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ABSTRACT

The purpose of this study is to assess the effectiveness of the experimental bilingual education programs in Bridgeport, Hartford, New Britain, and New London, Connecticut, during the first year of operation (1970-71) with respect to selected pupil and parent reactions. Specifically, the evaluation seeks to compare the experimental bilingual education programs with control-group children in three areas: gains in academic abilities in Spanish and English; gains in self-concept level; and attitudes that parents have toward themselves at the end of the year (Does one group feel more informed, interested, involved, and in favor of the school program than the other?). The subjects of the study were economically disadvantaged Puerto Rican pupils in the primary grades in the four cities. Extensive details on the research, procedures, and findings are provided here after a review of other literature on the topic. Summary, conclusions, and recommendations are included. (VM)

# AN EVALUATION OF THE EFFECTIVENESS OF SELECTED EXPERIMENTAL BILINGUAL EDUCATION PROGRAMS IN CONNECTICUT

PERRY ALAN ZIRKEL


*Connecticut Migratory Children's Program*

JAMES A. SCRUGGS, *Director*

THE UNIVERSITY OF HARTFORD • WEST HARTFORD, CONNECTICUT 06117

# AN EVALUATION OF THE EFFECTIVENESS OF SELECTED EXPERIMENTAL BILINGUAL EDUCATION PROGRAMS IN CONNECTICUT



Perry Alan Zirkel, B.A., M.A.
State University College at Oswego, New York, 1966
University of Connecticut, 1968

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at

The University of Connecticut

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## PREFACE

This study completed by Perry Alan Zirkel is concerned with an evaluation of the effectiveness of selected experimental bilingual education programs in Connecticut during the 1971-72 school year. It was conducted in conjunction with Mr. Zirkel's internship at the Bureau of Compensatory and Community Educational Services of the Connecticut State Department of Education. These experimental bilingual education programs were supported in part by funds from Title I and the State Act for Disadvantaged Children. The Connecticut Migratory Children's Program is publishing and disseminating this study to make it available to all parties interested in improving the educational opportunities of Spanish-speaking and other minority-group students.

James A. Scruggs
Executive Director

Connecticut Migratory Children's Program
University of Hartford

May, 1972

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# CHAPTER I

## INTRODUCTION

The largest linguistic minority in the United States consists of an estimated ten million Spanish-speaking people.[1] The two largest Spanish-speaking subgroups are the six million Mexican-Americans and the two million Puerto Ricans who are concentrated in the Southwest and Northeast, respectively.* Both groups have evidenced a lack of success in the nation's schools.

### Statement of the Problem

#### Mexican Americans

Numerous studies have shown that Mexican-American students have suffered a significant and sustained lack of educational opportunity and achievement in the nation's public schools.[2] According to the 1960 Census** Mexican-Americans aged 14 and over in the five states of the

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[1] Rodriguez, 1970, p. 52.

* Although relatively unnoticed, there are an estimated 500,000 Spanish-speaking citizens living in the Midwest (Soriano and McClafferty, 1969).

[2] Coleman, et al., 1966; Garth and Johnson, 1934; Goodman, 1970; Johnson, 1938; Singer, 1956, p. 52.

** At the time of the writing of this study the corresponding 1970 Census data were not available.

Southwest had completed an average of 8.1 years of formal schooling compared to an average of 12.1 years for Anglo-Americans in the same age group.[1]

Puerto Ricans

Although less educational research is available on them than on Mexican-Americans, Puerto Ricans have evidently encountered a similar lack of success in mainland schools. On the national level the Coleman Report revealed that Puerto Rican pupils generally had the lowest level of educational achievement, self-concept, motivation, and enrollment of any ethnic group in the country, including the Mexican-Americans.[2] The statistics in New York City, which historically received the greatest concentration of the Puerto Rican immigration, evidenced a similar situation. In 1960, for example, only 13 per cent of the Puerto Ricans in New York City aged 25 and over had completed high school compared to 31.2 per cent for the Negro population alone.[3] Although comprising 25 per cent of the New York City school population in 1970,

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[1]Rodriquez, 1969, p. 18.

[2]Coleman, et al., 1966, pp. 221-239, 227-281, 448-450.

[3]Badillo, 1972, p. 301; Cordasco, 1968, p. 199; John et al., 1969, p. 2.

Puerto Rican pupils accounted for only three per cent of the academic diplomas. Morever, only one per cent of the guidance counselors, .6 per cent of the teachers, and .4 per cent of the principals were reported to be Puerto Rican.[1]

In recent years an increasing proportion of the incoming Puerto Rican population has been settling in urban areas other than New York City.[2] The growing Puerto Rican population in Connecticut has encountered problems similar to those encountered in New York City schools. The enrollment of Spanish-speaking students in Connecticut has grown to 20,000 pupils in 1971, accounting for three per cent of the State's school population.* Certain urban districts, led by Bridgeport and Hartford, have the greatest concentration of these pupils, as Table 1 indicates.

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[1] Anderson, 1971; Cordasco, 1967, p. 183.

[2] Cordasco, 1967, p. 181; Senior, 1965, p. 88; Wagenheim, 1970, p. 193.

*Such estimates are tentative at best, given that they are based on a count of Spanish-surnamed students in the public schools. Such a procedure is imprecise as a result of ethnically mixed marriages and ethnically similar surnames (Valdez, 1969). There are reasons to believe that on the whole, the actual school-age Spanish-speaking population may be much greater than these figures indicate. A recent survey in Boston, for example, concluded that 5,000 of the city's 7,800 school-age Puerto Rican children were not attending school (Farber, 1970, p. 29; Martinez, 1970, p. 281). Moreover, such estimates do not include the Spanish-speaking students enrolled in parochial and private schools.

TABLE 1

Number, Per Cent, and Per Cent Increase in Enrollment of Spanish-Surnamed Students in Selected Connecticut School Districts[1]

| City | Number of Spanish-Surnamed Pupils | Per Cent of Enrollment, 1970 - 1971 | Percentage Increase, 1969 - 1971 |
|---|---|---|---|
| Hartford | 5203 | 18.1% | 26.4% |
| Bridgeport | 4742 | 19.2 | 16.5 |
| New Haven | 1686 | 8.0 | 29.5 |
| Waterbury | 1307 | 7.3 | 25.2 |
| New Britain | 1137 | 8.0 | 25.8 |
| Meriden | 791 | 7.0 | 18.6 |
| Windham* | 288 | 6.9 | 20.5 |
| New London | 255 | 5.1 | 8.5 |

[1] Connecticut State Department of Education, 1971.

* The Windham School District includes the city of Willimantic, where the Spanish-surnamed population of the district is concentrated.

Despite such concentrations of Spanish-speaking students, the proportion of Spanish-speaking teachers in Connecticut amounts to less than 1/10 of one per cent, and some of them do not work in these urban districts.[1] Moreoever, there is not one Spanish-speaking school board member or fully certified school administrator in the entire State.*

The situation in these cities' schools is as sobering as that in the New York City schools. In Hartford, for example, where the Puerto Rican population has reportedly tripled in the past two years to an estimated 27,000, Puerto Rican pupils have the highest dropout rate of any ethnic or racial group in the city.[2] In the city of Willimantic, which has had a significant number of Puerto Rican residents for several years, no more than two Puerto Rican students had graduated from high school as of 1968. One of these graduating students reported a similar situation at the university level. As a freshman in 1969-70 he found himself to be one of four Puerto Rican students out of a total enrollment of over 10,000 under-

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[1]Connecticut State Department of Education, 1971.

*In a telephone conversation on February 19, 1972, Dr. Peter LoPresti, Chief of the Bureau of Teacher Certification of the Connecticut State Department of Education, confirmed that, to his knowledge, there was not a certified Spanish-speaking school administrator in the State.

[2]Anderson, 1970; Editorial, 1971; Hartford Model Cities, 1971, p. 12.

graduates at the University of Connecticut at Storrs.[1]

Bilingual programs

In recognition of this situation on the national level, Congress passed the Bilingual Education Act in 1968, which became Title VII of the Elementary and Secondary Education Act of 1965 (ESEA). A total of 131 local bilingual programs were funded nationwide in 1970-71 under the legislation, including one in New Haven, Connecticut.* In addition, local and state agencies have evidenced an interest in establishing such programs through their own funds as well as through those from Titles I, III, and VIII of ESEA.

Responding to the problem faced by its Spanish-speaking population, Connecticut has shown itself to be a leader in such efforts. In order to provide more native Spanish-speaking staff, the Connecticut State Department of Education established the first teacher-exchange program with Puerto Rico at the state level.[2] Through the use of Title I funds and those from the State Act for Disadvantaged

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[1] Rios, 1970.

* The overwhelming majority of these Title VII programs are Spanish-English, but some involve French, Chinese, Portuguese, Japanese, and the languages of the American Indian, along with English. For a description of the New Haven program, see Zirkel, 1971b.

[2] Exchange , 1971; Exchanges, 1970.

Children, experimental bilingual education programs were initiated during the 1970-71 school year in various metropolitan areas in Connecticut, including Bridgeport, Hartford, New Britain, and New London.

## Purpose of the Study

The purpose of this study was to assess the effectiveness of the experimental bilingual education programs in Bridgeport, Hartford, New Britain, and New London during the first year of operation (1970-71) with respect to selected pupil and parent outcomes. More specifically, the study was designed to seek answers to the following three questions:

1. How do gains in academic abilities in Spanish and English of children in the experimental bilingual education programs compare with those of the control-group children?

2. How do gains in the self-concept level of children in the experimental bilingual education programs compare with those of the control-group children?

3. Do parents of the children in the experimental bilingual education programs perceive themselves as more informed, interested, involved, and in favor of the school program at the end of the year than do the parents of the children in the control group?

## Design of the Study

The subjects were economically disadvantaged Puerto Rican pupils in grades one through three in Bridgeport, Hartford, New Britain, and New London. A general pre-post control-group design was followed to seek answers to questions 1 and 2. Three basic experimental groups and one control group were compared at levels I (grade 1) and II (grades 2-3) with respect to academic abilities in Spanish and English and self-concept.

The experimental and control groups were matched on a group basis with respect to sex and age. Analysis of covariance was employed to determine if there were significant differences between the experimental and control groups at each level with respect to each dependent variable. Pre-test and I.Q. scores were used as covariates to statistically equate the experimental and control groups for the analyses of the respective pupil outcomes.

Answers to question 3 were sought by interviewing (at the end of the school year) a random sample of the parents of children participating in the "bilingual" model and its corresponding control treatment with respect to selected demographic and dependent variables. Appropriate statistical techniques (viz., $t$ tests, chi-square tests,

point biserial correlation coefficients) were employed to infer if there were significant differences between the "bilingual" and control samples of parents with respect to each dependent variable.

Intelligence was measured by employing the Goodenough-Harris Draw-A-Man Test at the beginning of the school year. In addition, answers to the specific questions of the study were sought by using the following measures:

1. The Inter-American Tests of General Ability, Levels I and II, in Spanish and English, were administered in October and May to obtain an indication of the general academic ability of the children.

2. The Inferred Self-Concept Scale was administered in October and May to measure any changes in the self-concept of the children as reflected in their teachers' perception of their classroom behavior.

3. The Zirkel-Greene Home Interview Schedule was administered to a random sample of the parents in May to determine their participation and perceptions regarding bilingual education.

## Definition of Terms

### Bilingual education

In the literature on the subject, "bilingual education" emerges as a generic term, as are its components, "bilingual"

and "education." Anderson and Boyer pointed out:[1]

> ...the terms "bilingual," "bilingualism," "bilingual schooling" seem to carry their meaning clearly within them. And yet a discussion including any one of these words soon reveals the strikingly different concepts people have of them.

A basic differentiation is that between a "one-way" bilingual program, which involves one group learning in two languages, and a "two-way" bilingual program, which involves two groups each learning in its own and the other language.[2] The number and combinations of various other differentiating factors produce a seemingly endless array of distinct patterns of bilingual education programs. These factors include the ethnicity and mixture of the learners, the goal and medium(s) of instruction, the time distribution and differences between languages, the linguistic and professional competence of the staff, the cultural and language components of the curriculum, and the sociolinguistic context of the program.[3]

The source of funding can influence the overall shape of such a program. Bilingual programs funded through Title VII (ESEA) are typically "two-way." Title VII

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[1]Andersson and Boyer, 1970, p. 7.

[2]Gaarder, 1967.

[3]Mackey, 1969; Valencia, 1969a.

defines "bilingual education" as "the use of two languages, one of which is English, as mediums of instruction . . . ."[1] In contrast, the bilingual programs involved in this study are "one-way" programs and have Title I (ESEA) and State (SADC) financial assistance. Thus, the compensatory conceptions provided by Rodriguez, the then Chief of the U.S. Office of Education's Office for the Spanish-speaking, and Plante, the Chief of the Connecticut State Department of Education's Bureau of Compensatory and Community Educational Services, more closely approximate the definition of bilingual education appropriate to this study.[2]

Bilingual education, in the context of this study, is therefore defined as a comprehensive program which provides the major part of the Spanish-speaking child's subject matter instruction through Spanish in addition to specialized aural-oral instruction in English as a Second Language.

English as a Second Language (ESL)

"ESL" is the abbreviation used in this study to designate specialized instruction in English as a Second Language.*

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[1] USOE, 1971, p. 1.

[2] Federal, 1968, p. 412; Plante, 1970, p. 1; Rodriguez, 1970, p. 56.

* Cf. EFL (English as a Foreign Language), TESOL (Teaching English to Speakers of Other Languages), and other variants designate the same general field.

The methods and materials of ESL reflect the general aural-oral approach of modern foreign language instruction. ESL is necessary but not sufficient to have bilingual education. That is, ESL is an essential component of bilingual education but alone should not be mistaken for it. Moreover, it is important to note that in this study ESL is used as both a component of and an alternative to bilingual education, since it is generally a feature of both the experimental and control forms of instruction. Although ESL typically plays a part in the regular instructional program of non-English-speaking children in the target elementary schools, it is not universal for schools in the nation serving such children.

Spanish-speaking

"Spanish-speaking" is a generic term used to represent all cultural groups--e.g., Mexican-American, Puerto Rican, Cuban--sharing the Spanish language as their native tongue. Although virtually all such children have Spanish as their first language, "Spanish-speaking" does not mean that these children are necessarily dominant in this language. Rather, such children vary in their language abilities from complete dominance in Spanish to "equilingualism" to English dominance.*

*"Equilingualism," or "balanced bilingualism," specifically refers to equal mastery of both languages.

The overwhelming proportion of the children in this study are Puerto Rican, and the majority are Spanish-dominant.

For want of a better opposing term, "Anglo" is used to represent those children whose language and culture are indigenous to the United States. The semantic aspect should not obscure the fact that Anglo-American children in this study are often at the same time Afro-American. Nor should such terminology obscure the too often forgotten fact that the Spanish-speaking (i.e., Puerto Rican) children in this study are citizens of the United States, regardless of whether they were born on the island or on the mainland.

## Limitations of the Study

There were various limitations inherent in this study. These limitations may be summarized in terms of dimensions and design. The limitations of the study in the dimensions of length, breadth, and depth must be recognized. The length of the study pre-to-post was less than one school year, and that was only the first "pilot" year of the experimental programs. The breadth was limited to programs for Puerto Rican pupils in the primary grades of four Connecticut cities. Thus, it did not include a concurrent one-way program at the same level in Norwalk, Connecticut,

nor that at a higher grade level in Hartford. Nor should it be interpreted as directly applying to the many two-way bilingual/bicultural programs stimulated by the passage of Title VII (ESEA), which include programs involving other cultural groups in several parts of the nation and one for Puerto Rican and Anglo pupils in New Haven, Connecticut.[1] The depth of the study was limited to small samples of pupils in each of these cities. The limited size of these pilot programs; the screening process for a matched-group, model-identification design; and the pre-post loss due to pupil absenteeism and mobility all contributed to restricted sample sizes.

In terms of design, one of the limitations of the study was the fact that it dealt with a core group of dependent variables.In the absence of a comprehensive set of instructional objectives for the experimental programs in the four cities included in the study, the investigator selected a central set of primary pupil and parent outcomes after a thorough review of the literature. The pupil outcomes, for example, were general academic ability in Spanish, general academic ability in English, and self-concept. Thus, the study did not focus on other areas of concern, such as instructional processes,

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[1]Zirkel, 1971b.

curricular materials, program management, or staff development. Within the area of instructional products, it did not extend to other important pupil outcomes, such as speaking or reading ability in English and Spanish, cross-cultural understanding, or attendance. Nor within the selected areas of academic abilities and self-concept did the study focus on normative or subtest data. The instruments themselves had limitations despite the great care taken in selecting them.* Finally, practical considerations precluded more extensive data collection with respect to parent outcomes, particularly with regard to pre-test data.

## Significance of the Study

The significance of this study lies in the possibility of improving the educational opportunities of Puerto Rican children in mainland schools. By extension, it has possible significance for the education of Spanish-speaking children in general and those of other linguistic minorities in the United States as well. Actually, bilingual education programs have been in effect in the United States for years. However, there are few objective

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*E.g., the investigator is currently conducting a follow-up study to evaluate the Inter-American Test of General Ability in terms of the language and format of the items.

data available on the effectiveness of present programs in the United States in general and particularly of those involving Puerto Rican children. Several educators have cited the need for further evaluation and experimentation with regard to such programs.[1] Effective decisions with regard to the continuation, modification, and expansion of such programs depend on the findings of such needed research.

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[1] Anderson, 1969c, p. 168; Flores, 1969, pp. 121, 129; Gaarder, 1965b, p. 165; Manuel, 1970a, p. 3; Mazzone, p. 8; Mosley, 1969, p. 53; Report, 1969, p. 84; Richardson, 1968, p. 8; Roeming, 1965, p. 143; Saville and Troike, 1970, p. 40; Valencia, 1971, p. 8.

## CHAPTER II

## REVIEW OF THF LITERATURE

The extent of the educational research concerning Spanish-speaking students in general and Puerto Rican pupils in particular has been limited when compared to that dealing with Anglo (including black) pupils. From the studies that have been done on this subject, however, certain findings have emerged in the three areas in question of the present study: viz., academic ability, self-concept, and parental attitudes.

