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ABSTRACT

The purpose of this study was to measure the effectiveness of a monolingual versus a bilingual approach to the education of second-grade, Spanish-speaking children in New York City. The results were determined by measuring achievement in reading, which showed that the bilingual approach was indeed the more effective. The report includes an introduction, a review of procedure and results, a discussion and interpretation, and a summary. Tables are used to help interpret statistical data, and a bibliography and appendixes are included. (SK)

BILINGUAL TEACHING AND BEGINNING SCHOOL SUCCESS

by

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INTRODUCTION

Scope, Purpose, and Significance of the Study

Throughout the United States, large numbers of young children who enter school cannot speak English, the language of instruction. These children may very well experience difficulties in achieving success in learning as well as in pupil-teacher communication. Among the many acute problems facing American education today is the enormous task of trying to teach huge numbers of these non-English-speaking children in the public school setting. This study will investigate the effects of learning in the mother tongue (a bilingual approach) in contrast to learning in a second language (a monolingual approach).

Through widespread immigration over many years, the United States has one of the largest bilingual populations in the world. Bilingualism is encountered throughout the country, especially in the large metropolitan areas of the East and West, in the northern middle states (Scandinavian), in the rural areas of the middle West (Spanish), in parts of New England (French), in the five southwestern states (Spanish), in Florida (Spanish), and in Hawaii (Japanese, Hawaiian, etc.). As John B. King pointed out five years ago, "New York City has the most heterogeneous population of any metropolis in the world. Among its inhabitants are large numbers from more than thirty different language groups, many of whose children are in our public schools..."(Board of Education, 1965). As much as one-fifth of the student population of New York's public schools is Puerto Rican and foreign born. Since the trend in the immediate future is for bilingualism to increase, this should

continue to be a major educational problem for some time. How we go about instructing the non-English-speaking child is an urgent problem, and yet there has been relatively little published research concerning this aspect of American education. The scarcity of research in this country dealing with the relationship between language of instruction and school success is an additional stimulus for the present paper.

The proposed purpose of this study is to measure the effectiveness of a second language (monolingual/all-English) approach as compared with a mother tongue (bilingual/Spanish-English) approach to the education of second grade Spanish-speaking children in New York City, in so far as teaching effectiveness is measured by achievement in reading. More specifically, the problem may be stated in the form of a question: Which of the two approaches to education, monolingual or bilingual, is more effective in teaching second grade Spanish-speaking children how to read?

Monolingual teaching refers to standard all-English classroom instruction which may be supplemented, as in New York City, by English as a Second Language class. Bilingual teaching refers to the use of two languages in the classroom, ranging from a maximum use of the mother tongue and a minimal use of the second language to a more or less equal use of both languages for instructional purposes. Almost universally, early education in the mother tongue has been regarded as a psychologically effective teaching tool. The principle of initial school instruction in the vernacular has been adopted in countries around the globe, such as South Africa, Luxembourg, Puerto Rico, Great Britain, Belgium, Canada, and

Switzerland (Binyon, 1969, Macnamara, 1966 and UNESCO, 1953). The United States has been somewhat unique in its refusal to adopt this procedure. Traditionally, American educators have been so completely preoccupied with the rapid Americanization of the children of all minority groups, even bilingual ones, that they responded to the problem of teaching non-English-speaking pupils by placing them in an entirely English environment. They have approached the situation by supersaturating and overwhelming the non-English-speaking child with our national language, shutting off his pre-school means of communication in order to teach him to understand, speak and read English as quickly as possible. They have even defended this approach: "America is rather generally criticized for ignoring the language of the home in the public schools, but perhaps this is a wise step from the standpoint of national unity."(Tireman, 1941). During the past 25 years, most of the research which has been published in this country has concentrated on discovering the best methods and materials for teaching English to speakers of other languages. Very little work has been done to see if this is really the most effective way of educating bilingual children in the early childhood grades. Set up along traditional lines, New York City's English as a Second Language program places non-English-speaking pupils in regular classes so that they can have the advantages of the English-speaking environment all day long and can be quickly integrated into the American culture.(Board of Education, 1965). So far, the results have been disappointing. "Despite the search for the best methods and materials, the work of linguists in analyzing the phonological, syntactical, and morphological units

of English and other languages, and the work of social anthropologists and behaviorists in studying the culturally disadvantaged, large blocks of non-English-speaking children continue to fail in reading."(Feeley, 1970). It would seem as though this historical response of an all-English approach to teaching non-English-speaking students has been largely unsuccessful.

At the same time, there has been increasing attention upon a new approach to the education of non-English-speaking children in America---bilingual teaching.

> Educators, concerned with the socioculture of minority groups, have begun to realize that the typical curriculum offered the middle-class English-speaking students has not provided equality of educational opportunity for minority children. They have mustered evidence which indicates that, in their encounter with typical curriculums and regular teaching approaches, minority children are significantly retarded. The attainment levels are also significantly lower than those of middle-class children. Educators are therefore calling for major curricular adaptations.
>
> (Ulibarri, Holemon, and Cooper, 1969, p.

Review of Related Literature

Perhaps if the evidence about both approaches, collected over the years, were examined, then it would become clearer just how rosy the picture is or isn't, and whether or not major curricular and instructional adaptations are indeed necessary.

The Traditional Approach--Monolingual Teaching

Forty years ago, the traditional approach to educating non-English-speaking children was so firmly entrenched in the United States that at least one researcher found it too hard to accept the logical conclusion of his own results. Back in 1931, B.F. Haught (1931) conducted a study which proposed to determine whether or not a language difficulty existed in a monolingual school for Spanish-American children. His procedure was to compare the pupils' intelligence quotients with their chronological ages as they passed from year to year in the school's all-En sh atmosphere. Among other results, it was shown that there was a slight tendency for intelligence quotients of Spanish-American students to decrease as their chronological ages increased. It might appear that these pupils were being entirely defeated by the all-English environment into which they had been thrust. Yet, Haught still concluded that because the older children performed as badly or worse than the younger ones, there was no justification for attributing the difficulty to a language problem such as the inability to use or understand English.

