

# wisc-IV

WECHSLER INTELLIGENCE SCALE  
FOR CHILDREN®—FOURTH EDITION

## General Ability Index

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### OVERVIEW

This technical report is the fourth in a series intended to introduce the *Wechsler Intelligence Scale for Children—Fourth Edition* (WISC–IV; Wechsler, 2003). Technical Report #1 (Williams, Weiss, & Rolfhus, 2003a) presented the theoretical structure and test blueprint for the WISC–IV, as well as subtest changes from the *Wechsler Intelligence Scale for Children—Third Edition* (WISC–III; Wechsler, 1991). Technical Report #2 (Williams, Weiss, & Rolfhus, 2003b) presented the psychometric properties of the WISC–IV. Technical Report #3 (Williams, Weiss, & Rolfhus, 2003c) addressed the instrument's clinical validity.

This report provides information about the derivation and uses of the General Ability Index (GAI). The GAI is a composite score that is based on 3 Verbal Comprehension and 3 Perceptual Reasoning subtests, and does not include the Working Memory or Processing Speed subtests included in the Full Scale IQ (FSIQ). Detailed information about the GAI, beyond what is covered in this technical report, is available in a chapter by Saklofske, Prifitera, Weiss, Rolfhus, and Zhu in *WISC–IV Clinical Use and Interpretation: Scientist-Practitioner Perspectives* (Prifitera, Saklofske, & Weiss, 2005).

### Background and History of the Wechsler Composites and the GAI

The original *Wechsler Intelligence Scale for Children* (WISC; Wechsler, 1949), the *Wechsler Intelligence Scale for Children—Revised* (WISC–R; Wechsler, 1974), and the WISC–III included an FSIQ as well as a Verbal IQ (VIQ) and Performance IQ (PIQ). The WISC–III introduced four index scores to represent more narrow domains of cognitive function: the Verbal Comprehension Index (VCI), the Perceptual Organization Index (POI), the Freedom from Distractibility Index (FDI), and the Processing Speed Index (PSI). With the introduction of these index scores, a total of seven composite scores could be derived with the WISC–III: the FSIQ, VIQ, PIQ, VCI, POI, FDI, and PSI.

The introduction of the index scores gave practitioners the ability to select the composite scores that best described verbal and perceptual ability, based on the outcome of the assessment. When necessary to aid in interpretation, the practitioner could describe verbal abilities using the VCI in place of the VIQ, and describe perceptual abilities using the POI in place of the PIQ. This flexibility was particularly useful when scores for certain subtests contributing to the VIQ or PIQ were discrepant at a significant and unusual level. In particular, the index scores were preferable for cases in which the VIQ was considered less descriptive of verbal ability than the VCI because Arithmetic—a subtest from the working memory domain—was discrepant from the verbal comprehension subtests at a level that was unusual in the standardization sample and for cases in which the PIQ was considered less descriptive of perceptual ability than the POI because Coding—a subtest drawn from the processing speed domain—was discrepant from the perceptual organization subtests at a level that was unusual in the standardization sample.

The GAI was first developed for use with the WISC–III by Prifitera, Weiss, and Saklofske (1998) to offer additional flexibility in describing broad intellectual ability. The WISC–III GAI provided a measure of general cognitive ability that did not include the influence of Arithmetic or Coding on FSIQ. The WISC–III GAI was based on the sum of scaled scores for all subtests that contributed to the traditional ten-subtest FSIQ, with the exception of Arithmetic and Coding. The eight contributing subtests were all drawn from the verbal comprehension and perceptual organization domains, and included Picture Completion, Information, Similarities, Picture Arrangement, Block Design, Vocabulary, Object Assembly, and Comprehension. The WISC–III GAI was recommended as a useful composite to estimate overall ability if a great deal of variability existed within VIQ and/or PIQ due to low scores on Arithmetic and/or Coding (Prifitera et al., 1998). The GAI was subsequently applied for use with the WISC–III using Canadian norms (Weiss, Saklofske, Prifitera, Chen, & Hildebrand, 1999), the WAIS–III (Tulsky, Saklofske, Wilkins, & Weiss, 2001), and the WAIS–III using Canadian norms (Saklofske, Gorsuch, Weiss, Zhu, & Patterson, 2005).

The WISC–IV provides an FSIQ and a four-index framework similar to that of the WISC–III. The framework is based on theory and supported by clinical research and factor-analytic results. As noted in the *WISC–IV Technical and Interpretive Manual* (Wechsler, 2003) and in Technical Report #1 (Williams et al., 2003a), the POI was renamed the Perceptual Reasoning Index (PRI) to reflect more accurately the increased emphasis on fluid reasoning abilities in this index, and the FDI was renamed the Working Memory Index (WMI), which more

accurately describes the abilities measured. In addition, the dual IQ and Index score structure was no longer utilized. The elimination of the dual structure reduced concerns about the influence of working memory and processing speed when summarizing verbal comprehension and perceptual reasoning abilities, respectively. The WISC–IV FSIQ, however, includes (to a greater extent than the WISC–III FSIQ) the influence of working memory and processing speed, to reflect research that suggests both working memory and processing speed are important factors that contribute to overall intellectual functioning (Engle, Laughlin, Tuholski, & Conway, 1999; Fry & Hale, 1996, 2000; Heinz-Martin, Oberauer, Wittmann, Wilhelm, & Schulze, 2002; Miller & Vernon, 1996; Vigil-Colet & Codorniu-Raga, 2002). Recent research continues to confirm the importance of working memory and processing speed to cognitive ability and to refine knowledge about the nature of these relations (Colom, Rebollo, Palacios, Juan-Espinosa, & Kyllonen, 2004; Mackintosh & Bennett, 2003; Schweizer & Moosbrugger, 2004).

The FSIQ is used most frequently to describe an underlying, global aspect of general intelligence, or *g*. The FSIQ is utilized for a number of purposes in clinical practice. The FSIQ can serve as a summary of performance across a number of specific cognitive ability domains (i.e., verbal comprehension, perceptual reasoning, working memory, and processing speed). It is used most often in conjunction with other information as part of a diagnostic evaluation in clinics and hospital settings, to determine eligibility to receive special education services in public school settings, or to make decisions about level of care and placement in residential settings.

The FSIQ is an aggregate score that summarizes performance across multiple cognitive abilities in a single number. When unusual variability is observed within the set of subtests that comprise the FSIQ, clinical interpretation should characterize this diversity of abilities in order to be most useful for parents, teachers, and other professionals.

## Introduction to the WISC–IV GAI

As with the WISC–III GAI and WAIS-III GAI, the WISC–IV GAI provides the practitioner a summary score that is less sensitive to the influence of working memory and processing speed. For children with neuropsychological issues such as learning disorders, Attention-Deficit/Hyperactivity Disorder, and other similar issues, difficulties with working memory and processing speed may result in lower FSIQ scores (Wechsler, 2003). In children with intact neuropsychological functioning, the GAI may provide a comparable approximation of overall intellectual ability as represented by the FSIQ (Prifitera et al., 2005; Weiss et al., 1999).

The GAI can be used as a substitute for the FSIQ to determine eligibility for special education services and placement classification. The GAI increases flexibility in this respect, because it is sensitive to cases in which working memory performance is discrepant from verbal comprehension performance and/or processing speed performance is discrepant from perceptual reasoning performance at an unusual level. It can also be compared to the FSIQ to assess the effects of working memory and processing speed on the expression of cognitive ability.

Various sources for GAI tables are available; however, those sources differ according to the method by which they were created. Four such sources are (a) this technical report, (b) Prifitera et al. (2005); (c) Flanagan and Kaufman (2004); and (d) Dumont and Willis (2004). The GAI tables provided in this technical report and in Prifitera et al. (2005) are the only GAI

tables supported by Harcourt Assessment, Inc. (formerly known as The Psychological Corporation). These tables were created using the actual WISC–IV standardization sample ( $n = 2200$ ), whereas the GAI tables provided in other sources were created using statistical approximation. The calculations in Flanagan and Kaufman (2004), and Dumont and Willis (2004) were based on a statistical technique for linear equating that was developed by Tellegen and Briggs (1967, Formula 4), which allowed the GAI to be calculated based on intercorrelations among the VCI and the PRI. In contrast, tables in this technical report provide values for the GAI based on the standardization sample, and the sum of subtest scaled scores that contribute to the index. The Tellegen and Briggs formula underestimates scores in the upper portion of the distribution and overestimates scores in the lower portion of the distribution. On average, this difference is approximately 2–3 points, but can be as much as 6 points for some children with mental retardation or some gifted children. The Tellegen and Briggs formula is appropriate for use if the actual standardization data are not available: The tables provided by Flanagan and Kaufman (2004) and by Dumont and Willis (2004) were generated while practitioners were waiting for the tables based on the standardization sample to be created. As the tables based on the standardization sample are now available, those GAI tables should be considered out of date. Thus, practitioners are advised to use the GAI tables in this technical report, which are the same (within rounding variance) as the tables in Prifitera et al. (2005).

## The Role of Ability in Determining Eligibility for Special Education Services as Learning Disabled

*The WISC–IV Integrated Technical and Interpretive Manual* (Wechsler et al., 2004) outlines a number of concerns with the isolated use of the ability–achievement discrepancy model for identifying learning disabilities. An ability–achievement discrepancy (AAD) indicates that some problem exists, as achievement is not at a level commensurate with cognitive ability. Established practice currently includes the use of

ability–achievement discrepancies as general screeners for nonspecific learning problems. The general finding of such a discrepancy should be followed with additional assessment before a formal diagnosis is rendered. A determination that a learning disability is present requires evidence of impairment in the core cognitive processes underlying the specific academic skill of concern, but an AAD alone is often sufficient

evidence to obtain special education services in most public school settings. Although several new models for evaluating learning disorders and learning disabilities have been proposed recently (Berninger, Dunn, & Alper, 2005; Berninger & O'Donnell, 2005), diagnostic markers generally have yet to be established clearly in the literature. Some progress has been made in this area, however. For example, pseudoword decoding and rapid automatized naming appear to predict early reading disorders.