### Academic Abilities

#### Aural-oral skills

Even though the research on the language abilities of Spanish-speaking students has been rather limited, the findings of that research have been quite revealing. With respect to each of the four language skills (listening, speaking, reading, writing) studies have shown that Spanish-speaking children generally suffer a language handicap in English, their second language, but not necessarily in Spanish. Carrow, for example, found that a sample of 50 Mexican-American third-grade children had

significantly lower scores in listening vocabulary in English and generally lower scores in oral vocabulary in English than a matched sample of Anglo-American children.[1] In a study involving a small sample of inner-city third-grade pupils, Mattleman and Emans found that the Puerto Rican students had substantially lower median scores in oral English skills than a corresponding sample of black students.[2] However, in a study done 16 years earlier, Anastasi and de Jesus found that when given the opportunity to respond in either language to a language sampling procedure, 50 Puerto Rican pre-school children significantly surpassed corresponding groups of both black and white pre-school children in oral skills.[3] Zirkel and Greene found that a sample of Spanish-speaking first-grade pupils in Connecticut scored significantly higher in Spanish than in English on parallel measures of listening comprehension.[4] Thonis obtained similar results in a study involving Spanish-speaking students in California.[5] In short,

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[1]Carrow, 1957.

[2]Mattleman and Emans, 1969.

[3]Anastasi and de Jesus, 1953.

[4]Zirkel and Greene, 1971a.

[5]Thonis, 1967.

Spanish-speaking children have evidenced deficiencies in listening-speaking skills in English which do not necessarily extend to aural-oral development in their native language.

Reading, arithmetic, and nonverbal achievement

Studies involving other academic abilities of Spanish-speaking students have also reflected the presence of an intervening variable of English language skills.* Several studies have found Spanish-speaking children to score generally below Anglo children on tests of reading achievement in English.[1] However, studies which compared Spanish-speaking pupils with Anglo pupils in arithmetic and nonverbal achievement have not revealed significantly lower scores for Spanish-speaking students. Several studies have found the arithmetic scores of Spanish-speaking students to surpass their reading scores.[2] Similarly, the Coleman Report revealed that the scores of Mexican-American and Puerto Rican pupils were consistently higher in nonverbal than verbal abilities.[3]

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*For a more comprehensive review of the research relating to the effect of the second language factor in the standardized testing of Spanish-speaking students, see Zirkel, 1972b.

[1]Garth and Johnson, 1934; Goodman, 1970.

[2]Palomares and Cummins, 1968a, 1968b; Palomares and Johnson, 1966.

[3]Coleman, et al., 1966.

Moreover, in a study involving two achievement test batteries, Johnson found that Anglo students consistently surpassed Mexican-American students on those subtests based on English language skills, but that there were no significant differences between the two groups on those subtests dealing with arithmetic skills.[1] In another study Cline found that Anglo pupils surpassed Mexican-American pupils on overall academic achievement, but that the economically disadvantaged Mexican-American pupils surpassed the Anglo pupils in arithmetic achievement.[2] Other studies have indicated that the differences between Spanish-speaking and Anglo students in academic achievement were much less on those tests that were less directly dependent on reading or writing skills in English.[3]

Other studies have indicated that such deficiencies might not exist at all if initial instruction and testing were in Spanish. By administering a reading achievement test in English as well as in Spanish to Mexican-American children, Mahakian found that 83 per cent of them obtained higher total scores in Spanish than in English.[4] Moreover, despite repeated reminders of Gaarder's statement at the

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[1]Johnson, 1962.

[2]Cline, 1961.

[3]Caldwell and Mowry, 1933; Johnson, 1938.

[4]Mahakian, 1939.

U. S. Senate hearings on bilingual education, most writers and researchers on the subject of the education of the Spanish-speaking seem to have forgotten or neglected a major study conducted in Puerto Rico by the International Institute of Teachers College, Columbia University, in 1926, which involved the administration of over 69,000 standardized achievement tests in English and Spanish.[1] The results of the study indicated that although English had been imposed as the language of instruction in Puerto Rico since the United States took control of the island in 1898, the Puerto Rican children's achievement in English showed them to be markedly below that of continental American children. However, as Gaarder stated, "the Puerto Rican children's achievement through Spanish was, by and large, markedly superior to that of continental children who were using their own mother tongue, English."[2] These results were attributed to the relative facility with which Spanish is learned as a native language, especially in terms of reading.

Summary

A number of studies have shown that Spanish-speaking children, as compared with Anglo children, are deficient in

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[1]Gaarder, 1969; National Education Association, 1966, p. 16; Senate Hearings, 1969, p. 7.

[2]Gaarder, 1969, p. 34.

language abilities and academic achievement in English, but that these deficiencies may be attributable to the fact that English is their second language. The traditional school program constitutes for these children the double difficulty of learning English and subject matter in English at the same time. Bilingual education, which provides subject matter instruction in Spanish and separate instruction in English as a Second Language, would seem to be a meaningful alternative for these children.

## Self-Concept

Several sources have suggested that Spanish-speaking students may have a depressed self-concept as a result of repeated failure and frustration in "English-only" schools.[1] "In subtle and not so subtle ways," Andersson and Boyer pointed out, "the Spanish-speaking child is made to feel in the typical American school that his language, parents, and himself are inferior to English-speakers."[2] As a result, the Spanish-speaking child is characterized as being caught in a culture conflict, ambivalent, marginal, and torn between his family and his school.[3] American education has been for him literally a self-defeating process.

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[1]Badillo, 1972, p. 297; Horn, 1966, p. 41; California State Department of Education, 1967, p. 1; Valdes, 1969, p. 442; Valencia, 1971.

[2]Andersson and Boyer, 1970, p. 44.

[3]Abraham, 1957, p. 478; Elam, 1960, p. 259; Flores, 1969, p. 22; Forbes, 1966, p. 17; Mosley, 1969, p. 5.

Research: Mexican-American students

Research concerning the self-concept of Spanish-speaking students is less voluminous but no less contradictory than that concerning black children.[1] Most of the research concerning the self-concept of Spanish-speaking students has focused on Mexican-American children. Several such studies revealed indications of a significantly lower self-concept for Mexican-American children than for their Anglo-American counterparts.[2] However, a smaller number of studies indicated no significant difference between the mean self-concepts of Mexican-and Anglo-American children.[3] There was found, nevertheless, in this latter group of studies evidence of a defensive reaction and different formative effects upon the self-concept level of some of the Mexican-American pupils as compared to the Anglo-American pupils. Ulibarri cited studies that indicated that such students "tend to be more defensive, to be filled with anxiety, and plagued with more alienation than the English-speaking Anglo-Americans."[4]

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[1]See Zirkel, 1971a.

[2]Coleman, et al., 1966; Evans, 1969; Hishiki, 1969; McDaniel, 1967; Palomares and Cummins, 1968a; Palomares and Cummins, 1968b.

[3]Carter, 1968; DeBlaissie and Healy, 1970; Najmi, 1962.

[4]Ulibarri, 1968.

Moreover, related studies would seem to lend support to the notion of a depressed self-concept level for Spanish-speaking students. Dworkin found that native born Mexican-Americans held more negative self-images than did foreign born Mexican-Americans, indicating different cultural frames of reference and a progressive tendency toward self-hatred.[1] Jacobson found indications that teachers tended to perceive the ethnic identity of Mexican-American children differentially according to their scholastic achievement, and that the students' self-perceptions were influenced thereby.[2] Anderson and Safar found teachers and other "significant others" to hold negative perceptions of the academic abilities of Mexican-American students.[3]

Research: Puerto Rican students

Those studies concerned with the self-concept of Puerto Rican children are less numerous. The Coleman Report found a significantly lower self-concept for Puerto Rican pupils than for both white and black Anglo students.[4] Zirkel and

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[1]Dworkin, 1965.

[2]Jacobson, 1966.

[3]Anderson and Safar, 1967.

[4]Coleman, et al., 1966, pp. 281 ff.

Moses obtained similar results with a self-rating instrument, but Zirkel and Greene found no significant differences using a teacher-rating instrument.[1] In a related study, Drusine found evidence that Puerto Rican adolescents tended to devaluate their own ethnic group in relation to an Anglo-American reference group.[2] Sobrino found evidences of conflicting cultural reference groups and defensive reactions in the self perceptions of some Puerto Rican adolescents.[3]

Programs: Spanish-speaking students

In the light of the general consensus of educational opinion and the partial support of educational research with regard to the depressed self-concept levels of Spanish-speaking students, several approaches to bolster their self-concept have achieved programmatic thrust in recent years.[4] The approach of bilingual programs is to recognize and utilize the native language and culture of Spanish-speaking students as an asset rather than a liability to

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[1] Zirkel and Moses, 1971; Zirkel and Greene, 1971b.

[2] Drusine, 1955.

[3] Sobrino, 1966.

[4] Zirkel, in press.

scholastic and self realization. Thus, several sources list self-concept enhancement as one of the primary objectives of bilingual education.[1] Flores, for example, in an intensive survey of five bilingual programs for Spanish-speaking children in different parts of the United States found that to be one of the three basic objectives shared by these programs.[2]

Summary

Research has shown that Spanish-speaking students may suffer a depressed level of self-concept. Bilingual programs aim to use the Spanish language as the key to the Spanish-speaking student's home and heritage as well as to his achievement in school, so that his self-concept may be both a cause and a result of further success in school.

## Parental Attitudes

The problems faced by Spanish-speaking students that are reflected in his academic achievement and self-concept point to the importance of the home and its relationsip to the school. Some educators have come to realize, sometimes

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[1]Andersson and Boyer, 1970, p. 142; Cordasco, 1970, p. 611; Gaarder, 1965a, p. 78; Gaarder, 1967, p. 34; Mazzone, p. 3; USOE, 1970; USOE, 1971, p. 1.

[2]Flores, 1969, p. 85.

under pressure, the importance of involving all parents--regardless of economic or cultural background--in the educational process. "Community involvement" has become a watchword of the struggle to improve inner-city education.[1] A 1970 memorandum from Bell, then Acting U.S. Commissioner of Education, warned state education officials that formal evidence of parental involvement in the educational process would become mandatory under forthcoming Title I regulations.[2] Thus, the effectiveness of programs for Spanish-speaking students intimately involves the question of whether the parents are informed, interested, involved, and in favor of the educational program for their children.

## Interested Parents

The interest of Spanish-speaking parents in the educational process is often obscured by such attendant factors as economic deprivation, linguistic and cultural differences, and ethnic discrimination. These factors form what one writer described as a "spider web, whose outlines are difficult to see but whose clinging, silken strands hold tight."[3]

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[1] Zirkel, 1970.

[2] Bell, 1970.

[3] Burma, 1955, p. 113.

Puerto Rican parents on the mainland, for example, have been described as not placing primary priority on education.[1] However, the agrarian origins in Puerto Rico, the historic tradition of "insularismo" and docility, and the traditional trust in the teacher almost as a second parent have not meshed well with the mainland system of education.[2] Compounded with the linguistic, social, and economic barriers to equal opportunity on the mainland these factors have precluded Puerto Rican parents from manifesting such a priority on education. However, that they do place a very high value on education has been cited in several sources.[3] In fact, education receives more money than any other sector in the budget of Puerto Rico and this proportion stands among the highest in the world.[4]

Informed parents

There are evidences that the standard system of school-community communications on the mainland is inadequate to

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[1]Miranda, 1971.

[2]Hortas, 1971; Phillips, 1970, p. 117.

[3]Kurtis, 1969; Padilla, 1958; Phillips, 1970, p. 117.

[4]Wagenheim, 1970, p. 199.

fully inform Spanish-speaking parents about the educational program. The most immediate problem would appear to be the language of communication. Yet the remedy of this inadequacy would appear to not be as immediate, as indicated by a 1970 memorandum from the director of the Office of Civil Rights, U.S. Department of Health, Education, and Welfare. This memorandum stated that school districts will be held legally responsible for informing the parents of non English-speaking children in the language spoken in the home of those activities that are called to the attention of other parents.[1] Ortega's interview survey of 53 parents of Puerto Rican pupils in Bridgeport revealed that only 20 per cent had received written notices from school in Spanish, although 89 per cent admitted their inability to communicate well in English.[2] In other surveys of Puerto Rican families in Connecticut and New Jersey, it was found that virtually all of the parents listened to Spanish-language radio stations.[3] Yet, the Spanish radio stations were underutilized to broadcast notices of school activities.

Involved parents

There are indications that simply providing Spanish-language communications through written or broadcasted notices

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[1]Pottinger, 1970.

[2]Ortega, 1970.

[3]Greene and Zirkel, 1971b; Hidalgo, 1971, p. 35; Zirkel, 1972a.

may not be enough to effect full parental involvement in the schools. In a study of a random sample of Mexican-American households Schenkkan and Millard concluded that radio and television were not sufficiently viable media to reach the Spanish-speaking community when these media were used alone.[1] Abramson found evidence of communication networks consisting of clusters of extended families in the Spanish-speaking communities in the three largest cities in Connecticut. In his study, Spanish-speaking fathers responded that 49 per cent of their close social contacts were relatives living in their neighborhoods.[2]

Consequently, specialists on the education of Spanish-speaking children have recommended that Spanish-speaking parents in the immediate community be employed as school-community aides and that one of their functions should be to deliver verbal notices of school meetings to parents as well as to community leaders.[3] Others have suggested that the sites of community organizations be used as meeting places as well as communication points for parent-school activities.[4] As Hidalgo summarized, "a three-pronged

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[1]Schenkkan and Millard, 1965.

[2]Abramson, 1970, p. 18.

[3]Ibarra, 1969, p. 313; Pichiotti, 1969.

[4]Zirkel, 1972a.

system of communications, using organizations, Spanish media, and direct door-to-door contact will yield better results provided the 'product' presented is relevant to the community."[1]

Writers and researchers on this topic have also offered the following suggestions to develop more effective home-school relations with Spanish-speaking parents: holding meetings in Spanish, scheduling meetings for Sunday afternoons, providing more relevant adult education programs, and coordinating day-care services with parental activities in the school.[2]

Favorable parents

Such provisions for parental participation are in line with what Pichiotti termed the "need for total community acceptance" in the functioning of bilingual education programs.[3] Parental attitudes have been found to influence significantly the outcome of experimental bilingual programs. A study on bilingual education in the Philippines, for example, revealed that poor parental attitudes towards the vernacular in one school community limited the success of

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[1]Hidalgo, 1971, p. 35.

[2]Abraham, 1956, p. 52; Ortega, 1970; Zirkel, 1972a.

[3]Pichiotti, 1969; See also Ramirez, 1970, p. 40.

the bilingual program in that school.[1] On the other hand, Richardson pointed to enthusiastic community acceptance as a key to the success of the bilingual program of the Coral Way School in Miami, Florida.[2] In recognition of the importance of parental attitudes toward bilingualism, Mosley constructed and validated a Spanish-English attitude scale, finding a highly favorable attitude toward bilingualism on the part of Mexican-American parents in one elementary school neighborhood in Texas.[3]

## Research on Bilingual Programs

Bilingual education is neither new to the United States nor to the rest of the world. Andersson estimated that more than one million children benefited from such instruction in the United States during the nineteenth century.[4] There were Spanish-English schools in New Mexico, French-English schools in Louisiana and Maine, and German-English schools throughout the Midwest. Cincinnati, for example, had German-English bilingual schools continuously from 1840 to 1917. However, the history of bilingual schools in the

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[1]Flores, 1969, p. 15.

[2]Richardson, 1968, p. 6.

[3]Mosley, 1969.

[4]Andersson, 1969b, p. 77.

United States ended with the outbreak of World War I, not to begin again until the 1960's.[1]

Research in other countries: Instruction in the vernacular

Several nations are officially bilingual, and almost every nation is regionally bilingual.[2] Moreover, as Walsh[3] pointed out:

> There is increased unwillingness everywhere, among peoples who speak a minority language, to give up their mother tongue and the ways of life that those tongues convey as the price of first class citizenship in the lands of their birth or their adoption.*

As a result, several nations have provided experimental or extensive instruction through the vernacular. The Soviet Union, for example, provides the option for schooling in the native tongue along with Russian as a second language to the benefit of both minority and majority cultures.[4]

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[1] Andersson and Boyer, 1970, pp. 17, 126; Cannon, 1971, p. 452; John, et al. 1969, p. 1.

[2] Andersson and Boyer, 1970, pp. 15-30; Fishman, 1967; Kloss, 1967.

[3] Walsh, 1969, p. 298.

* It is not coincidental that Walsh went on to give the Puerto Ricans in the United States as a prime example of his statement. He described them as "increasingly bitter because education gives no role to Spanish in their lives." Others have reported a rising resurgence of ethnic pride among former immigrant groups to the United States (see Kovach, 1970 and Roberts, 1970).

[4] Kreusler, 1961; Modiano, 1969, p. 14.

The Union of South Africa, Peru, and the Philippines have also adopted the home langauge principle of initial instruction.[1] In an historical study going back to the third century B.C., Cheavens concluded that "particularly in the early years of schooling, the child's native language should be the language of instruction."[2] Similarly, a UNESCO committee of international experts in a worldwide survey in 1953 concluded that it is "axiomatic" that the best medium for initially teaching a child is his mother tongue.[3]

However, reported research findings concerning the effectiveness of bilingual education programs in other parts of the world are relatively limited in their extent and in their applicability to the situations in the United States. Despite Baratz' assertion that "the research on vernacular education has been replicated and replicated and replicated ad infinitum," Venezky pointed out that "the available data on this topic cannot be interpreted so positively."[4] The interpretation of the results is complicated by the different cultural contexts, curricular

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[1]Andersson, 1969a, p. 37; Andersson and Boyer, 1970, pp. 26, 30; Venezky, 1970, p. 337.

[2]Cheavens, 1958, p. 921.

[3]UNESCO, 1953 (o.p.)

[4]Baratz, 1970; Venezky, 1970, p. 338.

patterns, and educational objectives of the various programs. Modiano stated that:

> ...descriptive and evaluative studies supporting each approach abound, but direct comparisons have been rare and generally have been flawed by poor research designs or methodology. However, whether undertaken in Ghana or the Philippines, the results of these comparative studies have favored the bilingual approach.[1]

In a major study in Mexico evaluating the educational progress of Mexican-Indian children in three tribal areas of Chiapas, Mexico, Modiano concluded that "youngsters of linguistic minorities learn to read with greater comprehension in the national language when they first become literate in their mother tongue, rather than when they receive all instruction in their national language." Modiano specifically found that after three years of instruction the 13 experimental groups of children, which were taught to read in their mother (Indian) tongue prior to receiving first-grade reading instruction in Spanish, significantly surpassed 13 control classes, which received reading instruction entirely in Spanish, according to both test data and teachers' ratings of reading comprehension in Spanish.[2] However, Venezky pointed out that in Modiano's study, such intervening variables as

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[1]Modiano, 1969, p. 14.

