COMPARISON OF BILINGUAL CHILDREN ON THE WISC-R
AND THE ESCALA DE INTELIGENCIA WECHSLER PARA NIÑOS

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A comparison was made of bilingual Puerto Rican students' scores on the WISC-R
and the Escala de Inteligencia Wechsler Para Ninos to see whether there were any
differences in scores based on the language in which they were tested. These children
were determined to be equally proficient in English and Spanish, based on scores from
the Dailey Language Facility Test. There were no significant differences between the
Full Scale and the Verbal Scale scores on both tests, but significant differences were
found between the Verbal and Performance Scale scores on both tests. Caution in
testing bilingual children before determination of bilinguality, as well as further
research into development of intelligence tests for individual culture groups, is
recommended.

Increased public concern over labeling of bilingual school children has focused
attention on the testing practices that deal with these minorities. Dissatisfaction with
testing has been expressed by individuals and organized groups, and, as a result of a
series of court decisions, recent federal legislation has called for psychological and
academic testing appropriate for the cultural and linguistic background of the child (PL
94-142, 1975). The problem educators face is finding the best and most non-
discriminatory method to evaluate these children, particularly those of Hispanic
background. The question arises: "When administering standardized tests for classification
purposes, in which language will these children perform best?"

Previous research on assessment of children with different cultural and linguistic
backgrounds has reported varying results. Most studies have shown that assessing
bilingual children with intelligence tests in English underestimates their true abilities
(Kittell, 1963; Levandowski, 1975; Mitchell, 1937). In contrast, no differences between
English and Spanish scores of Mexican-American children on the WISC were found by
Palmer and Gaffney (1972). Two studies involving the WISC have been done in which
there has been immediate oral translation of English instructions into Spanish by an in-
terpreter. In one case (Swanson & DeBlassie, 1971), a Spanish translation was used when
the English instructions were not understood by the subject. In the second study
(Holland, 1960), all instructions were interpreted in Spanish as well as English. Swanson
and DeBlassie reported nonsignificant differences in scores of bilingual children on the
English language version of the WISC as opposed to scores on a bilingual interpretation
of the WISC. But Holland found "bilingual" scores to be higher for bilinguals in a
similar study involving the WISC.

Few explanations have been offered to account for the various findings. Only one of
the studies (Levandowski, 1975) assessed bilingual children in a formal manner for
bilingualism, and in cases where children achieved higher scores in one language than in
another, language proficiency may have played a part.

Quality of the translated versions of some of the tests may have had an effect on
results in some studies. In one case (Keston & Jiminez, 1954), Spanish-American
children in New Mexico were tested with a Spanish translation of the Stanford-Binet

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Ohio State University, 366 Arps Hall, 1945 N. High St., Columbus, OH 43210.
made by a professor in Madrid, Spain. This translation may have contained vocabulary or modes of expression unfamiliar to Mexican-American children.

There is no easy alternative when it comes to testing bilingual children. It seems logical that children will score higher when tested in the language in which they are more proficient. Therefore, a primary concern in testing bilingual children should be determining receptive expressive language strengths before deciding on an appropriate measure.

The focus of the present study was to compare the performance of Puerto Rican children, who were determined to be bilingual as measured by a formal language proficiency test, on two tests of intelligence, one in English and one in Spanish. The test in Spanish was translated and developed in Puerto Rico. The subjects were attending a school with a bilingual program in the primary grades. It was hypothesized that children whose primary language was reinforced at school would achieve high scores on a test that was translated into that language and developed specifically for their culture group.

It was also hypothesized that these subjects would achieve higher scores on the Performance Scales than on the Verbal Scales. Previous research has shown that a bilingual child generally will score higher on a nonverbal than on a verbal task (Altus, 1953; Darcy, 1953; Kaufman, 1979).

**Method**

**Subjects**

Ten boys and ten girls attending grades one through three at a school in a small city in Northern Ohio participated. They were of Puerto Rican background, Spanish was the predominant language at home, and most of them had been in a Title VII bilingual program at school since first grade. All subjects qualified for free or reduced-price meals at their school and were considered to be within the low socioeconomic status. The family's eligibility for this service was determined by the amount of family income after deductions for special hardship conditions were subtracted.

Eligibility for participation in the bilingual program was determined by scores on the Dailey Language Facility Test. Children whose scores on the English and Spanish versions of this test were within two points of each other were considered bilingual, and were selected for this study.

**Procedure**

The subjects were randomly assigned to two groups, with five girls and five boys in each group. One group was administered the Escala de Inteligencia Wechsler Para Ninos, which is a Spanish version of the WISC translated and adapted for use in Puerto Rico. The other group was given the Wechsler Intelligence Scale for Children-Revised (WISC-R). All testing was done by one examiner who was fluent in Spanish and English.

Rapport previous to testing was established in the language corresponding to the test administered. The examiner had had no previous contact with any of the subjects and spent a few minutes prior to each testing period conversing with the children individually. This was done in an attempt to create a comfortable atmosphere and to put subjects at ease.

