WASI–II

WECHSLER ABBREVIATED SCALE OF INTELLIGENCE®–SECOND EDITION

Using the WASI–II with the WAIS®–IV: Substituting WASI–II Subtest Scores When Deriving WAIS–IV Composite Scores

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Introduction

This technical report provides information relevant to substituting scores obtained from four subtests that appear on the *Wechsler Abbreviated Scale of Intelligence®–Second Edition* (WASI–II; Wechsler, 2011) for the corresponding *Wechsler Adult Intelligence Scale®–Fourth Edition* (WAIS–IV; Wechsler, 2008) subtest scores when deriving WAIS–IV composite scores.

A variety of recent changes in the field of psychological testing have placed constraints on the time practitioners have available for psychological testing. For example, the assessment of learning disabilities has become increasingly multifaceted, resulting in various new demands placed on the time and attention of school psychologists. Also, modified insurance reimbursement rates have impacted the time clinical psychologists can devote to psychological testing. The increasing need for efficiency creates a demand for short and reliable measures of cognitive ability.

In some settings, practitioners routinely administer a cognitive ability screener or a short form from a full battery ability test (e.g., a scale that provides two verbal and two nonverbal ability subtests) initially to screen for cognitive issues. A more comprehensive cognitive ability test will be administered when the screening results warrant more testing. Two issues may exist in such practice. First, when the need for comprehensive testing is indicated by the results of the screening, valuable time must be devoted to administering subtests similar to those already administered in the abbreviated measure. Second, the practitioner must interpret the comprehensive test results with caution because the scores from subtests that are similar to the screening test can be impacted due to various factors, such as:

- *procedural learning* (i.e., the acquisition of knowledge or experience, relevant to a strategy or procedure, that can be used to improve performance on a particular task);
- *variation in examinee effort* (perhaps due to boredom or discouragement because a similar task was already administered);
- *regression to the mean* (e.g., the tendency for extreme observations upon first testing to be closer to the mean upon second testing); or
- *the Flynn effect* (i.e., older norms produce inflated scores on intelligence measures; Flynn, 1987, 1999).

Although the last three factors are more bounded to the nature of testing and the psychometrics properties of the instruments selected, the first factor—procedural learning—can be controlled and reduced by choosing an administration procedure that is less prone to such effect. Procedural learning effects have more pertinence to and influence on perceptual domain subtests during re-administration

(Basso, Carona, Lowery, & Axelrod, 2002; Heaton et al., 2001). In addition, repeated testing with the same manipulatives may further inflate scores on perceptual domain subtests in the second testing. For example, the WAIS–IV test–retest data indicated the average rise in scaled-score points and effect sizes from the first to the second testing for Block Design tended to be larger than those observed for the Vocabulary or the Similarities subtests (Wechsler, 2008). While these retest data are also influenced by item practice effects because the items are identical, the relatively larger rise in Block Design scores suggests an additive influence of repeated administration effects. Specifically, as the examinee completes the easier items on Block Design, he or she acquires knowledge of how to construct certain portions of designs (e.g., a triangle shape in a design can be constructed by aligning the half-red sides of a surface of two blocks) that are also present in the designs on later items. This knowledge of construction procedures may then allow the examinee to obtain higher scores upon retest by constructing designs more quickly or accurately. The same type of knowledge is not acquired on the Vocabulary or Similarities items. For retest studies, item practice effects are more likely to be an issue for the Block Design, Vocabulary, and Similarities subtests because the examinee may recall items and research or learn correct responses prior to retest administration.

Procedural learning effects may exist when a comprehensive measure with similar subtests is administered after an abbreviated measure. For instance, when the WASI-II is administered before the WAIS–IV, procedural learning may inflate scores on the corresponding subtests in the WAIS–IV. However, if the results from the screener test can be substituted for the comparable subtest scores on the comprehensive battery, the need for re-administration of measures of strong resemblance can be eliminated and potential score inflation due to procedural learning can also be avoided.

