



PRACTICAL RESOURCES
for the
Mental Health
PROFESSIONAL



Culture and Children's Intelligence

Cross-Cultural Analysis of the WISC-III

Edited by
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Lawrence G. Weiss
Fons J.R. van de Vijver
Donald H. Saklofske





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Psychologists and special educators are increasingly called upon to assess students newly immigrated from another country. The Wechsler tests are perhaps the most widely translated intelligence tests in the world and yet, little is known about the standardization efforts in different countries or how well the WISC-III travels across country, cultural and linguistic borders. This book informs professionals about these issues with respect to 16 different countries in which the WISC has been translated and validated for use.

Sources for obtaining translated versions are provided so that psychologists can assess immigrant students with greater confidence in multiple languages, and the assistance of a bilingual examiner. Issues presented are history of the development of the Wechsler tests, use of the WISC-III in each country and its potential use with ethnic groups in multicultural societies, and intelligence and cognitive processes from cross-cultural and indigenous perspectives. Relationships between WISC-III scores and affluence and education are also discussed.

The cross-cultural analysis of the data strongly indicates that the WISC-III is a remarkably robust measure of intelligence with cross-cultural relevance. It would appear that over fifty years of experience with the Wechsler tests and the periodic revisions during this period have resulted in a refined and valid measure of cognitive processes that has considerable power for assessing children's intelligence, even in different cultural contexts.

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The standardization of the Hellenic Wechsler Intelligence Scale for Children—Third Edition (WISC-III) began in 1993 and was completed in 1997 by the Psychometric Laboratory of the Department of Psychology of the School of Philosophy of the University of Athens (Wechsler, 1997). Psychologists have employed the WISC-R and the WISC for many years in Greece, but these versions were based mostly on translations by individual psychologists from the U.S. WISC without authorization. The norms employed were based on the U.S. sample and not on a representative sample of Greece. As expected, the evaluation of cognitive functioning and computation of IQs and Scaled Scores with the U.S. version of the WISC based on American norms led to questionable diagnoses and prognostic decisions.

The standardization of the WISC-III in Greece was subsequently necessary in order to provide a reliable and valid measure of children's intelligence.

Intelligence and aptitude tests standardized in Greece in the past were an Intelligence Test for Children (Georgas, 1971, 1972), for children ages 6–12 and the Greek adaptation of the Illinois Test for Psycholinguistic Abilities (Paraskevopoulos, 1973). There has been an increase of adaptations and construction of Greek psychological tests during the past 10 years, primarily personality scales, but also tests of learning disabilities (Paraskevopoulos, Kalantzi-Azizi, & Giannitsas, 1999).

ADAPTATION PROCESS

The UK version of the WISC-III (Wechsler, 1992) was employed in the standardization of the Hellenic WISC-III. The adaptation process began with an examination of primarily the verbal items for cultural bias. History of use of the WISC test in Greece indicated that Greek children did not have problems with the nonverbal items. Thus, they appeared to be valid for use in Greece. A panel of experts, including the authors, examined the items of the verbal scales for potential cultural bias. Items from the Greek culture were added as parallel items to those UK items which appeared to be culturally biased, with the intention of making a final decision which items to select for the standardization after the pilot study. Greece has a special problem in terms of item bias. Because many scientific or technical terms have Greek roots, some difficult items in the English language are very simple in Greek. For example in the Information subtest, "hieroglyphics" is not a difficult item in Greek. Also, "capital of Greece" could obviously not be employed and the capital of Portugal was substituted.

Thus, in addition to items from the UK version, items from the Greek culture were also added to the pilot test version. The number of items employed for the pilot study was 30 for Information, 26 for Similarities, and 80 Vocabulary items split into two forms. For Comprehension, an initial study with 40 children indicated that one item, paperback books and hardcover books, was not appropriate since in Greece hardcover books are expensive and most printed books are paperback and school books are all paperback, etc. An item comparing phonograph records and cassettes was substituted.¹ These 18 items were employed for the pilot study and the standardization. The 24 Arithmetic items were maintained, with changes in content. That is, because in some items, differences in monetary value between the pound sterling and the drachma were so great, e.g., 1 pound equaled over 500 drachmas at the time of the standardization, the question was framed differently, without money, but maintaining the same calculations. For example, an item such as, "Phil was paid 25 pounds. He was paid 5 pounds an hour. How many hours

¹In the meantime, cassettes have been replaced by CDs, and it appears that the replacement of CDs with flexible discs which resemble phonograph records is only a matter of time. This appears to be the danger of employing items based on current technology, which changes so rapidly, in these tests.