The progression toward utilizing a number of approaches to assess learning disabilities is evident in federal legislation. The new Individuals with Disabilities Education Improvement Act of 2004 indicates that local education agencies should ensure that a variety of assessment tools and strategies are used to gather relevant functional, developmental, and academic information that may assist in determining whether or not the child has a learning disability. The Individuals with Disabilities Education Improvement Act of 2004 further states that, in

general, a local educational agency is *not required* to take into consideration whether a child has a severe AAD in determining whether a child has a specific learning disability. Local education agencies may continue to use the AAD method if desired, or they may incorporate or transition to a process that determines if the child responds to intervention as a part of the evaluation (Individuals with Disabilities Education Improvement Act of 2004; Public Law 108-446). Proponents of the response-to-intervention model advocate that eligibility for special education services be determined solely on the basis of the student's low achievement and failure to respond to empirically supported educational instruction, regardless of the results of cognitive evaluations (Fletcher & Reschly, 2004). Others have defended the role of cognitive assessment in the evaluation of individuals with brain-based learning disorders, while not necessarily advocating strict adherence to AAD as the only method for classification (Hale, Naglieri, Kaufman, & Kavale, 2004; Scruggs & Mastropieri, 2002).

## When to Use the GAI

Presently, most school district policies continue to require evidence of an AAD in order to obtain special education services, and it was largely for this reason that the GAI was first developed. For some children with learning disabilities, attentional problems, or other neuropsychological issues, concomitant working memory and processing speed deficiencies lower the FSIQ. This is evident in Table 4 (see pages 9–10), which shows that FSIQ < GAI profiles were obtained by more than 70% of children in the following WISC-IV special group samples: Reading Disorder (N = 56), Reading and Written Expression Disorders (N = 35), Reading, Written Expression, and Mathematics Disorders (N = 42), and Learning Disorder and Attention-Deficit/Hyperactivity Disorder (N = 45). While potentially clinically meaningful, this reduction in the FSIQ may decrease the magnitude of the AAD for some children with learning disabilities and make them less likely to be found eligible for special education services in educational systems that do not allow consideration of other methods of eligibility determination.

It also may be clinically informative in a number of additional situations to compare the FSIQ and the GAI, to assess the impact of reducing the emphasis on working memory and processing speed on the estimate of general cognitive ability for children with difficulty in those areas due to traumatic brain injury or other neuropsychological difficulties. This comparison may inform rehabilitation programs and/or educational intervention planning.

It is important for practitioners to recognize that the GAI is not necessarily a more valid estimate of overall cognitive ability than the FSIQ. Working memory and processing speed are vital to the comprehensive evaluation of cognitive ability, and excluding these abilities from the evaluation can be misleading. The classroom performance of two children with the same GAI score but very different WMI/PSI scores will likely be quite different. In educational situations where evidence of a significant AAD is required to obtain services, the GAI may be used as the ability score; however, the WMI and PSI should still be reported and interpreted. Refer to chapters 2 and 3 of *WISC-IV Clinical Use and Interpretation: Scientist-Practitioner Perspectives* (Prifitera et al., 2005) for additional discussion.

The practitioner may wish to consider using the GAI in a number of clinical situations, not limited to, but including the following:


- a significant and unusual discrepancy exists between VCI and WMI;
- a significant and unusual discrepancy exists between PRI and PSI;
- a significant and unusual discrepancy exists between WMI and PSI; or
- significant and unusual intersubtest scatter exists within WMI and/or PSI.

To review index discrepancies, consult the discrepancy comparison critical value and base rate tables B.1–B.6 of the *WISC-IV Administration and Scoring Manual* (Wechsler, 2003) using the procedures outlined in chapter 2 of the manual. The Analysis Page of the WISC-IV Record Form provides space for these pairwise discrepancy comparisons in the Discrepancy Comparisons table. A statistically significant difference between index scores, however, may not indicate that there is a clinically significant difference: The frequency of occurrence in the standardization sample (base rate), not just the critical value, should be considered. Consult Table B.2 in the *WISC-IV Administration and Scoring Manual* (Wechsler, 2003) to obtain the base rate for a given discrepancy. Sattler (2001) suggests that differences between scores that occur in less than 10% to 15% of the standardization sample should be judged as unusual. Subtest scatter can be examined within the FSIQ, and within the VCI and PRI, using Table B.6 of the *WISC-IV Administration and Scoring Manual* (Wechsler, 2003).

The following steps are provided as a guide for calculating the GAI and comparing it to the FSIQ to obtain more information about a child's cognitive ability.

### Calculate the General Ability Sum of Scaled Scores

If you have determined that the GAI is important to consider in interpretation, calculate the General Ability Sum of Scaled Scores. The General Ability Sum of Scaled Scores is the sum of scaled scores for three Verbal Comprehension subtests



(i.e., Vocabulary, Comprehension, and Similarities) and three Perceptual Reasoning subtests (i.e., Block Design, Matrix Reasoning, and Picture Concepts). Record the General Ability Sum of Scaled Scores.

In some situations, you may choose to substitute a supplemental subtest for a core subtest that contributes to the GAI. Follow the same subtest substitution rules that are outlined in the *WISC-IV Administration and Scoring Manual* (Wechsler, 2003) for the FSIQ if you choose to substitute a supplemental subtest for a core subtest that contributes to the GAI. Follow the standard administration order of subtests listed

in chapter 2 of the *WISC-IV Administration and Scoring Manual* (Wechsler, 2003) even when you expect to substitute a supplemental subtest for a core subtest.

### **Determine the GAI Composite Score**

Locate the General Ability Sum of Scaled Scores in the extreme left column of Table 1. Read across the row to determine the GAI composite score. Continue to read across the row to find the corresponding percentile rank and confidence intervals. Record the composite score, the percentile rank, and the confidence interval (90% or 95%).

**Table 1 GAI Equivalents of Sums of Scaled Scores**

| Sum of Scaled Scores | GAI | Percentile Rank | Confidence Level |        | Sum of Scaled Scores | GAI | Percentile Rank | Confidence Level |         |
|----------------------|-----|-----------------|------------------|--------|----------------------|-----|-----------------|------------------|---------|
|                      |     |                 | 90%              | 95%    |                      |     |                 | 90%              | 95%     |
| 6                    | 40  | <0.1            | 38-47            | 37-48  | 61                   | 101 | 53              | 96-106           | 95-107  |
| 7                    | 40  | <0.1            | 38-47            | 37-48  | 62                   | 102 | 55              | 97-107           | 96-108  |
| 8                    | 40  | <0.1            | 38-47            | 37-48  | 63                   | 103 | 58              | 98-108           | 97-109  |
| 9                    | 40  | <0.1            | 38-47            | 37-48  | 64                   | 104 | 61              | 99-109           | 98-109  |
| 10                   | 40  | <0.1            | 38-47            | 37-48  | 65                   | 105 | 63              | 100-110          | 99-110  |
| 11                   | 40  | <0.1            | 38-47            | 37-48  | 66                   | 106 | 66              | 101-110          | 100-111 |
| 12                   | 41  | <0.1            | 39-48            | 38-49  | 67                   | 107 | 68              | 102-111          | 101-112 |
| 13                   | 42  | <0.1            | 40-49            | 39-50  | 68                   | 108 | 70              | 103-112          | 102-113 |
| 14                   | 43  | <0.1            | 41-50            | 40-51  | 69                   | 110 | 75              | 105-114          | 104-115 |
| 15                   | 44  | <0.1            | 42-51            | 41-52  | 70                   | 111 | 77              | 106-115          | 105-116 |
| 16                   | 45  | <0.1            | 42-52            | 42-53  | 71                   | 112 | 79              | 107-116          | 106-117 |
| 17                   | 46  | <0.1            | 43-53            | 43-54  | 72                   | 113 | 81              | 108-117          | 107-118 |
| 18                   | 47  | <0.1            | 44-54            | 43-55  | 73                   | 115 | 84              | 110-119          | 109-120 |
| 19                   | 49  | <0.1            | 46-56            | 45-57  | 74                   | 116 | 86              | 111-120          | 110-121 |
| 20                   | 51  | 0.1             | 48-58            | 47-59  | 75                   | 117 | 87              | 112-121          | 111-122 |
| 21                   | 52  | 0.1             | 49-59            | 48-60  | 76                   | 119 | 90              | 114-123          | 113-124 |
| 22                   | 53  | 0.1             | 50-60            | 49-61  | 77                   | 120 | 91              | 114-124          | 114-125 |
| 23                   | 55  | 0.1             | 52-62            | 51-62  | 78                   | 121 | 92              | 115-125          | 115-126 |
| 24                   | 57  | 0.2             | 54-63            | 53-64  | 79                   | 122 | 93              | 116-126          | 115-127 |
| 25                   | 58  | 0.3             | 55-64            | 54-65  | 80                   | 123 | 94              | 117-127          | 116-128 |
| 26                   | 59  | 0.3             | 56-65            | 55-66  | 81                   | 124 | 95              | 118-128          | 117-129 |
| 27                   | 61  | 0.5             | 58-67            | 57-68  | 82                   | 126 | 96              | 120-130          | 119-131 |
| 28                   | 63  | 1               | 60-69            | 59-70  | 83                   | 127 | 96              | 121-131          | 120-132 |
| 29                   | 64  | 1               | 61-70            | 60-71  | 84                   | 128 | 97              | 122-132          | 121-133 |
| 30                   | 65  | 1               | 62-71            | 61-72  | 85                   | 129 | 97              | 123-133          | 122-133 |
| 31                   | 67  | 1               | 64-73            | 63-74  | 86                   | 130 | 98              | 124-134          | 123-134 |
| 32                   | 69  | 2               | 66-75            | 65-76  | 87                   | 132 | 98              | 126-135          | 125-136 |
| 33                   | 70  | 2               | 66-76            | 66-77  | 88                   | 133 | 99              | 127-136          | 126-137 |
| 34                   | 71  | 3               | 67-77            | 67-78  | 89                   | 135 | 99              | 129-138          | 128-139 |
| 35                   | 73  | 4               | 69-79            | 68-80  | 90                   | 136 | 99              | 130-139          | 129-140 |
| 36                   | 74  | 4               | 70-80            | 69-81  | 91                   | 138 | 99              | 132-141          | 131-142 |
| 37                   | 75  | 5               | 71-81            | 70-82  | 92                   | 139 | 99.5            | 133-142          | 132-143 |
| 38                   | 77  | 6               | 73-83            | 72-84  | 93                   | 140 | 99.6            | 134-143          | 133-144 |
| 39                   | 78  | 7               | 74-84            | 73-85  | 94                   | 142 | 99.7            | 136-145          | 135-146 |
| 40                   | 79  | 8               | 75-85            | 74-85  | 95                   | 143 | 99.8            | 137-146          | 136-147 |
| 41                   | 81  | 10              | 77-86            | 76-87  | 96                   | 144 | 99.8            | 138-147          | 137-148 |
| 42                   | 82  | 12              | 78-87            | 77-88  | 97                   | 146 | 99.9            | 139-149          | 139-150 |
| 43                   | 83  | 13              | 79-88            | 78-89  | 98                   | 147 | 99.9            | 140-150          | 139-151 |
| 44                   | 84  | 14              | 80-89            | 79-90  | 99                   | 148 | 99.9            | 141-151          | 140-152 |
| 45                   | 85  | 16              | 81-90            | 80-91  | 100                  | 150 | >99.9           | 143-153          | 142-154 |
| 46                   | 86  | 18              | 82-91            | 81-92  | 101                  | 151 | >99.9           | 144-154          | 143-155 |
| 47                   | 87  | 19              | 83-92            | 82-93  | 102                  | 153 | >99.9           | 146-156          | 145-157 |
| 48                   | 88  | 21              | 84-93            | 83-94  | 103                  | 154 | >99.9           | 147-157          | 146-157 |
| 49                   | 89  | 23              | 85-94            | 84-95  | 104                  | 155 | >99.9           | 148-158          | 147-158 |
| 50                   | 90  | 25              | 86-95            | 85-96  | 105                  | 156 | >99.9           | 149-158          | 148-159 |
| 51                   | 91  | 27              | 87-96            | 86-97  | 106                  | 157 | >99.9           | 150-159          | 149-160 |
| 52                   | 92  | 30              | 88-97            | 87-98  | 107                  | 158 | >99.9           | 151-160          | 150-161 |
| 53                   | 93  | 32              | 89-98            | 88-99  | 108                  | 159 | >99.9           | 152-161          | 151-162 |
| 54                   | 94  | 34              | 90-99            | 89-100 | 109                  | 160 | >99.9           | 153-162          | 152-163 |
| 55                   | 95  | 37              | 90-100           | 90-101 | 110                  | 160 | >99.9           | 153-162          | 152-163 |
| 56                   | 96  | 39              | 91-101           | 91-102 | 111                  | 160 | >99.9           | 153-162          | 152-163 |
| 57                   | 97  | 42              | 92-102           | 91-103 | 112                  | 160 | >99.9           | 153-162          | 152-163 |
| 58                   | 98  | 45              | 93-103           | 92-104 | 113                  | 160 | >99.9           | 153-162          | 152-163 |
| 59                   | 99  | 47              | 94-104           | 93-105 | 114                  | 160 | >99.9           | 153-162          | 152-163 |
| 60                   | 100 | 50              | 95-105           | 94-106 |                      |     |                 |                  |         |