WASI–II Subtests as Substitutes for WAIS–IV Subtests

Two tests in the Wechsler suite of cognitive ability assessments may utilize substitution in this manner: the WASI–II, an abbreviated cognitive ability test for assessing the intelligence of individuals ages 6 years through 90 years, and the WAIS–IV, a comprehensive clinical instrument for assessing the intelligence of adolescents and adults ages 16 years through 90 years. The WASI–II was developed to provide quick and accurate estimates of intellectual functioning for screening and reevaluation purposes. It meets the demands for a short and reliable measure of intelligence in clinical, psychoeducational, and research settings. The scale consists of four subtests: Vocabulary, Similarities, Block Design, and Matrix Reasoning. The subtests are scaled to a *T*-score metric. The WASI–II provides four composite scores: the Verbal Comprehension Index (VCI), the Perceptual Reasoning Index (PRI), the Full Scale IQ–2 Subtest (FSIQ–2), and the Full Scale IQ–4 Subtest (FSIQ–4).

In practice, the WASI–II can be administered as the initial cognitive ability test. When additional assessment is necessary, the WAIS–IV may be administered and the four WASI–II subtest scores may substitute for the corresponding WAIS–IV subtest scores. For example, the WASI–II Similarities *T* score can be converted to a scaled score and substituted for the WAIS–IV Similarities scaled score, eliminating the need to administer the WAIS–IV Similarities subtest. This solution not only reduces WAIS–IV administration time (the administration time for all four subtests that have counterparts in the WASI–II is approximately 30 minutes), but also helps to better maintain examinee–examiner rapport and examinee effort. In addition, this efficiency frees up additional time that the practitioner can use to assist the examinee through other clinical, psychoeducational, and assessment activities.

Important features in creating alternate forms of a test, i.e., content sampling, range and difficulty level of items, instructions, sample items, and presentation format (Anastasi & Urbina, 1997), were emphasized in the development of the original WASI subtests (Wechsler, 1998), as well as in WASI–II. The four subtests were chosen for their strong association with general cognitive abilities (Brody, 1992; Kamphaus, 1993; Kaufman, 1990; Sattler, 2001; Wechsler, 1991, 2009) and for their relationship to constructs of intelligence, such as the verbal/performance and crystallized/fluid dichotomies.

New items added to extend the subtest score range in the WASI–II were subjected to extensive expert reviews based on several criteria, including similarity to the related items on the comprehensive measures, difficulty, ease of scoring, and bias. Outdated items and items that were of duplicate difficulty were deleted to shorten the administration time required. WASI–II administration procedures were also updated to be more consistent with those in the full Wechsler intelligence batteries. These procedures yielded WASI–II subtests comprising items that differ from, but are parallel to, items in the corresponding Wechsler cognitive ability measures. The range and level of difficulty of the items are comparable, as are the instructions, sample items, and presentation format.

Effects of WASI–II Substitution

Substitution with WASI–II subtests provides the opportunity to avoid procedural learning effects and reduce testing time when a subsequent WAIS–IV is administered. The desired WAIS–IV composite score(s) can be derived by converting the WASI–II subtest *T* scores to scaled scores for the corresponding subtests on the WAIS–IV. The practitioner then need only administer the WAIS–IV subtests that are relevant to the desired WAIS–IV composite score(s) for which no corresponding subtest exists on the WASI-II. The remaining sections in this report will present evidence on the effectiveness of the substitution and guidelines for using it.

The following analyses demonstrate the effectiveness of using the WASI–II substitution feature compared to other possible predictive approaches. In brief, comparisons were conducted between the actual obtained composite scores and two methods of obtaining the composite when trying to minimize impact from procedural learning: 1) composite scores obtained when the WASI–II subtest scores were used as substitutes, and 2) composite scores obtained when proration was used without substitution.