More recently, investigators have been much less reluctant to accept the very obvious language difficulty of non-

English-speaking pupils in a totally English school milieu. The emphasis has become to teach English in the quickest and best way. New oral-aural approaches to teaching English as a second language have been developed and implemented with the advent of the audio-lingual method. Cooper(1964) studied the effects of different amounts of oral English instruction in the first grade upon later reading ability of Chamorro-speaking children on the island of Guam. Chamorro, a native language influenced by Spanish, Filipino, Micronesian, Japanese, and American English, is the language the majority of the pupils speak when they enter Guam's traditionally taught English-speaking school program. Cooper hypothesized that exposing Chamorro-speaking children to one half or one full year of oral conversational English in the first grade would result in higher reading levels in the fourth grade than control groups which were not thus exposed. By the end of the first grade, both experimental groups were superior to the control control groups in their ability to speak English. However, there was no reflection of the oral English in improved reading ability as measured by the California Reading Tests at the end of the fourth grade. As a matter of fact, the control groups showed a small, but significant lead over the experimental groups in their ability to read, both sets of groups being from one to three years behind American mainland pupils in reading and speaking skills, at the end of the fourth grade. The study demonstrated fairly clearly that oral English readiness programs were no more effective than traditional teaching approaches in Guam. It was concluded that the methods of teaching oral English as well as the sequence and content of the curriculum had to be

reevaluated to find a more suitable approach. Nowhere were the effects of the Chamorro-speaking home environment or the possibility of bilingual teaching to further school achievement discussed.

Another study (McCanne, 1966) tried to determine the best method of teaching non-English-speaking pupils how to read. Three approaches to teaching first grade reading in English to children from Spanish-speaking homes in Colorado were studied and compared: a conventional English readiness and basal reader approach (BR); a modified "teaching English as a second language" approach (TESL); and a language experience approach (LEA). Of the three methods of teaching the children to read in English, the BR approach developed the highest achievement in reading skills. It was concluded that the poorer showing of the TESL and LEA approaches might be the result of certain culturally determined behavior patterns, such as an unwillingness to initiate original expression in the formal public school setting. For preschool and kindergarten levels, however, a combination of the TESL and LEA methods was recommended to help lay the foundations for oral vocabulary and writing fluency. Nowhere in the report on the study, unfortunately, are the reading levels of the children related to national norms or grade equivalents, and nowhere is the possibility discussed of using any of these methods to teach them to read first in Spanish, their mother tongue, and later, in English.

It becomes obvious through the following account that the traditional approach of teaching non-English-speaking children through varying types of all-English school environments continues to receive much attention and acceptance. A self-proclaimed 'suc-

cessful' experience in teaching English as a second language was reported just last year by Wilson(1969). Three children, aged 6, 8, and 10, arrived in this country as speakers of another language, but with parents who already spoke English. As a result of dual instruction both at school and at home the children were able to master English in a relatively short time. Games such as Simon Says, Twenty Questions, and Guess What I'm Thinking proved especially effective. But the deciding factor seemed to be that both of the parents spoke English and helped the children at home. At another school, where the parents of the non-English-speaking children knew no English, the pupils required approximately twice the amount of time to learn the new language. As for the three 'lucky' children, within a year, their mastery of English grew to be superior to the mastery of their own language. One of the conclusions reached was that both the school and the community should share the task of helping all of their members to command the standard English of the larger community with effectiveness and ease.

The research data obtained by Lambert and Macnamara(1969), and Samuels et al(1969), on the other hand seemed to indicate that learning in a second language not only improved performance in the second language, but did not necessarily have a negative effect on the first language. In this very interesting study, an experimental group of English-speaking children were taught almost exclusively in French, for them a foreign language, during their first two years in school. The study came about as the result of a community-sponsored project to develop skill in a second language by using it as the sole medium of instruction for pupils whose native language was

different. (Although the languages are different, this is exactly the situation faced by Spanish-speaking children in most New York City public schools.) At the end of two years, the children in the experimental class were tested for communication skills, audio-lingual and reading, in both languages. Then, they were compared with children in matched control groups of monolingual English- and French-speaking classes. On these tests, the experimental classes not only scored as well as well as or better than the control groups in all of the various English skills, but also demonstrated a striking command of French, having scored as well as or better than the French control in all of the French skills except breadth of general vocabulary and fluency in oral French. "The results indicate that bilingual children can maintain, apparently with little difficulty, communicational competence in both their languages. That is, the evidence here runs counter to the notion that the bilingual's progress in one language will be balanced or offset by a handicap in the other."

Whether or not it is desirable for students in this country to achieve a mastery of English superior to that of their own mother tongue (as in the Wilson study) is an open question; whether or not it is necessary can be determined by examining a few of the researches which have experimented with bilingual education.

The New Approach -- Bilingual Teaching

In dealing with the education of students who do not speak the language of instruction in the primary school, a few teachers have speculated over the last half century about the

chances for initial school success if the mother tongue were used to a greater or lesser degree in beginning classes. As far back as 1923, it was suggested (Saer, 1923) that most of the mental confusion occurring in bilingualism resulted from the fact that the language used by bilingual children at play (mother tongue) was not also the language in which they were first taught at school (second language). Arsenian(1945), in his description of bilingualism in the post-war world, included a brief summary of a 1934 study reported by Professor Bovet, one of the earliest research studies of bilingual teaching. The director of a school in the Union of South Africa saw to it that his classes were given bilingual instruction over a period of years. The students were taught the same lesson, first in Afrikaans and then in English, or vice-versa. The same teacher taught a subject bilingually in each class, as objectively as possible, favoring neither of the languages. After four years of bilingual teaching, the pupils received the same tests used for evaluation in nearby monolingual schools. These tests attempted to measure knowledge of English and Afrikaans, skills in arithmetic, and knowledge of geography. The results of the exams showed that in each and every area the bilingually-taught children were equal or superior to children in monolingual schools. Unfortunately, there is little or no discussion of the pre-experiment level of bilingualism of the students nor whether either English or Afrikaans was predominent in the home and the community. Still, this study showed Arsenian that bilingualism per se does not necessarily have to result in retardation, even in the primary school.

During the 1940's, in the state of Michoacan, Mexico,

the Tarascan Project (Barrera-Vasquez, 1953) was launched to work out concrete measures for establishing education in the native tongue for the local Tarascan Indians. After a period of planning and preperation of teaching materials in the vernacular, bilingual teachers began to use Tarascan, the Indian population's mother tongue, as the initial medium of instruction. Tarascan was employed to introduce pupils to the alphabet and to serve as a bridge to reading in the national language, Spanish, as well. After two years of instruction in the vernacular, literacy was achieved in both Tarascan and Spanish, and the children were able to enter the second grade of the regular public school and continue their education solely in Spanish. The results were in sharp contrast to the system in existence up until that time, which had seen a consistent record of failure for Indian children in the Spanish-speaking schools.