## Analyze the FSIQ–GAI Discrepancy

Calculate the difference between the FSIQ and the GAI by subtracting the GAI composite score from the FSIQ composite score. Record this value. Table 2 provides the required differences between the FSIQ and the GAI to attain statistical significance (critical values) at the .15 and .05 levels for each age group. Select the desired level of statistical significance and note it for your records. Using Table 2, find the age group of the child and the desired level of significance. Read across the row to the appropriate column to determine the critical value and record this critical value. The absolute value of the child's difference score must equal or exceed that critical value to be statistically significant. Determine whether or not the absolute value of the child's difference score equals or exceeds the corresponding critical value.

**Table 2 Differences Between FSIQ and GAI Scores Required for Statistical Significance (Critical Values), by Age Group and Overall Standardization Sample**

| Age Group         | Level of Significance | Composite Pair FSIQ–GAI |
|-------------------|-----------------------|-------------------------|
| <b>6:0–11:11</b>  | <b>.15</b>            | <b>6</b>                |
|                   | <b>.05</b>            | <b>8</b>                |
| <b>12:0–16:11</b> | <b>.15</b>            | <b>6</b>                |
|                   | <b>.05</b>            | <b>8</b>                |
| <b>All Ages</b>   | <b>.15</b>            | <b>6</b>                |
|                   | <b>.05</b>            | <b>8</b>                |

*Note.* Differences required for statistical significance are based on the standard errors of measurement of each composite for each age group and are calculated with the following formula:

$$\text{Critical Value of Difference Score} = Z \sqrt{SEM_a^2 + SEM_b^2}$$

where  $Z$  is the normal curve value associated with the desired two-tailed significance level and  $SEM_a$  and  $SEM_b$  are the standard errors of measurement for the two composites.

Table 3 provides the percentage of children in the WISC–IV standardization sample that obtained the same or greater discrepancy between the FSIQ and the GAI (base rate). The values reported in Table 3 are provided for the overall standardization sample and by ability level, and are separated into “-” and “+” columns, based on the direction of the difference. Locate the absolute value of the child's difference score in the Amount of Discrepancy column to the extreme left or right, and read across the row to the column that corresponds to the direction of the difference score (e.g., FSIQ < GAI) either by the overall sample or by ability level, if desired. Record this value.

In some situations, practitioners may wish to determine how unusual the same or greater FSIQ–GAI discrepancy was in a particular special group sample (e.g., children identified as intellectually gifted, children diagnosed with mental retardation, children diagnosed with various learning disorders) that is relevant to the child being evaluated. Table 4 provides the percentage of children from various special groups described in the *WISC–IV Technical and Interpretive Manual* (Wechsler, 2003) who obtained the same or greater discrepancy between the FSIQ and the GAI (base rate). The values are provided for children identified as intellectually gifted, children with mild or moderate mental retardation, children with various learning disorders, children with a Learning Disorder and Attention-Deficit/Hyperactivity Disorder, children with Attention-Deficit/Hyperactivity Disorder, children with Expressive Language Disorder, children with Mixed Receptive-Expressive Language Disorder, children with traumatic brain injury, children with Autistic Disorder, children with Asperger's disorder, and children with motor impairment. The values reported in Table 4 are separated by special group and into “-” and “+” columns for each special group, based on the direction of the difference. Locate the absolute value of the child's difference score in the Amount of Discrepancy column to the extreme left or right, and read across the row to the column that corresponds to the desired special group of comparison and to the direction of the difference score (e.g., FSIQ < GAI). Record this value.

**Table 3 Cumulative Percentages of Standardization Sample (Base Rates) Obtaining Various FSIQ-GAI Score Discrepancies, by Overall Sample and Ability Level**

| Amount of Discrepancy | Overall Sample |              | GAI ≤ 79     |              | 80 ≤ GAI ≤ 89 |              | 90 ≤ GAI ≤ 109 |              | 110 ≤ GAI ≤ 119 |              | GAI ≥ 120    |              |
|-----------------------|----------------|--------------|--------------|--------------|---------------|--------------|----------------|--------------|-----------------|--------------|--------------|--------------|
|                       | FSIQ<GAI (-)   | FSIQ>GAI (+) | FSIQ<GAI (-) | FSIQ>GAI (+) | FSIQ<GAI (-)  | FSIQ>GAI (+) | FSIQ<GAI (-)   | FSIQ>GAI (+) | FSIQ<GAI (-)    | FSIQ>GAI (+) | FSIQ<GAI (-) | FSIQ>GAI (+) |
|                       |                |              |              |              |               |              |                |              |                 |              |              |              |
| 18                    | 0.0            | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0            | 0.0          | 0.3             | 0.0          | 0.0          | 0.0          |
| 17                    | 0.0            | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0            | 0.0          | 0.3             | 0.0          | 0.0          | 0.0          |
| 16                    | 0.1            | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0            | 0.0          | 0.3             | 0.0          | 0.4          | 0.0          |
| 15                    | 0.2            | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.2            | 0.0          | 0.3             | 0.3          | 0.9          | 0.0          |
| 14                    | 0.5            | 0.3          | 0.0          | 1.2          | 0.7           | 0.3          | 0.4            | 0.2          | 0.3             | 0.5          | 2.2          | 0.0          |
| 13                    | 0.9            | 0.5          | 0.0          | 1.2          | 1.4           | 0.3          | 0.4            | 0.4          | 0.3             | 0.5          | 4.5          | 0.4          |
| 12                    | 1.4            | 0.8          | 0.0          | 2.9          | 2.1           | 0.3          | 0.8            | 0.7          | 0.5             | 0.5          | 6.3          | 0.4          |
| 11                    | 2.3            | 1.2          | 0.0          | 4.1          | 2.8           | 0.3          | 1.6            | 1.4          | 1.8             | 0.5          | 7.6          | 0.4          |
| 10                    | 3.4            | 2.2          | 0.6          | 5.8          | 4.5           | 1.4          | 2.6            | 2.2          | 2.9             | 2.4          | 9.4          | 0.4          |
| 9                     | 5.4            | 3.7          | 0.6          | 8.2          | 6.6           | 2.1          | 4.7            | 3.9          | 5.0             | 3.9          | 12.1         | 0.9          |
| 8                     | 7.9            | 5.4          | 2.3          | 9.4          | 8.7           | 3.1          | 6.8            | 6.3          | 8.1             | 4.7          | 16.1         | 1.8          |
| 7                     | 11.0           | 8.2          | 5.3          | 16.4         | 12.2          | 4.9          | 9.2            | 9.3          | 13.6            | 6.8          | 18.8         | 3.1          |
| 6                     | 14.5           | 11.6         | 8.8          | 24.0         | 16.0          | 8.7          | 12.1           | 13.0         | 17.0            | 8.1          | 25.1         | 4.9          |
| 5                     | 19.8           | 16.9         | 13.5         | 31.0         | 21.2          | 13.2         | 17.3           | 19.5         | 23.6            | 11.8         | 29.6         | 6.7          |
| 4                     | 25.6           | 22.7         | 16.4         | 36.3         | 26.0          | 18.1         | 23.0           | 26.1         | 30.6            | 18.1         | 36.8         | 9.0          |
| 3                     | 32.6           | 28.3         | 20.5         | 45.6         | 30.6          | 23.6         | 29.5           | 31.1         | 39.3            | 25.1         | 49.3         | 12.1         |
| 2                     | 39.9           | 35.5         | 28.1         | 50.9         | 39.2          | 30.9         | 36.1           | 38.7         | 47.1            | 32.7         | 57.0         | 18.4         |
| 1                     | 48.7           | 43.3         | 33.3         | 58.5         | 51.0          | 38.2         | 44.7           | 46.9         | 54.2            | 41.1         | 68.2         | 23.8         |
| Mean                  | 4.4            | 4.2          | 3.9          | 5.1          | 4.4           | 3.8          | 4.2            | 4.3          | 4.5             | 3.8          | 5.1          | 3.5          |
| SD                    | 3.0            | 2.8          | 2.3          | 3.1          | 3.3           | 2.5          | 2.9            | 2.7          | 2.8             | 2.8          | 3.7          | 2.6          |
| Median                | 4.0            | 4.0          | 3.0          | 5.0          | 4.0           | 3.0          | 4.0            | 4.0          | 4.0             | 3.0          | 4.0          | 3.0          |