Samples

Two samples were used for the proposed analyses. The first sample included 92 examinees who took both the WASI–II and the WAIS–IV during WASI–II standardization. The examinees took the WASI–II first and the WAIS–IV second. The mean testing interval was 24 days (range = 13–73 days). The self/parent education levels of the sample were 8% with ≤8 years, 10% with 9–11 years, 32% with 12 years, 25% with some college, and 26% with a college degree and higher. There were 71% female and 29% male, 60% White, 13% African American, 24% Hispanic, 2% Asian, and 1% other ethnicities. The testing order for this sample simulated the condition where the WASI–II is used as a screener and WAIS–IV is given for full evaluation. This sample is referred to as "the WASI–II sample" for the purposes of this report.

The second sample included 90 examinees who took both the WASI–II and the WAIS–IV during WASI–II standardization, but took the WAIS–IV first and then the WASI–II. The mean testing interval was 21 days (range = 13–91 days). The self/parent education levels of the sample were 7% with ≤8 years, 10% with 9–11 years, 26% with 12 years, 28% with some college, and 30% with a college degree and higher. There were 39% female and 69% male, 64% White, 14% African American, 12% Hispanic, and 9% other ethnicities. Because the WAIS–IV was given first, examinees' performance on the WAIS–IV was not affected by procedural learning effect. This sample was used to provide baselines for mean comparisons and will be referred as "the WAIS–IV baseline sample."

The normative sample collected for the WAIS–IV standardization was used for creating matched-control comparison samples for both the WASI–II and the WAIS–IV baseline samples.

Estimated Composite Scores

Besides the observed WAIS–IV composite scores, two sets of estimated composite scores are computed: estimated composite scores using WASI–II substitution and estimated composite scores using proration.

Substitution Using WASI–II subtests

Using the WASI–II sample, the estimated WAIS–IV composite scores are calculated with the following steps. First, the WASI–II *T* scores are converted to a scaled-score metric per Table A.2 in the WASI–II Manual. The converted scores then replace the scaled scores of the corresponding subtests on the WAIS–IV to derive the new composite estimates. Table 1 contains the composite scores calculated using the WASI–II substitution.

Proration

When administering the WAIS–IV, examiners could use proration based on two subtest scores (for VCI and PRI) or 8/9 subtest scores (for FSIQ) to obtain the sum of scaled scores and the corresponding composite scores. Theoretically, the subtest that is most susceptible to procedural learning could be skipped with the proration approach when a comprehensive measure is given in a subsequent evaluation. A set of scores simulating this administration condition was calculated for the WASI–II sample. Table 1 also presents the types of estimated scores calculated using the proration approach.

Table 1 List of Score Abbreviations and Descriptions

Methods	Scores	Descriptions
Observed	VCI	Actual obtained VCI from standard WAIS–IV administration
	PRI	Actual obtained PRI from standard WAIS–IV administration
	FSIQ	Actual obtained FSIQ from standard WAIS–IV administration
WASI–II Substitution	VCI_sub	VCI using WASI–II Similarities and Vocabulary
	PRI_sub	PRI using WASI–II Block Design and Matrix Reasoning
	FSIQ_sub	FSIQ using four WASI–II subtests
Proration	VCI_noSI	VCI when Similarities is not given
	VCI_noVC	VCI when Vocabulary is not given
	PRI_noBD	PRI when Block Design is not given
	PRI_noMR	PRI when Matrix Reasoning is not given
	FSIQ_noSIBD	FSIQ when Similarities and Block Design are not given
	FSIQ_noSIMR	FSIQ when Similarities and Matrix Reasoning are not given
	FSIQ_noVCBD	FSIQ when Vocabulary and Block Design are not given
	FSIQ_noVCMR	FSIQ when Vocabulary and Matrix Reasoning are not given

Analyses and Results

Comparisons were conducted as mean comparisons between each estimated composite scores to the observed scores, and as percentages of discrepancies between the estimated and observed scores.