The Iloilo Experiment (Orata, 1953), a three-year study of the use of the vernacular in education, began in 1948. In several schools of Iloilo province in the Philippines, the language of the home, Hiligaynon, was used as the medium of instruction in grades one and two; the children in these schools constituted the experimental group. In an equal number of other schools in the district, the normal classroom language, English, was used as the medium of instruction in the first two grades; the children in these schools constituted the control group. At the end of each of these first two grades, the school achievement of the experimental group was significantly superior to that of the control group, particularly in language, reading, arithmetic, and the social studies. In the third grade, English was used as the medium of instruction for both

groups. Still, the experimental group continued to surpass the control group in achievement in language, reading, arithmetic, and the social studies. Even more surprising was the fact that after only six months of exposure to English as the medium of instruction, the experimental group caught up with the control group in knowledge of English, and by the end of the year performed slightly better than the control group on oral English tests. Among the conclusions was the view that bilingual teaching, --starting with the mother tongue and continuing with the second language as the medium of instruction after two years, --resulted not only in superior school achievement but in faster second language learning as well.

American educators, for the most part, were not greatly impressed. Many continued to believe that the advantages of the all-English environment convincingly outweighed any possible benefits of bilingual teaching. Tireman(1951) stated it rather succinctly: "The eduoational pattern is largely fixed in this country. All children in the continental part of the United States who speak another language must learn English. Whether they (Spanish-speaking pupils) could make greater advancement by using the mother tongue during the beginning year is a question that cannot now be settled."

In 1958, William R. Holland(1966) conducted an experiment which sought, like the 1931 Haught study, to determine the language difficulty of Spanish-speaking children in the all-English school environment. Holland developed a Spanish-English adaptation of the Wechsler Intelligence Scale for Children and administered it bilingually (in both languages where necessary to facilitate compre-

hension) to 36 Spanish-speaking pupils, ranging fron first to fifth graders. Like the earlier study, Holland found retardation (in the form of a Language Barrier measured in I.Q. points) present in each grade right up through the fifth grade. However, reaching sharply different conclusions, he theorized that the generally low verbal development of these children was very likely a direct result of the language barrier they faced in school, as members of a bilingual, underprivileged ethnic group. One of his conclusions took the form of a hypothesis: "Bilingual education for bilingual children might prove to be a worthwhile experiment. Teachers who could supplement the language of the classroom with that of the home and the neighborhood might achieve more optimal results than are presently realized with all classroom instruction exclusively in English."

As the decade of the 1950's came to a close, Österberg (1961) carried out a very careful study in the primary grades of several schools in Sweden. An experimental group of children received an initial ten weeks of reading instruction in Pitean, their local dialect, before switching to instruction in literary Swedish. A control group of Pitean-speaking children were taught to read entirely in literary Swedish. At the end of a year, reading tests given to all the children showed that the experimental group performed better in all aspects of reading literary Swedish than did the control group. It was concluded that children who speak a dialect learn to read that dialect more easily than the standard form of the language, and, more importantly, that when they later change over to reading instruction in the standard language, they more

than make up for the initial loss of time. Such conclusions bring to mind the similar procedures and results of the Iloilo Experiment.

Finally, during the past six years, American educators have decided that the possible use of the mother tongue during the initial school years is a question that can now be investigated and perhaps even answered. A three year study in Texas (Treviño, 1970) of the effects of bilingual instruction in the primary grades on school achievement, was finished in 1968 and recently reported. Seeking to reverse the perenially poor scholastic achievement of Spanish-speaking children and meet the needs of English-speaking children as well, a primary school on the Texas-Mexico border was authorized by a new school board to teach the 1964-65 first grade bilingually. The program was increased by one grade a year, so that the three primary grades were taught bilingually during the 1966-67 school year. Using methods reminiscent of the study in South Africa (Arsenian, 1945), the bilingual first and second grade teachers provided alternate and equal instruction of the same material in both English and Spanish, favoring neither of the languages. The third grade pupils were taught half a day in English and half a day in Spanish. It was conjectured that each child was taught in his own language and by being taught bilingually, was able to learn a second language in the natural and meaningful situations of normal learning experiences. In order to measure the effectiveness of this kind of bilingual instruction on school success, the California Achievement Tests were administered annually (in English) and pupil achievement in arithmetic was investigated. The results showed dramatic improvement from the first grade, especially on the part of the Spanish-speaking pupils (most of whom scored below grade

level) to the third grade when most of the children, Spanish- as well as English-speaking, scored above the national norms in math achievement. The study concluded that bilingual instruction may help to solve the problem of low scholastic achievement on the part of Spanish-speaking children.

At about the same time that Treviño was conducting her study in Texas, Modiano(1966) was comparing bilingual and monolingual approaches to teaching reading in the national language, Spanish, to Indian children in southern Mexico. One group of Indian students were taught to read in the mother tongue during the first year, learning oral Spanish as well. In the second year, all reading and other instruction was solely in Spanish. The control group of Indian children went through both years with all instruction, including beginning reading, in Spanish. At the end of the two years, test data on a specially-developed Spanish language instrument showed that students taught to read initially in the vernacular were able to read and comprehend Spanish significantly better than those who were educated from the beginning in Spanish. It was concluded that learning to read first in the mother tongue results in greater comprehension when later learning to read in the national language for children of linguistic minorities.

Another research project was a bilingual science program in eighteen selected New York City junior high schools from 1965 to 1968 (as reported in Feeley, 1970). In an evaluative report issued in 1968, the N.Y.C. Board of Education related that at the end of three years, the experimental students (taught through a bilingual approach) did better in science than a selected control

sample (taught through a regular all-English approach). In addition, their mastery of English was not at all impeded, and they subsequently scored higher than the controls in citywide reading tests. It was also reported that the students in the bilingual program later demonstrated greater effort, reliability, and self-assurance, and appeared to have a more positive attitude toward themselves and their cultural heritage.

This review of relevant literature would not be complete without a report on one of the most recent research experiments in the field of bilingual education. In the Spring of 1970, Berney (1970) conducted a study investigating the relationship between grade level, the native language of a child, the language of instruction in school, and the language used in an experimental learning context. The experimental task, four social studies lessons on the flag, was both taught and tested using only receptive rather than expressive language skills. Children in the experimental groups were Spanish-speaking pupils attending a bilingual school where they were usually taught in their dominant language. In each of the first three grades, kindergarten through second, one class was taught the experimental social studies lessons and tested in Spanish, while another class was taught and tested in English. In like manner, the control classes, consisting of a similar group of Spanish-speaking children who attended a monolingual school where they received all instruction in English, were taught and tested in Spanish or English. It was hypothesized that learning in the mother tongue would be superior to learning in a second language; that the longer the period of time that instruction did not proceed in the mother tongue, the poorer the child's scholastic performance would be in

that language; and that students who were taught in both their first and second languages would eventually perform better in both languages than those whose instruction proceeded in the second language alone. A comparison of the test results showed that none of these hypotheses was confirmed. While the bilingual school's second grade class, which was taught and tested in Spanish, scored higher than the all-English school's second grade classes, the difference was not significant. In the other grades, the monolingual school's classes which were taught and tested in English scored higher than the other groups. And finally, the data seemed to indicate that the proficiency in Spanish of those children normally receiving all their instruction in English, rather than declining, increased with each passing year. This result would seem to support Lambert's data (1969) that learning in a second language not only improves performance in the second language, but does not necessarily have a negative effect on the mother tongue. In the discussion of the possible reasons for these somewhat surprising results, it was conjectured that the inclusion in the second grade experimental groups of some recent arrivals from abroad, that a very strong interaction between the usual language of instruction and the experimental language of instruction, and, most of all, that the exclusive use of receptive language skills all may have contributed to the 'confusing' findings.

