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 Pearson Education , 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
6:0–11:11	.15	6
	.05	8
12:0–16:11	.15	6
	.05	8
All Ages	.15	6
	.05	8

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		Amount of Discrepancy
	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	18
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	17
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	16
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	15
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	14
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	13
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	12
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	11
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	10
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	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	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	7
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	6
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	5
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	4
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	3
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	2
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	1
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	Mean
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	*SD*
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	Median

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	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	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	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	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	4.9	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	7.3	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	2.6	17.1	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	2.6	22.0	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	2.6	2.6	24.4	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	10.5	2.6	24.4	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	15.8	2.6	31.7	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	18.4	2.6	34.1	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	26.3	2.6	41.5	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	39.5	5.3	43.9	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	44.7	10.5	46.3	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	55.3	15.8	61.0	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	65.8	15.8	68.3	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	71.1	26.3	73.2	22.0	1
Mean	5.9	2.6	4.5	4.3	5.7	3.8	6.0	5.1	5.7	3.0	5.1	3.0	4.9	3.5	6.8	4.1	**Mean**
SD	3.9	1.1	2.8	1.9	6.4	2.7	3.2	3.7	3.3	1.8	2.5	1.7	2.7	3.3	4.3	2.8	***SD***
Median	5.0	3.0	3.0	4.0	3.0	3.0	6.5	4.0	6.0	3.0	5.0	3.0	5.0	3.0	6.0	3.0	**Median**

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																Amount of Discrepancy
	ADHD (*N* = 89)		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 (+)	
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	8.3	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	8.3	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	8.3	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	5.9	0.0	12.5	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	17.6	0.0	12.5	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	17.6	0.0	16.7	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	17.6	0.0	29.2	0.0	5.6	0.0	12
11	2.4	1.2	0.0	0.0	7.9	0.0	7.1	0.0	0.0	0.0	29.4	0.0	29.2	4.2	5.6	0.0	11
10	6.1	1.2	0.0	0.0	7.9	0.0	14.3	0.0	4.0	0.0	29.4	0.0	37.5	4.2	5.6	0.0	10
9	9.8	1.2	4.5	0.0	18.4	0.0	14.3	0.0	4.0	0.0	47.1	0.0	41.7	4.2	11.1	0.0	9
8	17.1	1.2	9.1	0.0	23.7	0.0	21.4	0.0	8.0	0.0	52.9	0.0	45.8	4.2	22.2	0.0	8
7	19.5	1.2	9.1	0.0	28.9	2.6	28.6	0.0	8.0	0.0	58.8	0.0	58.3	4.2	27.8	0.0	7
6	30.5	4.9	18.2	0.0	34.2	5.3	42.9	0.0	32.0	0.0	58.8	0.0	58.3	8.3	33.3	0.0	6
5	35.4	4.9	31.8	0.0	44.7	10.5	42.9	0.0	40.0	0.0	64.7	0.0	62.5	12.5	55.6	0.0	5
4	39.0	7.3	50.0	9.1	50.0	10.5	50.0	0.0	48.0	4.0	70.6	0.0	70.8	12.5	55.6	0.0	4
3	45.1	9.8	54.5	9.1	60.5	15.8	50.0	0.0	52.0	4.0	76.5	0.0	79.2	12.5	72.2	5.6	3
2	54.9	17.1	68.2	13.6	65.8	21.1	57.1	0.0	64.0	8.0	76.5	0.0	79.2	12.5	88.9	5.6	2
1	65.9	20.7	77.3	13.6	71.1	23.7	71.4	0.0	72.0	12.0	76.5	5.9	87.5	12.5	88.9	11.1	1
Mean	5.0	3.5	4.2	3.3	6.0	3.8	5.8		4.6	2.3	9.2	1.0	8.5	7.3	5.3	2.0	**Mean**
SD	3.2	3.0	2.3	1.2	3.4	2.0	3.9		2.5	1.5	3.8		5.1	3.2	2.9	1.4	***SD***
Median	5.0	2.0	4.0	4.0	5.0	3.0	6.0		5.0	2.0	9.0	1.0	8.0	6.0	5.0	2.0	**Median**

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.

