

# **Cognitive and Linguistic Abilities of Puerto Rican Bilingual Children: Implications for Assessment**

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The purpose of this article is threefold: (a) to review some of the literature regarding the intellectual and linguistic characteristics of Hispanic bilinguals in general, (b) to enhance the understanding and proper use of psychometric tests

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with Hispanic children, and (c) to present specific recommendations for the psychoeducational assessment of the Puerto Rican subcohort of this population.

## **Performance of Hispanic Children**

### **Intelligence/Cognitive Assessment**

The interpretation of most standardized intelligence instruments administered to non-Anglo populations has justifiably come under considerable legal and scientific scrutiny in recent times (Barrera Metz, 1988; Barona & Santos, 1987; *Diana v. California State Board of Education*, 1980; Figueroa, 1983, 1989). The increasingly prevalent view of cognitive functioning rejects the notion of a single numerical general factor which would encompass all of an individual's intellectual faculties. Gardner's (1983) paradigm of multiple intelligences, for example, includes these cognitive processing functions: linguistic, logical-mathematical, musical, spacial, bodily, intra-personal, and inter-personal domains. Each of these is seen as a dynamic functioning area using its own distinct pattern of thinking, problem solving, and skill development.

Theoretically consistent with this dynamic and multifaceted conceptualization of intelligence, Kaufman (1979a) correctly noted that Hispanic students cannot be considered cognitively limited because, in assessing them, one must consider the interaction of scores on crystallized tasks with language ability, culture, and cognitive style variables.

Kaufman (1979b) further demonstrated that on process (e.g., the K-ABC) rather than product (e.g., WISC-R) instrument differences between Hispanics and Anglo Americans disappear; conversely, the conventional WISC-R intergroup Hispanic/White differences on the Full and Verbal scales reflect the static Anglo orientation of the latter test's design (Cummins, 1984; Fourqurean, 1987).

### **Nonverbal Cognitive Measures**

It is thus not surprising that, as a group, Hispanics perform much better on nonverbal than on culturally biased verbal cognitive measures (Wilen & Sweeting, 1986; Kaufman & Kaufman, 1983; Powers, Barkan & Jones, 1986; Pearce, 1983; DeAvila, 1987; Figueroa, 1983). It is also clear that for students from backgrounds other than the dominant culture group there are inherent cultural and linguistic biases in most conventional devices (Cummins, 1989; Duran,

1989; Oplesch & Genshaft, 1981; Ovando & Collier, 1985; Powers, Wagner, Lopez & Jones, 1986; Sattler, 1988).

Cultural bias likely exists even in the more culture-fair nonverbal measures such as the Standard Progressive Matrices (SPM) (Raven, 1958). One study (Ulibarri, 1982) was specifically designed to experimentally test for a cultural bias factor inherent in the testing format of the SPM with minority group children.

Results of this investigation of Black, Anglo, and Hispanic subjects on the SPM found that on items designated as culture-loaded, error differences were partly due to lack of proper test-taking experience. Ulibarri (1982) concluded that the higher performance of minority students in the test taking training groups indicate that "...test taking skills are a major source of variation, that these skills are learned, and that they can be overcome through exposure to the specific requirements of the test" (p. 97). This experimental approach, therefore, clearly demonstrates the reality of cultural bias which confronts minority children in the test taking experience itself.

Nevertheless, for economically disadvantaged students, an increasing proportion of whom are Hispanic (Pallas, Natriello, & McDill, 1989), the SPM generally (i.e., norms for 1966, 1973, and 1979) seems to be a more appropriate non-verbal cognitive measure (Karnes, Lee & May, 1982). The validity and reliability of the SPM with Hispanic students in the United States has been reported in studies wherein correlations of Hispanic and non-Hispanic results were shown to be independent of achievement and ethnicity variables (Powers & Barkan, 1986; Powers, Barkan, & Jones, 1986).

Further evidence on the validity of performance measures generally has been demonstrated using the Leiter International Performance Scale (Leiter, 1948) and the WPPSI (Wechsler, 1967) performance scale with Mexican-American children whose performance profiles were significantly higher on the latter than on the WPPSI Verbal (Gerken, cited in Wilen & Sweeting, 1986).