Such recent research must be taken into account whether administering a program of education for non-English-speaking children or planning similar research to further knowledge in this field. The oral-aural mother tongue of 5,6, and 7 year olds cannot and should not be turned off in a totally English school

environment. This home language should rather be included as early as possible in the learning experience. Only through such experimentation can better conclusions be drawn about the advantages and disadvantages of bilingual teaching. Only in such a way will it be possible to agree or disagree with John B. King's reference to New York City schools four years ago:

> I think we have been teaching reading, and teaching teachers to teach reading, from the top down instead of from the bottom up. I think we've failed, especially with environmentally handicapped children and with children of a foreign language background from home or abroad, because they hear and speak one language and we teach them to read another.....
>
> It is wasteful...not to reinforce what the child already knows about listening, speaking, writing, and reading in his native language.
>
> I believe, therefore, that this child of foreign language background should receive instruction simultaneously in his native language and culture, as well as in English, and that we should capitalize on the many opportunities for transfer of training where there are so many obvious elements of identity in listening, speaking, writing, and reading skills in the language-known and the language-to-be-learned. This will also have a very important salutary effect on the pupil's morale and self-image.
>
> (King, 1966, pp. II and IV)

Hypotheses

1. If second grade Spanish-speaking children in New York City are exposed to a bilingual approach to education, then their reading levels will surpass the reading levels of similar children whose experience in school is limited to the standard all-English program plus English as a second language classes.

2. If second grade Spanish-speaking children in New York City are exposed to a bilingual approach to education, then there will be no difference between their reading levels in English and their reading levels in Spanish.

PROCEDURE

The Bilingual Program

The program in which the experimental group of subjects participated is known as Project Best. Project Best represents an attempt on the part of the New York City Board of Education and Hunter and Lehman Colleges to offer equal educational opportunities to both Spanish-speaking and English-speaking children through the inclusion of bilingual activities in the classroom. It also seeks to benefit the pupils through better trained and supervised teachers, more relevant materials, and the involvement of community members in bilingual and bicultural activities.

The Research Design

In the present study, Spanish was introduced as a medium of instruction in the experimental class at the beginning of grade 2, in the fall of 1970. During the next six months, the children in this class received about 50% of their instruction in the various curriculum areas in Spanish, while 50% was in English. Except for this bilingual teaching and various bicultural activities , the instructional program of the experimental class was the same as that of the second grade class used as the control group.That is to say , the material covered in this class was generally the same as in the other second grade classes, only half of the time it was taught in Spanish.

Then, in February of 1971, as a part of the midyear evaluation of Project Best, the English version of the Inter-American Level 1 Test of Reading was administered to the experimental group and to the control group, by their own teachers in their own classrooms. Three days later, the teacher of the bilingual class, acting on her own discretion and knowledge of her students, administered the Spanish version of the same test to eight children in the class, seven who had already taken the English version and one who had not. In the control group, a normal monolingual (all-English) second grade class which received no bilingual instruction, none of the children took the Spanish version of the test; they took only the English version. The tests were scored by the teachers of both groups according to the original scoring directions of the instrument.

Information was obtained from the teachers to ensure that all the children drawn from both classes to be subjects of this study were Spanish-speaking youngsters who spoke Spanish at home. The data of ten children who were not Spanish-speaking were elimipated from both classes, leaving a sample population of 43 children. Information pertaining to age, sex, place of birth, and the grade level at which they entered the New York City school system was obtained for each child from the school record cards.

The Sample

The subjects of the study were 43 Spanish-speaking children in the second grade of a public elementary school in the East Harlem section of New York City. The experimental group of 21 children was drawn from a class which received approximately 50% of its instruction in Spanish, mother tongue of most of the children. The control group of 22 children was drawn from a class which received all of its instruction in the English language, as part of the standard monolingual program, plus some English as a second language classes. The nature of the sample must be described as accidental, since the classes already existed as such in the school and were selected after taking the reading test chosen to be the evaluation instrument. The background characteristics of the children, including age, sex, place of birth, and the grade level at the time they entered the New York City school system, are described in Table 1 (See following page.) It may be seen that all of the subjects were 7 or 8 years old and the groups were fairly evenly divided by sex. Almost all of the subjects were of a similar socio-economic level (lower*), and Spanish was spoken in most of their homes (according to the teachers.) Most of the subjects were born in New York and most entered the New York City school system in kindergarten. No information pertaining to I.Q. scores was available.

* Almost all of the children were living in the immediate neighborhood, a particularly disadvantaged section of East Harlem; their socio-economic level could therefore be described as lower.

TABLE 1

BACKGROUND CHARACTERISTICS OF THE SUBJECTS

EXPERIMENTAL GROUP (BILINGUAL)

SUBJECTS	AGE	SEX	PLACE OF BIRTH	GRADE ENTERED N.Y.C. SCHOOLS
1	7	F	NEW YORK	KINDERGARTEN
2	7	M	NEW YORK	KINDERGARTEN
3	8	F	NEW YORK	KINDERGARTEN
4	7	M	NEW YORK	KINDERGARTEN
5	8	M	NEW YORK	KINDERGARTEN
6	7	M	PUERTO RICO	KINDERGARTEN
7	7	F	NEW YORK	KINDERGARTEN
8	8	F	NEW YORK	KINDERGARTEN
9	7	F	NEW YORK	KINDERGARTEN
10	7	M	NEW MEXICO	1ST GRADE
11	7	F	NEW YORK	KINDERGARTEN
12	7	F	PUERTO RICO	KINDERGARTEN
13	7	F	NEW YORK	KINDERGARTEN
14	7	F	NEW YORK	KINDERGARTEN
15	8	M	NEW YORK	KINDERGARTEN
16	7	M	BROOKLYN	KINDERGARTEN
17	7	M	PUERTO RICO	1ST GRADE
18	8	M	NEW YORK	KINDERGARTEN
19	8	M	NEW YORK	KINDERGARTEN
20	7	M	PUERTO RICO	1ST GRADE
21	8	F	NEW YORK	KINDERGARTEN

CONTROL GROUP (NON-BILINGUAL)