**Table 4 Cumulative Percentages of Various Special Group Samples (Base Rates) Obtaining Various FSIQ-GAI Score Discrepancies**

| Amount of Discrepancy | Clinical Group |              |                  |              |                 |              |              |              |              |              |              |              |               |              |                  |              |      |      | Amount of Discrepancy |
|-----------------------|----------------|--------------|------------------|--------------|-----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|------------------|--------------|------|------|-----------------------|
|                       | GT (N = 63)    |              | MR Mild (N = 63) |              | MR Mod (N = 57) |              | RD (N = 56)  |              | RWD (N = 35) |              | MD (N = 33)  |              | RWMD (N = 42) |              | LD/ADHD (N = 45) |              |      |      |                       |
|                       | FSIQ<GAI (-)   | FSIQ>GAI (+) | FSIQ<GAI (-)     | FSIQ>GAI (+) | FSIQ<GAI (-)    | FSIQ>GAI (+) | FSIQ<GAI (-) | FSIQ>GAI (+) | FSIQ<GAI (-) | FSIQ>GAI (+) | FSIQ<GAI (-) | FSIQ>GAI (+) | FSIQ<GAI (-)  | FSIQ>GAI (+) | FSIQ<GAI (-)     | FSIQ>GAI (+) |      |      |                       |
| 18                    | 0.0            | 0.0          | 0.0              | 0.0          | 0.0             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0              | 0.0          | 0.0  | 0.0  | 18                    |
| 17                    | 1.7            | 0.0          | 0.0              | 0.0          | 0.0             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0              | 0.0          | 0.0  | 0.0  | 17                    |
| 16                    | 3.3            | 0.0          | 0.0              | 0.0          | 0.0             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0              | 0.0          | 0.0  | 0.0  | 16                    |
| 15                    | 3.3            | 0.0          | 0.0              | 0.0          | 0.0             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0              | 0.0          | 0.0  | 0.0  | 15                    |
| 14                    | 3.3            | 0.0          | 0.0              | 0.0          | 0.0             | 0.0          | 3.8          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0              | 4.9          | 0.0  | 0.0  | 14                    |
| 13                    | 3.3            | 0.0          | 0.0              | 0.0          | 2.1             | 0.0          | 3.8          | 1.9          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0              | 7.3          | 0.0  | 0.0  | 13                    |
| 12                    | 5.0            | 0.0          | 0.0              | 0.0          | 2.1             | 0.0          | 3.8          | 1.9          | 9.4          | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0              | 17.1         | 0.0  | 0.0  | 12                    |
| 11                    | 8.3            | 0.0          | 0.0              | 0.0          | 2.1             | 0.0          | 5.7          | 1.9          | 9.4          | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0              | 22.0         | 0.0  | 0.0  | 11                    |
| 10                    | 13.3           | 0.0          | 1.8              | 0.0          | 2.1             | 2.1          | 7.5          | 1.9          | 9.4          | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0              | 24.4         | 0.0  | 0.0  | 10                    |
| 9                     | 15.0           | 0.0          | 3.6              | 0.0          | 2.1             | 4.2          | 9.4          | 1.9          | 18.8         | 0.0          | 3.3          | 0.0          | 0.0           | 0.0          | 0.0              | 24.4         | 2.4  | 2.4  | 9                     |
| 8                     | 20.0           | 0.0          | 7.1              | 3.6          | 2.1             | 6.3          | 22.6         | 3.8          | 21.9         | 0.0          | 13.3         | 0.0          | 0.0           | 0.0          | 0.0              | 31.7         | 2.4  | 2.4  | 8                     |
| 7                     | 25.0           | 0.0          | 10.7             | 7.1          | 2.1             | 8.3          | 37.7         | 5.7          | 28.1         | 0.0          | 20.0         | 0.0          | 0.0           | 0.0          | 0.0              | 34.1         | 4.9  | 4.9  | 7                     |
| 6                     | 31.7           | 0.0          | 14.3             | 17.9         | 2.1             | 14.6         | 47.2         | 5.7          | 43.8         | 0.0          | 26.7         | 3.3          | 0.0           | 0.0          | 0.0              | 41.5         | 7.3  | 7.3  | 6                     |
| 5                     | 40.0           | 0.0          | 16.1             | 25.0         | 2.1             | 22.9         | 50.9         | 7.5          | 53.1         | 3.1          | 33.3         | 6.7          | 0.0           | 0.0          | 0.0              | 43.9         | 9.8  | 9.8  | 5                     |
| 4                     | 43.3           | 6.7          | 17.9             | 33.9         | 2.1             | 25.0         | 56.6         | 9.4          | 65.6         | 6.3          | 36.7         | 10.0         | 0.0           | 0.0          | 0.0              | 46.3         | 9.8  | 9.8  | 4                     |
| 3                     | 53.3           | 13.3         | 25.0             | 50.0         | 4.2             | 29.2         | 64.2         | 13.2         | 68.8         | 6.3          | 46.7         | 16.7         | 0.0           | 0.0          | 0.0              | 61.0         | 14.6 | 14.6 | 3                     |
| 2                     | 65.0           | 20.0         | 33.9             | 51.8         | 4.2             | 39.6         | 66.0         | 15.1         | 71.9         | 9.4          | 53.3         | 23.3         | 0.0           | 0.0          | 0.0              | 68.3         | 17.1 | 17.1 | 2                     |
| 1                     | 68.3           | 25.0         | 37.5             | 57.1         | 6.3             | 54.2         | 75.5         | 17.0         | 84.4         | 12.5         | 56.7         | 30.0         | 0.0           | 0.0          | 0.0              | 73.2         | 22.0 | 22.0 | 1                     |
| <b>Mean</b>           | 5.9            | 2.6          | 4.5              | 4.3          | 5.7             | 3.8          | 6.0          | 5.1          | 5.7          | 3.0          | 5.1          | 3.0          | 3.0           | 4.9          | 6.8              | 4.1          | 4.1  | 4.1  | <b>Mean</b>           |
| <b>SD</b>             | 3.9            | 1.1          | 2.8              | 1.9          | 6.4             | 2.7          | 3.2          | 3.7          | 3.3          | 1.8          | 2.5          | 1.7          | 1.7           | 2.7          | 4.3              | 3.3          | 3.3  | 2.8  | <b>SD</b>             |
| <b>Median</b>         | 5.0            | 3.0          | 3.0              | 4.0          | 3.0             | 3.0          | 6.5          | 4.0          | 6.0          | 3.0          | 5.0          | 3.0          | 3.0           | 5.0          | 6.0              | 3.0          | 3.0  | 3.0  | <b>Median</b>         |

Note. GT = Intellectually Gifted; MR Mild = Mental Retardation-Mild Severity; MR Mod = Mental Retardation-Moderate Severity; RD = Reading Disorder; RWD = Reading and Written Expression Disorders; MD = Mathematics Disorder; RWMD = Reading, Written Expression, and Mathematics Disorders; LD/ADHD = Learning Disorder and Attention-Deficit/Hyperactivity Disorder.



**Table 4 Cumulative Percentages of Various Special Group Samples (Base Rates) Obtaining Various FSIQ-GAI Score Discrepancies (continued)**

| Amount of Discrepancy |      | Clinical Group |              |              |              |               |              |              |              |              |              |              |              |              |              |              |              |              |              |               |
|-----------------------|------|----------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|
|                       |      | ADHD (N = 99)  |              | ELD (N = 27) |              | RELD (N = 41) |              | OHI (N = 16) |              | CHI (N = 27) |              | AUT (N = 19) |              | ASP (N = 27) |              | MI (N = 21)  |              |              |              |               |
|                       |      | FSIQ<GAI (-)   | FSIQ>GAI (+) | FSIQ<GAI (-) | FSIQ>GAI (+) | FSIQ<GAI (-)  | FSIQ>GAI (+) | FSIQ<GAI (-) | FSIQ>GAI (+) | FSIQ<GAI (-) | FSIQ>GAI (+) | FSIQ<GAI (-) | FSIQ>GAI (+) | FSIQ<GAI (-) | FSIQ>GAI (+) | FSIQ<GAI (-) | FSIQ>GAI (+) | FSIQ<GAI (-) | FSIQ>GAI (+) |               |
| 18                    | 0.0  | 0.0            | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 18            |
| 17                    | 0.0  | 0.0            | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 17            |
| 16                    | 0.0  | 0.0            | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 16            |
| 15                    | 0.0  | 0.0            | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 15            |
| 14                    | 1.2  | 0.0            | 0.0          | 0.0          | 0.0          | 0.0           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 14            |
| 13                    | 1.2  | 1.2            | 0.0          | 0.0          | 2.6          | 0.0           | 7.1          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 13            |
| 12                    | 1.2  | 1.2            | 0.0          | 0.0          | 7.9          | 0.0           | 7.1          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 12            |
| 11                    | 2.4  | 1.2            | 0.0          | 0.0          | 7.9          | 0.0           | 7.1          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 11            |
| 10                    | 6.1  | 1.2            | 0.0          | 0.0          | 7.9          | 0.0           | 14.3         | 0.0          | 4.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 10            |
| 9                     | 9.8  | 1.2            | 4.5          | 0.0          | 18.4         | 0.0           | 14.3         | 0.0          | 4.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 9             |
| 8                     | 17.1 | 1.2            | 9.1          | 0.0          | 23.7         | 0.0           | 21.4         | 0.0          | 8.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 8             |
| 7                     | 19.5 | 1.2            | 9.1          | 0.0          | 28.9         | 2.6           | 28.6         | 0.0          | 8.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 7             |
| 6                     | 30.5 | 4.9            | 18.2         | 0.0          | 34.2         | 5.3           | 42.9         | 0.0          | 32.0         | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 6             |
| 5                     | 35.4 | 4.9            | 31.8         | 0.0          | 44.7         | 10.5          | 42.9         | 0.0          | 40.0         | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 5             |
| 4                     | 39.0 | 7.3            | 50.0         | 9.1          | 50.0         | 10.5          | 50.0         | 0.0          | 48.0         | 4.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 4             |
| 3                     | 45.1 | 9.8            | 54.5         | 9.1          | 60.5         | 15.8          | 50.0         | 0.0          | 52.0         | 4.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 3             |
| 2                     | 54.9 | 17.1           | 68.2         | 13.6         | 65.8         | 21.1          | 57.1         | 0.0          | 64.0         | 8.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 2             |
| 1                     | 65.9 | 20.7           | 77.3         | 13.6         | 71.1         | 23.7          | 71.4         | 0.0          | 72.0         | 12.0         | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 1             |
| <b>Mean</b>           | 5.0  | 3.5            | 4.2          | 3.3          | 6.0          | 3.8           | 5.8          |              | 4.6          | 2.3          | 1.0          | 1.0          | 1.0          | 1.0          | 1.0          | 1.0          | 1.0          | 1.0          | 1.0          | <b>Mean</b>   |
| <b>SD</b>             | 3.2  | 3.0            | 2.3          | 1.2          | 3.4          | 2.0           | 3.9          |              | 2.5          | 1.5          | 3.8          | 3.8          | 3.8          | 3.2          | 2.9          | 2.9          | 2.9          | 2.9          | 2.9          | <b>SD</b>     |
| <b>Median</b>         | 5.0  | 2.0            | 4.0          | 4.0          | 5.0          | 3.0           | 6.0          |              | 5.0          | 2.0          | 9.0          | 9.0          | 9.0          | 6.0          | 5.0          | 5.0          | 5.0          | 5.0          | 5.0          | <b>Median</b> |