(SEm)	1.50	\bar{b}	1.34	\bar{b}	1.70	\bar{b}	1.72	1.25
Mazes	0.78	0.67	0.66	0.81	0.75	0.46	0.82	.73
(SEm)	1.41	1.72	1.75	1.31	1.50	2.20	1.85	1.26
Verbal IQ	0.94	0.95	0.95	0.97	0.96	0.97	0.97	.96
(SEm)	3.61	3.22	3.29	3.07	2.85	2.64	2.42	1.75
Performance IQ	0.94	0.95	0.94	0.96	0.96	0.95	0.96	.95
(SEm)	3.70	3.32	3.64	3.58	3.07	3.49	3.11	1.80
Full scale IQ	0.87	0.90	0.90	0.92	0.93	0.92	0.94	0.91
(SEm)	5.41	4.84	4.74	4.24	4.11	4.27	3.79	2.12
Percept. organ. index	0.96	0.97	0.96	0.97	0.97	0.96	0.97	0.97
(SEm)	3.00	2.72	3.07	2.55	2.46	2.85	2.81	1.67
Processing speed index	0.98	0.982	0.972	0.971	0.972	0.972	0.972	0.98
(SEm)	2.12	2.01	2.51	2.60	2.51	2.51	2.51	1.53

^a *N* varies with group. The reliability coefficients for all subtests except Coding and Symbol Search are split-half correlations corrected by the Spearman-Brown formula. For Coding and Symbol Search, raw-score test-retest correlations are presented for four age groups; these coefficients, which are based on samples of 50 children tested twice, were corrected for the variability of the appropriate standardization group (Guilford & Fruchter, 1978). The coefficients for the IQ and factor-based scales were calculated with the formula for the reliability of the composite (Nunnally, 1978); the values for the supplementary subtests (Digit Span, Mazes, and Symbol Search) were not included in these computations. The standard errors of measurement are reported in scaled-score units for the subtests, in IQ units for the Verbal, Performance, and Full Scale scores, and in index units for the Perceptual Organization, and Processing Speed scores. For the Freedom from Distractibility Index no coefficients are reported since this factor does not emerge in the Greek data. Also, for the Verbal Comprehension Index, no coefficients are reported since the respective first factor in the Greek data is the same with the Verbal IQ index.

^b For Coding and Symbol Search, the best estimates of the reliability coefficient at an age level for which retesting was not done is the value obtained at the adjacent age level. These "best estimates" for Coding and Symbol Search were used for computing the reliabilities of the composites to which these subtests contribute. For ages 14 and 15 the reliability coefficient of age 16 was used as the best possible estimate.

^c The average *r* was computed with Fisher's *z* transformation. The average Standard Errors of Measurement (SEMs) were calculated by averaging the sum of the squared SEMs for each age group and obtaining the square root of the results.

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TABLE 13.5 Maximum-Likelihood Factor Loadings (Varimax Rotation) for Three Factors

Subtest/scale	Factor 1: Verbal comprehension			Factor 2: Perceptual organization			Factor 3: Processing speed					
	Ages			Ages			Ages					
	6-7	8-10	11-13	14-16	6-7	8-10	11-13	14-16	6-7	8-10	11-13	14-16
Information	0.68	0.80	0.73	0.80	0.24	0.26	0.26	0.26	0.31	0.24	0.12	0.10
Similarities	0.73	0.71	0.75	0.72	0.23	0.27	0.23	0.23	0.00	0.20	0.19	0.29
Arithmetic	0.73	0.49	0.52	0.43	0.25	0.24	0.48	0.36	0.87	0.37	0.14	0.16
Vocabulary	0.69	0.68	0.82	0.76	0.19	0.30	0.17	0.20	0.19	0.31	0.17	0.25
Comprehension	0.54	0.57	0.56	0.49	0.22	0.21	0.22	0.17	0.20	0.26	0.06	0.09
Picture completion	0.23	0.42	0.38	0.21	0.46	0.51	0.40	0.51	0.13	0.21	0.15	0.01
Picture arrangement	0.20	0.45	0.38	0.31	0.60	0.39	0.41	0.51	0.16	0.26	0.13	0.19
Block design	0.26	0.37	0.28	0.21	0.69	0.66	0.71	0.75	0.09	0.25	0.26	0.33
Object assembly	0.17	0.19	0.13	0.16	0.68	0.81	0.70	0.72	-0.04	0.18	0.09	0.24
Coding	0.16	0.27	0.19	0.27	0.34	0.25	0.21	0.18	0.15	0.69	0.96	0.58
Symbol search	0.30	0.24	0.26	0.17	0.38	0.24	0.41	0.24	0.19	0.66	0.41	0.72
Digit span	0.33	0.34	0.28	0.33	0.30	0.18	0.19	0.19	0.16	0.38	0.17	0.23
Mazes	0.09	0.18	0.20	0.16	0.58	0.46	0.46	0.45	0.12	0.20	0.09	0.13

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