## **IQ and SES**

Figuroa noted that even when there are Socioeconomic status (SES) differences, Hispanics' execution on performance/non-verbal IQ measures is virtually equal to white English-speaking children (cited in Ovando & Collier, 1985).

The influence of socioeconomic status (SES) on the WISC-R, in particular, is apparent in the ten-point average verbal vs. performance discrepancy for

children of professionals versus un-skilled workers (Kaufman, 1979b). Additionally, verbal/performance discrepancies on the same measure were found to be statistically unrelated to age, sex, or race (Kaufman, 1979b).

Cummins and Swain (1986) conclude that given appropriate instruction, low SES bilinguals should suffer no long term linguistic or cognitive impediments to their academic achievement. Increasing evidence shows that many low SES children experience difficulties in school "because they come to school less prepared to handle context-reduced academic tasks as a result of less exposure to literacy-related activities prior to school" (Wells, 1981, cited in Cummins & Swan, 1986, p. 159). Thus, it follows that the interactions of SES, language minority status, and unequal educational opportunities produce generally lower achievement levels for Hispanics (Cummins, 1989; Ovando & Collier, (1985)<sup>1</sup>. Implications of the SES factor are evident in data comparing Hispanics with Spaniards on the TVIP-H (Dunn, 1987). While the Spanish sample was divided into three social classes, the U.S. Hispanic sample was not. Results presented indicate a similar profile of performance for both Hispanic and low SES Spaniard samples, suggesting the critical and often under-emphasized role of SES on verbal instruments.

## **Language and Testing**

The alleged existence of linguistic deficits, intellectual deficits, or both, among American Hispanics has been sporadically posited in recent decades (Dunn 1987; Bracken & Prasse, 171; Oplesch & Genshaft, 1981). However, "virtually no studies involving Spanish-language background students have controlled for language proficiency in either Spanish or English" (DeAvila, 1987, p. 150; cited from DeAvila & Duncan, 1980). Specifically regarding Hispanic verbal functioning, Wilen and Sweeting (1986) warn against the potential language mixing or confusion which may confound the results of any verbally loaded test administered in either language to Hispanic youngsters. Moreover, studies of proficient bilinguals' versus monolinguals' execution on measures of cognitive flexibility, metalinguistic awareness, concept formation, divergent thinking skills and creativity have consistently demonstrated the cognitive advantages of bilingualism (Cummins, 1984; Fradd, 1982; Hakuta & Garcia, 1989). Recent evidence also indicates that, given brief training, Hispanic bilingual children are adept translators, preserving the grammatical integrity of both languages with remarkable accuracy (Hakuta, 1990).

The assumption or conclusion that any deviation from standard English or

standard Spanish implies a cognitive deficit or genetic inferiority reflects a nonempirical bias, especially when the culture-linguistic experience and social context variables are omitted from consideration (Flores, Attinasi, & Pedraza, 1981).<sup>2</sup> Cummins (1976, 1979) has proposed a threshold theory in which the effects of bilingualism on cognition depend on the child's level of linguistic sophistication. This level of metalinguistic skill is conceptualized as an intervening variable affected by intelligence, native ability, SES, and cultural factors and aspects.

Ben-Zeev (1984) summarized Cummins' hypothesis regarding the performance of low SES Spanish speaking minority individuals: "The social class and attitudinal factors impede their learning English, while the fact that the native language is a minority language with low status in the larger society contributes to its decline in their speech" (p. 61).

Cummins and Swain (1986) have found that there have been numerous erroneous conclusions and placement decisions with bilingual or limited English proficient (LEP) children because the test interpreter improperly assumed that the children's conversation was competence/context-reduced as distinct from cognitive academic competencies/context-embedded.

Communicative, grammatical, sociolinguistic, discursive and strategic are other competencies that have been identified (Kessler, 1984). Cummins and Swain (1986) further indicate that face-to-face communicative skills are mastered by immigrant children within two years of arrival in the host country, but it takes, on the average, about five to seven years for students to approach grade level norms in L<sub>2</sub> academic skills.