Note. ADHD = Attention-Deficit/Hyperactivity Disorder; ELD = Expressive Language Disorder; RELD = Mixed Receptive-Expressive Language Disorder; OHI = Open Head Injury; CHI = Closed Head Injury; AUT = Autistic Disorder; ASP = Asperger's Disorder; MI = Motor Impairment.



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## Reporting and Describing the GAI

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### Standard Score

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The GAI is an age-corrected standard score. It can be interpreted similarly to other composite scores, as outlined in

chapter 6 of the *WISC-IV Technical and Interpretive Manual* (Wechsler, 2003).

### Percentile Rank

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Age-based percentile ranks are provided for the GAI that indicate a child's standing relative to other children the same age. Percentile ranks reflect points on a scale at or below which a given percentage of scores lie, based on the standardization

sample. The percentile ranks for the GAI are interpreted as are other percentile ranks, as described in chapter 6 of the *WISC-IV Technical and Interpretive Manual* (Wechsler, 2003).

### Standard Error of Measurement and Confidence Interval

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Scores on measures of cognitive ability are based on observational data and represent estimates of a child's true scores. They reflect a child's true abilities combined with some degree of measurement error. Confidence intervals provide another means of expressing score precision and serve as a

reminder that measurement error is inherent in all scores. Refer to chapter 6 of the *WISC-IV Technical and Interpretive Manual* (Wechsler, 2003) for additional information about confidence intervals and their use in interpretation.

### Descriptive Classification

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Composite scores, including the GAI, can be described in qualitative terms according to the child's level of performance. Refer to chapter 6 of the *WISC-IV Technical and Interpretive*

*Manual* (Wechsler, 2003) for qualitative descriptions of the WISC-IV composite scores, which also may be used to describe the GAI.

## Suggested Procedure for Basic Interpretation of the GAI

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Note that this procedure is supplemental and does not replace any portion of the 10-step procedure outlined in

chapter 6 of the *WISC-IV Technical and Interpretive Manual* (Wechsler, 2003).

### Evaluate the Overall Composite Scores

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The FSIQ and the GAI are composite scores that should always be evaluated in the context of the subtests that contribute to that composite score. Extreme variability within the subtests that comprise the FSIQ or the GAI indicates that the score represents a summary of diverse abilities.


Practitioners should examine closely the relative performance on subtests that contribute to the composite score when interpreting that score. Part of the decision to use the GAI also typically involves reviewing the discrepancies among the four index scores.

### Evaluate the FSIQ-GAI Discrepancy

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The first step in performing a pairwise comparison is aimed at determining whether the absolute value of the score difference is significant. Table 2 provides the minimum differences between the FSIQ and the GAI required for statistical significance (critical values) at the .15 and .05 levels of confidence by age group. When the absolute value of the obtained difference between the FSIQ and the GAI is equal to

or larger than the critical value, the difference is considered a true difference rather than a difference due to measurement error or random fluctuation. If the two scores are not significantly different, this implies that reducing the influence of working memory and processing speed on the estimate of overall ability resulted in little difference.



If comparison of the FSIQ and the GAI indicates a significant difference, the practitioner should then judge how rare the difference is in the general population. Table 3 provides the cumulative frequency of discrepancies between the FSIQ and the GAI in the WISC-IV standardization sample (base rates). The base rate provides a basis for estimating how rare or

common a child's obtained score difference is compared to the general population. Table 4 provides the cumulative frequency of discrepancies between the FSIQ and the GAI in various WISC-IV special group samples. Refer to chapter 6 of the *WISC-IV Technical and Interpretive Manual* (Wechsler, 2003) for additional information.

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## Ability–Achievement Discrepancy

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When ability–achievement discrepancy assessment is present as part of the learning disability determination process, there are two methods for comparing intellectual ability and academic achievement: the predicted-difference method and the simple-difference method. Although both methods are used, the predicted-difference method is generally preferred because the formula accounts for the reliabilities and the correlations between the two measures. Use of the predicted-difference method requires that the

ability and achievement measure were co-normed on the same national sample. The predicted-difference method uses the ability score to predict an achievement score, and then compares the predicted and observed achievement scores. The simple-difference method merely compares the observed ability and achievement scores. The *WIAT-II Examiner's Manual* (Harcourt Assessment, Inc., 2002) provides additional details related to the rationale for choosing these methods and the statistical procedures involved.

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## Predicted-Difference Method

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Table 5 provides WIAT-II subtest and composite scores predicted from WISC-IV GAI scores. Locate the GAI score in the extreme left or right column, and read across the row to obtain the child's predicted WIAT-II subtest and composite scores.

Record the predicted scores. For each subtest or composite, subtract the child's predicted score from the obtained score to obtain the difference score. Record these difference scores.