[2]Modiano, 1966, 1969.

community and teacher backgrounds were not equated between the experimental and control groups and that the children in both groups scored relatively low on the reading comprehension instrument.[1]

The results of another study in Mexico supported Modiano's findings. In a special project Tarascan Indian children were first taught reading and other subjects in their native language as a bridge to attending the federal schools, where Spanish was the sole medium of instruction and where such children previously had done poorly. The participating pupils achieved literacy in both languages and an effective subject-matter base for entrance into the federal schools in a period of two years.[2]

A similar native literacy experiment was undertaken in Sweden. An experimental group received reading instruction in the native dialect (Pitean) for ten weeks previous to instruction in literary Swedish. At the end of the ten weeks the pupils in this experimental program had progressed further in reading than the pupils in a control group, who had been taught entirely in literary Swedish. By the end of the year the experimental group had significantly surpassed the control group in all language arts skills in Swedish.[3]

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[1] Venezky, 1970, p. 337.

[2] Berney and Eisenberg, 1968, p. 4.

[3] Berney and Eisenberg, 1968, p. 4; John, et al., 1969, p. 3.

In an experiment begun in 1948 at the Iloilo community school in the Philippines, a group of children in grades one and two received instruction not only in reading but also in arithmetic and social studies through their local vernacular (Hiligaynon). They were switched to instruction in all subjects in English in grade three. The experimental group surpassed a control group, who were instructed entirely in English, in all three subjects -- reading, arithmetic, and social studies -- by the end of the second grade. At the end of the third grade the pupils in the experimental group achieved higher scores on oral English tests, and only slightly lower scores on written English tests, while they continued to perform better than the control group in reading, arithmetic, and social studies. However, Venezky reported that the only subject in which the experimental group retained a significant lead over the control group after six years was social studies. At the same time, the attitude and attendance of the experimental group was reportedly improved as a result of this native language approach in the early years of school.[1]

Burns described an experimental bilingual program for Indian (Quechua) children in southern Peru. These children showed improved school attendance and test performance at

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[1]Berney and Eisenberg, 1968, pp. 3-4; Carroll, 1969, p. 868; John, et al., 1969, p. 3; Venezky, 1970, p. 336.

the end of three years of transitional instruction through the vernacular.[1]

Giroux and Ellis conducted a study of a vernacular-language instructional program in Welland, Canada. In this program, French-Canadian children were instructed in their content areas in French, with English introduced as a subject beginning in grade three. The investigators found evidence of a positive transfer effect from learning to read in the first language (French) to learning to read in the second language (English).[2]

In a major study in South Africa, Malherbe tested 18,000 pupils in three types of schools: monolingual Afrikaans, monolingual English, and bilingual Afrikaans-English. He found the pupils in the bilingual schools to statistically surpass the pupils in the monolingual schools with respect to language attainment in both English and Afrikaans, geography, and arithmetic.[3]

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[1]Burns, 1968. For further experimentation concerning bilingual programs outside the U.S., see the following studies done in Ghana and India, respectively: Grieve and Taylor, 1952; West, 1926. For experimentation dealing with "reverse" bilingual programs in Canada, see the following studies: Giles, 1969; Lambert, 1970, 1971; Lambert, Just and Segalowitz, 1970; Lambert and MacNamara, 1969. For that dealing with such instruction in Ireland, see MacNamara, 1966. The related development of "international schools," which provide multi-cultural education, is reported in Malcolm, 1970.

[2]Giroux and Ellis, 1968.

[3]Malherbe, 1946.

Research in the United States: Spanish-English bilingual programs

Research on the effectiveness of bilingual education programs in the United States is more extensive and recent than that conducted in other countries, but is still somewhat limited in its applicability to the Puerto Rican population in Connecticut.

The first major bilingual education experiment in the United States since World War I was instituted in 1963 at the Coral Way School in Miami, Florida. Coral Way is a "two-way" bilingual school, providing instruction for both English-and Spanish-speaking children through both their first and second languages. The enrollment at Coral Way was originally half (middle-class Cuban refugee children) and half (middle-class native American children). In this school each group received instruction through the mother tongue in the morning and through their second language in the afternoon. Teams composed of both English-and Spanish-speaking teachers provided the instruction. The English- and Spanish-speaking students were mixed for non-academic subjects in the primary grades and for all the subjects in the latter grades.[1]

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[1]Andersson, 1969c; Bell, 1965; Gaarder, 1965b, 1967; Gaarder and Richardson, 1968; Logan, 1970.

In an informal evaluation of the bilingual program of the Coral Way School, Feeley reported that the results at the end of the first two years of the program were positive.[1] In a doctoral dissertation based on the program Richardson indicated that, after three years, both the Spanish-and English-speaking children made consistent and significant gains in their second language, without showing any handicap in their academic achievement in English, when compared with a similar group of children in a control school. Moreover, Richardson reported that the Spanish-speaking children at Coral Way developed literacy in their native language. Richardson further found that "at comparable grade levels the achievement of the Spanish-speaking pupils in English was consistently higher than was the achievement of the English-speaking pupils in Spanish."[2] By the fourth year of the program, the Spanish-speaking pupils showed no significant differences in their achievement in both languages.[3]

Richardson cited the following factors at Coral Way which may have helped account for the positive findings of her study: the favorable climate of community and staff opinion; the possible Hawthorne effect resulting from many

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[1]Feeley, 1970, p. 205.

[2]Richardson, 1968, p. 57.

[3]Cypress, 1969; Gaarder and Richardson, 1968, p. 40.

visitors; the provisions for teacher-aides and daily planning periods; and the middle-class motivation of both the English and Spanish-speaking pupils.

Beebe prepared an updated description and process evaluation of the Coral Way bilingual program which cited important changes in the organizational structure and in the ethnic composition of the faculty and student body.[1] He also described the expansion of bilingual education to two other elementary schools. However, he predicted the demise of bilingual education in Dade County unless more vigorous and immediate efforts were taken to improve and intensify these programs.

Later studies conducted by the Dade County Department of Program Evaluation confirmed that both Spanish-and English-speaking students in the elementary school bilingual programs showed significant progress toward bilingualism while suffering no deficiencies in reading and arithmetic achievement, when compared with control-group students. Moreover, the students in the bilingual programs evidenced a positive transfer of reading skills from the native language to their second language.[2]

The majority of recent research studies concerning bilingual education in the United States have focused on

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[1]Beebe, 1970.

[2]Inclán, 1971, pp. 7-9.

bilingual programs for Anglo-and Mexican-American children in the Southwest. The first such programs were established in 1964 in Webb County and in San Antonio, Texas.[1] The Webb County program was limited to the bilingual teaching of mathematics to mixed classes of Anglo-and Mexican-American pupils in the first and third grades of Nye Elementary School. In a doctoral dissertation based on this program Treviño reported that "in all comparisons [between the children in the bilingual classes and those in control classes], both the English-speaking and Spanish-speaking children taught bilingually had higher scores; and in several cases the difference of the means was statistically significant."[2] Moreover, Treviño found that the Spanish-speaking children generally scored below grade level in arithmetic fundamentals and reasoning at the end of the first year of the bilingual program. However, they scored above grade level in these two arithmetic skills by the end of the third year.[3]

The San Antonio bilingual program has been the subject of a much more complete and continuing research effort.

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[1] Andersson and Boyer, 1970, p. 19.

[2] Treviño, 1969, p. 24.

[3] Treviño, 1968, 1970.

Known as the San Antonio Language Research Project, this effort was inaugurated in 1964 under a U.S. Office of Education grant. The original project evaluated the effectiveness of two readiness programs designed to prepare disadvantaged Spanish-speaking students for reading in English by means of aural-oral instruction which was based on culture-fair science-based materials.[1] The original sample consisted of Mexican-American children from 28 first grade classes in nine schools in San Antonio. These pupils were initially divided according to the following treatments:

OAE - intensive Oral-Aural English instruction, using science-based materials for one hour a day
OAS - intensive Oral-Aural Spanish instruction, using science-based materials for one hour a day
NOA - Non-Oral-Aural instruction (control group)

The findings at the end of one year revealed no significant differences among the three treatments with respect to gains in oral ability in English.[2] The findings at the end of three years provided mixed support for the OAE and NOA treatments, depending on the measure of English reading achievement used and the length of time (two vs. three years) that the pupils had participated in the program. The OAS treatment did not emerge as a particularly effective method

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[1] Horn, 1966.

[2] Peña, 1967.

of facilitating English reading achievement.[1]

After examining the initial results, the San Antonio project personnel concluded that their objectives and methods were too limited. It was decided, consequently, to extend the reading objective to one of general language cognition and to supplement the science-based materials with a self-concept enhancement program.[2] The subsequent fourth-and fifth-year results favored the revised OAS treatment with respect to the results of a test of oral language ability in English.[3] The efficacy of the bilingual treatment would seem to be considerable, especially given the failure of this study to test oral development in Spanish and to provide reading instruction in Spanish as a bridge to reading in English.

Other experimental bilingual programs in Texas have been the subject of further studies. Pryor reported that as a result of the bilingual program in four elementary schools in the Harlandale Independent School District of San Antonio, "the pupils in the bilingual sections of all four schools could speak, read, and write two langauges at the end of the first grade."[4] However, his evaluation studies

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[1]Knight, 1969.

[2]Stemmler, 1966.

[3]Taylor, 1969. For other accounts of the San Antonio project, see John, et al., 1969, p. 3; Feeley, 1970, p. 203; and Venezky, 1970, p. 338.

[4]Pryor, 1967, p. 64.

at the end of each of three years of the Harlandale program qualify this statement. In these studies, neither the bilingual nor the traditional teaching methods emerged with any clearcut superiority on various evaluation instruments.[1] These limited results may have been due to what Valencia[2] observed as a restriction of the bilingual approach in the Harlandale program to the areas of science and social studies for the purpose of complete transfer into English rather than first-language maintenance.*

In a less detailed report Flores indicated that the bilingual education program at the Garfield Elementary School in Del Rio, Texas, resulted in superior scholastic adjustment and no deficiency in English competency for those pupils promoted after one year in the program, as compared with a matching group of pupils who were not in the program.[3] The lack of more extensive empirical evidence and the dubious procedure of only counting promoted pupils in the data analysis tend to limit the significance of Flores' report.

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[1]Pryor, 1967, 1968, 1969.

[2]Valencia, 1971, p. 19.

*According to Simpson (1971) an Associated Press study of Title VII bilingual programs found them to tend toward providing a transition into English rather than a strengthening of Spanish skills.

[3]Flores, 1969, p. 110.

The bilingual program for Mexican-American children in Marysville, California, was subject to a more thorough published evaluation. For the purposes of the study, three classes of Mexican-American children were organized on a K-3 non-graded basis, two being designated as bilingual classes and one designated as a control class. At the end of the year, the classes receiving subject matter instruction in Spanish along with aural-oral ESL instruction showed substantial gains relative to the control class on the Machover Draw-A-Man, Bender-Gestalt, and Peabody Picture Vocabulary (in English and Spanish) tests. Moreover, the teachers' anecdotal reports indicated gains for the pupils in the bilingual classes with respect to self-concept.[1]

A bilingual program in Pecos, New Mexico, provided for daily periods of language arts instruction in Spanish for Mexican-American children in grades one through six. An evaluation study by Valencia revealed favorable attitudes on the part of participating pupils, teachers, and parents toward the Spanish-language program. Statistical analysis of the results of the California Test of Basic Skills showed no significant difference between experimental and control group children in English communication skills, including reading. However, the experimental group evidenced positive

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[1]Thonis, 1967, 1969.

progress in Spanish communication skills.[1]

Valencia also evaluated a bilingual program instituted under Title VII (ESEA) funds in Grants, New Mexico. The Grants bilingual program provided first-grade Mexican-American and Indian children with subject-matter instruction in their respective mother tongues. The first-year findings revealed statistically significant gains in oral and written English-language skills for the pupils in the bilingual classes. However, the pupils in the bilingual classes did not significantly outperform those in the control classes with respect to English skills. The results of a cultural sensitivity test revealed no significant changes in attitude for either the experimental or control groups. However, Valencia pointed out that attitudinal changes might be more adequately measured over longer periods of time. Finally, the parents of pupils in both the experimental and bilingual groups were found to have favorable attitudes toward bilingual education, with slightly higher scores noted for parents of the children in the experimental group.[2]

Valencia also provided empirical evidence concerning the effectiveness of bilingual education for Spanish-speaking adults. In two separate studies, he found that the oral

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[1]Valencia, 1970b.

[2]Valencia, 1970a.

English-language development of non-English-speaking adults of Mexican-American, Cuban, and Puerto Rican background was enhanced by using bilingual videotape lessons. However, the absence of a control group, receiving such lessons with a monolingual (English-only) approach, limited the significance of Valencia's studies.[1]

A bilingual education program based on "minicourse" materials developed by the Southwest Educational Development Laboratory for Spanish-speaking students in pre-school to grade six was reported to show startling success. According to a news release, the 15,000 elementary school pupils using these materials in the third year of the program in 12 school districts (including San Antonio and McAllen, Texas, Los Angeles, Philadelphia, and New York City) were achieving, on the average, at or above grade level on the Iowa Test of Basic Skills. Moreover, they had an attendance record of 97 per cent, which is about 10 per cent better than would be normally expected.[2]

The group using the bilingual pre-school materials in San Antonio and McAllen were, according to the same account, achieving 15 to 20 per cent better than control groups on both Spanish and English versions of the Peabody Picture

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[1]Valencia, 1971, pp. 23-24.

[2]Minicourse, 1970.

Vocabulary Test (PPVT).[1] A published research study confirmed that the experimental group significantly surpassed the control groups on the Spanish version of the PPVT and that the difference was in their favor and approached significance on the English version of the PPVT. Moreover, they significantly surpassed the control groups on the Leiter International Performance Scale, a nonverbal measure of intellectual development. The children participating in the experimental (i.e., bilingual) and control (i.e., day-care and parent-involved) groups of the original study were economically disadvantaged Mexican-American three-year olds.[2]

As the early-childhood bilingual program of the Southwest Educational Development Laboratory was extended to more and older children, subsequent studies continued to reveal positive results. The 1969-70 evaluation of the program reported that the children in the experimental group had significantly higher post-test means than did the children in the comparison groups with respect to intellectual development and Spanish-language skills. Moreover, the five-year-old pupils in the experimental group showed a significant gain in English-language development and the three- and four-year-olds showed a positive, but

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[1] Minicourse, 1970.

[2] Nedler and Sebera, 1971.

not significant, gain in English-language developed as a result of participating in the bilingual program.[1] The 1970-71 evaluation revealed that three-,four-,and five-year-olds significantly surpassed comparison groups when tested for intellectual development with the Raven Progressive Matrices.[2]

A study of a different pre-school bilingual program, which involved Mexican-American Head Start children in California, revealed no significant effect of the program vs.comparison treatments. However, the program was limited to 35-minute periods over a six-week summer program and the instrumentation was limited to English-language development tests.[3]

Another study in the Southwest involved a "two-way" bilingual program in ten first-grade classrooms. Bilingual instruction, which was 50 per cent in Spanish, was limited to two hours daily in each of the ten classrooms by means of itinerant bilingual teachers. The study revealed that the participating English-and Spanish-speaking students suffered no penalty in English-language development while receiving a "bonus" in Spanish-language development.

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[1]Southwest Educational Development Laboratory, 1970.

[2]Southwest Educational Development Laboratory, 1971.

[3]Barclay, 1969.

The Mexican-American children learned significantly more English than did the Anglo-American children, while the Anglo-American children evidenced significantly greater gains in Spanish than did the Mexican-American children.[1]

Descriptive rather than empirical studies of bilingual programs involving Spanish-speaking students in the Southwest have also been conducted. For example, Ramirez and Valencia each prepared survey reports of various bilingual programs as well as of other education programs for Spanish-speaking people. These reports include evaluative comments on the instructional processes, but not concerning the instructional outcomes, of such programs.[2]

Bilingual programs have been relatively few in the Northeast compared to those in the Southwest. Several bilingual programs in New York City were among those reported in the Northeast. In a little-known project organized in 1963 at Sands Junior High School in Brooklyn, a class of seventh-grade Spanish-speaking pupils received four periods per week of language arts instruction in Spanish. After one year, "meaningful gains" were reported for parental involvement, reading scores, and teacher-rated

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[1]Bates, 1970.

[2]Ramirez, 1969; Valencia, 1969a; Valencia, 1969b.

attitudes of pupils in the Sands project.[1] Another early bilingual education experiment in New York City was implemented in 1965 through the City University of New York in five elementary schools. Finocchiaro and King separately designed bilingual lessons of 15 to 20 minutes per day to be taught to ethnically mixed K-1 classes. Both authors reported positive results, but their reports made no mention of a control group or other important evaluation design details.[2]

A third early bilingual education project in New York City reported in the literature is the Science Spanish Research Experiment. The 500 Spanish-speaking seventh-grade students participating in this project represented 18 junior high schools in New York City. At the project's inception in 1964, the pupils were selected on the basis of two years' retardation in English-reading ability and roughly equal verbal facility in Spanish and were then randomly assigned to the experimental and control groups. The pupils in the experimental group attended classes in ESL, "SSS," and science taught in Spanish.* Evans reported that after three years, "the experimental students in the bilingual program did better in science than the students in the control group and their mastery of English was not

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[1] Mermelstein, 1965.

[2] Finocchiaro and King, 1966; King and King, 1968.

* "SSS" refers to Spanish for Spanish Speakers as contrasted to Spanish as a Second-Language (SSL).

impeded . . . . They scored higher in subsequent city-wide reading tests."[1] Moreover, the pupils in the experimental group evidenced improved levels of Spanish-language development, of ethnic identity, and of motivation. However, their vocational aspirations were not found to be significantly different from those of the control-group pupils.[2]

A more recent and renouned bilingual program in New York City was the P.S. 25 Bilingual School. The first annual report of a planned three-year evaluation of this "two-way" program yielded no clear-cut conclusion regarding the effectiveness of bilingual instruction with respect to reading and arithmetic achievement in grades one and two. The inconclusive results were attributed to the lack of complete data, the limited time span of the study, and the possibility of inadequate intra-group controls within each grade level. The report indicated that Spanish-dominant children enrolled in the bilingual program were achieving at impressive levels in reading and math, but that the English-dominant pupils in the program did not appear to be progressing as well as their control-group counterparts in these same subjects.[3]

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[1] Evans, 1968.

[2] Evans, 1968; Raisner, 1966; Raisner, et al., 1967.

[3] Horner, 1971.