Designation of minority children as language impaired or learning disabled has often been shown to be more a function of the presence or absence of a speech pathologist or psychologist on the evaluation team than the nature of the child's skills or individual characteristics (Rueda & Mercer, 1985, cited in Cummins, 1989). Cummins (1989) further indicates that such misclassification practices with language minority children are still widespread in this country.

## Test Translation Problems

Miller (1984) indicated that "Translating a test only alters the language; it does not change the culturally weighted nature of the theory of intelligence on which items were designed, nor the discriminatory non-verbal content, either of the materials, or the expected replies" (p. 112). The Escala de Inteligencia Wechsler para Niños/EIWN (Wechsler, 1951) is a Spanish translation and

adaptation of the Wechsler Intelligence Scale Children (WISC) (Wechsler, 1949) which does not have Puerto Rican norms (Wechsler, 1951). The same limitation is observed with the WISC-R and its Spanish counterpart Escala de Inteligencia Wechsler para Niños - Revisada (EIWN-R) (Wechsler, 1982).<sup>3</sup>

Some limitations may contaminate the interpretation of a translated test: (a) the level of difficulty of vocabulary may vary between Spanish and English; (b) there may be a multiplicity of acceptable responses on given items, depending on the child's country of origin; (c) monolingual translations may not be appropriate for some Hispanics because the language familiar to them may be a combination of English and Spanish (e.g., code switching and anglicisms); (d) there is an inappropriate use of Anglo norms for the translated version; (e) immigrant children may have received limited education training in their native country; (f) translation of certain tests may impair their validity (e.g., certain tests measuring the grammatical structure of language); (g) some tests tend to measure features of metalinguistic aptitude rather than general cognitive functioning; and (h) translations should be standardized for the population on which they are to be used (DeAvila & Havassy, 1974; Sattler, 1988; Wilen & Sweeting, 1986).

## **Age and Language Learning**

Regarding the optimal age for second language learning, the popularly held myth that younger children are more adept at painlessly acquiring academic competence in  $L_2$  no longer seems applicable (Hakuta & Gould, 1987). Rather, recent evidence suggests that "older learners who are more cognitively mature and whose first language ( $L_1$ ) proficiency is better developed will acquire cognitively demanding aspects of  $L_2$  proficiency more rapidly than younger learners" (Cummins & Swain, 1986, p. 87).

Age and rate of learning have been studied in reference to the optimal stages for learning a second language for lower and middle class  $L_2$  learners (Collier, 1987; Collier & Thomas, 1989). Collier's (1987) study omitted students who were not on grade level in  $L_1$  literacy skills, and thus, must be interpreted cautiously when applied to an LEP population that is qualitatively different in overall  $L_1$  skills.

The results indicate that LEP students who entered the ESL program at ages 8-11 were the fastest achievers, requiring 2-5 years to reach the 50th percentile...in all the subject areas tested. LEP students who entered the program at ages 5-7 were 1-3 years behind the performance level of their

LEP peers who entered the program at ages 8-11....Arrivals at ages 12-15 experienced the greatest difficulty and were projected to require as much as 6-8 years to reach grade level norms in academic achievement when schooled all in the second language (Collier, 1987, p. 617).

## Codeswitching and Puerto Rican Hispanics

DiPietro (1976) defines codeswitching as the use of more than one language by communicants in the execution of a speech act. Moreover, the use of Spanish/English in sentences is found to occur when the structure of both languages is congruent, thus manifesting a high degree of communicative potential rather than monolingual deficiency (Flores et al., 1981; Poplack, 1979; Zentella, 1981). Linguistic research has shown that the codeswitching phenomenon is not a random use of L<sub>2</sub> words in a bilingual's language (Flores et al., 1981; Morales, 1986).