SUBJECTS	AGE	SEX	PLACE OF BIRTH	GRADE ENTERED N.Y.C. SCHOOLS
1	8	F	NEW YORK	KINDERGARTEN
2	7	F	PUERTO RICO	KINDERGARTEN
3	7	M	NEW YORK	KINDERGARTEN
4	7	F	PUERTO RICO	1ST GRADE
5	7	F	NEW YORK	KINDERGARTEN
6	8	M	NEW YORK	KINDERGARTEN
7	7	M	PUERTO RICO	1ST GRADE
8	7	F	CONNETICUT	1ST GRADE
9	7	M	NEW YORK	KINDERGARTEN
10	8	F	PUERTO RICO	KINDERGARTEN
11	8	F	NEW YORK	KINDERGARTEN
12	7	F	NEW YORK	KINDERGARTEN
13	8	F	NEW YORK	KINDERGARTEN
14	8	M	NEW YORK	KINDERGARTEN
15	8	M	NEW YORK	KINDERGARTEN
16	8	F	BROOKLYN	1ST GRADE
17	7	F	PUERTO RICO	1ST GRADE
18	8	F	NEW YORK	KINDERGARTEN
19	7	M	NEW YORK	KINDERGARTEN
20	8	M	NEW YORK	KINDERGARTEN
21	7	F	PUERTO RICO	1ST GRADE
22	8	F	NEW YORK	KINDERGARTEN

The Technique of Measurement

The dependent variable in this study, the children's achievement in reading, was measured through the administration of a reading test. This technique was chosen because of the existence of equivalent English and Spanish versions of a reading test designed especially for Spanish-speaking children. The existence of such a standardized test permits objective and reliable comparisons of the students' reading levels with other groups. The specific instrument used in the study was the Level 1 Test of Reading of the Inter-American Series of dual language tests, English and Spanish versions of Form CE.

The Inter-American series of parallel tests in English and Spanish had their origin in a study of teaching English in Puerto Rico. The study was conducted about 30 years ago by the Committee on Modern Languages of the American Council on Education. Seeking a way of comparing achievement in the two languages and finding no suitable tests available, the committee first rejected the possibility of translating existing tests and then undertook to construct new tests having the same content except for the language in which the content was expressed. Both English-speaking and Spanish-speaking educators participated in the test construction to find items requiring activities common to the two cultures, but not necessarily equally common. They also

tried to select test items of similar difficulty in both cultures. After some revision, the materials were published in 1950 by the Educational Testing Service under the title, "Cooperative Inter-American Tests." Further research projects from 1959 to 1966 resulted in a new series of the Inter-American Tests, in part a revision and extension of the 1950 materials, with limited evaluative and interpretive data. The result of these research projects was a series of tests in English and another series of tests in Spanish, each valid for use by itself or for use in comparing scores obtained from the administration of one series with the scores obtained from the administration of the other. Versions of these have been used in this country as well as others for more than 10 years, and the Series Manual presents tables of provisional percentile norms for the population in both this and other lands. In addition, in a study two years ago (Arnold,1969) of the reliability of test scores for the young bilingual student, the Inter-American Test of Reading, English version, was found to possess very satisfactory reliability "when applied to the particular disadvantaged bilingual children studied provided an appropriate difficulty level is administered."

The Level 1 Test of Reading was designed to measure both vocabulary and comprehension in grade 1 and the first semester of grade 2. Each part consisted of 40 items (scored at 1 point each) for a total of 80, to be completed in 18 minutes. In both parts, the child chose a picture

suggested by a word, phrase, or paragraph, and marked his answer in the test booklet. The instrument yielded two scores for each subject: Vocabulary and Comprehension, which combined to yield a Total Reading Score. Copies of both the English and Spanish versions of the test are included in Appendix A.

Analysis of Data

Total Reading Scores for each child in the present study were computed by combining the raw scores for the Vocabulary and Comprehension parts of the test. (See Appendix B.) Of the 21 children in the experimental group, 20 took the English version of the instrument and 8 took the Spanish version. The 22 children in the control group all took only the English version of the instrument. The final sample population size was 43.

In order to determine the significance between the performances on the reading test of the group that had bilingual instruction and the group that had no bilingual instruction, two separate comparisons were made through the following statistical procedures. The mean scores and the standard deviations were compared between the 20 subjects in the experimental group and the 22 subjects in the control group all of whom had taken the English version of the instrument,

and t tests were used to determine the levels of significance of the performance differences between the two groups. Likewise, the mean scores and the standard deviations were compared between the 8 students in the experimental group who had taken the Spanish version of the instrument and the 22 students who had taken only the English version, and t tests were undertaken to ascertain the levels of significance of the performance differences between the two groups. Then, in order to discover if there were any significant differences between the English and Spanish scores of the seven children in the experimental group who took both versions of the instrument, t tests were computed for correlated measures. In this manner, it was determined whether the means of the differences in the performance of the subjects were different enough from zero to reject the null hypothesis.

The table of background characteristics of the children was used as the basis for controlling extraneous variables such as age, sex, place of birth, and the grade level at the time they entered the New York City school system. As has already been noted in the present study (See Table 1), there was a large degree of similarity between the background characteristics of most of the subjects in the sample population.

Assumptions and Limitations

1. Since no pretests were administered to the subjects and since no information pertaining to I.Q. or previous reading achievement was available, it could only be assumed that the two groups were more or less equal in intelligence and reading ability prior to the beginning of the present study.

2. Likewise, since no information was available regarding the relative qualifications, abilities, and performances of the two teachers, it could only be assumed that the quality and quantity of instruction received by each class was more or less equal, except for the bilingual teaching aspect.

3. An important limitation resulted from the fact that almost all of the children in the experimental group had previously been in all-English kindergarten and first grade classes. Bilingual teaching did not start until the beginning of the second grade, and had been ongoing for only six months when the instrument was administered.

4. Perhaps as a result of this limited exposure to bilingual instruction only a few of the children in the experimental group took the Spanish version of the instrument. The other subjects, it was assumed, could take only the English version.

RESULTS

It was hypothesized that a bilingual (Spanish/English) approach to education would be more effective than a standard monolingual (all-English) approach in teaching second grade Spanish-speaking children how to read. For the most part, the findings of the present study are consistent with the results of several previous studies which also were seeking to draw conclusions about the advantages or disadvantages of bilingual instruction at the primary level.

Table 2 compares the means and the standard deviations of the bilingual (experimental) and monolingual (control) groups on the English version of the Inter-American Level 1 Test of Reading. The total number of subjects was 42, 20 children in the bilingual group and 22 children in the monolingual group. Separate comparisons are indicated for both the Vocabulary and Comprehension parts of the test (where the highest possible scores were 40 on each), as well as for the Total Reading Score (where the highest possible score was 80.)None of the subjects marked all of the items correctly on either part of the instrument. The means and the standard deviations were derived from the raw data (See Appendix B), and t tests were computed in order to show the level of significance of the differences between the groups.