Comparisons of the Means

For the mean comparisons, matched-control samples were drawn from the WAIS–IV normative sample for both the WASI–II and WAIS–IV baseline samples. The matched samples were created by matching the examinees on age, self/parent education level, sex, and ethnicity. In the WASI–II sample, where the WAIS–IV was given after the WASI–II, both the Flynn effect and procedural learning effect could contribute to score inflation. The potential influence from the Flynn effect could be evaluated by comparing the WAIS–IV baseline sample with the matched control, because in the baseline sample the WAIS–IV was given before the WASI–II so procedural learning is irrelevant.

Table 2 presents the matched-control study on the baseline sample. There is a small increase in composite scores in the baseline sample compared to the matched sample. Specifically, FSIQ, VCI, and PRI each increases by .6, .7, and .5, respectively. None of these increases is statistically significant nor are they of notable effect size, which was calculated as the standard difference. Therefore, the influence of the Flynn effect on score inflation is expected to be small.

Table 2 Comparison of WAIS–IV Composite Scores: Baseline Sample (*N* = 90)

	Observed		Matched-Control		Difference	Effect Size	*t*-value	*p*
	Mean	STD	Mean	STD				
FSIQ	100.3	13.2	99.7	15.8	-.59	.04	-.39	.69
VCI	100.8	14.9	100.1	15.8	-.68	.04	-.41	.69
PRI	100.3	12.3	99.8	15.5	-.43	.03	-.26	.80

Table 3 shows the mean comparisons on the WASI–II sample where the WASI–II was given before the WAIS–IV. On the obtained composite scores, there are 2.5, 1.1, and 3.4 points difference on the FSIQ, VCI, and PRI, respectively, between the WASI–II sample and the matched sample. The WASI–II sample scores are all higher than the matched controls. Given the results from the baseline sample (Table 2), it is expected that the higher observed scores are largely due to procedural learning from the WASI–II administration prior to the WAIS–IV; however, it is likely that the Flynn effect may contribute about .5 points to these score increases.

Table 3 also shows that when the WASI–II subtest scores were used to substitute the corresponding subtests in the WAIS–IV, the resulting scores are lower than the inflated (i.e., obtained) scores and the difference from the matched controls is minimized. Precisely, the WASI–II-substituted composite scores differ from the matched control by .8, 0, and .2 points on the FSIQ, VCI, and PRI, respectively.

The alternative to substitution is omitting a subtest in the composite that may be the most subjective to procedural learning. These results are presented also in Table 3. It is found that on the VCI, the estimated composite is closer to the matched-control mean when the Similarities subtest was omitted (VCI_noSI, 99.8, or .9 points difference from matched control). On the PRI, Matrix Reasoning seems to have a larger procedural learning effect and the estimated PRI without this subtest is closer to the matched control (PRI_noMR, 101.5, or 2.8 points difference from matched control). Consequently, the FSIQ estimate is closest to the matched sample when Similarities and Matrix Reasoning were discounted (FSIQ_noSIMR, 100.6, or 2.1 points difference from matched control). Among all proration scenarios studied, however, no prorated composite score is closer to the matched-control sample than the estimated scores using the WASI–II substitution approach.

Table 3 Comparison of WAIS–IV Composite Scores: WASI–II Sample (*N* = 92)

	Obtained		Matched-Control		WASI–II Substitution		WAIS–IV Proration		
	Mean	STD	Mean	STD	Mean	STD	Est. Score	Mean	STD
FSIQ	101.0	16.3	98.5	13.9	99.3	15.8	FSIQ_noSIBD	100.9	16.9
FSIQ	101.0	16.3	98.5	13.9	99.3	15.8	FSIQ_noSIMR	100.6	16.3
FSIQ	101.0	16.3	98.5	13.9	99.3	15.8	FSIQ_noVCBD	101.0	16.5
FSIQ	101.0	16.3	98.5	13.9	99.3	15.8	FSIQ_noVCMR	100.7	16.0
VCI	100.0	16.6	98.9	14.4	98.9	15.5	VCI_noSI	99.8	17.6
VCI	100.0	16.6	98.9	14.4	98.9	15.5	VCI_noVC	100.1	16.1
PRI	102.1	14.1	98.7	14.5	98.9	14.3	PRI_noBD	102.3	15.8
PRI	102.1	14.1	98.7	14.5	98.9	14.3	PRI_noMR	101.5	14.8