The first-year results of another Title VII (ESEA) "two-way" program in New York City similarly revealed positive results for the Spanish-dominant students as compared to the English-dominant students. The District 13 program at P.S. 133 and P.S. 282 in Brooklyn began in 1970-71 with four kindergarten and four first-grade classes. The first-grade pupils revealed an average growth of one year and four months on the Metropolitan Achievement Test (MAT) during the first year of the program. The Spanish-dominant students showed particular progress on the language subtests of the MAT, such that the initial difference between their scores and those of the English-dominant pupils in the program became insignificant on the post-test results. The kindergarten pupils in the program showed less dramatic gains, with the Spanish-dominant pupils remaining significantly below their English-dominant counterparts in academic and linguistic readiness.[1]

A parents bulletin concerning the "two-way" Title VII (ESEA) bilingual program in Philadelphia stated that:

> The program raised the scores of Anglo and Latino children on the Philadelphia Readiness Test to above the 1969 school mean when the instructions for the test were in the students' mother tongue. In fact, Latino students tested in Spanish had higher scores

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[1]DiLorenzo, 1971.

> than did the students in the best scoring school in the entire city of Philadelphia during 1969.[1]

Moreover, the bulletin reported that the program enhanced the ability of both groups of students to speak their second language, with the Spanish-speaking children progressing more in English than did the English-speaking children progress in Spanish.

New Jersey developed both Title III and Title VII (ESEA) bilingual programs. The Title III program for Puerto Rican primary-school children in Hoboken resulted in superior scores for the bilingual classes as compared with the control classes on the SRA Short Test of Educational Abilities. However, the deletion of the scores of over-age students from the data analysis and the lack of statistical tests of significance limited the conclusiveness of the Hoboken results.[2] The Title VII bilingual program focused its resources on Puerto Rican first-grade children in five communities in New Jersey. The first-year program reports to the U.S. Office of Education revealed problems in instrumentation but did indicate the success of reading instruction in Spanish, especially for homogeneous classes of Spanish-speaking students. No significant difference,

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[1] How, 1969.

[2] Hoboken Board of Education, 1969.

however, was found between the absence rates of pupils in the bilingual and control classes.[1]

The only bilingual education program formally evaluated in Connecticut prior to the present study was the Title VII program in New Haven, which was initiated in September, 1969.* Unfortunately, the first-year evaluation of the program was limited by financial, procedural, and chronological constraints and consequently yielded few firm findings. The evaluation did reveal significant gains in student self-concept and positive parental attitudes toward bilingual education.[2]

## Summary

A review of the research literature reveals that Spanish-speaking children have evidenced language and achievement deficiencies in English which were not necessarily present when they were tested and taught in Spanish. Moreover, such children have been characterized as having depressed self-concept levels as a result of English-only ethnocentric schooling. In addition, the review has revealed the pressing need to more effectively include Spanish-speaking parents in the educational process.

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[1] Hoffman and Terry, 1970.

* For a description of this program, see Zirkel, 1971b.

[2] Cohen and Promisel, 1970.

Bilingual education programs are designed to reverse the seeming deficiencies and so-called disadvantages of Spanish-speaking students by utilizing their native language and culture as an asset rather than a liability. Despite the widespread extent of such programs throughout the world, few clear-cut conclusions can yet be drawn as to their effectiveness for the Puerto Rican population in Connecticut due to the limited availability and applicability of research in this immediate area. However, despite the lack of carefully controlled experimentation involving this population, the significant proportion of positive results for the available research portends promise for such study.

# CHAPTER III

## PROCEDURE

The purpose of this study was to assess the effectiveness of the experimental bilingual education programs in Bridgeport, Hartford, New Britain, and New London during their first year of operation (1970-71) in terms of selected pupil and parent outcomes. Given this purpose, the procedure first involved data collection concerning the academic achievement and self-concept of pupils in the experimental and control groups in each city and concerning the school-related perceptions of a sample of their parents. The procedure then involved the organization of these data into clear-cut categories via a screening form (Appendix A) so that they might be meaningfully analyzed in response to the basic questions of the study.

### Subjects

The subjects of the study were Puerto Rican pupils in grades 1-3 of public schools in Bridgeport, Hartford, New Britain, and New London and a sample of their parents. The experimental group consisted of those pupils participating in "bilingual" programs at the primary grades in each of these cities. The control group consisted of a corresponding

sample of pupils in the same cities who were not participating in the program. Since random assignment to the respective groups was not possible, control pupils were selected as being as comparable as possible in number, grade level, school attended, age, sex, and language dominance as those in the bilingual program. The number of pupils in the experimental and control groups pre-tested in each city are listed in Table 2 by school and level.

TABLE 2

Number of Experimental and Control Pupils Pre-Tested in Each Level, School, and City

| City | School | Level (I=gr. I) (II=gr. 2,3) | No. Experimental | No. Control |
|---|---|---|---|---|
| Bridgeport: | Elias Howe | II | 18 | 19 |
| | Franklin | I | 15 | 16 |
| | | II | 18 | 20 |
| | Longfellow | I | 22 | 5 |
| | | II | 13 | 18 |
| | McKinley | I | 19 | 15 |
| | | II | 3 | 3 |
| | Waltersville | I | 28 | 60 |
| | | II | 27 | - |
| Hartford: | Barnard Brown | II | 15 | 18 |
| New Britain: | Camp | I | 14 | - |
| | Elihu Burritt | I | - | 15 |

TABLE 2 (Continued)

| City | School | Level (I=gr. I) (II=gr. 2,3) | No. Experimental | No. Control |
|---|---|---|---|---|
| New London: | Harbor | II | 1 | 1 |
| | Jennings | I | 1 | 4 |
| | | II | 2 | 2 |
| | Nameaug | I | 4 | 3 |
| | | II | 6 | 6 |
| | Waller | I | - | 3 |
| | | II | - | 1 |
| | Winthrop | I | 3 | 3 |
| | | II | 2 | 6 |

It can be seen in Table 2 that the experimental and control subsamples were secured at the same grade levels and generally in comparable numbers at each school in Bridgeport. The Hartford experimental and control groups were limited to Level II, as there was no bilingual class at Level I in Hartford at the time of the study. Similarly, the New Britain program was limited to one level (viz., grade one). Moreover, since the New Britain program served all Puerto Rican pupils in the first grade of the participating school, a control sample was selected from another school in that city serving a similar population of Puerto Rican pupils. The experimental and control subsamples in New London were

scattered at several schools as the program involved itinerant bilingual teachers.

Approximately 25 per cent fewer pupils were involved in the post-testing because of pupil absences and mobility to other classes, other cities, or other schools. The number included in the final data analysis was further reduced by design considerations. That is, the data analyzed were limited to those pupils who were completely pre-and post-tested and who were exposed to identifiably bilingual or control treatments during the intervening period. Moreover, pupils were randomly dropped to match the experimental and control samples in each city on a group basis according to socio-economic status (SES), sex, and age. Occupation of the head of the household was used as an indicator of SES. According to Warner's revised scale, which consists of seven occupational levels, all students included in the final analysis were classified at the two lowest levels of SES.[1]

A summary of the number of pupils in the experimental and control groups whose test scores were included in the final data analysis is given in Table 3 according to city and grade level.

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[1]Warner, 1949.

TABLE 3

Number of Experimental and Control Pupils Included in Final Data Analysis

| City | Level (I=gr. 1; II=gr. 2,3) | No. Experimental | No. Control |
|---|---|---|---|
| Bridgeport | I | 53 | 49 |
| | II | 31 | 48 |
| Hartford | II | 11 | 14 |
| New Britain | I | 13 | 13 |
| New London | I | 7 | 11 |
| | II | 11 | 14 |

It can be seen by comparing Tables 2 and 3 that the number of pupils in Bridgeport included in the final data analysis was considerably (43 per cent) less than the number pre-tested in Bridgeport. Similarly, it can be seen that the number of pupils in the other three cities included in the final data analysis was slightly (15 per cent) less than the number pre-tested in these cities. The greater shrinkage in the case of Bridgeport was principally due to the larger number and more varied kinds of treatments revealed and reduced there by the screening procedure, which is described later in this chapter.

The collection of the home interview data was limited to a random sample of the families of pupils in the bilingual control groups in Bridgeport and Hartford. The random sample

interviewed consists of the parents of approximately one of every two children in Bridgeport and Hartford included in the final analysis of pupil data. The final analysis of the parent data was based on the interviews of 53 experimental and 60 control families, respectively. The derivation of the parent sample is summarized in Table 4.

TABLE 4

Outline of Derivation of Final Sample Size for Data Collection and Analysis of Parent Outcomes

| City | Pupil Level | Separate Pupil Samples | | Separate Parent Samples | | Combined Parent Samples | |
|---|---|---|---|---|---|---|---|
| | | Exper. | Control | Exper. | Control | Exper. | Control |
| Bridgeport | I | (53) | (49) | (29) | (26) | | |
| | II | (31) | (48) | (17) | (26) | | |
| | | | | | | 53 | 60 |
| Hartford | II | (11) | (14) | ( 7) | ( 8) | | |

Slight discrepancies in the proportions of the separate parent samples were due to the elimination of the minor number of parents who were found to have children in both the experimental and control groups or who were not interviewed. The separate parent samples were combined across level and city because the home interview instrument had only one level

and because the screening procedure revealed experimental and control treatments common to the two cities.

## Instruments

The linguistic and cultural background of Spanish-speaking children necessitate special attention to the selection and administration of evaluation instruments. The experience of other researchers on this subject was considered in the selection and administration of the instruments. The rationale for selecting and the procedure for administering each instrument employed in this study are described below.

### Goodenough-Harris Draw-A-Man Test (DAM)

I.Q. testing has become the core of the controversy concerning the testing of Spanish-speaking children. The significant language and cultural factors of most I.Q. tests have precluded an accurate assessment of the intellectual development of Spanish-speaking students.[1]

In accordance with the recommendation of Saville and Troike in their Handbook for Bilingual Education, the Goodenough-Harris Draw-A-Man Test (DAM) was selected as a measure of I.Q.[2] The DAM is a brief nonverbal test in which the child

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[1] Zirkel, 1972b.

[2] Saville and Troike, 1970, p. 50.

is asked to draw the best man that he can. The DAM has been found to have favorable reliability and validity for use with young children (viz.,grades K-3).[1] Robinson found the DAM to be reasonably reliable in testing disadvantaged pupils.[2] Manuel and Hughes found evidence in favor of its criterion validity for use with Spanish-speaking students, particularly in grades one and two.[3] Several researchers have selected the DAM for use with Spanish-speaking subjects.[4] Moreover, the DAM has been selected for use in the evaluation of other bilingual programs involving Spanish-speaking children.[5]

The DAM was administered in this study to groups of children so that the ratio of children to adults did not exceed 10:1. The investigator served as the examiner in all cases in order to provide for uniformity of administration. The directions for the DAM were translated into Spanish with the help of a committee of Puerto Rican teachers and parents. The directions were presented first in English and then in Spanish to all groups.

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[1]Buros, 1953, p. 392.

[2]Robinson, 1966, p. 204.

[3]Manuel and Hughes, 1932.

[4]Fowler, 1969; Henderson, 1966; Krear and Boucher, 1967; McCanne, 1966; Palomares and Cummins, 1968a, 1968b; Palomares and Johnson, 1966.

[5]Feeley, 1970, p. 203; Hoffman and Terry, 1970; National Consortia, 1971, pp. 12, 21, 47, 48, 58, 64, 74.

The DAM was scored utilizing the short-scoring method described in the manual.[1] All DAM tests were scored by the investigator with the assistance of another graduate student. A comparison of their respective results for a random sample of 50 protocols across schools and grades revealed an inter-scorer reliability of .86. Moreover, a comparison between the short-scoring method and the most detailed method of scoring the DAM described in the manual resulted in a correlation coefficient of .75 for the same sample of 50 protocols.

Inter-American Test of General Ability (TOGA)

As pointed out in Chapter II, Spanish-speaking students in the United States have been handicapped in their performance on measures of academic abilities because they have customarily been restricted to English. It was for this reason that Manuel directed research projects in the 1940's and again in the 1960's, with the cooperation of the American Council on Education, the U.S. Office of Education, and the University and Department of Education of Puerto Rico, which culminated in the Inter-American series of tests in parallel English and Spanish editions.[2]

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[1]Harris, 1963, pp. 302-310.

[2]Manuel, 1952, 1953, 1967.

This series' Test of General Ability (TOGA) was chosen for this study because it offers the opportunity for the young Spanish-speaking student to demonstrate his verbal, non-verbal, and numerical abilities in each language independent of literacy. Thus, the investigator concurred with Coleman's selection of these tests as more appropriate than specific achievement tests for use in the primary grades.[1] Moreover, these tests have been selected and used in the evaluation of bilingual and other programs involving Spanish-speaking children.[2]

Levels I and II of the TOGA were administered in alternate Spanish (form DEs) and English (form CE) forms to pupils in grades 1 and 2-3, respectively. Both levels of the TOGA consist of items dealing with listening comprehension, numerical skills, and non-verbal abilities. However, Level I consists of a total of 80 items while Level II consists of 100 items.

Following the recommendations of the publisher and other researchers who had employed it in similar circumstances, the TOGA was administered by an outside examiner rather than by the classroom teacher and in such a manner

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[1] Coleman, et al., 1966, p. 293.

[2] Hoffman and Terry, 1970; Horner, 1971; Lorge and Mayans, 1954; Manuel, 1970b; National Consortia, 1971, pp. 12, 20, 23, 36, 38, 51, 53, 59, 66, 71; Pryor, 1967.

that the adult-to-pupil ratio did not exceed 10:1.* The investigator administered the tests in each case, first in Spanish and then in English, for uniformity of administration. The tests were then scored by several graduate students and checked by a research associate under the supervision of the investigator.

Inferred Self-Concept Scale (ISCS)

The age and language of the subjects militated against the use of a self-report instrument for measuring self-concept. It was for this reason that one of the relatively few available observer-report instruments was selected. In a previous study by the author and Greene, which involved Spanish-speaking children, the Inferred Self-Concept Scale (ISCS) was selected in light of the relatively extensive evidence concerning its psychometric properties when employed with young, culturally different children.[1] The ISCS has been used in evaluation studies of programs for Spanish-speaking and other culturally different students.[2] As McDaniel stated[3]

> The researcher should find that the ISCS makes it possible to report meaningful comparisons between groups...The scale should be

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*Both Cohen and Promisel (1970) and Hoffman and Terry (1970) found evidences of spuriously inflated scores as a result of the administration of TOGA by classroom teachers.

[1]Zirkel and Greene, 1971b.

[2]McDaniel, 1967; National Consortia, 1971, p. 74.

[3]McDaniel, 1969, preface.

> particularly useful for assessing the self-concept of children from low-income culturally different groups and make it possible to obtain data which are genuinely descriptive of self-concept as manifested in the school setting.

The ISCS consists of 30 items on which the observer rates the behavior of the child on a scale ranging from one ("never") to five ("always"). As some items are stated negatively to avoid response set, the scoring system first involves reversing the numerical ratings of these items and then calculating the mean rating of all 30 items. As is explained in the text manual, the resulting self-concept score "can be thought of as a point on a continuum between one and five, with one representing a socially undesirable (or negative) and five representing a socially desirable (or positive) concept of self."[1]

The teachers were asked to complete the ISCS on each pupil two weeks after the TOGA pre-and post-testing to allow for more time at the beginning of the year to become acquainted with the children's behavior and to measure the changes at the end of the year over a similar interval of time. The ISCS was translated into Spanish by two of the bilingual teachers to ensure that it was available in comprehensible forms to the Spanish-speaking as well as the English-speaking

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[1] McDaniel, 1969, appendix.

teachers. The completed forms were scored and checked by the same team that scored and checked the TOGA.

Zirkel-Greene Home Interview Schedule (Z-G)

The Zirkel-Greene Home Interview Schedule (Z-G) was developed by the investigator and Greene* for research projects focusing on Puerto Rican families in Bridgeport and Hartford.[1] It was developed in parallel English and Spanish forms with the help of a committee of Puerto Rican teachers and parents. It consists of a total of 49 items dealing with parent perceptions and family background variables relating to the education of Spanish-speaking students.

Besides the various individual items, it includes revised versions of two other instruments: Hoffman's Bilingual Background Schedule and Mosley's Attitude Toward Bilingualism Scale. Hoffman developed and validated his instrument to determine the degree of language dominance in the home environments of students whose native language was not English.[2] It has been used extensively in studies involving Spanish-speaking pupils.[3] The authors made the following revisions to obtain more reliable and valid results

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*At the time of the writing of this study Dr. Greene was an Assistant Professor at the University of Bridgeport.

[1]Greene and Zirkel, 1971a; Zirkel, 1972.

[2]Hoffman, 1934.

[3]Jacobs and Pierce, 1966; Janssen, 1969; Johnson, 1951; Kaufman, 1968; Lewis and Lewis, 1965.

for the purposes of such study: elimination of items dependent on literacy; up-dating of items referring to media (e.g., television rather than lectures); and revision of the item orientation so as to be directly administered to the family rather than only to the child. Similarly, Mosley's scale was revised to be more appropriate and applicable to the population of this study by substituting "Puerto Rican" for its original "Mexican-American" orientation and then by reanalyzing and selecting items in terms of their relationship to the total score.

In its entirety the Z-G includes item dealing with the following factors in the pupil's home environment:

1) the parents' educational level and their educational aspirations and expectations for their child

2) the parents' occupational level and the level of their occupational aspirations for their child

3) the parents' geographic origin and orientation

4) the language proficiency and dominance of key members of the family with regard to English and Spanish

5) the parents' attitude toward bilingualism and bilingual education

6) the parents' participation in and perception of the education of their child.

Although all of the results for the bilingual and control samples are reported in Appendix B, only the results for

selected items in categories five and six are discussed in detail in Chapters IV and V, as they served as dependent variables in the study.

## Method

The experimental and control groups were matched on a group basis according to the variables recommended by Ching and Thonis[1] viz., age, sex, and SES. Data were collected and analyzed concerning selected pupil and parent outcomes.

### Data collection

The instruments were administered according to the schedule outline in Table 5.

TABLE 5

Outline of Data Collection Schedule

| Pre-testing (October, 1970) | Post-testing (May, 1970) |
|---|---|
| Draw-A-Man (DAM) | |
| Test of General Ability (TOGA: DEs, CE) | Test of General Ability (TOGA: DEs, CE) |
| Inferred Self-Concept Scale (ISCS) | Inferred Self-Concept Scale (ISCS) |
| | Home Interview Schedule (Z-G)* |

[1] Ching, 1961; Thonis, 1967, p. 29.

