

Teaching should emphasize the use of visual images, spatial representations of relationships, experiential learning, and the synthesis of information as opposed to methods of deduction in learning. Difficulties are likely to occur with traditional pedagogical styles such as lecturing and the completion of reading and written assignments. An emphasis on the spatial relationships of numbers and the construction of problems is likely to be the most effective means for teaching math versus the memorization and the learning of step-by-step rules for calculation. A heavy emphasis on learning by example and by demonstration is likely to be most effective with students with this intellectual pattern. Also common are problems with sequencing including sequential memory and, in the early grades, mastery of phonics when synthesizing word sounds into correct words. Emphases on holistic methods of learning are likely to be more successful in addition to experiential approaches. The practical side of learning and the application of knowledge can be emphasized to enhance motivation in these students.

Often, these students do not have good study, learning, and test-taking strategies. It is often useful to assess the presence of strategies with a scale such as the School Motivation and Learning Strategies Inventory and then to target deficient areas of learning strategies for direct instruction (Stroud & Reynolds, 2006).

The magnitude of discrepancy between Client’s CMX score of 114 and CIX score of 71 is relatively unusual within the normative population, suggesting that memory skills are relatively more intact than general intellectual skills. Individuals with this profile may require more intensive and broad-based intervention because general intelligence is a better predictor of occupational and educational outcomes than are memory skills (Kamphaus, in press).

Students with this profile may experience problems with inferential reasoning, logic, the comprehension of new concepts, and the acquisition of new knowledge. As such, participation in school or intervention programs is often more successful if lessons are of longer duration, information is provided in multiple modalities, opportunities to practice newly acquired skills are provided frequently, and repetition and review is emphasized.

**Recommendations for Additional Testing**

Client’s NIX score of 92 and her TNB score of 100 are significantly higher than her VIX score of 56 score and her TVB score of 68. Although this is the most common pattern in referral populations,
additional information is almost always helpful in making a diagnosis, in treatment planning, and/or in making vocational recommendations. Evaluations that consider disturbances in language and verbal functions in general (including receptive and expressive language) and other left hemisphere related tasks may prove helpful. Although empirical research at this point is lacking, clinical experience with the RIAS indicates that when the VIX score is significantly below the NIX score and the absolute value of the VIX is less than 90, there is a high probability of the presence of a language disorder that may have an adverse impact on academic attainment or success in any academically related vocational training program. When this pattern occurs, as in the case of Client, screening for a language disorder is recommended at a minimum and a more comprehensive language assessment should be considered. Evaluation of language skills with measures such as the Clinical Evaluation of Language Fundamentals 4 (CELF-4; Semel, Wiig, & Secord; 2004), age appropriate language tasks from the Halstead-Reitan Neuropsychological Test Battery (e.g., the Speech Sounds Perception Test, Aphasia Screening Test; Reitan & Wolfson; 1993), the Comprehensive Receptive and Expressive Vocabulary Test (CREVT-2; Wallace & Hammill; 2002), and the Developmental Test of Auditory Perception (DTAP; Reynolds, Voress & Pierson, 2007), may be particularly useful. Other tests of specific cognitive-processing functions should be considered. Research suggests that cognitive processing is measured well with little confounding by level of general intelligence through the use of comprehensive measures of memory functions including the WRAML-2 (Sheslow & Adams; 2003) and the TOMAL-2 (Reynolds & Voress, 2007). Subtests of the Neuropsychological Assessment (NAB; Stern & White; 2003), and other related tests of verbal skills with which you are familiar and skilled may well be useful adjuncts to the assessment process in the case of Client. Students with this pattern often exhibit inadequate levels of study-skills development and learning strategies and, thus, may become discouraged in school or vocational-training programs. Assessment and targeted remediation of such deficits can be undertaken for ages 8 years through 18 years with assessments such as the School Motivation and Learning Strategies Inventory (Stroud & Reynolds, 2006).

In cases where the CMX score is clinically significantly higher than the CIX score, follow-up evaluation may be warranted, particularly if the CIX is in the below average range or lower. Lower intelligence test scores are associated with increased forms of a variety of psychopathology, particularly if scores are in or near the mental retardation range (Kamphaus, in press). Because general intelligence impacts knowledge and skill acquisition in a variety of areas, a thorough evaluation of academic achievement is necessary to gauge the impact of any impairment and make plans to remediate educational weaknesses.
# RIAS Extended Score Summary Table

<table>
<thead>
<tr>
<th>Score</th>
<th>GWH</th>
<th>OIO</th>
<th>VRZ</th>
<th>WHM</th>
<th>VRM</th>
<th>NVM</th>
<th>VIX</th>
<th>NIX</th>
<th>CIX</th>
<th>CMX</th>
<th>TVB</th>
<th>TNB</th>
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<tr>
<td><strong>T score</strong></td>
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<td>29</td>
<td>33</td>
<td>60</td>
<td>50</td>
<td>64</td>
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<tr>
<td><strong>z score</strong></td>
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<td>1.00</td>
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<td>-2.13</td>
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<td>(Mean = 0, SD = 1)</td>
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<tr>
<td><strong>Subtest scaled score</strong></td>
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References


Reynolds, C. R., & Voress, J. (2007). *Test of Memory and Learning (TOMAL-2)* (2nd ed.). Austin, TX: PRO-ED.


End of Report