Because of various discrete historical and linguistic factors there exists among Puerto Rican bilinguals a high degree of Spanish/English language mixing or codeswitching in their communicative repertoire (Barona & Santos, 1987; DeAvila & Havassy, 1974; Flores et al., 1981; Malgady, Rogler, & Costantino, 1987; Morales, 1986; Zentella, 1981, 1985). According to Zentella (1981), codeswitching as integral to the Puerto Rican communicative is influenced by such factors as the language choice of the listener, the first language (L<sub>1</sub>) environment's use of the second language (L<sub>2</sub>) for clarity, regional, or dialectic use of anglicisms for certain terms, and as an identity marker of membership. Since Puerto Rican children exhibit such a high incidence of this language mixing, "an awareness of the role of codeswitching in the communicative competence of the United States Puerto Rican bilinguals can make an important contribution to classroom methodology and educational success" (Zentella, 1981, p. 130).

Traditionally, psychoeducational assessment procedures have used monolingual instruments (Spanish/English) but have failed to consider the language experience of Hispanic students (e.g., codeswitching). Examiners of Hispanic students have been urged to gather verbal and nonverbal assessment data in both Spanish and English in order to gain a more accurate and complete measure of skills (Clarizio, 1982; Wilen & Sweeting, 1986). The Peabody Picture Vocabulary Test, (PPVT) (Dunn, 1959) and the SPM, "represent extremes on a continuum of culture-loaded tests (PPVT) and culture-reduced (SPM) tests" (Figuroa, 1983, p. 432). Nonetheless, the PPVT has been

surveyed as one of the most commonly used assessment devices for minority children in the United States (Vazquez Nuttall, 1987). The PPVT and PPVT-R (Dunn & Dunn, 1981) have been shown to drastically underestimate the cognitive abilities of Hispanic children (Loyola, McBride, 1989; Sattler, Avila, Houston, & Toney, 1980; Sattler & Altes, 1984; Sattler, 1988). In a recent study,

bilingual Puerto Rican children's receptive vocabulary functioning was found to be significantly higher when responses from both  $L_1$  and  $L_2$  versions of the same instrument are combined into a composite receptive vocabulary profile. Paired t-tests of the means of monolingual and composite scores from both the TVIP-H and the PPVT-R reveal the significant influence of the children's bilingual experience and codeswitching on their overall receptive vocabulary performance. (Loyola, McBride & Janowitz, 1989, p. 11)

The procedures employed by Loyola and McBride (1989) are consistent with Clarizio's (1982) recommendations to assess the Hispanic examinee in  $L_1$  and  $L_2$  as well as to score verbal tests computing the total number of correct responses on matched or translated items in both languages.

## **The Cultural Impact on Religion**

Religion or a spiritual belief system plays a significant role in Hispanic culture that must be taken into consideration when assessing this population. The common perception of Catholicism as the sole religion of Latin American people is stereotypical. It must be stressed here that, for many, Catholicism is their religion in a nominal sense. In the Spanish speaking Caribbean, religion and the process of Christianization provided the Spaniards with the justification to conquer and civilize the native/indigenous population (Tolentino-Dip, 1970). As a survival strategy, Indians and African slaves in Mesoamerica and Latin America developed a multiplicity of syncretic religions: Voodoo, Santería, Shango, Myalism, Obeah, Candomble, Convince, and Espiritismo among many others. Consequently, for some Hispanic Americans, the religious experience of communicating with spirits/spiritual entities is socially and culturally accepted and does not represent a clinical psychotic episode. Malgady et al. (1987) caution the mental health evaluator in making clinical interpretations of responses stemming from psychometric instruments when used with culturally different groups, especially Hispanics:

...the evaluation of Hispanic patients' psychopathy is tainted with bias within the majority culture's mental health service system. Such bias intrudes on clinical judgement and decision making when nonminority clinicians, along with their armory of standardized psychological tests, lack sensitivity to the values, behavioral norms, and linguistic variability of Hispanic people. (Malgady et al., 1987, p. 229)