*The Z-G was employed in Hartford and Bridgeport only.

The investigator administered all of the instruments with the exception of the home interview schedule, which was done by a team of Spanish-speaking teachers under the direction of the investigator, and the New London testing, which was conducted by another male bilingual examiner trained by the investigator. To further endeavor to maximize uniformity of testing conditions, the same order of testing was followed in pre-and post-testing the several groups with the various instruments.

A research associate assisted the investigator during the testing. All testing was conducted in groups of less than 25 pupils and during periods not exceeding 30 minutes. An overhead projector was used to facilitate the presentation of directions. Finally, candy was given to all participating children at the end of each testing period.

Securing appropriate data for the parent outcomes (viz., individual home interviews) was much more difficult and time consuming than that for the pupil outcomes (viz., small group-testing). Consequently, the parent interviews were limited to the end of the year and to those cities where a definitive bilingual program was found. A random sample of approximately one of every two pupils in the final experimental and control groups in Bridgeport and Hartford was selected. Home addresses were secured from

the schools. The interviews were conducted by bilingual teachers in the homes of the respective families. Each of the teachers conducted from eight to 15 interviews consisting of comparable numbers of experimental and control families from each school.

The interviewers were trained and coordinated by the investigator. They were directed to interview at least one parent, although other family members were encouraged to be present. If neither parent was at home, the interviewer arranged to return at another time. The parents were asked to focus their responses to the pupil-based items upon the pupil whose name was randomly selected to constitute the parent sample. If the parents were found to have children in both the bilingual and control groups, their responses were not included in the data analysis. The parents were given the choice to be interviewed in Spanish or English, and 95.6 per cent chose to be interviewed in Spanish.

Screening procedure

The visits to the classes involved in the data collectionrevealed a wide variety in which had been described by school officials in each city as "bilingual" classes. In some cases the "bilingual" classes in one location were indistinguishable from what had been indicated as "control"

classes in another location. For example, classes with Spanish-speaking aides had been labeled "bilingual" in New Britain. Yet such classes were included in the "control" classes in Bridgeport. Given the need for some clearer classification procedure than the labeling by officials of the various school systems, the investigator prepared a screening questionnaire (Appendix A) and administered it to the teachers of the purportedly "bilingual" and "control" classes at the mid-point of the year. Based on some relevant criteria in Valencia's and Mackey's typologies, the questionnaire was prepared in order to identify the patterns of bilingual and control instruction within the four cities of this study.[1]

Limitations in sample size and processing techniques precluded the analysis of the whole series of patterns that emerged in the various cities and levels. These patterns ranged along a continuum from what was clearly bilingual instruction, as defined at the inception of this study, to clearly regular instruction. Consequently, the prevailing experimental model and a clear-cut control treatment were identified and isolated within each city.

A heterogeneous mixture of patterns were identified in Bridgeport. However, it was possible to isolate a

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[1]Mackey, 1969; Valencia, 1969a.

cluster of classes which reflected a clearly bilingual model, having the major part of their subject matter instruction through Spanish plus an ESL component. Similarly, a control group of Puerto Rican pupils, who were receiving their subject matter instruction in English along with ESL input, were identified at corresponding levels within each school. The remaining pupils were found to be in either a quasi-bilingual situation, having minimal Spanish instruction via a Spanish-speaking aide (e.g., Waltersville School-Level II), or in totally regular classes, having no specialized ESL instruction (e.g., Waltersville School-Level I).* These remaining pupils, who were in a relative minority, were not included in the data analysis.

On the other hand, each of the other three cities was revealed to have relatively homogeneous experimental and control treatments, respectively. The Hartford sample consisted of only two Level II classes (i.e., grade 2-3 combinations) in the same school: one bilingual and one control. Each of these classes reflected the same bilingual and control models of instruction that were isolated in Bridgeport. Given the small size and corresponding classification of the Hartford sample, it was combined with the Bridgeport

*See Table 2.

sample to obtain an analysis of the effectiveness of the bilingual model.

The New Britain sample consisted of two Level I groups. The only relevant difference found by comparing the experimental and control groups was the use of a Spanish-speaking aide in each of the two experimental classes. The resulting amount of formal instruction through Spanish presented to the Puerto Rican pupils was minimal. It was estimated to consist of approximately five per cent of the instructional day. Otherwise, both the experimental and control groups were found to be similar in terms of the other criteria listed in the teacher questionnaire (e.g., language mixture and size of the class, subject matter and ESL components, experience and goal of the teacher). Thus, the New Britain sample was classified as a quasi-bilingual model, based on the relatively limited input of Spanish-speaking aides.

The teacher questionnaires in New London revealed another quasi-bilingual model, based on the limited input of three Spanish-speaking resource teachers. The subject matter instruction in Spanish provided by each resource teacher was relatively minor, averaging from 30 to 60 minutes daily with small groups of Spanish-speaking students who were "pulled out" of their regular classes. Moreover, a

lack of coordination between the Spanish-speaking resource teachers and the English-speaking regular teachers was evident in the contradictory description of their roles and goals that were found in the various teacher questionnaires. For example, some teachers labeled the input of the bilingual teachers as "ESL;" others, as "SSL;" another as "special help in English reading skills;"and only one as "Spanish help in content areas." Further limitations were also obvious in the Spanish-speaking resource teachers' responses on the questionnaires. For example, one of the Spanish-speaking teachers, who was responsible for over half of the children in the experimental group, was the only one in the four cities to describe her perceived goal as "transfer" and "assimilation" rather than "maintenance" and "cultural pluralism." She further commented that because of limitations in terms of the physical facilities, curriculum materials, time input, and professional role allocated to her, she could not consider the program as truly a bilingual one. Finally, neither the control nor the experimental groups apparently had the benefit of any specialized ESL input in New London, in contrast to the other cities, where both treatments contained this component.

Data analysis

A summary of the three experimental models identified and isolated for the data analysis is outlined along with related information in Table 6.

It can be seen in Table 6 that the data analysis focused on the effectiveness of three experimental models in relation to corresponding control treatments in each city. It should be noted that only one of these models met the definition of "bilingual education" given at the inception of the study. The other two models, despite their official label, were found to differ to a relatively limited extent from what has been accepted in their respective locations as the regular education program.

The pre-and post-test scores for each student were recorded along with demographic information (sex, age, SES, school, etc.). Those pupils with incomplete data sets were not included in the data analysis.

The analysis of the student outcomes followed an analysis of covariance design for each model at each level. The criterion variables were general academic ability in Spanish, general academic ability in English, and self-concept. The pre-test of each criterion variable as well as I.Q. were used as covariates in each analysis.

TABLE 6

Outline of Experimental Models Examined in Data Analysis of Pupil Outcomes

| Experimental Model: Staff Role | Extent of Daily Subject Matter Instruction in Spanish (est. average) | ESL Exper. | ESL Control | Level | City | Sample Size Exper. | Sample Size Control |
|---|---|---|---|---|---|---|---|
| 1. Bilingual: Spanish-speaking classroom teacher | Major (more than 150 min.) | x | x | I | Bridgeport | 53 | 49 |
| | | x | x | II | Bridgeport and Hartford | 42 | 62 |
| 2. Quasi-Bilingual: Spanish-speaking paraprofessional | Minimal (10 min.) | x | x | I | New Britain | 13 | 13 |
| 3. Quasi-Bilingual: Spanish-speaking resource teacher | Minor 30-60 min) | - | - | I | New London | 7 | 11 |
| | | - | - | II | New London | 11 | 14 |

The analysis of parent outcomes was limited to the responses of a random sample of parents of the children in the experimental and control groups in Bridgeport and Hartford to selected items of a comprehensive interview schedule. Chi-square and t-test analyses were performed to determine if there were significant differences between the two groups with respect to selected criterion categories (viz., whether the parents were "informed," "interested," "involved," and "in favor of" the school program). The means and frequencies of selected background variables were also examined to facilitate the interpretation of the results.

## Summary

The subjects of the study were Puerto Rican pupils in experimental and control classes (grades 1-3) in the public schools of Bridgeport. Hartford, New Britain, and New London, and a sample of their parents. Data were collected using the following instruments: the Goodenough-Harris Draw-A-Man Test (DAM); the Inter-American Test of General Abilities in alternate Spanish and English forms (TOGA: DEs and CE); McDaniel's Inferred Self-Concept Scale (ISCS); and the Zirkel-Greene Home Interview Schedule (Z-G). Data were organized by a teacher questionnaire which identified three experimental groups (one bilingual and two quasi-bilingual)

and corresponding control samples in the four cities. Pupil outcome data were analyzed with respect to the effectiveness of each of the three experimental models on a pre-post basis. Analysis of covariance was employed to determine if there were significant differences between the experimental and control groups of pupils with respect to the selected criterion variables at each level. Parent outcome data were analyzed in relation to the effectiveness of the bilingual model only. Appropriate statistical techniques (t-tests and chi-square tests) were used to determine if there were significant differences between the two parent samples with respect to the selected criterion categories.

# CHAPTER IV

## RESULTS

The purpose of the study was to assess the effectiveness of the experimental bilingual education programs in Bridgeport, Hartford, New Britain, and New London in terms of selected pupil and parent outcomes. The investigator identified three basic experimental models (viz., bilingual in Bridgeport and Hartford, quasi-bilingual: aide in New Britain, and quasi-bilingual: resource teacher in New London). The pupil outcome results are given for each of the three experimental models and their corresponding control treatments. Finally, the parent outcome results are given for the bilingual vs. control treatments in Bridgeport and Hartford.

### Pupil Outcomes

The selected pupil outcomes (as identified by their respective criterion measures) are:

1. general academic ability in Spanish (TOGA:DEs)
2. general academic ability in English (TOGA:CE)
3. self-concept (ISCS)

The pre-and post- test means for each of these criterion variables are given for the experimental and control groups

under each of the three models. Moreover, the adjusted post-test means and F ratios yielded by analysis of covariance are given to assess the relative effectiveness of each of these models vs. its corresponding control treatment.

Model 1: Bilingual (Bridgeport and Hartford)

The pre-test means of the experimental and control groups in Bridgeport and Hartford are given in Table 7 for each of the three selected pupil outcomes.

TABLE 7

Pre-Test Means and Standard Deviations for General Academic Ability in Spanish (TOGA:DEs) and in English (TOGA:CE), and Self-Concept (ISCS): Bilingual Model in Bridgeport and Hartford

| Pupil Outcome | Level I (gr. 1) Exper. (n=53) | Level I (gr. 1) Control (n=49) | Level II (gr. 2-3) Exper. (n=42) | Level II (gr. 2-3) Control (n=62) |
|---|---|---|---|---|
| TOGA:DEs | 22.62 (sd=8.96) | 35.94 (sd=12.11) | 41.45 (sd=13.28) | 45.94 (sd=13.81) |
| TOGA:CE | 20.49 (sd=9.92) | 37.55 (sd=10.96) | 35.38 (sd=10.06) | 57.13 (sd=15.24) |
| ISCS | 3.59 (sd=.47) | 3.81 (sd=.58) | 3.77 (sd=.56) | 4.20 (sd=.56) |

It can be seen that the mean scores of the experimental group were consistently, and in some cases considerably, below those of the control group at both levels on all three criterion measures. These initial differences in pre-test means were statistically equated by one-way analysis of covariance to determine if there were significant differences with respect to each criterion variable between the experimental and control groups.

The post-test means of the same experimental and control samples are given in Table 8 for each of the three selected pupil outcomes.

TABLE 8

Post-Test Means and Standard Deviations for General Academic Ability in Spanish (TOGA:DEs) and in English (TOGA:CE), and Self-Concept (ISCS): Bilingual Model in Bridgeport and Hartford

| Pupil Outcome | Level I (gr. 1) Exper. (n=53) | Level I (gr. 1) Control (n=49) | Level II (gr. 2-3) Exper. (n=42) | Level II (gr. 2-3) Control (n=62) |
|---|---|---|---|---|
| TOGA:DEs | 46.30 (sd=12.08) | 52.73 (sd=10.30) | 55.21 (sd=14.05) | 56.76 (sd=13.27) |
| TOGA:CE | 39.30 (sd=9.69) | 51.08 (sd=8.79) | 51.24 (sd=12.86) | 47.77 (sd=14.17) |
| ISCS | 3.70 (sd=.54) | 3.64 (sd=.73) | 3.63 (sd=.55) | 4.13 (sd=.54) |

A comparison of Tables 7 and 8 reveals that the mean self-concept of the control pupils descreased and that of the experimental pupils increased at both levels. Mean gains were manifested for academic ability in each language at both levels. It is further evident that the initial differences in the pre-test means of the experimental and control groups on each of the three criterion variables have been reduced, and in some cases reversed. Although the post-test means of the experimental samples at each level were still below those of the corresponding control samples in most cases, the experimental group surpassed the control group in post-test performance on the self-concept measure at Level I and on the general academic ability measure in Spanish at Level II.

The direction and degree of these differences were clarified by analysis of covariance, which adjusted the post-test means of each dependent variable to take into account initial differences between the experimental and control groups in terms of both the I.Q. score and the pre-test mean of the respective criterion variable. The resulting adjusted post-test means and F ratios for each criterion variable at Levels I and II are given in Table 9.

TABLE 9

Adjusted Post-test Means and F Ratios for Selected Pupil Outcomes: Bilingual vs. Control in Bridgeport and Hartford

| Pupil Outcome | Level I (gr. 1) Exper. (n=53) | Control (n=49) | F Ratio | Level II (gr. 2-3) Exper. (n=42) | Control (n=62) | F Ratio |
|---|---|---|---|---|---|---|
| TOGA:DEs | 50.18 | 48.54 | .52 | 57.99 | 54.87 | 5.24* |
| TOGA:CE | 44.18 | 45.81 | .80 | 58.10 | 52.48 | 9.12** |
| ISCS | 3.81 | 3.53 | 7.29** | 3.82 | 3.99 | 3.77 |

* $p < .05$
** $p < .01$

An examination of the adjusted means in Table 9 reveals that the experimental group generally surpassed the control group at both levels. The respective F ratios show that the differences between the experimental and control groups were statistically significant with regard to self-concept at Level I and with regard to academic ability in both Spanish and English at Level II. In both cases the differences favored the experimental group, which followed the bilingual model of instruction.

Model 2: Quasi-Bilingual (New Britain)

The pre-test means of the experimental and control groups in grade one in New Britain are given in Table 10 for each of the three selected pupil outcomes.

TABLE 10

Pre-Test Means and Standard Deviations for General Academic Ability in Spanish (TOGA:DEs) and in English (TOGA:CE), and Self-Concept (ISCS): Quasi-Bilingual Model in New Britain (Gr. 1)

| Pupil Outcome | Experimental (n-13) | Control (n=13) |
|---|---|---|
| TOGA:DEs | 47.62 (sd=9.35) | 48.77 (sd=7.74) |
| TOGA:CE | 47.85 (sd=7.96) | 49.31 (sd=12.24) |
| ISCS | 4.15 (sd=.43) | 3.76 (sd=.55) |

It can be seen that the mean academic ability scores in each language were quite similar for the experimental and control groups. Moreover, they were considerably higher than the means of the Bridgeport sample at the corresponding levels, having surpassed the respective post- as well as pre-test means of the latter. In further contrast to the Bridgeport results, the mean self-concept score of the experimental group was higher than that of the control group.

The post-test means of the experimental and control groups for the New Britain quasi-bilingual model are given in Table 11 with respect to each of the three criterion variables.

TABLE 11

Post-Test Means and Standard Deviations for General Academic Ability in Spanish (TOGA:DEs) and in English (TOGA:CE), and Self-Concept (ISCS): Quasi-Bilingual Model in New Britain (Gr. 1)

| Pupil Outcome | Experimental (n=13) | Control (n=13) |
|---|---|---|
| TOGA:DEs | 54.62 (sd=6.70) | 58.38 (sd=7.43) |
| TOGA:CE | 56.92 (sd=9.27) | 58.46 (sd=8.08) |
| ISCS | 3.74 (sd=.27) | 3.54 (sd=.62) |

A comparison of Tables 10 and 11 reveals that the means for the control and experimental groups maintained the same positions relative to each other. Moreover, the post-test means of academic ability in Spanish and English exceeded the corresponding means of the Bridgeport sample, as did the pre-test means, although the gap had been reduced in each case by over one-half. The mean self-concept scores of both the experimental and control groups manifested a decrease rather than a gain.

The post-test means of the experimental and control groups for each criterion variable were then statistically adjusted by analysis of covariance to take into account any initial differences in I.Q. and in the same criterion variable. These adjusted post-test means and the corresponding F ratios are given in Table 12.

TABLE 12

Adjusted Post-Test Means and F Ratios for Selected Pupil Outcomes in Grade 1: Quasi-Bilingual vs. Control in New Britain

| Pupil Outcome | Experimental (n=13) | Control (n=13) | F Ratio |
|---|---|---|---|
| TOGA:DEs | 55.05 | 57.95 | 1.85 |
| TOGA:CE | 56.95 | 58.44 | .34 |
| ISCS | 3.60 | 3.90 | 3.02 |

The relatively small discrepancies between the post-test means of the experimental and control groups with respect to academic ability in Spanish and English were further reduced by analysis of covariance. The relative positions of the self-concept means of the experimental and control groups were reversed so that the experimental group had lower, but not significantly lower, means than the control group with respect to all three criterion variables.

Model 3: Quasi-Bilingual (New London)

The pre-test means of the quasi-bilingual and control groups at Levels I and II in New London are given in Table 13 for each of the three selected pupil outcomes. The pre-test means of the experimental groups were lower than those of the control groups at both levels, except in the case of self-concept at Level I. Moreover, the New London Level I pre-test means for general academic ability in Spanish and English were situated at an intermediate position relative to the corresponding pre-test means of the Bridgeport and New Britain samples. The Level II pre-test means for academic ability in Spanish and English were lower than the corresponding means in Bridgeport. The pre-test means for self-concept were in the same general range in all four cities.