Reporting and Describing the GAI

Standard Score

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

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

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

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

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

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

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.

Ability–Achievement Discrepancy

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* (Pearson Education , Inc., 2002) provides additional details related to the rationale for choosing these methods and the statistical procedures involved.

Predicted-Difference Method

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

	WIAT-II														
	Subtest Scores									Composite Scores					
WISC-IV GAI	WR	NO	RC	SP	PD	MR	WE	LC	OE	RD	MA	WL	OL	TA	WISC-IV GAI
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)

	WIAT-II														
	Subtest Scores									Composite Scores					
WISC-IV GAI	WR	NO	RC	SP	PD	MR	WE	LC	OE	RD	MA	WL	OL	TA	WISC-IV GAI
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	103	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
Word Reading	.05	5	7
	.01	6	9
Numerical Operations	.05	12	9
	.01	16	11
Reading Comprehension	.05	7	8
	.01	9	10
Spelling	.05	8	8
	.01	11	11
Pseudoword Decoding	.05	5	6
	.01	7	8
Math Reasoning	.05	9	9
	.01	12	12
Written Expression	.05	11	12
	.01	15	15
Listening Comprehension	.05	13	13
	.01	17	18
Oral Expression	.05	10	12
	.01	13	15
Reading	.05	5	6
	.01	7	7
Mathematics	.05	9	7
	.01	12	9
Written Language	.05	8	11
	.01	11	14
Oral Language	.05	10	9
	.01	13	11
Total	.05	6	6
	.01	8	8

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

	Percentages of the Theoretical Normal Distribution (Base Rates)								
Subtest/Composite	**25**	**20**	**15**	**10**	**5**	**4**	**3**	**2**	**1**
Word Reading	7	9	11	13	17	18	19	21	24
Numerical Operations	8	10	12	15	19	20	21	23	26
Reading Comprehension	7	9	11	13	17	18	19	21	24
Spelling	8	10	12	14	18	20	21	23	26
Pseudoword Decoding	9	11	13	16	20	22	23	25	28
Math Reasoning	7	9	11	13	17	18	19	21	23
Written Expression	8	10	12	15	19	20	22	24	27
Listening Comprehension	7	8	10	12	15	16	17	19	21
Oral Expression	9	11	13	16	21	22	24	26	29
Reading	7	9	10	13	16	17	19	20	23
Mathematics	7	9	11	13	17	18	19	21	24
Written Language	8	9	11	14	18	19	20	22	25
Oral Language	7	9	10	13	16	17	19	20	23
Total	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 GAI	Ages 12–16 GAI
Word Reading	.05	7	8
	.01	9	11
Numerical Operations	.05	13	10
	.01	17	13
Reading Comprehension	.05	8	9
	.01	11	12
Spelling	.05	10	10
	.01	13	13
Pseudoword Decoding	.05	8	8
	.01	10	10
Math Reasoning	.05	10	10
	.01	13	13
Written Expression	.05	12	12
	.01	16	16
Listening Comprehension	.05	14	14
	.01	18	19
Oral Expression	.05	12	13
	.01	15	17
Reading	.05	7	7
	.01	9	9
Mathematics	.05	10	8
	.01	13	11
Written Language	.05	10	12
	.01	13	15
Oral Language	.05	11	10
	.01	14	13
Total	.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**
Word Reading	8	10	12	14	18	19	21	23	26
Numerical Operations	9	11	13	16	21	22	23	26	29
Reading Comprehension	8	9	11	14	18	19	20	22	25
Spelling	8	10	13	16	20	21	23	25	28
Pseudoword Decoding	10	12	14	18	23	24	26	28	32
Math Reasoning	8	9	11	14	18	19	20	22	25
Written Expression	9	11	13	16	21	22	24	26	29
Listening Comprehension	7	8	10	13	16	17	18	20	23
Oral Expression	10	12	15	19	24	25	27	29	33
Reading	7	9	11	14	17	18	20	21	24
Mathematics	8	9	11	14	18	19	20	22	25
Written Language	8	10	12	15	19	20	22	24	27
Oral Language	7	9	11	14	17	18	20	21	24
Total	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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