Comparisons of the Discrepancies

Table 4 reports the percentages of the WASI–II sample obtaining various differences between the obtained and estimated composite scores by substitution. The results are presented for the overall sample and by ability level classified using the WASI–II 4-Subtest FSIQ. Overall, 96.7%, 90.2%, and 70.7% of the discrepancies are less than or equal to 7 points for the FSIQ, VCI, and PRI, respectively. There is not much variation on the percentages of discrepancies for FSIQ across different ability level. For VCI and PRI, however, the substitution outcome seems to be more accurate for low to middle ability ranges than for examinees in the upper ability range. Thus, the WASI–II substitution was more accurate on the FSIQ than for the VCI and PRI. This is likely because the percentages of subtests substituted are higher for index scores (67%) than for the FSIQ (40%). The relatively larger discrepancy on the PRI suggests that there may be more variability in performance due to perceptual reasoning related to factors such as practice, examinee engagement or effort, etc.

Table 4 Percentages of the Various Discrepancies Between the Obtained and WASI–II Substituted Composite Scores by Ability

Composite	Discrepancy	Ability Level by WASI–II FSIQ (4-Subtest)				Total
		40–84	85–100	101–115	116–160	
FSIQ	+/–3	80.0	90.3	79.0	50.0	80.4
	+/–5	93.4	93.5	86.8	100.0	91.3
	+/–7	100.0	100.0	92.1	100.0	96.7
VCI	+/–3	53.3	51.6	44.7	37.5	47.8
	+/–5	73.3	77.4	73.7	50.0	72.8
	+/–7	86.7	96.8	89.5	75.0	90.2
PRI	+/–3	40.0	41.9	31.6	37.5	37.0
	+/–5	60.0	58.1	55.3	37.5	55.4
	+/–7	66.7	71.0	73.7	62.5	70.7

Implications of the Analyses

If the WASI–II has been administered and administration of the WAIS–IV is necessary, administering the WAIS–IV subtests that parallel the WASI–II subtests may result in repeated administration effects that influence the WAIS–IV subtest scores and composite scores. Using the WASI–II substitution produced more consistent measurement results. Therefore, WASI–II substitution is recommended as a best practice consideration that balances accuracy and efficiency.

There are some limitations to this research which may place restriction on the interpretation and generalizability of the results. For example, discrepancies between scores by substitution and obtained scores may exist because the sample used to evaluate substitution took the WASI–II and the WAIS–IV in full. When the discrepancies are presented by ability level, the sample sizes are relatively small in each ability group. Prior research has demonstrated that retest value gains vary according to ability level (Rapport, Brines, Axelrod, & Theisen, 1997). Thus, it is possible that more or fewer differences/similarities across ability levels exist than those demonstrated in the present study. Furthermore, the research samples were composed of nonclinical examinees only, and the results, therefore, may not generalize to clinical populations.

Procedures for WASI–II Substitution

Subtest Administration Order

Table 5 presents the source of the subtest (i.e., WASI–II or WAIS–IV) and the subtest administration order to be used when various WAIS–IV composite scores will be derived using WASI–II scores. The administration order of the remaining WAIS–IV subtests should follow the subtest order on the WAIS–IV Record Form. In order to establish rapport with the examinee before the administration of the WAIS–IV, the examiner may engage the examinee in a relaxing or fun task prior to starting with Digit Span.