**Table 5 WIAT-II Subtest and Composite Scores Predicted from WISC-IV GAI Scores**

| WISC-IV<br>GAI | WIAT-II        |     |     |     |     |     |     |     |     |                  |     |     |     |     | WISC-IV<br>GAI |
|----------------|----------------|-----|-----|-----|-----|-----|-----|-----|-----|------------------|-----|-----|-----|-----|----------------|
|                | Subtest Scores |     |     |     |     |     |     |     |     | Composite Scores |     |     |     |     |                |
|                | WR             | NO  | RC  | SP  | PD  | MR  | WE  | LC  | OE  | RD               | MA  | WL  | OL  | TA  |                |
| 40             | 56             | 60  | 55  | 59  | 64  | 54  | 60  | 52  | 66  | 54               | 55  | 57  | 54  | 49  | 40             |
| 41             | 56             | 60  | 56  | 59  | 65  | 55  | 61  | 53  | 67  | 55               | 56  | 58  | 55  | 50  | 41             |
| 42             | 57             | 61  | 57  | 60  | 65  | 56  | 62  | 54  | 68  | 55               | 57  | 58  | 55  | 51  | 42             |
| 43             | 58             | 62  | 57  | 61  | 66  | 57  | 62  | 54  | 68  | 56               | 57  | 59  | 56  | 52  | 43             |
| 44             | 59             | 62  | 58  | 61  | 66  | 57  | 63  | 55  | 69  | 57               | 58  | 60  | 57  | 52  | 44             |
| 45             | 59             | 63  | 59  | 62  | 67  | 58  | 64  | 56  | 69  | 58               | 59  | 60  | 58  | 53  | 45             |
| 46             | 60             | 64  | 60  | 63  | 68  | 59  | 64  | 57  | 70  | 58               | 60  | 61  | 58  | 54  | 46             |
| 47             | 61             | 64  | 60  | 63  | 68  | 60  | 65  | 58  | 70  | 59               | 60  | 62  | 59  | 55  | 47             |
| 48             | 62             | 65  | 61  | 64  | 69  | 60  | 66  | 58  | 71  | 60               | 61  | 63  | 60  | 56  | 48             |
| 49             | 62             | 66  | 62  | 65  | 69  | 61  | 66  | 59  | 71  | 61               | 62  | 63  | 61  | 57  | 49             |
| 50             | 63             | 67  | 63  | 66  | 70  | 62  | 67  | 60  | 72  | 62               | 63  | 64  | 62  | 58  | 50             |
| 51             | 64             | 67  | 63  | 66  | 71  | 63  | 68  | 61  | 73  | 62               | 63  | 65  | 62  | 58  | 51             |
| 52             | 64             | 68  | 64  | 67  | 71  | 64  | 68  | 62  | 73  | 63               | 64  | 65  | 63  | 59  | 52             |
| 53             | 65             | 69  | 65  | 68  | 72  | 64  | 69  | 62  | 74  | 64               | 65  | 66  | 64  | 60  | 53             |
| 54             | 66             | 69  | 66  | 68  | 72  | 65  | 70  | 63  | 74  | 65               | 66  | 67  | 65  | 61  | 54             |
| 55             | 67             | 70  | 66  | 69  | 73  | 66  | 70  | 64  | 75  | 65               | 66  | 68  | 65  | 62  | 55             |
| 56             | 67             | 71  | 67  | 70  | 74  | 67  | 71  | 65  | 75  | 66               | 67  | 68  | 66  | 63  | 56             |
| 57             | 68             | 71  | 68  | 70  | 74  | 67  | 72  | 66  | 76  | 67               | 68  | 69  | 67  | 63  | 57             |
| 58             | 69             | 72  | 69  | 71  | 75  | 68  | 72  | 66  | 76  | 68               | 69  | 70  | 68  | 64  | 58             |
| 59             | 70             | 73  | 69  | 72  | 75  | 69  | 73  | 67  | 77  | 68               | 69  | 70  | 68  | 65  | 59             |
| 60             | 70             | 73  | 70  | 72  | 76  | 70  | 74  | 68  | 78  | 69               | 70  | 71  | 69  | 66  | 60             |
| 61             | 71             | 74  | 71  | 73  | 77  | 70  | 74  | 69  | 78  | 70               | 71  | 72  | 70  | 67  | 61             |
| 62             | 72             | 75  | 72  | 74  | 77  | 71  | 75  | 70  | 79  | 71               | 72  | 73  | 71  | 68  | 62             |
| 63             | 73             | 75  | 72  | 74  | 78  | 72  | 76  | 70  | 79  | 72               | 72  | 73  | 72  | 69  | 63             |
| 64             | 73             | 76  | 73  | 75  | 78  | 73  | 76  | 71  | 80  | 72               | 73  | 74  | 72  | 69  | 64             |
| 65             | 74             | 77  | 74  | 76  | 79  | 73  | 77  | 72  | 80  | 73               | 74  | 75  | 73  | 70  | 65             |
| 66             | 75             | 77  | 75  | 77  | 80  | 74  | 78  | 73  | 81  | 74               | 75  | 76  | 74  | 71  | 66             |
| 67             | 76             | 78  | 75  | 77  | 80  | 75  | 78  | 74  | 82  | 75               | 75  | 76  | 75  | 72  | 67             |
| 68             | 76             | 79  | 76  | 78  | 81  | 76  | 79  | 74  | 82  | 75               | 76  | 77  | 75  | 73  | 68             |
| 69             | 77             | 79  | 77  | 79  | 81  | 76  | 80  | 75  | 83  | 76               | 77  | 78  | 76  | 74  | 69             |
| 70             | 78             | 80  | 78  | 79  | 82  | 77  | 80  | 76  | 83  | 77               | 78  | 78  | 77  | 75  | 70             |
| 71             | 79             | 81  | 78  | 80  | 83  | 78  | 81  | 77  | 84  | 78               | 78  | 79  | 78  | 75  | 71             |
| 72             | 79             | 81  | 79  | 81  | 83  | 79  | 82  | 78  | 84  | 78               | 79  | 80  | 78  | 76  | 72             |
| 73             | 80             | 82  | 80  | 81  | 84  | 79  | 82  | 78  | 85  | 79               | 80  | 81  | 79  | 77  | 73             |
| 74             | 81             | 83  | 81  | 82  | 84  | 80  | 83  | 79  | 85  | 80               | 81  | 81  | 80  | 78  | 74             |
| 75             | 82             | 83  | 81  | 83  | 85  | 81  | 84  | 80  | 86  | 81               | 81  | 82  | 81  | 79  | 75             |
| 76             | 82             | 84  | 82  | 83  | 86  | 82  | 84  | 81  | 87  | 82               | 82  | 83  | 82  | 80  | 76             |
| 77             | 83             | 85  | 83  | 84  | 86  | 83  | 85  | 82  | 87  | 82               | 83  | 83  | 82  | 80  | 77             |
| 78             | 84             | 85  | 84  | 85  | 87  | 83  | 85  | 82  | 88  | 83               | 84  | 84  | 83  | 81  | 78             |
| 79             | 84             | 86  | 84  | 86  | 87  | 84  | 86  | 83  | 88  | 84               | 84  | 85  | 84  | 82  | 79             |
| 80             | 85             | 87  | 85  | 86  | 88  | 85  | 87  | 84  | 89  | 85               | 85  | 86  | 85  | 83  | 80             |
| 81             | 86             | 87  | 86  | 87  | 89  | 86  | 87  | 85  | 89  | 85               | 86  | 86  | 85  | 84  | 81             |
| 82             | 87             | 88  | 87  | 88  | 89  | 86  | 88  | 86  | 90  | 86               | 87  | 87  | 86  | 85  | 82             |
| 83             | 87             | 89  | 87  | 88  | 90  | 87  | 89  | 86  | 90  | 87               | 87  | 88  | 87  | 86  | 83             |
| 84             | 88             | 89  | 88  | 89  | 90  | 88  | 89  | 87  | 91  | 88               | 88  | 88  | 88  | 86  | 84             |
| 85             | 89             | 90  | 89  | 90  | 91  | 89  | 90  | 88  | 92  | 88               | 89  | 89  | 88  | 87  | 85             |
| 86             | 90             | 91  | 90  | 90  | 92  | 89  | 91  | 89  | 92  | 89               | 90  | 90  | 89  | 88  | 86             |
| 87             | 90             | 91  | 90  | 91  | 92  | 90  | 91  | 90  | 93  | 90               | 90  | 91  | 90  | 89  | 87             |
| 88             | 91             | 92  | 91  | 92  | 93  | 91  | 92  | 90  | 93  | 91               | 91  | 91  | 91  | 90  | 88             |
| 89             | 92             | 93  | 92  | 92  | 93  | 92  | 93  | 91  | 94  | 92               | 92  | 92  | 92  | 91  | 89             |
| 90             | 93             | 93  | 93  | 93  | 94  | 92  | 93  | 92  | 94  | 92               | 93  | 93  | 92  | 92  | 90             |
| 91             | 93             | 94  | 93  | 94  | 95  | 93  | 94  | 93  | 95  | 93               | 93  | 94  | 93  | 92  | 91             |
| 92             | 94             | 95  | 94  | 94  | 95  | 94  | 95  | 94  | 96  | 94               | 94  | 94  | 94  | 93  | 92             |
| 93             | 95             | 95  | 95  | 95  | 96  | 95  | 95  | 94  | 96  | 95               | 95  | 95  | 95  | 94  | 93             |
| 94             | 96             | 96  | 96  | 96  | 96  | 95  | 96  | 95  | 97  | 95               | 96  | 96  | 95  | 95  | 94             |
| 95             | 96             | 97  | 96  | 97  | 97  | 96  | 97  | 96  | 97  | 96               | 96  | 96  | 96  | 96  | 95             |
| 96             | 97             | 97  | 97  | 97  | 98  | 97  | 97  | 97  | 98  | 97               | 97  | 97  | 97  | 97  | 96             |
| 97             | 98             | 98  | 98  | 98  | 98  | 98  | 98  | 98  | 98  | 98               | 98  | 98  | 98  | 97  | 97             |
| 98             | 99             | 99  | 99  | 99  | 99  | 98  | 99  | 98  | 99  | 98               | 99  | 99  | 98  | 98  | 98             |
| 99             | 99             | 99  | 99  | 99  | 99  | 99  | 99  | 99  | 99  | 99               | 99  | 99  | 99  | 99  | 99             |
| 100            | 100            | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100              | 100 | 100 | 100 | 100 | 100            |

Note. WR = Word Reading; NO = Numerical Operations; RC = Reading Comprehension; SP = Spelling; PD = Pseudoword Decoding; MR = Math Reasoning; WE = Written Expression; LC = Listening Comprehension; OE = Oral Expression; RD = Reading; MA = Mathematics; WL = Written Language; OL = Oral Language; TA = Total Achievement.

