

RELIABILITY OF THE PRUEBA DE COORDINACIÓN  
CORPORAL PARA NIÑOS  
(BODY COORDINATION TEST FOR CHILDREN)<sup>1</sup>

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*Summary.*—Reliability coefficients of .94 for stability and .95 for internal reliability were obtained by the same rater for a Spanish version of the Body Coordination Test for Children (Körperkoordinationstest für Kinder, KTK) given to 90 children. Interrater agreement of .99 when scoring performances simultaneously and .90 over an 8-day interval were obtained with 120 subjects. Sex, grade, group of children, and treatment were significant sources of variation.

Testing can help resolve situations in the teaching-learning process if the information obtained from the instruments is reliable and objective for the culture in which they are used. The Body Coordination Test for Children, a translation of the KTK, Körperkoordinationstest für Kinder, developed in West Germany by Schilling (1974) includes the items of (1) walking backwards on a balance beam, (2) hopping over obstacles, (3) jumping laterally, and (4) moving the body and a small platform sideways.

A Spanish version, Prueba de Coordinación Corporal para Niños, was developed and administered to kindergarteners, first and second graders of two separate samples. In the first, to assess reliability, the same rater administered the test twice, with an 8-day interval, to 30 children of each grade ( $n = 90$ ). In the second sample, to assess interrater reliability, a double Latin square design (Boschini & Woodburn, 1989) was used by two raters with 120 subjects (40 from each level divided into two groups of 10 boys and 10 girls each). Differences were studied between (A) the tasks: (1) either give directions and score or (2) independently only score the child's performance, (B) the two groups of 20 children in each grade, (C) the raters themselves, and (D) the treatments (the first or second testing experience). The test was repeated after an 8-day period when the raters switched tasks with the opposite group of children from the same sample; see Table 1. The Pearson correlations between treatments were provided for both samples, and the Cronbach alpha coefficient was calculated for the first sample ( $n = 90$ ) to estimate the internal reliability of the test. In addition, the influence of

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TABLE 1  
DISTRIBUTION OF DOUBLE LATIN SQUARE DESIGN USED IN DETERMINING  
INTERRATER RELIABILITY OF BODY COORDINATION TEST

Group	n	Task 1:		Task 2:	
		Give Directions and Score		Score Only	
		Rater A	Rater B	Rater A	Rater B
1	20	Treatment 1	Treatment 2	Treatment 2	Treatment 1
2	20	Treatment 2	Treatment 1	Treatment 1	Treatment 2

sex, grade, task, source-group of children, rater, and treatment was assessed through a three-way classification analysis in a factorial arrangement: 2 sexes  $\times$  3 grades  $\times$  8 levels in a nested objectivity arrangement of the repeated Latin square (Table 2).<sup>3</sup> A similar analysis was made in the reliability study ( $n = 90$ ), eliminating the sources of variation "raters" and "tasks" (Table 3).

TABLE 2  
THREE-WAY CLASSIFICATION ANALYSIS OF VARIATION USED  
TO DETERMINE INTERRATER RELIABILITY: (OBJECTIVITY) ( $N = 120$ )

Source	df
Sexes	1
Grades	2
Objectivity	7
Tasks	1
Groups of Children	1
Raters	1
Treatments	1
Not Explained	3
Sexes by Grades	2
Sexes by Objectivity	7
Grades by Objectivity	14
Sexes by Grades by Objectivity	14
Residual	432
Total	479

In assessing stability with the same rater over a week's time, the Pearson correlation between treatments was .94 ( $df, 89$ ). The Cronbach alpha estimate of internal reliability was .95 ( $df, 89$ ). Significant sources of variation ( $p < .01$ ) in this sample were sex ( $F_{1,168} = 10.04$ ) and grade ( $F_{2,168} = 81.84$ ). Correlations were also high for interrater scoring: .90 ( $df, 119$ ) over a week and .99 ( $df, 119$ ) when the raters simultaneously scored the child's performance. Significant sources of variation ( $p < .01$ ) in this sample were grade ( $F_{2,432} = 132.80$ ) and objectivity ( $F_{7,432} = 7.20$ ), and inside within objectivity,

<sup>3</sup>Tables of means and standard deviations are on file in Document NAPS-04777. Remit \$8.95 for photocopy or \$4.00 for fiche to Microfiche Publications, POB 3513, Grand Central Station, New York, NY 10017.

group of children ( $F_{1,3} = 52.13$ ) and treatment ( $F_{1,3} = 100.08$ ) were significant. Greater body coordination ( $p < .01$ ) was observed in the reliability process

TABLE 3  
THREE-WAY CLASSIFICATION ANALYSIS OF VARIATION  
USED TO DETERMINE RELIABILITY ( $N = 90$ )

Sources of Variation	<i>df</i>
Sexes	1
Grades	2
Treatments	1
Sexes by Grades	2
Sexes by Treatments	1
Grades by Treatments	2
Sexes by Grades by Treatments	2
Residual	168
Total	179

for boys than for girls on three items: walking backwards on a balance beam, hopping over an obstacle, and moving the body and a small platform sideways. Older children showed greater control on all four test items than pre-schoolers.

#### REFERENCES

- BOSCHINI, C., & WOODBURN, S. S. (1989) Statistical analysis of test objectivity based on the Latin square design. Submitted for publication.
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