## Recommendations for Assessment

The socio-cultural processes affecting Puerto Ricans as well as Mexicans (e.g., circular or seasonal migration, bilingualism, codeswitching, etc.) strongly indicate that the use of monolingual verbally loaded tests yield biased assessments of Hispanics' skills. As Figueroa (1989) asserted, "bilingual testing means accurately accessing what is shared by the two language systems" (p.148). However, even though there is an immediate need for such instruments, there is presently no effective technology addressing this need (Barrera Metz, 1988; Figueroa, 1989; Malgady, et al., 1987). Subsequently, the clinical experience and judgement of the evaluator becomes a decisive factor in arriving at a psychoeducational diagnosis, rather than sole reliance on norms of psychometric instruments. Malgady et al. (1987) and Mowder (1982) recommend that the examiner should be bilingual (in the examinee's L<sub>1</sub> and L<sub>2</sub>) as well as being familiar with the examinee's dialect and culture.<sup>4</sup>

There is an urgent need for the development and use of bilingual rather than monolingual tests and norms for Hispanic subgroups. The use of monolingual instruments with bilingual children does not measure the same skills originally intended for the standardization sample or general population. For example, by using the English/Spanish monolingual forms of the WISC-R, the user will discover that bilingual children will define a vocabulary sub-test word by: (a) defining the word monolingually (i.e., Spanish or English); (b) defining the word bilingually/codeswitching; (c) translating the English (i.e., WISC-R) or Spanish (i.e., EIWN-R) stimulus word to Spanish or English, respectively (e.g., hat/sombrero defined as sombrero/hat); and (d) using a synonym and a translation together (e.g., hat/sombrero defined as gorra/cap). Even though the standard scoring procedures accept translations, they rarely methodically control for intervening variables.<sup>5</sup>

Since these children's language skills are influenced by the simultaneous exposure to, and use of, two languages and are assessed through monolingual

instruments and their accompanying scoring procedures, (e.g., WISC-R/EIWN-R, PPVT-R, TRIP-H) results and interpretations derived will likely be biased underestimates of verbal functioning. Generally, such a monolingual assessment strategy will depress results obtained in either language. Subsequently, diagnosis and placement of these children may be erroneous.<sup>6</sup> The diagnostic use of monolingual instruments to establish a student's base line of functioning and progress in a given language might be a more appropriate use of these measures. This procedure would be especially useful as part of the special education evaluation and classification process. Tucker (1985) additionally advocates the use of curriculum-based assessments as an alternative to traditional procedures.

In the development of any standardized instrument, methodological control for the milieu variables, especially SES, is imperative. Demographic variables including regional origin within a country must also be considered. In Ponce (a town in Southern Puerto Rico) vellón means ten cents while in the Northern area it means five cents/nickel. A child from Ponce or whose parents came from this region will be penalized on the WISC-R (Information subtest) or its Spanish counterpart EIWN-R when asked: "How many pennies make a nickel?" (Wechsler, 1974, p. 66) "¿Cuántos centavos hacen un vellón?" (Wechsler, 1982, p. 4).<sup>7</sup>

Furthermore, the psychologist confronts a dilemma when deciding which battery should be administered with Hispanic students. Even though the choice of a particular test partially depends on the information sought, its selection will have a profound impact on the assessed I.Q. score or index of cognitive abilities. The use of non-language based instruments such as the Wechsler's Performance subtests, SPM and the Learning Potential Assessment Device are recommended, especially, for those examiners who are inexperienced with the examinee's culture.<sup>8</sup>

Regarding any language-loaded instrument, the user should be aware of the influence of SES, exposure to L<sub>1</sub> and L<sub>2</sub>, degree of bilingualism/codeswitching, degree of acculturation, language dominance/pre-dominance in basic communicative and cognitive academic/literacy competencies, and the examinee's culture and cultural expressions. Relevant to the culture's linguistic variance, the language usage of Hispanic sub-groups shows that different meanings of words exist within distinctive populations. In Venezuela, "ahorita" (the English translation is 'later on') and "ahora" (The English translation is 'now') have opposite meanings from those in the Puerto Rican vernacular. In Mexico, "bomba" means "bomb." In other Spanish speaking countries, the word for "balloon" is "bomba." "If a Mexican student is instructed "Juega con la bomba," he or she might be alarmed or confused, as the instruction becomes 'Play with