**Table 5 WIAT-II Subtest and Composite Scores Predicted from WISC-IV GAI Scores (continued)**

| WISC-IV<br>GAI | WIAT-II        |     |     |     |     |     |     |     |     |                  |     |     |     |     | WISC-IV<br>GAI |
|----------------|----------------|-----|-----|-----|-----|-----|-----|-----|-----|------------------|-----|-----|-----|-----|----------------|
|                | Subtest Scores |     |     |     |     |     |     |     |     | Composite Scores |     |     |     |     |                |
|                | WR             | NO  | RC  | SP  | PD  | MR  | WE  | LC  | OE  | RD               | MA  | WL  | OL  | TA  |                |
| 101            | 101            | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101              | 101 | 101 | 101 | 101 | 101            |
| 102            | 101            | 101 | 102 | 101 | 101 | 102 | 101 | 102 | 101 | 102              | 102 | 101 | 102 | 102 | 102            |
| 103            | 102            | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102              | 102 | 102 | 102 | 102 | 103            |
| 104            | 103            | 103 | 103 | 103 | 102 | 103 | 103 | 103 | 102 | 103              | 103 | 103 | 103 | 103 | 104            |
| 105            | 104            | 103 | 104 | 103 | 103 | 104 | 103 | 104 | 103 | 104              | 104 | 104 | 104 | 104 | 105            |
| 106            | 104            | 104 | 105 | 104 | 104 | 105 | 104 | 105 | 103 | 105              | 105 | 104 | 105 | 105 | 106            |
| 107            | 105            | 105 | 105 | 105 | 104 | 105 | 105 | 106 | 104 | 105              | 105 | 105 | 105 | 106 | 107            |
| 108            | 106            | 105 | 106 | 106 | 105 | 106 | 105 | 106 | 104 | 106              | 106 | 106 | 106 | 107 | 108            |
| 109            | 107            | 106 | 107 | 106 | 105 | 107 | 106 | 107 | 105 | 107              | 107 | 106 | 107 | 108 | 109            |
| 110            | 107            | 107 | 108 | 107 | 106 | 108 | 107 | 108 | 106 | 108              | 108 | 107 | 108 | 109 | 110            |
| 111            | 108            | 107 | 108 | 108 | 107 | 108 | 107 | 109 | 106 | 108              | 108 | 108 | 108 | 109 | 111            |
| 112            | 109            | 108 | 109 | 108 | 107 | 109 | 108 | 110 | 107 | 109              | 109 | 109 | 109 | 110 | 112            |
| 113            | 110            | 109 | 110 | 109 | 108 | 110 | 109 | 110 | 107 | 110              | 110 | 109 | 110 | 111 | 113            |
| 114            | 110            | 109 | 111 | 110 | 108 | 111 | 109 | 111 | 108 | 111              | 111 | 110 | 111 | 112 | 114            |
| 115            | 111            | 110 | 111 | 110 | 109 | 111 | 110 | 112 | 108 | 112              | 111 | 111 | 112 | 113 | 115            |
| 116            | 112            | 111 | 112 | 111 | 110 | 112 | 111 | 113 | 109 | 112              | 112 | 112 | 112 | 114 | 116            |
| 117            | 113            | 111 | 113 | 112 | 110 | 113 | 111 | 114 | 110 | 113              | 113 | 112 | 113 | 114 | 117            |
| 118            | 113            | 112 | 114 | 112 | 111 | 114 | 112 | 114 | 110 | 114              | 114 | 113 | 114 | 115 | 118            |
| 119            | 114            | 113 | 114 | 113 | 111 | 114 | 113 | 115 | 111 | 115              | 114 | 114 | 115 | 116 | 119            |
| 120            | 115            | 113 | 115 | 114 | 112 | 115 | 113 | 116 | 111 | 115              | 115 | 114 | 115 | 117 | 120            |
| 121            | 116            | 114 | 116 | 114 | 113 | 116 | 114 | 117 | 112 | 116              | 116 | 115 | 116 | 118 | 121            |
| 122            | 116            | 115 | 117 | 115 | 113 | 117 | 115 | 118 | 112 | 117              | 117 | 116 | 117 | 119 | 122            |
| 123            | 117            | 115 | 117 | 116 | 114 | 117 | 115 | 118 | 113 | 118              | 117 | 117 | 118 | 120 | 123            |
| 124            | 118            | 116 | 118 | 117 | 114 | 118 | 116 | 119 | 113 | 118              | 118 | 117 | 118 | 120 | 124            |
| 125            | 119            | 117 | 119 | 117 | 115 | 119 | 117 | 120 | 114 | 119              | 119 | 118 | 119 | 121 | 125            |
| 126            | 119            | 117 | 120 | 118 | 116 | 120 | 117 | 121 | 115 | 120              | 120 | 119 | 120 | 122 | 126            |
| 127            | 120            | 118 | 120 | 119 | 116 | 121 | 118 | 122 | 115 | 121              | 120 | 119 | 121 | 123 | 127            |
| 128            | 121            | 119 | 121 | 119 | 117 | 121 | 118 | 122 | 116 | 122              | 121 | 120 | 122 | 124 | 128            |
| 129            | 121            | 119 | 122 | 120 | 117 | 122 | 119 | 123 | 116 | 122              | 122 | 121 | 122 | 125 | 129            |
| 130            | 122            | 120 | 123 | 121 | 118 | 123 | 120 | 124 | 117 | 123              | 123 | 122 | 123 | 126 | 130            |
| 131            | 123            | 121 | 123 | 121 | 119 | 124 | 120 | 125 | 117 | 124              | 123 | 122 | 124 | 126 | 131            |
| 132            | 124            | 121 | 124 | 122 | 119 | 124 | 121 | 126 | 118 | 125              | 124 | 123 | 125 | 127 | 132            |
| 133            | 124            | 122 | 125 | 123 | 120 | 125 | 122 | 126 | 118 | 125              | 125 | 124 | 125 | 128 | 133            |
| 134            | 125            | 123 | 126 | 123 | 120 | 126 | 122 | 127 | 119 | 126              | 126 | 124 | 126 | 129 | 134            |
| 135            | 126            | 123 | 126 | 124 | 121 | 127 | 123 | 128 | 120 | 127              | 126 | 125 | 127 | 130 | 135            |
| 136            | 127            | 124 | 127 | 125 | 122 | 127 | 124 | 129 | 120 | 128              | 127 | 126 | 128 | 131 | 136            |
| 137            | 127            | 125 | 128 | 126 | 122 | 128 | 124 | 130 | 121 | 128              | 128 | 127 | 128 | 131 | 137            |
| 138            | 128            | 125 | 129 | 126 | 123 | 129 | 125 | 130 | 121 | 129              | 129 | 127 | 129 | 132 | 138            |
| 139            | 129            | 126 | 129 | 127 | 123 | 130 | 126 | 131 | 122 | 130              | 129 | 128 | 130 | 133 | 139            |
| 140            | 130            | 127 | 130 | 128 | 124 | 130 | 126 | 132 | 122 | 131              | 130 | 129 | 131 | 134 | 140            |
| 141            | 130            | 127 | 131 | 128 | 125 | 131 | 127 | 133 | 123 | 132              | 131 | 130 | 132 | 135 | 141            |
| 142            | 131            | 128 | 132 | 129 | 125 | 132 | 128 | 134 | 124 | 132              | 132 | 130 | 132 | 136 | 142            |
| 143            | 132            | 129 | 132 | 130 | 126 | 133 | 128 | 134 | 124 | 133              | 132 | 131 | 133 | 137 | 143            |
| 144            | 133            | 129 | 133 | 130 | 126 | 133 | 129 | 135 | 125 | 134              | 133 | 132 | 134 | 137 | 144            |
| 145            | 133            | 130 | 134 | 131 | 127 | 134 | 130 | 136 | 125 | 135              | 134 | 132 | 135 | 138 | 145            |
| 146            | 134            | 131 | 135 | 132 | 128 | 135 | 130 | 137 | 126 | 135              | 135 | 133 | 135 | 139 | 146            |
| 147            | 135            | 131 | 135 | 132 | 128 | 136 | 131 | 138 | 126 | 136              | 135 | 134 | 136 | 140 | 147            |
| 148            | 136            | 132 | 136 | 133 | 129 | 136 | 132 | 138 | 127 | 137              | 136 | 135 | 137 | 141 | 148            |
| 149            | 136            | 133 | 137 | 134 | 129 | 137 | 132 | 139 | 127 | 138              | 137 | 135 | 138 | 142 | 149            |
| 150            | 137            | 134 | 138 | 135 | 130 | 138 | 133 | 140 | 128 | 139              | 138 | 136 | 139 | 143 | 150            |
| 151            | 138            | 134 | 138 | 135 | 131 | 139 | 134 | 141 | 129 | 139              | 138 | 137 | 139 | 143 | 151            |
| 152            | 138            | 135 | 139 | 136 | 131 | 140 | 134 | 142 | 129 | 140              | 139 | 137 | 140 | 144 | 152            |
| 153            | 139            | 136 | 140 | 137 | 132 | 140 | 135 | 142 | 130 | 141              | 140 | 138 | 141 | 145 | 153            |
| 154            | 140            | 136 | 141 | 137 | 132 | 141 | 136 | 143 | 130 | 142              | 141 | 139 | 142 | 146 | 154            |
| 155            | 141            | 137 | 141 | 138 | 133 | 142 | 136 | 144 | 131 | 142              | 141 | 140 | 142 | 147 | 155            |
| 156            | 141            | 138 | 142 | 139 | 134 | 143 | 137 | 145 | 131 | 143              | 142 | 140 | 143 | 148 | 156            |
| 157            | 142            | 138 | 143 | 139 | 134 | 143 | 138 | 146 | 132 | 144              | 143 | 141 | 144 | 148 | 157            |
| 158            | 143            | 139 | 144 | 140 | 135 | 144 | 138 | 146 | 132 | 145              | 144 | 142 | 145 | 149 | 158            |
| 159            | 144            | 140 | 144 | 141 | 135 | 145 | 139 | 147 | 133 | 145              | 144 | 142 | 145 | 150 | 159            |
| 160            | 144            | 140 | 145 | 141 | 136 | 146 | 140 | 148 | 134 | 146              | 145 | 143 | 146 | 151 | 160            |

Note. WR = Word Reading; NO = Numerical Operations; RC = Reading Comprehension; SP = Spelling; PD = Pseudoword Decoding; MR = Math Reasoning; WE = Written Expression; LC = Listening Comprehension; OE = Oral Expression; RD = Reading; MA = Mathematics; WL = Written Language; OL = Oral Language; TA = Total Achievement.

The practitioner must take into account the statistical significance and the base rate of the difference scores. Table 6 provides the required differences between the predicted and obtained WIAT-II subtest and composite scores to attain statistical significance (critical values) at the .05 and .01 levels for two age groups (ages 6:0–11:11 and ages 12:0–16:11). Select the desired level of statistical significance and note it for your records. Using Table 6, find the age group of the child and the

desired level of significance. For each subtest or composite, read across the row to the appropriate column to determine the critical value, and record it. The absolute value of the child's difference score must equal or exceed that critical value to be statistically significant. Determine whether or not the absolute value of the child's difference score equals or exceeds the corresponding critical value.

**Table 6 Differences Between Predicted and Obtained WIAT-II Subtest and Composite Scores Required for Statistical Significance (Critical Values): Predicted-Difference Method Using WISC-IV GAI**

| Subtest/Composite              | Significance Level | Ages 6–11 | Ages 12–16 |
|--------------------------------|--------------------|-----------|------------|
| <b>Word Reading</b>            | <b>.05</b>         | <b>5</b>  | <b>7</b>   |
|                                | <b>.01</b>         | <b>6</b>  | <b>9</b>   |
| <b>Numerical Operations</b>    | <b>.05</b>         | <b>12</b> | <b>9</b>   |
|                                | <b>.01</b>         | <b>16</b> | <b>11</b>  |
| <b>Reading Comprehension</b>   | <b>.05</b>         | <b>7</b>  | <b>8</b>   |
|                                | <b>.01</b>         | <b>9</b>  | <b>10</b>  |
| <b>Spelling</b>                | <b>.05</b>         | <b>8</b>  | <b>8</b>   |
|                                | <b>.01</b>         | <b>11</b> | <b>11</b>  |
| <b>Pseudoword Decoding</b>     | <b>.05</b>         | <b>5</b>  | <b>6</b>   |
|                                | <b>.01</b>         | <b>7</b>  | <b>8</b>   |
| <b>Math Reasoning</b>          | <b>.05</b>         | <b>9</b>  | <b>9</b>   |
|                                | <b>.01</b>         | <b>12</b> | <b>12</b>  |
| <b>Written Expression</b>      | <b>.05</b>         | <b>11</b> | <b>12</b>  |
|                                | <b>.01</b>         | <b>15</b> | <b>15</b>  |
| <b>Listening Comprehension</b> | <b>.05</b>         | <b>13</b> | <b>13</b>  |
|                                | <b>.01</b>         | <b>17</b> | <b>18</b>  |
| <b>Oral Expression</b>         | <b>.05</b>         | <b>10</b> | <b>12</b>  |
|                                | <b>.01</b>         | <b>13</b> | <b>15</b>  |
| <b>Reading</b>                 | <b>.05</b>         | <b>5</b>  | <b>6</b>   |
|                                | <b>.01</b>         | <b>7</b>  | <b>7</b>   |
| <b>Mathematics</b>             | <b>.05</b>         | <b>9</b>  | <b>7</b>   |
|                                | <b>.01</b>         | <b>12</b> | <b>9</b>   |
| <b>Written Language</b>        | <b>.05</b>         | <b>8</b>  | <b>11</b>  |
|                                | <b>.01</b>         | <b>11</b> | <b>14</b>  |
| <b>Oral Language</b>           | <b>.05</b>         | <b>10</b> | <b>9</b>   |
|                                | <b>.01</b>         | <b>13</b> | <b>11</b>  |
| <b>Total</b>                   | <b>.05</b>         | <b>6</b>  | <b>6</b>   |
|                                | <b>.01</b>         | <b>8</b>  | <b>8</b>   |

If comparison of the predicted and obtained WIAT-II subtest and composite scores indicates a significant difference, the practitioner should then judge how rare the difference is in the general population. Table 7 provides the cumulative frequency of discrepancies between the predicted and obtained WIAT-II subtest and composite scores in the WISC-IV standardization sample (base rate). Locate the

subtest or composite of interest in the extreme left column, and read across the row to locate the child's difference score. The column header above the child's difference score indicates the percentage of the theoretical normal distribution (base rates) that represents the percentage of the sample that obtained WIAT-II scores lower than their WISC-IV GAI scores by the specified amount or more.