TABLE 2

The Significance of the Mean Differences Between the Bilingual and Monolingual Groups for Vocabulary, Comprehension, and Total Reading Scores Obtained on the English Version of the Inter-American Level 1 Test of Reading

MEASURE	GROUP	N	MEAN	SD	df	t
Vocabulary	Bilingual	20	32.45	4.54	40	3.41*
	Monolingual	22	26.86	5.83		
Comprehension	Bilingual	20	31.30	5.74	40	2.70*
	Monolingual	22	24.82	9.20		
Total Reading	Bilingual	20	63.75	9.38	40	3.17*
	Monolingual	22	51.68	14.45		

* Significant beyond the .01 level.

As shown in Table 2, the mean scores of the group with bilingual instruction were higher than those of the control group with non-bilingual instruction in every comparison. It can also be seen, based on the t test, that in each case the difference was significant beyond the .01 level. Since the experimental group did significantly better than the control group, this would seem to support the hypothesis that bilingual instruction was more effective than monolingual instruction in teaching reading to Spanish-speaking children in grade 2.

In Table 3, the means and standard deviations are compared between the 8 experimental group subjects who took the Spanish version of the reading test and the control group which took only the English version. Separate comparisons are again

shown for the Vocabulary, Comprehension, and Total Reading Scores of the groups. Once again, t tests were undertaken in order to determine whether there were any significant differences between the means of the two groups.

TABLE 3.

The Significance of the Mean Differences Between the Spanish Version of the Test Taken by the Bilingual Group and the English Version Taken by the Monolingual Group

MEASURE	GROUP	N	MEAN	SD	df	t
Vocabulary	Bilingual	8	32.50	2.06	28	3.79*
	Monolingual	22	26.86	5.83		
Comprehension	Bilingual	8	27.50	4.72	28	1.00
	Monolingual	22	24.82	9.20		
Total Reading	Bilingual	8	60.00	5.74	28	2.18**
	Monolingual	22	51.68	14.45		

* Significant beyond the .001 level.
** Significant beyond the .05 level.

According to the statistical evidence presented in Table 3, the difference between the Comprehension part mean scores of the two groups was not significant, even though the means of the eight Spanish version scores were higher in each comparison than those of the control group English version scores. In the Vocabulary part, it can be readily observed that there was a high degree of significance (beyond the .001 level) in the

difference between the means. Combining the two parts of the instrument, the difference between the means of the Total Reading Scores of the two groups was significant beyond the .05 level. Using the Total Reading Scores as an indication of overall reading ability, the eight children who had bilingual instruction therefore performed significantly better on the Spanish version than did the monolingual group on the English version. This superiority was especially significant on the measure of ability to read vocabulary words. This finding would also tend to support the hypothesis of the present study that bilingual instruction was more effective than non-bilingual instruction in teaching second grade Spanish-speaking children how to read.(whether in English or in Spanish.)

It was also hypothesized in the present research study, that there would be no significant differences between the reading levels in English and in Spanish of the second grade Spanish-speaking children exposed to bilingual education. Table 4 compares the means and the standard deviations on the English version with those on the Spanish version of the seven experimental group subjects who took both forms of the reading test. Separate comparisons are again presented for each measure of reading ability. In this case, correlated t tests were computed to determine whether there were any significant differences between the reading level in both languages.

TABLE 4

The Significance of the Mean Differences for the Bilingual Group Subjects Who Took Both the English and Spanish Versions of the Instrument

MEASURE	VERSION	MEAN	SD	N	df	t*
Vocabulary	English	35.29	2.31	7	6	3.75**
	Spanish	32.71	2.12			
Comprehension	English	34.43	2.82	7	6	3.83**
	Spanish	27.57	5.04			
Total Reading	English	69.71	4.30	7	6	4.00**
	Spanish	60.29	6.09			

* In this case, t was computed for correlated measures.

** Significant beyond the .01 level.

As summarized in Table 4, the mean scores for each measure of reading ability were higher on the English version than on the Spanish version. It can also be seen that, based on t tests for correlated measures, the difference in each case was significant beyond the .01 level. Thus, the 7 bilingual group children to whom both forms of the test were administered did significantly better on the English version. This result would seem to be in direct disagreement with the hypothesis which had been put forth suggesting that there would be no difference between the reading levels in English and Spanish. That hypothesis was, therefore, not supported.

DISCUSSION AND INTERPRETATION

Various assumptions and limitations of this research project have already been pointed out on page 31 of the present paper. With these important aspects in mind, it will be possible to discuss and interpret the findings, and perhaps to generalize some conclusions and recommendations for future research. The results of the present study would seem to indicate that bilingual instruction was indeed a more effective method of teaching the second grade Spanish-speaking children involved in this program how to read.

The experimental group had been receiving bilingual instruction for only six months when the Inter-American Level 1 Test of Reading was administered. This bilingual teaching was basically different from the all-English instruction received by the control group in that approximately half of it was in Spanish, the students' mother tongue. So, perhaps it is not too surprising that the eight bilingual group subjects who took the reading test in Spanish did significantly better on the Vocabulary and Total Reading Scores than the control group which took only the English form. It might, however, be somewhat more surprising that seven of these eight experimental group children did significantly better on their own English version than on their own Spanish version.(The eighth bilingual group child did not take the test in English.) And it might be even more surprising that the experimental group of 20 pupils, even though it had received only about half as much instruction

in English, did significantly better than the monolingual group on both the Vocabulary and Comprehension parts of the English version of the test.

Four interesting questions arise from these findings to be considered: (1) Why could only a few subjects in the experimental group take the Spanish version of the instrument? (2) Why were their mean scores in this version significantly better than those of the monolingual group on the Vocabulary part but not the Comprehension part of the reading test? (3) Why was their performance on the instrument significantly better in English than it was in Spanish? (4) Why did the whole group which had bilingual instruction do significantly better than the control group on the English version of the test?

Bilingual instruction did not start until the beginning of grade 2. The children in the experimental group had therefore spent at least two previous school years in all-English classes. It seems reasonable to conjecture, consequently, that their exposure to bilingual teaching was far too limited for most of them to be able to take the reading test in Spanish. Reading, like any other school subject, must be taught, and these children, although Spanish-speaking, had only been taught to read in English (until the start of this project.) In any case, the teacher of the bilingual group administered the Spanish version of the instrument only to those few students who could

take it (or so we must assume.) And even for those seven students who could take both versions, the previous years of all-English instruction had so overwhelmingly dominated their education that their reading ability in English was superior to their reading ability in Spanish, their own mother tongue. What these children probably needed for more equivalent achievement in the two languages was earlier and longer exposure to bilingual teaching. Relating this aspect of bilingual education to past research, it should be noted that several studies (Barrera-Vasquez, 1953; Orata, 1953; Treviño, 1970; Modiano, 1966) suggested the very real value of beginning use of the mother tongue for teaching in the very first year of school.