the bomb” (Barona & Santos, 1987, p. 199).<sup>9</sup>

Because of the popularity of receptive vocabulary instruments (e.g., Peabody Picture Vocabulary series: PPVT, PPVT-R, TVIP-H) and their inherent potential danger for misinterpretation, the following should be noted: Vernacular differences are inaccurately controlled for in the TVIP-H manual, which instructs the examiner to omit the stimulus word and to score it as correct/incorrect when the preceding item was correctly/incorrectly answered (Dunn, Padilla, Lugo & Dunn, 1986).<sup>10</sup> Such a procedure incorrectly assumes that the examiner possesses the knowledge to discern whether the item/word is commonly used in the examinee’s vocabulary usage/vernacular.

The same erroneous assumption is made on the EIWN-R (Information subtest) in the aforementioned item: “¿Cuántos centavos hacen un vellón?”/“How many pennies make a nickel?” (Wechsler, 1982, p. 4; Wechsler, 1974, p. 66, respectively), since the manual presents five possible stimulus words: “nicle,” “medio,” “níquel,” “quinto,” and “vellón.” How would the examiner know which word to use for a specific child? For Puerto Ricans “medio” and “quinto” should not be used since neither of these is part of their common usage. Indeed, the word “quinto”/fifth, which is the question asked, is in fact the answer. Further, the word “medio”/half, vaguely implies an incorrect answer of “two.” Examiners should be alerted to the existence of potentially misleading items of this variety in language loaded tests.

A specific concern regarding the TVIP-H is the stimulus word/ item “terno” (the English meaning of this word is ‘ternary number’) (Dunn et al., 1986, p. 80). “Terno” should be a common word for Puerto Ricans, especially since it appears between the 11 and 12 years level. Instead, Puerto Ricans use the words “tres” or “trio.” A possible accounting for the number of Puerto Rican children who correctly answered this item derives from the theoretical contention that this test item taps skills other than receptive vocabulary (Hayes, 1982). It appears that this item tests the ability of the examinee to visually and/or auditorily discriminate and associate information. However, when nine bilingual professionals (e.g., school psychologists, special education teachers, nurses, etc.) were asked to expressively define “terno,” not surprisingly, only one answered it correctly. Thus, it reasonably can be speculated that the word “terno” is too difficult to be precisely defined, but too easy to be identified from the four possible alternatives presented. I hope research will address the problem of which cognitive and/or linguistic processes are being tapped in such psychometric tests. It seems, experientially, that receptive vocabulary instruments not only assess language, but inadvertently, visual-perceptual processing and various other linguistic abilities as well.

Specifically for the TVIP-H user, it is recommended: (a) only to use the instrument with the specific population(s) from where the standardization sample was obtained; (b) not to use the combined norm table but rather use the respective Mexican or Puerto Rican norms; (c) for the Mexican examinee, make sure that the place of origin, parents' background and/or upbringing is Mexico City; (d) to be cautious when interpreting the TVIP-H especially with low SES children; (e) to take into consideration the degree of bilingualism, the amount of exposure to the first and second languages, and relevant background/cultural aspects; (f) to consider the degree of individual acculturation; (g) not to assume that the use of a monolingual test in either language will accurately assess the intended skills since codeswitching and the use of anglicisms (e.g., marqueta for colmado/market; rufo for techo/roof; carpeta for alfombra/carpet) could play a major role, especially in language-loaded tests; and (h) to be careful when administering and interpreting cross-cultural comparative test results.

The foregoing recommendations for the assessment of bilingual Hispanic, and in particular, Puerto Rican children are based not only on research, but on the reflective experience of a psychologist - practitioner. Specific suggestions for assessment of these children can be summarized: (a) to use composite  $L_1$ - $L_2$  scoring procedures on any verbal and verbally loaded instrument; (b) to incorporate the cultural (e.g., family/social structure, religion) and linguistic experience of the examinee (e.g., codeswitching, SES in the interpretation of any assessment device); (c) to rely more on non-verbal (e.g., SPM) than verbal instruments in making estimates of cognitive levels; (d) to use the Learning Potential Assessment Device and curriculum-based assessment; and (e) to adopt an advocacy rather than legitimizing orientation and attitude on behalf of minority students.