**Table 7 Differences Between Predicted and Obtained WIAT-II Subtest and Composite Scores for Various Percentages of the Theoretical Normal Distribution (Base Rates): Predicted-Difference Method Using WISC-IV GAI**

| Subtest/Composite              | Percentages of the Theoretical Normal Distribution (Base Rates) |    |    |    |    |    |    |    |    |
|--------------------------------|-----------------------------------------------------------------|----|----|----|----|----|----|----|----|
|                                | 25                                                              | 20 | 15 | 10 | 5  | 4  | 3  | 2  | 1  |
| <b>Word Reading</b>            | 7                                                               | 9  | 11 | 13 | 17 | 18 | 19 | 21 | 24 |
| <b>Numerical Operations</b>    | 8                                                               | 10 | 12 | 15 | 19 | 20 | 21 | 23 | 26 |
| <b>Reading Comprehension</b>   | 7                                                               | 9  | 11 | 13 | 17 | 18 | 19 | 21 | 24 |
| <b>Spelling</b>                | 8                                                               | 10 | 12 | 14 | 18 | 20 | 21 | 23 | 26 |
| <b>Pseudoword Decoding</b>     | 9                                                               | 11 | 13 | 16 | 20 | 22 | 23 | 25 | 28 |
| <b>Math Reasoning</b>          | 7                                                               | 9  | 11 | 13 | 17 | 18 | 19 | 21 | 23 |
| <b>Written Expression</b>      | 8                                                               | 10 | 12 | 15 | 19 | 20 | 22 | 24 | 27 |
| <b>Listening Comprehension</b> | 7                                                               | 8  | 10 | 12 | 15 | 16 | 17 | 19 | 21 |
| <b>Oral Expression</b>         | 9                                                               | 11 | 13 | 16 | 21 | 22 | 24 | 26 | 29 |
| <b>Reading</b>                 | 7                                                               | 9  | 10 | 13 | 16 | 17 | 19 | 20 | 23 |
| <b>Mathematics</b>             | 7                                                               | 9  | 11 | 13 | 17 | 18 | 19 | 21 | 24 |
| <b>Written Language</b>        | 8                                                               | 9  | 11 | 14 | 18 | 19 | 20 | 22 | 25 |
| <b>Oral Language</b>           | 7                                                               | 9  | 10 | 13 | 16 | 17 | 19 | 20 | 23 |
| <b>Total</b>                   | 6                                                               | 7  | 9  | 11 | 13 | 14 | 15 | 17 | 19 |

*Note.* Percentages in Table 7 represent the theoretical proportion of WIAT-II scores lower than WISC-IV GAI scores by the specified amount or more.

## Simple-Difference Method

Table 8 provides the required differences between WISC-IV GAI scores and WIAT-II subtest and composite scores to attain statistical significance (critical values) at the .05 and .01 levels for two age groups (ages 6:0–11:11 and ages 12:0–16:11). Select the desired level of statistical significance and note it for your records. Using Table 8, find the age group of the child and the desired level of significance. For each subtest or composite,

read across the row to the appropriate column to determine the critical value, and record it. The absolute value of the child's difference score must equal or exceed that critical value to be statistically significant. Determine whether or not the absolute value of the child's difference score equals or exceeds the corresponding critical value.

**Table 8 Differences Between WISC-IV GAI Scores and WIAT-II Subtest and Composite Scores Required for Statistical Significance (Critical Values): Simple-Difference Method, by Age Group**

| Subtest/Composite              | Significance Level | Ages 6–11<br>GAI | Ages 12–16<br>GAI |
|--------------------------------|--------------------|------------------|-------------------|
| <b>Word Reading</b>            | .05                | 7                | 8                 |
|                                | .01                | 9                | 11                |
| <b>Numerical Operations</b>    | .05                | 13               | 10                |
|                                | .01                | 17               | 13                |
| <b>Reading Comprehension</b>   | .05                | 8                | 9                 |
|                                | .01                | 11               | 12                |
| <b>Spelling</b>                | .05                | 10               | 10                |
|                                | .01                | 13               | 13                |
| <b>Pseudoword Decoding</b>     | .05                | 8                | 8                 |
|                                | .01                | 10               | 10                |
| <b>Math Reasoning</b>          | .05                | 10               | 10                |
|                                | .01                | 13               | 13                |
| <b>Written Expression</b>      | .05                | 12               | 12                |
|                                | .01                | 16               | 16                |
| <b>Listening Comprehension</b> | .05                | 14               | 14                |
|                                | .01                | 18               | 19                |
| <b>Oral Expression</b>         | .05                | 12               | 13                |
|                                | .01                | 15               | 17                |
| <b>Reading</b>                 | .05                | 7                | 7                 |
|                                | .01                | 9                | 9                 |
| <b>Mathematics</b>             | .05                | 10               | 8                 |
|                                | .01                | 13               | 11                |
| <b>Written Language</b>        | .05                | 10               | 12                |
|                                | .01                | 13               | 15                |
| <b>Oral Language</b>           | .05                | 11               | 10                |
|                                | .01                | 14               | 13                |
| <b>Total</b>                   | .05                | 8                | 7                 |
|                                | .01                | 10               | 9                 |



If comparison of the WISC-IV GAI score and the WIAT-II subtest and composite scores indicates a significant difference, the practitioner should then judge how rare the difference is in the general population. Table 9 provides the cumulative frequency of discrepancies between the WISC-IV GAI and WIAT-II subtest and composite scores in the WISC-IV standardization sample (base rates). Locate the subtest or

composite of interest in the extreme left column, and read across the row to locate the child's difference score. The column header above the child's difference score indicates the percentage of the theoretical normal distribution (base rate) that represents the percentage of the sample that obtained WIAT-II scores lower than their WISC-IV GAI scores by the specified amount or more.

**Table 9 Differences Between WISC-IV GAI Scores and WIAT-II Subtest and Composite Scores for Various Percentages of the Theoretical Normal Distribution (Base Rates): Simple-Difference Method**

| Percentage of Theoretical Normal Distribution (Base Rates) |    |    |    |    |    |    |    |    |    |
|------------------------------------------------------------|----|----|----|----|----|----|----|----|----|
| Subtest/Composite                                          | 25 | 20 | 15 | 10 | 5  | 4  | 3  | 2  | 1  |
| <b>Word Reading</b>                                        | 8  | 10 | 12 | 14 | 18 | 19 | 21 | 23 | 26 |
| <b>Numerical Operations</b>                                | 9  | 11 | 13 | 16 | 21 | 22 | 23 | 26 | 29 |
| <b>Reading Comprehension</b>                               | 8  | 9  | 11 | 14 | 18 | 19 | 20 | 22 | 25 |
| <b>Spelling</b>                                            | 8  | 10 | 13 | 16 | 20 | 21 | 23 | 25 | 28 |
| <b>Pseudoword Decoding</b>                                 | 10 | 12 | 14 | 18 | 23 | 24 | 26 | 28 | 32 |
| <b>Math Reasoning</b>                                      | 8  | 9  | 11 | 14 | 18 | 19 | 20 | 22 | 25 |
| <b>Written Expression</b>                                  | 9  | 11 | 13 | 16 | 21 | 22 | 24 | 26 | 29 |
| <b>Listening Comprehension</b>                             | 7  | 8  | 10 | 13 | 16 | 17 | 18 | 20 | 23 |
| <b>Oral Expression</b>                                     | 10 | 12 | 15 | 19 | 24 | 25 | 27 | 29 | 33 |
| <b>Reading</b>                                             | 7  | 9  | 11 | 14 | 17 | 18 | 20 | 21 | 24 |
| <b>Mathematics</b>                                         | 8  | 9  | 11 | 14 | 18 | 19 | 20 | 22 | 25 |
| <b>Written Language</b>                                    | 8  | 10 | 12 | 15 | 19 | 20 | 22 | 24 | 27 |
| <b>Oral Language</b>                                       | 7  | 9  | 11 | 14 | 17 | 18 | 20 | 21 | 24 |
| <b>Total</b>                                               | 6  | 7  | 9  | 11 | 14 | 15 | 16 | 17 | 20 |

*Note.* Percentages in Table 9 represent the theoretical proportion of WIAT-II scores lower than WISC-IV GAI scores by the specified amount or more.


## Conclusion

This technical report has provided an overview of the GAI, historical context for the development of the GAI, and recommended procedures for determining and interpreting the GAI. This report also has provided recommended procedures for the use of the GAI in ability-achievement comparisons. The GAI provides important information regarding a child's cognitive functioning, but it should never be interpreted in isolation. It is best interpreted in conjunction with a thorough history and careful clinical observations of the child. Many

additional sources of information are typically available to the practitioner: medical, educational, and psychosocial history gathered from both the child and collateral informants, when appropriate; direct behavioral observations; previous test scores; qualitative aspects of test performance; and results from other relevant instruments given in a battery. In addition, the practitioner should evaluate results within the context of the referral question or purpose of the evaluation.

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