Four weeks later, retesting took place. The children previously tested with the WISC-R were given the Escala de Inteligencia Wechsler Para Ninos, and the children who had been tested in Spanish were administered the WISC-R.
TABLE 1
Description of Sample

<table>
<thead>
<tr>
<th>Item</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country of Birth</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>United States</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language Spoken Predominantly in Home</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Spanish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of Time in a School with a Bilingual Program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entire School Career</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Partial School Career</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Grade in School</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Second</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Third</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Mean Age in Months</td>
<td>97.1</td>
<td>95.9</td>
</tr>
<tr>
<td>Government Sponsored Food Service Program Participant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free Lunch and Breakfast</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Reduced (50c per week paid)</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

The scaled scores for the Performance and Verbal subtests, as well as for the Full Scale, were determined for each participant for each test. Data were analyzed using analysis of variance with repeated measures.

RESULTS AND DISCUSSION

The analysis of variance for Full Scale intelligence scores was not significantly different on either the WISC-R or Escala de Inteligencia Wechsler (WISC-R, $\bar{x}$=93.0; Escala, $\bar{x}$=94.20). Neither order nor sex effects were reliably different.

Performance Scale scores were significantly higher than Verbal Scale scores on both tests, $F(1,18)=77.18$, $p<.001$. The respective means on the Performance Scale were 102.45 (WISC-R) and 108.25 (Escala); for the Verbal Scale the means were 86.05 (WISC-R) and 82.75 (Escala).

The results of this study strongly suggest that bilingual Puerto Rican children in the United States, whose bilinguality has been formally predetermined, can be tested for intelligence in either Spanish or English. The Puerto Rican bilingual children in this study did not achieve higher scores when tested in Spanish, even on a test that was translated and adapted for Puerto Ricans. Not only were there no significant differences in the Full Scale scores of these bilingual children on the two tests, but the mean Full Scale score on both tests fell into the classification of “average” according to the corresponding tables.
in the manuals. Results of previous research with testing of bilinguals has offered data showing average scores achieved by these subjects in either language to be in the below average classification (Altus, 1953; Anastasi & Cordova, 1953; Keston & Jimenez, 1954).

As hypothesized, the subjects in this study achieved significantly higher scores on the Performance Scales than on the Verbal Scales, regardless of language. This finding supports previous research showing that a bilingual child will generally score higher on a nonverbal subtest than on a verbal subtest (Anastasi & Cordova, 1953).

This discrepancy in Verbal and Performance Scale scores, however, points to an issue that should be of concern when testing bilingual children. Whereas Performance Scale scores on both tests fell into the classification of "average," Verbal Scale scores on both tests were in the low average classification. One reason for this may be cultural background. The subjects may be growing up in a subculture that does not encourage the development of verbal skills in either Spanish or English. While bilingualism implies a knowledge of two languages, it can mean varying degrees of knowledge of each language. The bilingualism of the subjects involved in this study may be of the "bifurcated" type; that is, reflecting a deficiency in both languages resulting from one language being learned and fostered in the home, while a second language is introduced and maintained in school (Altus, 1953; Darcy, 1946; Kaufman, 1979).

Another factor that must be considered along with cultural background in attempting to explain the poor Verbal Scale performance is the low socioeconomic status of the subjects of this study. Families who are qualified for free or reduced-price meals at school are considered to be of low socioeconomic status, and all of the participants of this study fell into that category. Low SES has been stressed in previous studies as a definite factor in the depressed test scores of minority children (Anastasi & Cordova, 1953; Fishman, et al., 1964).

An important point for future research, especially in connection with scores for bilingual children on Verbal Scales, is that the WISC-R was developed and standardized in the United States on a predominantly white population. The Escala de Inteligencia Para Ninos, while developed and translated into Spanish in Puerto Rico, still contains cultural referents that may be unfamiliar to Puerto Rican children who are born "on the mainland" and attend school in the United States.

Results from verbal subtests administered in this study revealed an unfamiliarity of some of the subjects with certain key words in Spanish contained in the Escala de Inteligencia Para Ninos. Examples of these include the word "vellon" on question number four of the Information subtest, which asks "Quantos centavos hay en un vellon?" (How many cents are there in a vellon?) Of the subjects in the current study, 70% expressed unfamiliarity with the Puerto Rican word for a coin worth five cents, while only 20% of the subjects missed an identical item on the WISC-R. Another Spanish word unfamiliar to 15 of the subjects was the Spanish equivalent of the word thumb (pulgar). To the question "Como le llamas tu e este dedo?" (What do you call this finger?), 40% of the subjects responded with the English language words thumb or thumkin.

The verbal-performance discrepancy and the depressed level of the Verbal Scale scores on the WISC-R suggest that this Scale may penalize Puerto Rican bilingual primary-grade children. The development and standardization of the WISC-R on a predominantly white population may indeed limit its appropriateness with these children.

It can also be concluded that the Verbal Scale of the Escala de Inteligencia Para Ninos may not be the best measure of the intellectual abilities of Puerto Rican bilingual children who are being raised and educated in the United States. That is, this particular
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Verbal Scale, developed and translated in Puerto Rico, may not be suited to the particular background of subjects who fall into the same category as the children in this study. While this study examined bilingual Puerto Rican children of similar background who are participating in a bilingual education program at their school, this sample is a restricted one because of size and the particular background of these Spanish-speaking Americans. Therefore, generalizability of these results must be made with considerable caution.

Finally, it must be stressed that bilingual children must be tested for bilinguality, to determine their most proficient language, before any decision is made as to which language is used in the assessment of their intelligence.

References


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