Referring back now to Table 3, it can be seen that the mean scores of the bilingual group (Spanish version) are higher in each case than those of the monolingual group (English version.) In spite of this, the difference between the means on the Comprehension part of the reading test was not significant, while the difference between the mean scores on the Vocabulary part proved to be highly significant (beyond the .001 level.) There are two possible explanations for this strange finding that should be considered. As has already been mentioned in the present study, Arnold (1969) did an experimental check on the reliability of the Inter-American Reading Test scores for the young bilingual student, and found that the English version possessed very satisfactory reliability. In the same

project, it was reported that the "Spanish equivalent of the test showed much less internal consistency both for subtests and for total scores." The study suggested that caution should be exercised when using any measure on the Spanish version other than the Total Reading Score. This lower reliability of the Spanish form subtests might explain how one part could show high significance and the other part low significance when they are compared with the English version subtests. Another possible reason for this result is that the recent start of bilingual teaching in the experimental class would seem to indicate an emphasis on vocabulary words, on what different things are in Spanish, rather than on understanding complete sentences. This is a reasonable explanation, since exposure to formal Spanish instruction had only continued for six months when the evaluation took place. The monolingually-taught class, continuing the learning of English from past years and teaching no Spanish, would have been able to put relatively more stress on English comprehension. In any case, there is not a very significant difference between the reading comprehension of the experimental group (in Spanish) and that of the control group (in English.)

As already shown in Table 2, the experimental group did significantly better on the English version of the test than the monolingual group in every comparison. One possible

explanation for the higher scores of the bilingual group on the English version is that the children were more intelligent or more advanced in reading ability to begin with. Another possibility is that the quality of instruction in the experimental class was just generally far superior to that of the control class. Assuming, as has been done, that all of these considerations were more or less equal between the two groups, the implications of the significant differences become extremely interesting and pertinent to the present study. Among the conclusions of the Iloilo Experiment more than twenty years ago (Orata, 1953) was the interpretation that bilingual teaching resulted not only in superior school achievement but in faster second language learning as well. The findings of several other projects (Barrera-Vasquez, 1953; Österberg, 1961; and Modiano, 1966) seemed to support the view that the use of the mother tongue in teaching beginning reading would result in faster, easier, and higher reading achievement in the second language. The greater literacy in English of the experimental group in the present study may therefore be a reasonable outcome of the introduction into the classroom of bilingual education, of Spanish as a language of instruction.

Why should these Spanish-speaking youngsters read better in English after having been taught in Spanish during time they normally would have been taught in English? The answer to this question seems to be quite simple. The second

grade Spanish-speaking children who received bilingual instruction probably felt much more comfortable in school than ever before. They probably participated more in class and were able to discuss more school activities with their parents at home. Lessons presented in the mother tongue were probably easier to learn, thereby motivating the students to learn more in English as well. And most of all, the children were probably emotionally better off because of the higher status accorded their mother tongue through its use as a medium of instruction. All of these factors, more ease in school, greater participation, easier learning, more motivation, and greater emotional stability, would seem to make for higher classroom achievement in either language. And there is no question that the children in the experimental group had higher reading achievement in English. Their mean scores on both the Vocabulary and Comprehension parts of the English version of the Inter-American Level 1 Test of Reading placed the group at the 77th percentile in the list of provisional norms for this instrument (Manuel, 1967.) These percentile norms were derived from the test results in thirteen American cities and presented in the published test Manual. The mean scores of the monolingual group placed it at or below the 50th percentile in this list of provisional norms.

In view of these conclusions, interpretations, and already-stated assumptions and limitations, the following recommendations and suggestions for future research can be made.

The mother tongue of non-English-speaking children should be included in their learning experience as early as possible. By starting bilingual instruction as soon as the youngsters enter school, more of them could be tested for reading ability in their native language by the time they reach the second grade. In addition to this suggestion for further research in this field, future study should undertake to assure the pre-experiment equality in reading ability of the bilingual and monolingual groups. The most feasible method of controlling for this variable would be to administer a pre-test of reading ability to both groups. Longitudinal study in this area would also be of great interest. By following the progress of a bilingually-taught class through the grades for five or six years, it would be possible to reach much broader conclusions about bilingual education.

The statistical significance of the results in the present study provides persuasive evidence that bilingual teaching is a positive approach to the education of second grade Spanish-speaking children. Wouldn't the evidence be even more persuasive if such children were exposed to bilingual instruction from the very first day they entered the classroom? Five and six year olds come to school eager to learn, anxious to please their parents, and quick to delight their teachers. They are curious, like to know "why", and love to show off what they have learned. Since they come to school with a

large oral-aural vocabulary in their mother tongue, why not improve and build upon this pre-school home language? Teaching subjects in the children's native language would show a concern about their education rather than about their English. Which is how it should be. What the non-English-speaking child already knows should be reinforced. His mother tongue should be encouraged, praised, and used as a medium of instruction. Would such an approach to education cause the child to fall behind in second language development? Not likely, for if the findings of the present study are any true indication, such an approach insures the child's command of English. In short, a bilingual educational program which provides for the introduction of reading and other subjects in the mother tongue may be the best approach to the education of the non-English-speaking child.

SUMMARY

This investigation was concerned with the effect of bilingual instruction on the beginning school success of non-English-speaking students. The specific purpose of the study was to determine whether a bilingual or a monolingual approach to education would be more effective in teaching second grade Spanish-speaking children how to read. Two second grade classes were selected from a school in the East Harlem section of New York City. Starting in September, 1970 the experimental class received approximately 50% of its instruction in Spanish, while the control class received all of its instruction in English. Otherwise, the program followed by the two classes, a standard New York City second grade program, was much the same.

After six months of bilingual and monolingual teaching, the Inter-American Level 1 Test of Reading, English version, was administered to both classes. And in the case of the experimental class, the Spanish version of the very same test was administered to a few students who could take it. At this point, for the purpose of this study, the data of those children who were not Spanish-speaking were eliminated from the classes, leaving a sample population of 43 subjects.

It was hypothesized that bilingual instruction would be more effective than monolingual instruction in teaching second grade Spanish-speaking children to read.

Comparing the mean scores of the bilingual group with those of the monolingual group on the English version of the instrument, t tests showed significant mean differences between them in favor of the bilingual group. Then, the mean scores were compared between the Spanish version of the instrument taken by a few experimetal group subjects and the English version taken by the monolingual group. The t test showed a significant mean difference between the Total Reading Scores again in favor of the bilingual group. The original hypothesis was supported by these findings. If second grade Spanish-speaking children in New York City are exposed to a bilingual approach to education, then their reading levels will surpass the reading levels of similar children whose experience in school is limited to the standard all-English program.