TABLE 13

Pre-Test Means and Standard Deviations for General Academic Ability in Spanish (TOGA:DEs) and in English (TOGA:CE), and Self-Concept (ISCS): Quasi-Bilingual Model in New London

| Pupil Outcome | Level I (gr. 1) Exper. (n=7) | Level I (gr. 1) Control (n=11) | Level II (gr. 2-3) Exper. (n=11) | Level II (gr. 2-3) Control (n=14) |
|---|---|---|---|---|
| TOGA:DEs | 33.57 (sd=8.54) | 38.82 (sd=13.08) | 33.36 (sd=12.65) | 36.93 (sd=12.96) |
| TOGA:CE | 35.86 (sd=16.86) | 40.27 (sd=15.30) | 33.73 (sd=8.74) | 34.57 (sd=9.38) |
| ISCS | 4.03 (sd=.35) | 3.53 (sd=.66) | 3.95 (sd=.57) | 4.46 (sd=.50) |

The post-test means of the experimental and control groups for New London's quasi-bilingual model are given in Table 14 with respect to the three student criterion variables at each level. The relative positions of the post-test means of the experimental and control groups followed a generally parallel pattern for the two levels. That is, the post-test means were virtually identical for the experimental and control groups at each level with respect to general academic ability in English, and they were lower for the experimental group at each level with respect to general academic ability in Spanish. However, they were lower for the control group at Level I and higher for

the control group at Level II with respect to self-concept. The mean gains with respect to academic ability in each language were generally similar in extent to those found in Bridgeport at Level I and somewhat less than those found in the Bridgeport-Hartford sample at Level II. The mean self-concept scores of both the experimental and control groups decreased from pre-to post-testing at both levels, similar to the situation found prevailing for the New Britain sample.

TABLE 14

Post-Test Means and Standard Deviations for General Academic Ability in Spanish (TOGA:DEs) and in English (TOGA:CE), and Self-Concept (ISCS): Quasi-Bilingual Model in New London

| Pupil Outcome | Level I (gr. 1) Exper. (n=7) | Level I (gr. 1) Control (n=11) | Level II (gr. 2-3) Exper. (n=11) | Level II (gr. 2-3) Control (n=14) |
|---|---|---|---|---|
| TOGA:DEs | 52.43 (sd=13.95) | 56.27 (sd=10.38) | 45.00 (sd=13.30) | 46.07 (sd=10.96) |
| TOGA:CE | 55.43 (sd=8.96) | 55.91 (sd=10.15) | 40.82 (sd=11.27) | 40.79 (sd=10.46) |
| ISCS | 3.92 (sd=.32) | 3.39 (sd=.62) | 3.82 (sd=.52) | 4.32 (sd=.41) |

The post-test means on each of the criterion variables, as adjusted by covariance with respect to I.Q. and pre-test differences, are given in Table 15 for the experimental and control groups at each level.

TABLE 15

Adjusted Post-Test Means and F Ratios for Selected Pupil Outcomes: Quasi-Bilingual vs. Control in New London

| Pupil Outcome | Level I (gr. 1) Exper. (n=7) | Control (n=11) | F Ratio | Level II (gr. 2-3) Exper. (n=11) | Control (n=14) | F Ratio |
|---|---|---|---|---|---|---|
| TOGA:DEs | 54.44 | 54.99 | .04 | 48.79 | 43.09 | 2.25 |
| TOGA:CE | 57.14 | 54.82 | .42 | 43.04 | 39.03 | .77 |
| ISCS | 3.72 | 3.52 | .81 | 4.05 | 4.14 | .25 |

The statistical adjustment generally resulted in increased post-test means for the experimental group and reduced post-test means for the control group. The respective means of the experimental and control groups were generally either very close or slightly, but not significantly, favoring the experimental group. The largest difference was found to hold for general academic ability in Spanish at Level II, although it did not approach significance, especially in the light of the limited sample size.

## Parent Outcomes

A random sample of parents of children participating in the bilingual model and in its corresponding control treatment in Bridgeport and Hartford was interviewed at the end of the school year according to the Zirkel-Greene Home Interview Schedule (Z-G). The complete results for the bilingual (n=53) and control (n=60) groups are listed for each item of the Z-G in Appendix B. The interviews approximated one hour in length. The overwhelming majority of both groups (95.6 per cent) chose to be interviewed in Spanish. Mothers participated in almost 90 per cent of the interviews, whereas fathers participated in only about 20 per cent of the interviews.* Finally, the interviewers

*No specific interpretation is intended at this point, since the interviews were for the most part conducted during the working day.

reported an exceedingly hospitable and concerned reaction on the part of almost all of the parents.

Criterion categories

The responses to selected items of the Z-G were used to indicate whether parents of children in the bilingual model perceived themselves as more informed, involved, interested, and in favor of the school program than did the parents of the control children. The specific items selected as an indication of each of these categories are listed in Table 16.

TABLE 16

List of Numbers and Wordings of Items in Z-G Selected As Indications of the Criterion Categories of Parent Outcomes

| Criterion Category | Z-G Item Number(s) | Item Wording in Z-G |
|---|---|---|
| 1) "Informed" | 45/46 | "Does (child) receive lessons in English as a Second Language in school? Does (child) participate in the bilingual program-that is, some instruction in Spanish in addition to English as a Second Language--in school this year?" |
| 2) "Interested" | 49 | "Are you interested in continuing your education?" |
| 3) "Involved" | 45 | "How many times did either of you visit the school this (1970-71) school year?" |

TABLE 16 (Continued

| Criterion Category | Z-G Item Number(s) | Item Wording in Z-G |
|---|---|---|
| 4) "In favor" | 44 | "Do you feel it worthwhile to teach Spanish-speaking children their basic subjects in Spanish while they learn English as a Second Language?" |

It can be seen that the items selected from the Z-G were simply individual indicators of each of the generic terms used as the criterion categories for parent data.

The results on each of these items are summarized in Tables 17-20 using the appropriate descriptive (viz., frequency and percentage or mean and standard deviation) and inferential (viz., chi-square or t test) statistics. The absence of interview results at the beginning of the school year and the preponderance of nominal data in the end-of-year results precluded treatment by analysis of covariance, which was employed in the analysis of pupil outcomes.

The set of frequencies in Table 17 reveals that the overwhelming majority (94 per cent) of the parents with children in the bilingual program were aware that their children were receiving bilingual instruction. In contrast,

only a minority (30.5 per cent) of parents with children in the control group, who all received ESL instruction, knew that their children received such instruction. This difference in awareness was found by a chi-square test to be significant well beyond the .01 level. It was also found through the questionnaire (Appendix B, item 46) that over 20 per cent of the parents of the control group children erroneously thought that their children were participating in the bilingual program.

TABLE 17

Results of Items 45/46 of Z-G Concerning Awareness of Parents of the Bilingual and Control Groups of the Type of Educational Program in Which Their Children Had Participated

| Criterion Category | Frequencies Bilingual | Frequencies Control | Test of Statistical Significance |
|---|---|---|---|
| "Informed" | | | |
| Yes | 47 (94.0%) | 18 (30.5%) | |
| No | 3 ( 6.0%) | 41 (69.5%) | $\chi^2=42.72^{**}$ |
| | | | $^{**}p < .01$ |

Table 18 indicates the interest of the bilingual vs. control samples of parents relative to continuing their own education.

TABLE 18

Results of Item 49 of Z-G Concerning the Interest of Parents of the Bilingual and Control Groups in Continuing Their Own Education

| Criterion Category | Frequencies Bilingual | Control | Test of Statistical Significance |
|---|---|---|---|
| "Interested" | | | |
| Yes | 33 (68.7%) | 31 (56.4%) | $\chi^2=1.19$ |
| No | 15 (31.3%) | 24 (43.6%) | |

The set of frequencies in Table 18 shows that the majority of the parents of both the bilingual and control groups expressed an interest in continuing their own education. Although the proportion indicating this interest was greater for the parents of the bilingual group than for those of the control group, the difference did not prove to be statistically significant by chi-square analysis.

Table 19 indicates the mean number of visits to school for the bilingual and control parent samples, respectively.

TABLE 19

Results of Item 47 Concerning the Participation of Parents of the Bilingual and Control Groups in Terms of Number of Visits to the School

| Criterion Category | Means | | Test of Statistical Significance |
|---|---|---|---|
| | Bilingual | Control | |
| "Involved" | 3.70 (sd=1.96) | 3.39 (sd=1.83) | t=.85 |

The responses summarized in Table 19 indicate that the parents of the children who had participated in the bilingual model of instruction visited the school slightly, but not significantly, more than those of the children in the control group. Both samples of parents indicated a relatively high level of participation in terms of visits to the school.

Table 20 summarizes the responses of parents of children in the bilingual and control samples respectively, as to whether or not they were in favor of the bilingual model of instruction. It can be seen that the parents of both the bilingual and control groups were generally in favor of bilingual education for Spanish-speaking students. The proportion was greater -- it being almost unanimous -- for the sample of parents with children in the bilingual program. The

difference between the two groups approached significance at the .05 level.*

TABLE 20

Results of Item 44 of Z-G Concerning Whether the Parents of the Children in the Bilingual and Control Groups Were in Favor of the Bilingual Model of Instruction

| Criterion Category | Frequencies Bilingual | Frequencies Control | Test of Statistical Significance |
|---|---|---|---|
| "In favor of" | | | |
| Yes | 51 (96.2%) | 49 (83.1%) | |
| | | | $\chi^2=3.78$ |
| No | 2 ( 3.8%) | 10 (16.9%) | |

The analyses of those items of the Z-G selected as dependent variables indicated that the parents of the children in the bilingual program generally surpassed the parents of the children in the regular program in terms of their awareness, attitudes, and involvement vis-à-vis the school program. These differences did not appear to be significant in the majority of the cases according to simple statistical analyses (viz., chi-square and t tests).

*The chi-square value obtained was 3.78, whereas the value needed for significance at the .05 level is 3.84.

Control categories*

Other items of the Z-G might have served as control variables had the lack of pre-interview results and of continuous variables not precluded an analysis of covariance methodology. The responses to these other items indicated differences between the bilingual and control samples of parents that were, for the most part, pre-existing and related to the results found for the four criterion categories. Table 21 presents the results of all such variables in the Z-G which could be expected to basically be either unchanging or unaffected by the program, and yet possibly be related to the parent outcomes selected as criterion variables.

An examination of Table 21 reveals that significant differences favoring the control parents emerged for most (viz., 10 of 14) of the possibly intervening background variables that were investigated. The apparent contradiction of the Hoffman results was actually consistent with this pattern, as its scale runs in reverse order to the other

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*"Control" is used in this context to refer to relevant factors which may confound the relationship between independent and dependent variables. "Control" and its counterpart "criterion," are thus borrowed from the terminology of analysis of covariance. Popham (1967, p. 224) stated that "it is convenient in analysis of covariance problems to speak of the dependent variable as the criterion variable and the relevant variable(s), for which we wish to make adjustments, as the control variable(s)." Cf. "control" meaning comparison, as in "control groups."

TABLE 21

Results of the Bilingual and Control Samples for Those Items of the Z-G Which Represented Largely Pre-Existing Characteristics With Possible Relation to the Z-G Items Representing the Four Criterion Categories

| Item No. | Description of Variable | Means or Frequencies Bilingual | Control | Test of Statistical Significance ($t$ or $\chi^2$) |
|---|---|---|---|---|
| 1 | Educational level of father | $\bar{x}$=5.93 | $\bar{x}$=6.48 | $t$=.72 |
| | Educational level of mother | $\bar{x}$=4.57 | $\bar{x}$=5.93 | $t$=2.09* |
| 4 | Occupational level of father | $\bar{x}$=6.09 | $\bar{x}$=6.43 | $t$=1.34 |
| | Occupational level of mother | $\bar{x}$=6.51 | $\bar{x}$=6.78 | $t$=1.13 |
| 6A | Birthplace of child: U.S.<br>P.R. | n=32<br>n=20 | n=20<br>n=36 | $\chi^2$=6.21** |
| 6C | Years of residence of mother in present city | $\bar{x}$=6.13 | $\bar{x}$=13.12 | $t$=4.90** |
| | Years of residence of father in present city | $\bar{x}$=5.32 | $\bar{x}$=10.93 | $t$=5.13** |
| | Years of residence of child in present city | $\bar{x}$=3.54 | $\bar{x}$=5.87 | $t$=4.13** |
| 10A | English ability ratings of father (ex. understanding) | $\bar{x}$=2.43 | $\bar{x}$=3.22 | $t$=3.09** |

TABLE 21 (Continued)

| Item No. | Description of Variable | Means or Frequencies Bilingual | Control | Test of Statistical Significance ($t$ or $\chi^2$) |
|---|---|---|---|---|
| 10 E | Spanish ability ratings of child (ex. understanding) | $\bar{x}$=4.10 | $\bar{x}$=3.43 | $t$=4.13** |
| 11-18 | Revised Hoffman Bilingual Background Schedule (measure of extent of Spanish dominance in familial environment) | $\bar{x}$=27.94 | $\bar{x}$=22.02 | $t$=3.22** |
| 20 | Language dominance rating for father (ex. understanding) | $\bar{x}$=1.44 | $\bar{x}$=2.12 | $t$=3.33** |
| | Language dominance rating for mother (ex. understanding) | $\bar{x}$=1.27 | $\bar{x}$=1.52 | $t$=1.54 |

*p < .05
**p < .01

linguistic measures used. Moreover, a consistent pattern emerged for those variables which showed significant differences between the two groups. That is, in all ten cases revealing significant differences, the control sample of parents reflected indications of a higher level of acculturation. The control sample of families, for example, significantly surpassed the bilingual sample in geographic stability on the mainland and self-rated ability in English. The significantly stronger Spanish dominance of the families with children in the bilingual program further reinforced this pattern.

Although this cluster of factors seems to reflect clearcut initial differences between the two groups, their significance ultimately depends on their relationship to the parent outcomes which were selected as criterion variables. Table 22 gives the correlation coefficients of each of these variables with each of the four criterion variables. An examination of these correlation coefficients reveals that the identified cluster of variables does seem to be significantly related to criterion categories 1, 2, and 4 (viz., "informed," "interested," and "in favor of"), but not to the category selected as an indication of parent participation (viz., item 3). Note that the only significant

TABLE 22

Correlation Coefficients Between the Variables Showing Significant Group Differences with Those Selected as Criterion Variables

| Item No. | Description of Variable | Relationship with Criterion Categories: "Informed" (Item 52) (Item 53) | "Interested" (Item 57) | "Involved" (Item 45) | "In favor of" (Item 51) |
|---|---|---|---|---|---|
| 1A | Educational level of mother | .09/.26** | .09 | .05 | .25* |
| 6A | Birthplace of child | .31**/.19* | .25* | .03 | .11 |
| 6C | Years of residency of father in present city | .50**/.41** | .23* | -.08 | -.09 |
| | Years of residency of mother in present city | .48**/.42** | .40** | -.06 | .21* |
| | Years of residency of child in present city | .45**/.33** | .35** | -.14 | .11 |
| 10A | English language ability of father (ex. understanding) | .24**/.30** | .25* | -.02 | .22* |
| 11-18 | Revised Hoffman Bilingual Background Schedule | -.35**/-.36** | -.39** | .05 | -.32** |
| 20 | Language dominance ratings for father (ex. understanding) | .11/.26** | .23* | -.04 | .29** |

*p < .05
**p < .01

inverse correlation coefficients were found between the Hoffman Schedule and criterion categories 1, 2, and 4. These findings serve to confirm rather than contradict the overall pattern, as it was noted that the scale of the Hoffman Schedule runs in a direction opposite to the other variables in the cluster.

The results outlined in Tables 21 and 22 indicate there to be a cluster of family background factors which reflected significant differences between the two samples of parents and which seemed to have a significant relation to the criterion categories. Hence, this cluster might be compared to the nature of "control variables" in analysis of covariance, and its possible effect should be kept in mind in interpreting these results. In light of the general direction and degree of these difference and relationships, it appears that their composite effect might be to confirm the seemingly positive parent outcomes of the bilingual model relative to the control treatment.

## Summary

Analysis of covariance was employed to determine if there were significant differences between the three experimental (viz., one bilingual and two quasi-bilingual) models and the corresponding control groups with respect to selected student outcomes (viz., academic abilities in Spanish

and English and self-concept) at each of two grade levels. The pre-test results of the experimental and control groups in Bridgeport and Hartford at Levels I and II indicated differences with respect to all three dependent variables in favor of the control group. The post-test means, statistically adjusted to take into account these initial differences and those in I.Q., generally favored the bilingual model. The differences favoring the bilingual model were statistically significant for self-concept at Level I and for general academic ability in both Spanish and English at Level II. The analysis of the quasi-bilingual models in New Britain and New London disclosed slight and non-significant differences between the experimental and control groups with respect to the selected student outcomes.

Simple chi-square and t-test analyses were used to determine if there were differences between the bilingual and control models in Bridgeport and Hartford with respect to selected parent outcomes. The parents of children in the bilingual model were found to be significantly more informed and slightly, but not significantly, more interested, involved, and in favor of the school program at the end of the school year than were the parents of the control group. A pattern of background factors differentiating the two

parent samples emerged. Had it been readily feasible to statistically take this cluster of relevant and possibly confounding variables into account, the differences favoring the bilingual group might have generally been clarified and confirmed.

# CHAPTER V

# DISCUSSION

The results suggest that a bilingual model of education, which provides a significant segment of subject matter instruction in Spanish as well as specialized aural-oral instruction in English as a Second Language, may be more effective than the regular all-English educational program in enhancing the academic abilities and self-concept of Puerto Rican pupils in the primary grades and in engendering positive perceptions and participation on the part of their parents. The results appear to indicate that a quasi-bilingual program, which provides limited content area instruction in Spanish via peripheral personnel, may be no more effective than the regular program with regard to the same basic areas of pupil progress.

## Pupil Outcomes

### Bilingual Model

The bilingual model of instruction, which was identified and isolated in Bridgeport and Hartford, was found to have generally positive results in comparison to the control model of instruction, which included ESL, in

terms of selected pupil as well as parent outcomes. The differences between the experimental and control groups with respect to the three selected pupil outcomes generally favored the experimental group at both Levels I (grade 1) and II (grades 2-3). These differences were found to be statistically significant with respect to self-concept at Level I and with respect to academic abilities in both Spanish and English at Level II.

The reasons for the differential findings between these two levels can only be speculated at this point. A review of the teacher questionnaires showed that the qualifications of the Spanish-speaking teachers at Level I were not as comprehensive and consistent as those of the Spanish-speaking teachers at Level II. Two of the Level I Spanish-speaking teachers in particular, who accounted for over half the experimental group at Level I, were found to have limited experience, training, and goals. This factor may have limited the potential growth in pupil academic abilities found at Level I. Such a possibility underlines the importance of the selection and training of teachers for bilingual programs.