Table 5 Subtest Administration Order When Deriving WAIS–IV Composite Scores Using WASI–II Subtest Scores

Subtest Order	Source	WAIS–IV Composite Score		
		FSIQ	VCI	PRI
Block Design	WASI–II	✓		✓
Vocabulary	WASI–II	✓	✓	
Matrix Reasoning	WASI–II	✓		✓
Similarities	WASI–II	✓	✓	
Digit Span	WAIS–IV	✓		
Arithmetic	WAIS–IV			
Symbol Search	WAIS–IV			
Visual Puzzles	WAIS–IV			
Information	WAIS–IV	✓	✓	
Coding	WAIS–IV	✓		

Testing Interval

Minimizing the time that elapses between administration of the WASI–II and the remaining WAIS–IV subtests is recommended as best practice. Intervening events in the examinee's life or changes in his or her health or mental status between administration of the WASI–II and administration of the remaining WAIS–IV subtests may decrease consistency of results and increase difficulty in interpretation. However, it is left to the clinical judgment of the practitioner to determine whether the testing interval is appropriate, given the examinee's individual situation.

Using WASI–II Scaled Scores to Derive WAIS–IV Composite Scores

After the WASI–II subtest *T* scores are derived, use the following steps to determine the examinee's scaled score for each of the WASI–II subtests. The WASI–II converted subtest scaled scores are then summed with the remaining WAIS–IV subtest scaled scores to derive the desired composite scores (e.g., VCI, PRI, and FSIQ).

Step 1. Converting WASI–II *T* Scores to Scaled Scores

To convert *T* scores to scaled scores, use Table A.2 in the WASI–II Manual. For each WASI–II subtest, locate the examinee's *T* score. Read across the row to the Scaled Score column.

Step 2. Recording the WASI–II Converted Scaled Scores on the WAIS–IV Record Form

On the front page of the WAIS–IV Record Form, locate the Total Raw Score to Scaled Score Conversions table. To ensure that the substitution is clear to others who may access records in the future, do not record the WASI–II subtest total raw scores on the WAIS–IV Record Form. Record only the WASI–II subtest scaled scores in the column immediately to the right of the Raw Score column and in every unshaded box to the right. For example, the WASI–II Matrix Reasoning converted scaled score is entered in the first column under Scaled Scores and in the columns labeled Perc. Rsng. and Full Scale. Clearly indicate above the Total Raw Score to Scaled Score Conversions table that substitution was used by noting, for example, "WASI–II converted scores used for BD, SI, MR, and VC subtest scaled scores." Examiners may wish to mark through the Block Design, Similarities, Vocabulary, and Matrix Reasoning sections of the WAIS–IV Record Form as a reminder not to administer those WAIS–IV subtests. If possible, attach the WASI–II Record Form to the WAIS–IV Record Form after the WAIS–IV has been administered and scored.

Step 3. Completing the WAIS–IV Record Form Summary Page

After the WASI–II converted subtest scaled scores have been recorded, refer to the Completing the Summary Page section of Chapter 2 in the *WAIS–IV Administration and Scoring Manual* (Wechsler, 2008) to finish calculating the desired WAIS–IV composite scores.

Substituting WASI–II Scores Using the WAIS–IV Scoring Assistant

When the WAIS–IV Scoring Assistant is used, it is necessary to derive a raw total score for each substituted subtest to enter into the Scoring Assistant. Table 6 provides raw score equivalents by age for this purpose. Follow two simple steps: First, locate the section in Table 6 that corresponds to the examinee's age at testing. Second, find the *T* score for one WASI–II subtest and read across to the column for that subtest to obtain the WAIS–IV raw score equivalent. Do this for each of the four subtests.

Enter the subtest raw scores obtained from the table for the substituted subtests in the WAIS–IV Scoring Assistant. Clearly indicate in the comments field or elsewhere in the final report that substitution was used by noting, for example, "WASI–II converted scores used for BD, SI, MR, and VC subtest scaled scores."

