WASI-II Supplementary Analysis: Using WASI-II with WISC-IV Australian

Technical Note

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The WASI-II has been designed so that the WASI-II subtests can be substituted for parallel subtests in the WISC-IV (WASI-II Substitution). However, the Australian Standardisation Edition of the WISC-IV (WISC-IV Australian) uses Australian norms to score subtests and the WASI-II uses US norms to score subtests. While previous research has indicated differences between the WISC-IV US and WISC-IV Australian norms (Wechsler, 2005), WASI-II Substitution can only be performed with four out of the ten core WISC-IV subtests. A supplementary analysis was therefore undertaken to investigate the impact on test scores of using US norms to score only four subtests within the WISC-IV Australian, specifically those WISC-IV subtests that the WASI-II subtests parallel. The aim of this analysis was to gain an understanding of the likely impact of using US norms with the WISC-IV Australian and therefore whether the US normed WASI-II can be used with the Australian normed WISC-IV.

The supplementary analysis used the 2003 WISC-IV Australian standardisation sample (n=851; Wechsler, 2005) and looked at the difference in Vocabulary (VC), Similarities (SI), Block Design (BD), and Matrix Reasoning (MR) subtest scores and Verbal Comprehension Index (VCI), Perceptual Reasoning Index (PRI) and Full Scale IQ (FSIQ) composite scores when the data was calculated (a) using all Australian norms, and (b) partly with WISC-IV US norms. Specifically, scores were calculated (a) using only the procedures and norm tables outlined in the WISC-IV Australian Administration and Scoring Manual ('All Australian'; Wechsler, 2005) and (b) with the four WISC-IV subtests that the WASI-II subtests replace (BD, SI, VC, MR) scored using the WISC-IV U.S. norms, and the remaining six core subtests and composite scores calculated according to the procedures and norm tables outlined in the WISC-IV Australian Administration and Scoring Manual ('Part U.S.'; Wechsler, 2005). A comparison of the mean composite scores for VCI, PRI and FSIQ produced by the two different norming approaches was undertaken and the results are shown in Table 1.

Table 1

Mean Difference Between the All Australian and Part U.S. WISC-IV Composite Scores

Composite Score	N	All Australian Norms Mean	Part U.S. Norms Mean	Mean Difference	Effect Size
VCI	848	98.4	98.1	0.25	0.02
PRI	850	100.2	101.6	-1.49	-0.11
FSIQ	842	99.3	99.8	-0.45	-0.04

Given the large sample size used in the current study, t-tests were not the appropriate method for evaluating the mean differences. Instead, the effect size (e.g., Cohen's d) was used to determine whether the mean differences were statistically meaningful. The resulting d statistics (effect sizes) ranged from 0.02 to -0.11 and according to Cohen's (1988) descriptive scheme would be defined as trivial in size.

A discrepancy analysis was also undertaken and Table 2 shows the cumulative frequencies of the discrepancies between the subtest and composite scores generated by the All Australian and Part U.S. norming approaches.

Table 2

Cumulative Frequency of Score Discrepancy between All Australian and Part U.S. Scores

	Scaled Scores				Composite Scores		
	BD	SI	VC	MR	VCI	PRI	FSIQ
-5					0.1	1.2	
-4					1.4	11.9	0.1
-3					2.7	14.1	0.8
-2					13.2	60.7	11.9
-1	45.6	17.7	3.6	27.0	16.3		43.7
0	100.0	100.0	65.8	100.0	69.1	100.0	89.0
1			100.0		73.4		100.0
2					98.8		
3					100.0		

According to Table 2, the discrepancies for the four subtest scores were all equal to or less than 1 scaled score point, while 99.2%, 96.1% and 85.9% of the discrepancies for the FSIQ, VCI and PRI (respectively) were less than or equal to 2 standard score points.

Overall, the finding indicate that the effect that resulted from using the WISC-IV US norms to score the four WISC-IV subtests (BD, SI, VC, MR) on the WISC-IV Australian VCI, PRI and FSIQ composite scores was negligible and will generally produce only small score differences. The impact on test scores of using the U.S. norms for the four parallel WASI-II subtests (BD, SI, VC, MR) within the WISC-IV Australian is also therefore likely to be negligible. Considering these findings indicate that the limited use of US WASI-II norms within the WISC-IV Australian is likely to have a negligible impact on test scores, where appropriate, WASI-II Substitution can therefore be undertaken with the WISC-IV Australian.

In terms of the procedures for WASI–II Substitution with the WISC-IV Australian, these are the same as those outlined in the WASI-II Administration and Scoring Manual and the technical report *Using the WASI–II with the WISC®–IV: Substituting WASI–II Subtest Scores When Deriving WISC–IV Composite Scores* (Zhu & Raiford, 2011).

References

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates

Wechsler, D. (2005). *WISC-IV Australian standardisation edition*. Sydney: Pearson Clinical and Talent Assessment.

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