The self-concepts of the pupils may have been at a more formative stage at Level I because of the limited

schooling and age of these pupils relative to their Level II counterparts. Thus, the mere presence of a Spanish-speaking teacher and instruction in Spanish at the first-grade level may have provided enough continuity with the home environment necessary to bolster rather than arrest the development of a positive self-image.* In contrast, the changing frame-of-reference encountered by the Level II students (who had an initial immersion into an all-English school environment for a year or two before entering the bilingual program) may have retarded or even reversed** the suppposed self-concept enhancement effects of instruction in one's mother tongue. Such a possibility reinforces the need for longitudinal continuity in the research, development, and operation of bilingual educational programs.

The somewhat inconsistent self-concept results may also have been due in part to the nature of the instrument itself. An observer-report instrument, rather than a

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*The group following the bilingual model of instruction was the only group, experimental or control, whose mean self-concept score increased from pre-to-post-testing unadjusted by analysis of covariance. Thus, the overall trend for Spanish-speaking pupils in the early grades seemed to be one of a decreasing self-concept level. Owens and Gustafson (1971) found evidences of a decreasing level of school-related self-concept for both Mexican and Anglo-American children across the elementary and middle grades.

**The difference in mean self-concept scores at Level II, which favored the control group, approached significance. The obtained F value was 3.77, while the F value required for significance at the .05 level is 3.94.

self-report instrument, was chosen to avoid the possibly intervening variables of the pupil's age and language ability. However, a follow-up study revealed that teacher ethnicity may have been a significant factor.[1] That Spanish-speaking teachers were the source for the self-concept ratings of the pupils in the bilingual program and that English-speaking teachers were the source for those of the control pupils introduced the possibility of variance due to the different cultural perceptions held by teachers. The initial discrepancy in self-concept scores between the experimental and control groups in Bridgeport and Hartford may have been due to differential reactions to the rating task on the part of the Spanish- and English-speaking teachers, respectively, rather than to differences in behavioral indications on the part of the pupils themselves. Spanish-speaking teachers, for example, may have reacted with more stringency in their initial ratings of Spanish-speaking students because of their own "alien" status in the system, while the English-speaking teachers may have tended to be lenient in their ratings of Spanish-speaking students so as not to be accused of ethnic discrimination by the outside investigator. The pre-post differences in self-concept scores may reflect

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[1] Greene and Zirkel, 1971a.

differing degrees of acculturation on the part of the Spanish-speaking teachers as well as any changes in the self-concept level of Spanish-speaking students. Such possibilities reflect the need for culturally consonant instrumentation to meaningfully measure the behavior of Spanish-speaking children in mainland schools.

It must be noted that where the bilingual model did prove to be clearly more effective than the regular program with respect to academic abilities (viz., at Level II), this development was manifested in English as well as in Spanish. This would seem to indicate a positive transference of skills across the two languages.

Quasi-bilingual models

The quasi-bilingual models of instruction identified in New Britain and New London did not appear to be significantly different from the regular instructional programs of each city in terms of both input and output.

The New Britain program was found to be limited to a minimal amount of formal instruction in Spanish which was provided by Spanish-speaking teacher-aides. Otherwise, the programmatic configuration of learners, subjects, and teachers outlined in the screening questionnaire (Appendix A) was found to be virtually identical for the experimental

and control groups. The limitation of instruction in the native language to a secondary status in terms of time distribution and staffing pattern seems to have nullified its potential effect in terms of improving the educational opportunities of Spanish-speaking students.

The control group surpassed the experimental group by a slight but not significant margin with respect to all three dependent variables. The margin, as indicated by the F values, was greatest in the area of self-concept. This finding was not surprising in view of the subservient status accorded to the children's native language and culture. Although the presence of a Spanish-speaking aide reflected formal recognition of the Spanish language and culture in the classroom, the limited and subordinate role of the aide may have reinforced the lack of esteem accorded these children's ethnic identity in the traditional all-English educational program.

The New London program was similarly found to be limited. Although the amount of formal instructional time through Spanish was more than that allocated in the New Britain program, it still averaged less than one hour per school day. Although such instruction was provided by teachers rather than aides, the role of these teachers was still relatively peripheral. As "resource teachers" their

functioning, which was sometimes divided between two schools, was basically external to the regular functioning of the classes. A lack of communication, and even less articulation, with the regular teachers was obvious in the responses to the teacher description questionnaire (Appendix A). There was no indication of any regular mutual planning periods, nor was there even any overall agreement as to the basic role of these Spanish-speaking teachers.

The effectiveness of the New London program was also found to be limited. Although the experimental group generally surpassed the control group at both levels of testing with respect to the three dependent variables, none of the differences proved to be statistically significant. The greatest of these differences, as indicated by the respective F ratios, was found for general academic ability in Spanish at Level II.

These findings tend to reflect the positive potential of bilingual instruction and the integral importance of commitment and coordination in implementing such programs. In school districts such as New London where a scattered population of Spanish-dominant pupils prompts school officials to opt for such a "pull-out" model of bilingual

instruction, the need to make it a significant and integral part of the school program becomes of paramount importance. Such districts at the same time might consider the alternative of a centralized two-way bilingual "mini-school" for both Spanish-and English-speaking students on a voluntary basis. Examples of such programs can be seen in New York City.[1]

## Parent Outcomes

The investigation of the effectiveness of the bilingual model of instruction with respect to parent outcomes was limited to an analysis of the end-of-year responses of a random sample of the parents of the experimental and control groups in Bridgeport and Hartford to selected items of a lengthy home interview schedule (Appendix B). Despite limitations in the design and analyses, it appeared that the parents of the children in the bilingual program were generally more informed, interested, involved, and in favor of the school program than were the parents of the control-group children. More specifically, a significantly higher proportion (94.0 per cent) of the parents of the experimental group were aware of the type of program (viz., bilingual vs. ESL) in which their children were involved.

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[1]Narvaez, 1971.

Moreoever, a similarly overwhelming proportion of the parents of the experimental group (96.2 per cent) expressed their support of bilingual education programs for Spanish-speaking students. The difference between the parents of the experimental and control groups approached significance, and a substantial proportion of the control parents (83.1 per cent) also expressed themselves in favor of bilingual instruction.

The differences between the parents of the two groups only slightly favored the parents of the experimental group with respect to interest in furthering their own education and involvement in the educational process as indicated by number of visits to the school. The results in both cases seemed generally positive, especially in the light of the socio-economic and linguistic barriers these parents face. They averaged over three visits to the school for the year, and the majority of both groups expressed an interest in continuing their education. Moreover, the extremely hospitable welcome provided by the vast majority of the parents to the interviewers, particularly when it was learned that a teacher was there to speak about their child, was a further indication of their concern for their child's education. Such indications underline the promise and need of developing meaningful

opportunities whereby our Spanish-speaking citizens can truly partake in and of the educational process.

Analyses of responses to other items on the interview instrument revealed a cluster of background variables which seemed to reflect a different level of acculturation for the two groups and which seemed to be related to three of the four criterion variables discussed above. Taking the possible intervening effect of this control-like cluster into account, it appears that the differences favoring the parents of the children in the bilingual program might generally have been even more clear-cut.

## Summary

These findings tend to support the effectiveness of bilingual instruction in terms of parental perceptions as well as pupil performance. The potential seems to be visible in both cases, despite the limited scope of this study. However, whether or not mainland schools capitalize on the assets of the Spanish-speaking student's home and heritage through investments of commitment and continuity in such programs remains to be seen.

# CHAPTER VI

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Spanish-speaking students in general and Puerto Rican pupils in particular have suffered a sustained lack of educational opportunities in mainland schools. Research indicates that the deficiencies found for such pupils in academic abilities might not exist if they were initially taught and tested in their native language. Stimulated by the support of federal and state funds, several school districts, including various metropolitan areas in Connecticut, have recently established bilingual education programs for Spanish-speaking pupils. Despite the wealth of generally positive research findings for bilingual programs throughout the world and in the southwestern part of the U.S., there remains scant objective data concerning the effectiveness of such programs for Puerto Rican pupils in the Northeast.

### Purpose

The purpose of this study was to assess the effectiveness of the experimental bilingual programs initiated in 1970-71 in the Connecticut cities of Bridgeport, Hartford,

New Britain, and New London with respect to selected pupil and parent outcomes. More specifically, the study sought to answer the following questions:

1. How do gains in academic abilities in Spanish and English of children in the experimental bilingual education programs compare with those of the control-group children?

2. How do gains in the self-concept level of children in the experimental bilingual education programs compare with those of the control-group children?

3. Do parents of the children in the experimental bilingual education programs perceive themselves as more informed, interested, involved, and in favor of the school program at the end of the year than do the parents of the children in the control group?

The subjects of the study were economically disadvantaged Puerto Rican pupils in the primary grades in the four cities. Three experimental models were identified and isolated: one bilingual in Bridgeport and Hartford and two quasi-bilingual in New Britain and New London, respectively. A pre-post control-group design, employing analysis of covariance, was used to analyze the effectiveness of each experimental model with respect to the selcted pupil outcomes at Levels I (grade 1) and II (grades 2-3). Pre-test and I.Q. were used as control variables to statistically equate the three pairs of experimental and

control groups at each level. In order to assess the effectiveness of the bilingual model with respect to parent outcomes, appropriate descriptive (viz., frequencies or means) and inferential (viz., chi square or t tests) statistics were employed. By means of these statistics, the results of selected items of an end-of-the-year interview with a random sample of the parents of the experimental and control groups in Bridgeport and Hartford were summarized and analyzed.

The following instruments were employed in the study:

1. The Goodenough-Harris Draw-A-Man Test was administered to the pupils in October as an indication of intellectual development.

2. The Inter-American Test of General Ability, Levels I and II, were administered to the pupils in October and May in alternate Spanish and English forms.

3. The Inferred Self-Concept Scale was completed for each child by the classroom teacher in October and May.

4. The Zirkel-Greene Home Interview Schedule was administered at the end of the school year to a random sample of the parents in Bridgeport and Hartford.

## Results

The pre-test results of the experimental and control groups in Bridgeport and Hartford at Levels I and II indicated initial differences with respect to all three

selected dependent variables in favor of the control group. The adjusted post-test means generally favored the bilingual model. The differences between the two groups were statistically significant with respect to self-concept at Level I and academic abilities in both Spanish and English at Level II, favoring the bilingual model in each case. The somewhat differential findings with respect to academic abilities may have been due to differences in teacher qualifications between the two levels. The somewhat differential findings with respect to self-concept may have been attributable to a possible intervening instrument factor (viz., teacher ethnicity) or to the psycholinguistic context provided for the pupil (viz., continuity at Level I, discontinuity at Level II).

Analysis of the interview results showed that parents of children in the bilingual model were more informed, interested, involved, and in favor of the school program at the end of the school year than were the parents of the control-group children. These differences were clearly significant in one of these four criterion categories (viz., "informed") and possibly significant in another two (viz., "interested" and "in favor of") in the light of relevant pre-existing differences found between the two parent groups.

Analysis of the quasi-bilingual models in New Britain and New London revealed slight and not significant differences between the experimental and bilingual groups in each city with respect to the selected student outcomes. In the New Britain program, where a minor amount of subject matter instruction in the native language was provided by teacher aides, the control group slightly surpassed the experimental group with respect to all three dependent variables. The greatest margin was found for self-concept. These findings were attributed to the secondary status accorded bilingual instruction in terms of the time distribution and staffing pattern of the New Britain model.

In the New London program, where formal instruction through the native language was limited to "pull-out" periods with Spanish-speaking resource teachers, the experimental group generally, but not significantly, surpassed the control group with respect to the three dependent variables at each level. The lack of significantly positive results was attributed to the limited role and resources of the bilingual resource teachers and the limited time and articulation of the bilingual "pull-out" periods relative to the corresponding components of the regular program. The need for greater commitment and coordination became evident.

## Conclusions

This study indicated that bilingual instruction can be an effective means of improving the educational opportunities of Puerto Rican pupils in the primary grades. Whether a so-called "bilingual program" is significantly more effective than the regular instructional program in enhancing the academic abilities and self-concept of such pupils seems to depend on whether it differs definitively from the regular program. Whether or not the experimental program was underlined by a substantial segment of subject matter through Spanish seemed to emerge as the critical factor in this study, since both the experimental and regular programs generally included ESL.

Thus, the bilingual model of instruction in Bridgeport and Hartford, which provided for the major part of the instructional day in Spanish in addition to ESL, did reflect generally effective results during its first year of operation with respect to selected pupil and parent outcomes. More specifically, the following answers were obtained in relation to the basic questions of the study:

1. The gains in academic abilities in Spanish and English of children participating in the bilingual model of instruction were generally greater than those of the control-group children. These gains were significantly greater at Level II (gr. 2-3).

2. The gain in the self-concept level of children in the bilingual model of instruction was significantly greater than that of the control-group children at Level I (gr. 1), but it was not significantly different from that of the control-group children at Level II (gr. 2).

3. The parents of these children did perceive themselves as more informed, interested, involved, and in favor of the school program as compared at the end of the year with the parents of the control-group children. The difference between the two groups was significant with respect to the first category and approached significance with respect to the fourth.

In contrast, the quasi-bilingual programs found in New Britain and New London, which provided minor segments of subject matter instruction in the native language, did not appear to be significantly more or less effective than their respective regular programs with regard to any of the selected student outcomes. These limited results may be interpreted as reinforcing the importance of according significant status to the native language and culture of Spanish-speaking students in bilingual programs.* The absence or presence of such status may be reflected in the staffing pattern, curricular components, and time distribution for native language instruction in such programs.

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*A survey of an interdisciplinary intercultural panel of experts in the field of bilingual education recently revealed the attitudes prevailing in the school environment toward the minority language to be an over-riding factor in the outcome of bilingual programs (Shore, 1972).

## Recommendations

The most immediate recommendation is for a follow-up study in scope and sequence so as to provide longitudinal data which would include such important curricular areas as reading and social studies. Such an extension of this study would provide a more solid basis for the decisions necessary to improve and extend the educational opportunities for Puerto Rican pupils.

Concommitant in importance is the need to invest more commitment, continuity, and coordination in such efforts. Without such an investment, the potential benefits to these students and our society may be lost. The results for the three experimental models examined in this study point up the importance of providing a significant role for the Spanish language and culture in the education of Spanish-speaking students.

Finally, the results of this study reflect the ultimate need of providing solid support in terms of curriculum development, teacher training, testing, and evaluation so that these programs might successfully evolve into bilingual/bicultural opportunities for all students.

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# APPENDIX A

# TEACHER DESCRIPTION OF THEIR INSTRUCTIONAL MODEL

Teacher: _____

School/Class: _____

The following questionnaire is being administered to all teachers involved in the 1970-71 evaluation of the bilingual program (including comparison classes). It is hoped at this mid-point in the school year that we can determine to some extent the amount and type of bilingual instruction, if any, going on in each classroom for the purpose of interpreting the results of our testing. It must be emphasized that this survey in no way tries to evaluate individual teachers but rather is to enable us to form larger categories with which to evaluate the overall program. Please try to answer each item as accurately and completely as possible. Mr. Perry Zirkel will visit you in about three weeks to clarify any difficulties and collect the questionnaires.

I. Learners:

A. How many children are in your class at the present time? _____

B. Approximately what percentage of the students in your class:

...understand English only _____%

...understand both Spanish and English _____%

...understand Spanish only _____%

C. If your class is organized within a non-graded system or on a rotating basis, approximately what percentage of the students in your class:

...are in the kgn. _____%

...are in grade 1 _____%

...are in grade 2 _____%

...are in grade 3 _____%

...are in grade 4 _____%

If not, simply put 100% for the grade level designation of your class.

II. Subjects:

PLEASE USE THE CHART BELOW TO INDICATE THE FOLLOWING INFORMATION:

A. On the average, approximately how many minutes daily are devoted to instruction in each of the regular subjects? (approx. total = 300 min.)

B. Approximately what percentage of each regular subject is taught in Spanish (the rest assumedly being in English) to some or all of the class?

C. Approximately what percentage of the class received such instruction through Spanish?

D. Who provides the instruction through Spanish? (Check either classroom teacher, teacher aide, or special teacher.)

| REGULAR SUBJECT | A TIME DAILY | B % IN SPANISH | C % OF CLASS | D SPANISH INSTRUCTION BY: (Check one) | | |
|---|---|---|---|---|---|---|
| | | | | Classrm Teacher | Teacher Aide | Special Teacher |
| Arithmetic | ____min. | _____% | _____% | _____ | _____ | _____ |
| Language Arts | ____min. | _____% | _____% | _____ | _____ | _____ |
| Social Studies | ____min. | _____% | _____% | _____ | _____ | _____ |
| Science | ____min. | _____% | _____% | _____ | _____ | _____ |
| Music | ____min. | _____% | _____% | _____ | _____ | _____ |
| Art | ____min. | _____% | _____% | _____ | _____ | _____ |
| Phys. Educ. | ____min. | _____% | _____% | _____ | _____ | _____ |
| (Other:) | | | | | | |
| _____ | ____min. | _____% | _____% | _____ | _____ | _____ |
| _____ | ____min. | _____% | _____% | _____ | _____ | _____ |

PLEASE USE THE NEXT CHART TO INDICATE THE FOLLOWING INFORMATION:

E. On the average, approximately how much time daily is devoted to instruction in such special subjects as those listed below?

F. Approximately what percentage of your class receives such instruction?

G. Who provides such instruction (check classroom teachers, teacher aide, special teacher)?

| SPECIAL SUBJECTS | E TIME DAILY | F % OF CLASS | G INSTRUCTION BY: Classrm Teacher | Teacher Aide | Spec Techr. |
|---|---|---|---|---|---|
| Spanish as a Second Language | _____min. | _____% | _____ | _____ | _____ |
| English as a Second Language | _____min. | _____% | _____ | _____ | _____ |
| History and Culture of Puerto Rico | _____min. | _____% | _____ | _____ | _____ |
| (Other:) | | | | | |
| _____ | _____min. | _____% | _____ | _____ | _____ |
| _____ | _____min. | _____% | _____ | _____ | _____ |

III. Staff:

A. Do you have a teacher's aide?____How would you describe her function in the classroom?_____
_____
_____

B. How many years of previous teaching experience do you have and in what state(s)?

| State(s) | No.of years |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

IV. Goals:

A. Into which of the following two categories do you see the goal of the program best fitting? (check one)

"Transfer" - a transitional step until the Spanish-speaking children achieve a more thorough mastery of English ____

"Maintenance" - A continuing system which enables participating pupils to achieve mastery of both Spanish and English ____

B. What do you see as the appropriate goal of our educational system with regard to Spanish-speaking students? (check one)

"Assimilation" - to function as a melting pot to help produce unhyphenated Americans ____

"Cultural Pluralism" - to develop a recognition and appreciation of different ethnic and cultural backgrounds ____

C. How much instruction do you feel your pupils should receive through Spanish next year in comparison to this year? (check one)

more ____

the same ____

less ____

V. Additional Comments:

PAZ:ewl
1/8/71

APPENDIX B

HOME INTERVIEW INSRUMENT AND RESULTS

ZIRKEL-GREENE HOME INTERVIEW SCHEDULE*

June, 1971: Bridgeport and Hartford, Connecticut

Name of child: _____

Child's school: _____

Child's regular teacher: _____

Child's home address: _____

_____

Name of interviewer: _____

Language of interview:

Spanish: 52(98.1%); 56(93.3%)

English: 1(1.9%); 4(6.7%)

Parents interviewed:

father: 2(3.8%); 2(3.3%)

mother: 37(69.8%); 46(76.7%)

both father and mother: 7(13.2%); 9(15.0%)

other: 7(13.2%); 3(5.0%)

Date of interview: _____

Duration of interview: $\bar{x}$=58.6, s=10.9, n=53

$\bar{x}$=54.6, s=11.1, n=60

The purpose of this interview is to improve the educational opportunities of Spanish-speaking residents of Bridgeport and Hartford. A random sample of Puerto Rican families who have children in the public schools of Bridgeport and Hartford are being interviewed. You are asked to answer the following questionnaire as best and completely as possible. All information will be reported anonymously; so please be open and honest.