It was also hypothesized that there would be no significant differences between the reading levels in English and Spanish of the bilingual group children. Comparisons were made between the mean scores on the English version and those on the Spanish version of the small number of experimental group subjects who took both forms of the reading test. The t tests for correlated measures showed significant mean differences between the versions in favor of the English form. This hypothesis was not supported. The reading levels of the bilingual group

children were significantly higher in English than they were in Spanish.

On the basis of these results, it was concluded: that the mother tongue of non-English-speaking children should be introduced as a medium of instruction as soon as they enter school; that bilingual teaching would help to solve the problem of low reading achievement of non-English-speaking students; and that reading and learning English would be faster and easier because of bilingual instruction.

Bibliography

1. Arnold, R., Reliability of test scores for the young "bilingual" disadvantaged. The Reading Teacher, 1969, 22, 341-345.

2. Arsenian, S., Bilingualism in the post-war world. Psychological Bulletin, 1945, 42, 65-86.

3. Barrera-Vasquez, A., The Tarascan project in Mexico. The Use of Vernacular Languages in Education, Monographs on Fundamental Education, UNESCO, 8, 1953, 77-86.

4. Berney, T.D., The relationship between mother tongue, language of instruction, and task success for Spanish-dominant children. Unpublished Doctoral Dissertation, Yeshiva University, 1970, 1-17.

5. Binyon, M., Demolishing the tower of Babel. Times Educational Supplement, 1969, 2823, 2097.

6. Board of Education, Educating Children for Whom English is a Second Language. Board of Education, City of New York, 1965, 1-10.

7. Condon, E., Project Best: A Brief Description of the Project. Project Best Progress Report, Hunter College Division, 1971, 21 a-d.

8. Cooper, J.G., Effects of different amounts of first grade English instruction upon later reading progress with Chamorro-speaking children. Journal of Educational Research, 1964, 58, 123-126.

9. Feeley, J.T., Teaching non-English-speaking first graders to read. Elementary English, 1970,47, 199-208.

10. Guerra, M.H., Why Juanito doesn't read. California Teachers Association Journal, 1965, 61, 17-19.

11. Haught, B.F., The language difficulty of Spanish-American children. Journal of Applied Psychology, 1931, 15, 92-95.

12. Holland, W.R., Language barrier as an educational problem of Spanish-speaking children. The Disadvantaged Learner, S.W. Webster, editor, Chandler Publishing Company, San Francisco, 1966, 338-349.

13. King, J.B., The most powerful educational weapon in our war on poverty: teaching English as a second language to environmentally handicapped pupils and as a third language to pupils of foreign language background. Staff Bulletin, Public Schools of New York City, April 25, 1966, I-IV.

14. Lambert, W.E., and Macnamara, J., Some cognitive consequences of following a first grade curriculum in a second language. Journal of Educational Psychology, 1969, 60; 86-96.

15. Macnamara, J., Previous investigations. Bilingualism and Primary Education, University Press, Edinburgh, 1966, 7-43.

16. Manuel, H.T., Manual and Technical Report - Tests of General Ability and Tests of Reading, Inter-American Series, Guidance Testing Associates, Austin, Texas, 1967.

17. McCanne, R., Approaches to first grade English reading instruction for children from Spanish-speaking homes. The Reading Teacher, 1966, 19, 670-675.

18. Modiano, N., Reading comprehension in the national language: a comparative study of bilingual and all-Spanish approaches to reading instruction in selected Indian schools in the highlands of Chiapas, Mexico. Unpublished Doctoral Thesis, New York University, 1966, As reported in Feeley, 1970, 203.

19. Orata, P.T., The Iloilo experiment in education through the vernacular. Progressive Educatión, 1953, 30, 185-189.

20. Österberg, T., Bilingualism and the first school language. Vasterbottens Tryckeri AB-Umea, 1961. As cited in Macnamara, 1966, 25-26.

21. Saer, D.J., The effect of bilingualism on intelligence. British Journal of Psychology, 1923, 14, 25-38.

22. Samuels, M., Reynolds, A., and Lambert, W.E., Communicational efficiency of children schooled in a foreign language. Journal of Educational Psychology, 60, 389-393.

23. Tireman, L.S., Bilingual children, Review of Educational Research, 1932-1941, XI, 3, 340-352.

24. Tireman, L.S., Teaching Spanish-speaking Children. University of New Mexico Press, Albuquerque, 1951.

25. Treviño, B.G., Bilingual instruction in the primary grades. Modern Language Journal, 1970, 54, 255-256.

26. Ulibarri, H., Holemon, R., and Cooper, J.G., Administration of bilingual education. Prep Kit #6, Office of Education Bureau of Research, Washington, D.C., 1969, 1-17.

27. UNESCO, A continental survey of vernacular languages and their use in education. The Use of Vernacular Languages in Education, Monographs on Fundamental Education, UNESCO, 1953, 8, 16-44.

28. Wilson, T.M., English as a second language. Educational Leadership, 1969, 27, 250-252.

APPENDIX B

RAW SCORES ON THE INTER AMERICAN SERIES LEVEL 1 TEST OF READING

EXPERIMENTAL GROUP

SUBJECTS	VOCABULARY		COMPREHENSION		TOTAL READING SCORES	
1	31		26		57	
2	34	32	34	27	68	59
3	28		26		54	
4	37		39		76	
5	30		29		59	
6	28		26		54	
7	33		32		65	
8	34	33	39	33	73	66
9	32	30	31	28	63	58
10	32		39		71	
11	36		34		70	
12	36	35	31	24	67	59
13	28		33		61	
14	38		35		73	
15	39	36	37	36	75	72
16	24		27		51	
17	34	30	33	25	67	55
18	35		21		56	
19	39	33	36	20	75	53
20	22		18		40	
21	*	31	**	27	**	58
		*		*		*

**- SCORES ON ENGLISH VERSION
*- SCORES ON SPANISH VERSION

CONTROL GROUP

SUBJECTS	VOCABULARY	COMPREHENSION	TOTAL READING SCORES
1	27	31	58
2	37	35	72
3	20	10	30
4	28	26	54
5	25	25	50
6	25	25	50
7	23	13	36
8	33	36	69
9	36	36	72
10	28	31	59
11	31	35	66
12	31	34	65
13	24	14	38
14	19	27	46
15	32	34	66
16	34	26	60
17	13	5	18
18	26	18	44
19	28	16	38
20	25	18	43
21	21	18	39
22	31	33	64
	**	**	**