Conclusion

Although it is best practice to administer the full WAIS–IV if the WASI–II has not been administered, WASI–II substitution is recommended as a best practice consideration due to repeated administration effects, particularly if the WASI–II has been administered relatively recently (i.e., within 2–12 weeks prior to WAIS–IV administration). If the practitioner is concerned that repeated administration effects continue to impact performance after longer intervals (e.g., 6 months), WASI–II substitution might be utilized with more caution in these cases. These concerns will vary across ability level and across individuals, as will intervening events and cognitive development between administration of the WASI–II and the WAIS–IV; therefore, the practitioner should use clinical judgment in determining if substitution is appropriate in the examinee's individual case. In cases where WASI–II substitution is utilized, it is recommended that practitioners specify in the testing report that WAIS–IV scores were derived by WASI–II substitution.

Table 6 WAIS–IV Subtest Raw Score Equivalents for WASI–II *T* Scores for Substitution Using WAIS–IV Scoring Assistant

T Score	Ages: 16–17				Ages: 18–19				Ages: 20–24				Ages: 25–29				*T* Score
	BD	VC	MR	SI	BD	VC	MR	SI	BD	VC	MR	SI	BD	VC	MR	SI	
20–21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20–21
22–24	8	1	5	6	8	2	5	7	7	2	5	8	6	3	5	8	22–24
25–28	11	3	6	8	11	4	6	9	10	5	6	10	9	6	6	10	25–28
29–31	15	6	8	10	15	7	8	11	14	9	8	12	14	10	8	12	29–31
32–34	20	10	10	12	20	11	10	13	19	13	10	14	19	14	10	14	32–34
35–38	25	14	12	14	25	15	12	15	24	17	12	16	24	18	11	17	35–38
39–41	30	18	14	16	30	19	14	17	30	21	14	18	29	22	13	19	39–41
42–44	36	22	15	19	36	23	15	20	35	25	15	20	35	26	15	21	42–44
45–48	41	25	17	21	41	26	17	22	40	28	17	22	39	30	17	22	45–48
49–51	45	29	19	23	45	30	19	23	45	32	19	24	44	33	19	24	49–51
52–54	49	32	20	24	49	33	20	25	49	35	20	26	49	37	20	27	52–54
55–58	54	36	22	26	53	37	22	27	53	38	22	28	53	40	21	29	55–58
59–61	57	39	23	27	56	40	23	28	56	42	23	29	56	44	22	30	59–61
62–64	59	42	24	29	59	43	24	30	59	45	24	31	59	47	23	31	62–64
65–68	61	44	25	30	61	46	25	31	61	48	25	32	61	50	24	33	65–68
69–71	63	47	25	31	63	49	25	32	63	50	25	33	63	52	25	34	69–71
72–74	64	49	26	32	64	51	26	33	64	52	26	34	64	53	26	35	72–74
75–78	65	51	26	33	65	53	26	34	65	53	26	35	65	54	26	36	75–78
79–80	66	53	26	34	66	54	26	35	66	54	26	36	66	55	26	36	79–80

T Score	Ages: 30–34				Ages: 35–44				Ages: 45–54				Ages: 55–64				*T* Score
	BD	VC	MR	SI	BD	VC	MR	SI	BD	VC	MR	SI	BD	VC	MR	SI	
20–21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20–21
22–24	6	4	4	8	5	5	3	8	4	5	2	7	4	4	2	6	22–24
25–28	9	7	5	10	8	8	5	10	7	8	4	9	7	7	4	8	25–28
29–31	13	11	7	12	12	12	6	13	11	12	6	12	11	11	5	11	29–31
32–34	18	15	9	14	17	16	8	15	16	16	7	14	15	16	6	13	32–34
35–38	23	19	11	17	22	20	10	17	20	21	9	17	19	20	8	16	35–38
39–41	28	23	13	19	27	24	12	19	25	24	11	19	23	24	10	18	39–41
42–44	33	27	15	21	31	28	14	21	29	28	13	21	26	28	12	20	42–44
45–48	38	31	17	23	36	32	16	23	34	33	15	23	31	32	13	23	45–48
49–51	43	35	18	25	41	36	18	25	38	37	16	25	34	37	15	25	49–51
52–54	48	38	20	27	46	40	20	28	42	41	18	28	38	41	16	27	52–54
55–58	52	42	21	29	50	44	21	30	47	45	20	30	43	45	18	29	55–58
59–61	55	46	22	30	54	48	22	31	51	48	21	31	47	48	20	30	59–61
62–64	58	49	23	32	57	50	23	32	55	51	22	32	51	51	21	32	62–64
65–68	61	51	24	33	60	53	24	33	58	53	23	33	55	53	22	33	65–68
69–71	63	53	25	34	62	54	25	34	61	54	24	34	58	54	23	34	69–71
72–74	64	54	25	35	64	55	25	35	63	55	25	35	61	55	24	35	72–74
75–78	65	55	26	36	65	56	26	36	65	56	26	36	64	56	25	36	75–78
79–80	66	56	26	36	66	57	26	36	66	57	26	36	66	57	26	36	79–80