*This instrument is not to be used or reproduced, in its entirety or in part, without the prior permission of the authors.

N.B. Results of control group for each item are underlined.

1. Indicate the highest grade completed by each of the following family members by circling the appropriate number after each applicable member:

| MEMBER: | EDUCATIONAL LEVEL |
|---|---|
| Father | $\bar{x}$=5.9, s=3.6, n=41; $\underline{\bar{x}=6.5, s=3.5, n=48}$ |
| | 0 K 1 2 3 4 5 6 7 8 9 10 11 12 I II III IV + |
| Mother | $\bar{x}$=4.6, s=3.1, n=47; $\underline{\bar{x}=5.9, s=3.4, n=54}$ |
| | 0 K 1 2 3 4 5 6 7 8 9 10 11 12 I II III IV + |
| (Child) | $\bar{x}$=2.1, s=1.4, n=51; $\underline{\bar{x}=2.6, s=1.6, n=58}$ |
| | 0 K 1 2 3 4 5 6 7 8 9 10 11 12 I II III IV + |
| Oldest Brother | $\bar{x}$=6.0, s=3.8, n=33; $\underline{\bar{x}=6.2, s=3.9, n=36}$ |
| | 0 K 1 2 3 4 5 6 7 8 9 10 11 12 I II III IV + |
| Youngest Brother | $\bar{x}$=3.5, s=2.0, n=31; $\underline{\bar{x}=1.9, s=3.3, n=38}$ |
| | 0 K 1 2 3 4 5 6 7 8 9 10 11 12 I II III IV + |
| Oldest Sister | $\bar{x}$=4.8, s=3.2, n=36; $\underline{\bar{x}=6.2, s=3.2, n=38}$ |
| | 0 K 1 2 3 4 5 6 7 8 9 10 11 12 I II III IV + |
| Youngest Sister | $\bar{x}$=1.9, s=1.7, n=32; $\underline{\bar{x}=1.0, s=2.4, n=29}$ |
| | 0 K 1 2 3 4 5 6 7 8 9 10 11 12 I II III IV + |

2. If you could have your wish and (child) had the opportunity, how far would you like (child) to go in school. (CHECK ONE)

| | |
|---|---|
| finish elementary school | 0; $\underline{0}$ |
| finish junior high school | 0; $\underline{0}$ |
| finish vocational school after junior high school | 2(3.8%); $\underline{2(3.3\%)}$ |
| finish regular high school | 12(22.6%); $\underline{15(25.0\%)}$ |

N.B. Results of control group for each item are underlined.

| | |
|---|---|
| finish 2-year college or post high school vocational training | 8(15.1%); 10(16.7%) |
| finish 4-year college | 21(39.6%); 21(35.0%) |
| finish graduate or professional school | 10(18.9%); 12(20.0%) |

3. Since things don't always turn out the way we want them to, how far do you think (child) will probably or actually go in school. (CHECK ONE)

| | |
|---|---|
| finish elementary school | 1(2.0%); 2(3.3%) |
| finish junior high school | 5(9.8%); 3(5.0%) |
| finish vocational school after junior high school | 5(9.8%); 10(16.7%) |
| finish regular high school | 26(51.0%); 30(50.0%) |
| finish 2-year college or post high school vocational training | 5(9.8%); 9(15.0%) |
| finish 4-year college | 9(17.6%); 5(8.3%) |
| finish graduate or professional school | 0(0.0%); 1(1.7%) |

4. What is your occupation at the present time:

Father: $\bar{x}$=6.1*, s=1.6, n=53; $\bar{x}$=6.4*, s=.9, n=60

Mother: $\bar{x}$=6.5*, s=1.7, n=53; $\bar{x}$=6.8*, s=.6, n=60

Principal language used at job:

| | | | |
|---|---|---|---|
| Father: | Sp. 8(15.0%) 3(5.0%) | Eng. 18(34.0%) 30(50.0%) | NR** 27(51.0%) 27(45.0%) |
| Mother: | Sp. 3(5.7%) 4(6.7%) | Eng. 3(5.7%) 10(16.7%) | NR 47(88.6%) 46(76.6%) |

*Based on Warner's Scale: 1(high) through 7(low)

**NR: no response

N.B. Results of control group for each item are underlined.

5. When (child) is grown up, what kind of job would you like him/her to have? (give examples)

$\bar{x}$=4.1*, s=2.1, n=53; $\underline{\bar{x}=4.0^{*}, s=2.1, n=60}$

6. Indicate the country (e.g., U.S. or P.R.) and setting (urban vs. rural) of birth for each of the following family members.

| | Country: | Setting: | Hartford Residence (years) |
|---|---|---|---|
| Father | PR 52(100%); 54(100%)<br>US 0 0<br>NR 1 6 | urban 20(39.2%) 27(50.9%)<br>rural 31(60.8%) 26(49.1%)<br>NR 2 7 | $\bar{x}$=6.1, s=5.9, n=40<br>$\bar{x}$=13.1, s=7.5, n=46 |
| Mother | PR 49(98.1%); 58(100%)<br>US 1(1.9%); 0(0%)<br>NR 3 2 | urban 16(33.3%) 30(51.7%)<br>rural 32(66.7%) 28(48.3%)<br>NR 5 2 | $\bar{x}$=5.3, s=4.9, n=44<br>$\bar{x}$=10.9, s=6.0, n=54 |
| (Child) | PR 32(61.5%); 20(35.7%)<br>US 20(38.5%); 36(64.3%)<br>NR 1 4 | urban 36(72.0%) 53(93.0%)<br>rural 14(28.0%) 4(7.0%)<br>NR 3 3 | $\bar{x}$=3.5, s=2.4, n=46<br>$\bar{x}$=5.9, s=2.9, n=45 |

7. Indicate if you would like to eventually return to P.R.:

| | | |
|---|---|---|
| Yes: | 37(69.8%); | 42(72.4%) |
| No: | 16(30.2%); | 16(27.6%) |
| NR: | 0 | 2 |

*Based on Warner's Scale: 1(high) through 7(low)

N.B. Results of control group for each item are underlined.

8. Indicate if you would like (child) to eventually return to P.R.:

Yes: 39(73.6%); 45(75.0%)
No: 14(26.4%); 15(25.0%)

9. Does either of you belong to any social, political, educational or other organizations? (Please list)

$\bar{x}$=.2, s=.4, n=53; $\bar{x}$=.4, s=.5, n=60

10. Indicate the level of language ability in English and Spanish by putting one of the following numbers in each column:

1. not at all
2. a little
3. some
4. pretty well
5. excellently

| | Understands English | Speaks English |
|---|---|---|
| Father | $\bar{x}$=2.4, s=1.3, n=46<br>$\bar{x}$=3.2, s=1.2, n=49 | $\bar{x}$=2.3, s=1.3, n=46<br>$\bar{x}$=3.3, s=1.2, n=52 |
| Mother | $\bar{x}$=1.9, s=1.0, n=48<br>$\bar{x}$=2.4, s=1.1, n=55 | $\bar{x}$=1.7, s=1.0, n=51<br>$\bar{x}$=2.3, s=1.1, n=60 |
| (Child) | $\bar{x}$=2.6, s=1.0, n=48<br>$\bar{x}$=3.7, s=1.1, n=55 | $\bar{x}$=2.4, s=1.0, n=51<br>$\bar{x}$=3.7, s=1.1, n=60 |
| | **Reads English** | **Writes English** |
| Father | $\bar{x}$=1.7, s=1.2, n=45<br>$\bar{x}$=2.8, s=1.3, n=52 | $\bar{x}$=1.5, s=1.1, n=45<br>$\bar{x}$=2.6, s=1.3, n=52 |
| Mother | $\bar{x}$=1.5, s=.9, n=51<br>$\bar{x}$=2.1, s=1.1, n=60 | $\bar{x}$=1.5, s=.8, n=50<br>$\bar{x}$=22.0, s=1.1, n=60 |
| (Child) | $\bar{x}$=1.5, s=.8, n=51<br>$\bar{x}$=2.9, s=1.2, n=60 | $\bar{x}$=1.6, s=.9, n=51<br>$\bar{x}$=2.8, s=1.2, n=60 |

Continued

N.B. Results of control group for each item are underlined.

Continuation of item 10

| | Understands Spanish | Speaks Spanish |
|---|---|---|
| Father | $\bar{x}$=4.4, s=.7, n=45<br>$\bar{x}$=4.5, s=.5, n=51 | $\bar{x}$=4.4, s=.6, n=45<br>$\bar{x}$=4.4, s=7.2, n=52 |
| Mother | $\bar{x}$=4.4, s=.8, n=50<br>$\bar{x}$=4.4, s=.6, n=60 | $\bar{x}$=4.4, s=.6, n=50<br>$\bar{x}$=4.4, s=.6, n=60 |
| (Child) | $\bar{x}$=4.1, s=.8, n=51<br>$\bar{x}$=3.4, s=.9, n=60 | $\bar{x}$=4.0, s=1.0, n=51<br>$\bar{x}$=3.4, s=1.0, n=60 |
| | **Reads Spanish** | **Writes Spanish** |
| Father | $\bar{x}$=3.5, s=1.5, n=44<br>$\bar{x}$=4.2, s=1.1, n=52 | $\bar{x}$=3.4, s=1.6, n=44<br>$\bar{x}$=4.2, s=.9, n=51 |
| Mother | $\bar{x}$=3.3, s=1.5, n=50<br>$\bar{x}$=3.8, s=1.4, n=60 | $\bar{x}$=3.3, s=1.5, n=50<br>$\bar{x}$=3.7, s=1.4, n=60 |
| (Child) | $\bar{x}$=2.7, s=1.2, n=51<br>$\bar{x}$=1.4, s=.8, n=60 | $\bar{x}$=2.6, s=1.2, n=51<br>$\bar{x}$=1.3, s=.7, n=60 |

Hoffman Bilingual Background Schedule:

$\bar{x}$=27.9, s=7.0, n=53; $\bar{x}$=22.0, s=9.3, n=60

Indicate the response to the following 14 questions by underlining the appropriate answer.

11. Do the following speak to (child) in Spanish?

(a) Father . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(b) Mother . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(c) Grandfather . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(d) Grandmother . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(e) Brothers and Sisters. NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(f) Relatives . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

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N.B. Results of control group for each item are underlined.

12. Does (child) speak to the following in Spanish?

(a) Father . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(b) Mother . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(c) Grandfather . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(d) Grandmother . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(e) Brothers and Sisters . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(f) Relatives . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

13. Does (child's) FATHER speak to the following in Spanish?

(a) Mother . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(b) Brothers and Sisters . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

14. Does (child's) MOTHER speak to the following in Spanish?

(a) Father . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(b) Brothers and Sisters . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

15. Do (child's) BROTHERS AND SISTERS speak to the following in Spanish?

(a) Father . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(b) Mother . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

16. Do the following watch television in Spanish?

(a) Father . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(b) Mother . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(c) (Child) . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

17. Do the following go to the movies where films are shown in Spanish?

(a) Father . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(b) Mother . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

(c) (Child) . . . . . NEVER SOMETIMES OFTEN MOSTLY ALWAYS

18. Are radio programs which are given in Spanish listened to in your home?

NEVER SOMETIMES OFTEN MOSTLY ALWAYS

19. What language does child speak when with friends outside of class? (Check one)

1. always Spanish
2. mostly Spanish — $\bar{x}$=2.1, s=1.1, n=50
3. roughly equal amount of Spanish and English — $\bar{x}$=3.4, s=1.3, n=59
4. mostly English
5. always English

20. Indicate the language dominance of each of the following family members in the areas of understanding(comprehension) and speaking (expression) by having them choose the appropriate number:

SPANISH 1 2 3 4 5 ENGLISH

1 Can {understand / speak} Spanish much better than English

2 Can {understand / speak} Spanish a little better than English

3 Can {understand / speak} Spanish and English about the same amount

4 Can {understand / speak} English a little better than Spanish

5 Can {understand / speak} English much better than Spanish

UNDERSTANDING:

Father: $\bar{x}$=1.4, s=.9, n=43; $\bar{x}$=2.1, s=1.1, n=51

Mother: $\bar{x}$=1.3, s=.8, n=49; $\bar{x}$=1.5, s=.9, n=56

(Child): $\bar{x}$=1.6, s=.9, n=51; $\bar{x}$=3.0, s=1.4, n=56

SPEAKING:

Father: $\bar{x}$=1.5, s=9.0, n=42; $\bar{x}$=2.0, s=1.0, n=50

Mother: $\bar{x}$=1.3, s=.8, n=48; $\bar{x}$=1.5, s=.9, n=57

(Child): $\bar{x}$=1.5, s=.7, n=49; $\bar{x}$=3.1, s=1.5, n=56

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N.B. Results of control group for each item are underlined.

Mosley Attitude Toward Bilingualism Scale:

$\bar{x}$=4.3, s=3.2, n=52; $\bar{x}$=4.5, s=.3, n=59

Indicate the response to the following 20 questions by putting one of the following numbers after each one:

1. No, of course not
2. I don't think so
3. Neither yes nor no
4. I think so
5. Yes, of course

21. Being bilingual (being able to understand or speak two languages) has more advantages than disadvantages .....___

22. Both Puerto Ricans and Anglo-Americans should be bilingual..... ___

23. Puerto Rican children should try to forget Spanish so they can improve their English..... ___

24. Being able to converse in two languages is a satisfying experience ..... ___

25. If properly educated, Puerto Rican children have an unusual opportunity to become truly bilingual ..... ___

26. A good school will encourage the learning of Spanish and the learning of English on the part of all pupils attending..... ___

27. Learning to speak two languages takes more time than it is worth..... ___

28. Being bilingual is a source of pride ..... ___

29. Bilinguals are happier than those who speak only one language... ___

30. Bilingualism is so important in Connecticut that all Connecticut schools should try very hard to teach both English and Spanish to every child..... ___

31. Bilingualism is a handicap..... ___

32. Puerto Ricans can enjoy the best of two cultures if they are properly educated and learn both English and Spanish ..... ___

33. One has to just about become an Anglo and cut himself off from the Puerto Rican community if he wants to become good with English.. ___

34. Puerto Ricans are proud of being able to speak English ..... ___

35. People who speak more than one language have cultural advantages.___

36. Bilingualism is a valuable tool which Puerto Ricans should learn to use well ..... ___

37. Bilingual people can be of more help than monolinguals in solving the world's problems..... ___

38. Many adults should study and learn a second language ..... ___

39. It is not worthwhile for an adult to study a second language because he will always have an accent ..... ___

40. Most people of great influence know only one language, which indicates that schools should do a good job of teaching just one language..... ___

41. Which language do you feel is more important for (child) to learn to speak and understand ? (CHECK ONE)

| | |
|---|---|
| Spanish: | 2, 3.8%); 1(1.6%) |
| English: | 6(11.3%); 4(6.7%) |
| Both equally important: | 45(84.9%); 55(91.7%) |

42. Which language do you feel is more important for (child) to learn to read and write? (CHECK ONE)

| | |
|---|---|
| Spanish: | 4(7.5%); 2(3.3%) |
| English: | 5(9.4%); 4(6.7%) |
| Both equally important: | 44(83.1%); 54(90.0%) |

43. Do you feel it worthwhile to have Puerto Rican history and culture taught in school here? (CHECK ONE)

| | |
|---|---|
| Yes: | 52(100.0%); 57(95.0%) |
| No: | 0(0.0%); 3(5.0%) |
| NR: | 1; 0 |

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N.B. Results of control group for each item are underlined.

44. Do you feel it worthwhile to teach Spanish-speaking children their basic subjects in Spanish while they learn English as a Second Language?

Yes: 51(96.2%); 49(83.1%)

No: 2(3.8%); 10(16.9%)

NR: 0; 1

45. Does (child) receive lessons in English from a special English-as-a-Second-Language teacher in school? (CHECK ONE)

Yes: 42(82.4%); 18(30.5%)

No: 9(17.6%); 41(69.5%)

NR: 2; 1

46. Does (child) participate in the bilingual program -- that is, some subject matter instruction through Spanish in addition to English as a Second Language -- in school this year? (CHECK ONE)

Yes: 47(94.0%); 12(20.3%)

No: 3(6.0%); 47(79.7%)

NR: 3; 1

47. How many times did either of you visit the school this (1970-71) school year? (CHECK ONE)

0
1
2
3
4
5
+

$\bar{x}$=3.7, s=2.0, n=50; $\bar{x}$=3.4, s=1.8, n=59

48. Does (child) watch "Sesame Street" on television? (CHECK ONE)

Yes: 29(56.9%); 38(69.1%)

No: 22(43.1%); 17(30.9%)

NR: 2; 5

If yes, how many times a week has (child) watched "Sesame Street" (on the average) during this past school year?

$\bar{x}$=1.5, s=2.1, n=47; $\bar{x}$=2.0, s=2.0, n=57

N.B. Results of control group for each item are underlined.

49. Are you interested in continuing your education? (CHECK ONE)

| | |
|---|---|
| Yes: | 33(68.7%); <u>31(56.4%)</u> |
| No: | 15(31.3%); <u>24(43.6%)</u> |
| NR: | 5; <u>5</u> |

N.B. Results of control group for each item are <u>underlined</u>.