The latter recommendation is seen as the most critical because it implies the need for a radical change in the traditional psychometric approaches which have legitimized the inferior position of minority students:

The alternative role definition that is required to reverse the legitimizing function of assessment can be termed an *advocacy* [italics added] orientation. The psychologist's or special educator's task must be to dismantle the traditional function of psychological assessment in the educational disabling of minority students; in other words, educators must be prepared to become advocates for the child in scrutinizing critically the social and educational context within which the child has developed. This implies that the conceptual basis for assessment should be broadened so that it goes beyond psychoeducational considerations.... (Cummins, 1989, p. 116)

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## Footnotes

<sup>1</sup> Herrans (1973), described an experience shared by many psychologists working with a low SES population. Within the same culture, different responses will vary depending on SES. In the Comprehension subtest of the WISC (item #4), "What is the thing to do if a fellow much smaller than yourself starts to fight with you?" Herrans (1983) stated, "children from the low socioeconomic level in Puerto Rico tend to say they would hit back for they are 'machos' even if they know that they are being bullies" (p.7).

<sup>2</sup> The misconception that Puerto Ricans in particular lack adequate skills in Spanish and consequently are unable to learn a second language (Dunn, 1987) has been addressed by Flores et al. (1981). "According to the linguistic arithmetic of colonialism, however, one plus one equals zero; most standard tests would probably label many Puerto Ricans here 'alingual' that is, lacking in written and oral competence in either language" (p. 198).

<sup>3</sup> Vazquez Nuttall (1987) reported that the WISC and WISC-R are two of the most commonly used tests for majority and LEP children.

<sup>4</sup> For a conceptual elaboration and research-based presentation of the cultural factor, I would strongly encourage the psychologist practitioner to read: Hakuta & Garcia, 1989; Miller-Jones, 1989, and Tharp, 1989.

<sup>5</sup> The only methodological control in the WISC-R bilingual standardization sample as reported in its manual was, "...children were tested only if they could speak and understand English" (Wechsler, 1974, p. 19). However, there is no mention of the criteria used, if any, to determine language skills in either English or Spanish. This might be why on the EIWN-R, the following cautionary note was provided, "Evidence is lacking that the English-language norms for the WISC-R may be used to interpret performance on the EIWN-R" (Wechsler, 1982, p. iv).

<sup>6</sup> For further details regarding the psychoeducational assessment of limited English proficient Hispanic students, please refer to Wilen, & Sweeting, 1986).

<sup>7</sup> Cummins (1984), in citing a few of Ribeiro's (1980) examples of the influence of culture on responses in various psychometric instruments, especially the

WISC-R, remarks on how it is incorrectly assumed that such items reflect one's "intelligence."

<sup>8</sup>The Research Institute for Educational Problems, Inc., has developed a training package based on the Learning Potential Assessment Device (Feuerstein, 1979, 1980) using the SPM.

<sup>9</sup>The complexity of different language usage is also reflected in the fact that for at least 46% of Hispanics intermarriage in New York City is exogamous, with individuals marrying outside of their own Hispanic subgroup (Totti, 1987).

<sup>10</sup>The TVIP-H user should be aware of the standardization procedures used for the Mexican and Puerto Rican sample since they lack methodological validity. Dunn (1987) evaluated the standardization procedures of the TVIP-H (Dunn et al., 1986) and pointed out how well the TVIP-H meets the first two out of the three following criteria for the Puerto Rican and Mexican samples: (a) number of subjects per age level; (b) proportional representation within each age group (i.e., by sex and geographical region); and (c) SES level. However, in the first and second criteria for the Mexican sample, the number of subjects per age level was 13% less than the accepted standard and the proportionate representation by geographic region was not attained. "The third criterion of having proportionate representation of the different socio-economic levels was not reached for the TVIP-H" (Dunn, 1987, p. 61). In reality, the TVIP-H partially met only the first of the three established criteria. Additionally, the methodological inconsistencies between the Mexican and Puerto Rican samples do not grant the use of the Normas Hispánicas Compuestas table for either subpopulation.