(continued on next page)

Table 6 WAIS–IV Subtest Raw Score Equivalents for WASI–II *T* Scores for Substitution Using WAIS–IV Scoring Assistant *(continued)*

T Score	Ages: 65–69				Ages: 70–74				Ages: 75–79				Ages: 80–84				*T* Score
	BD	VC	MR	SI	BD	VC	MR	SI	BD	VC	MR	SI	BD	VC	MR	SI	
20–21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20–21
22–24	4	3	2	5	3	2	2	4	3	2	1	4	3	2	1	3	22–24
25–28	7	6	3	7	6	5	3	6	6	5	2	6	6	4	2	5	25–28
29–31	10	10	4	10	9	9	4	9	9	8	3	8	8	7	3	7	29–31
32–34	14	15	5	12	13	14	5	11	12	13	4	10	11	11	4	9	32–34
35–38	17	19	7	15	16	18	6	14	14	17	5	13	13	15	5	12	35–38
39–41	21	23	8	17	19	22	7	16	17	21	6	15	15	19	6	14	39–41
42–44	24	28	10	19	22	27	8	18	20	26	7	17	18	25	7	16	42–44
45–48	28	32	12	22	26	31	10	21	23	30	9	20	21	29	8	19	45–48
49–51	31	36	13	24	29	35	12	23	27	34	11	22	24	33	9	21	49–51
52–54	35	40	15	26	32	39	13	25	30	38	12	24	27	37	11	23	52–54
55–58	39	44	17	28	36	43	15	27	34	42	14	26	31	41	12	25	55–58
59–61	43	47	18	30	40	47	17	29	37	46	15	28	34	45	14	27	59–61
62–64	47	50	20	31	44	50	18	30	41	49	17	29	38	48	15	28	62–64
65–68	51	53	22	33	48	52	20	32	45	52	19	31	41	51	17	30	65–68
69–71	55	54	23	34	52	54	22	33	49	54	21	32	45	53	19	31	69–71
72–74	58	55	24	35	56	55	23	34	53	55	22	33	49	55	21	32	72–74
75–78	62	56	25	36	60	56	24	35	57	56	24	34	53	56	23	33	75–78
79–80	66	57	26	36	64	57	25	36	61	57	25	35	57	57	25	34	79–80

T Score	Ages: 85–90				*T* Score
	BD	VC	MR	SI	
20–21	0	0	0	0	20–21
22–24	3	1	0	2	22–24
25–28	5	3	1	4	25–28
29–31	7	6	2	6	29–31
32–34	9	10	3	8	32–34
35–38	11	14	4	11	35–38
39–41	13	18	5	13	39–41
42–44	15	23	6	15	42–44
45–48	18	27	7	17	45–48
49–51	21	31	8	20	49–51
52–54	24	36	9	22	52–54
55–58	27	40	11	24	55–58
59–61	31	44	12	26	59–61
62–64	34	47	14	27	62–64
65–68	37	50	16	29	65–68
69–71	41	52	18	30	69–71
72–74	45	54	20	31	72–74
75–78	49	55	22	32	75–78
79–80	53	56	24	34	79–80

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