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COMPARATIVE STUDY OF THE MULTIPLE MEANINGS OF ENGLISH WORDS



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Cheraine 237- 7th St. East Saskatoon, Sask.	Canada 25/2/69
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Carolyn R. Seamon Selma Unified School Selma Calif.	Oct. 1970

Betty J. Ward 2030 Jordan, Las Cruces, N.M. July 1971

Prudy R. Long 4725 Delta Blvd. Albuquerque, N.M. Dec 13, 1971

Carolyn Foster Terra Dr I Nych Ny Oct 17, 1972

Jan T. Eddy 510 Sycamore SE Albuquerque, N.M. Spring, 1974

Carl J. Palacios-Jimenez UCLA 5/74

Marlene Hansen UAM Summer 1977

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EXERCISE
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A COMPARATIVE STUDY OF THE UNDERSTANDING
WHICH BILINGUAL STUDENTS HAVE OF THE
MULTIPLE MEANINGS OF ENGLISH WORDS

By

Stephen Grant Hess

A Thesis

Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Arts in Education

The University of New Mexico

1963

OKLAHOMA CITY, OKLA., FEBRUARY 1, 1934

THE OKLAHOMA COTTON GROWERS ASSOCIATION

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CHAIRMAN

Frank Angel

James Cooper

Charles Woodhouse

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The author is indebted to Carl M. Charles, graduate student in the College of Education at the University of New Mexico, for assistance in statistical analysis of the data.

The many fourth and sixth grade teachers who administered tests to and collected data from the more than 750 students involved played a major role in making this study possible, and their time and effort is greatly appreciated.

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The author is indebted to Mr. J. H. ...
student in the College of Education at the University of ...
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unending patience, and greatly ...

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CHAPTER I

THE PROBLEM AND ORGANIZATION OF THE STUDY

I. INTRODUCTION

In recent years many educators have shown renewed concern with the bilingual problem in New Mexico, and with the need to do something about it. It is surprising that this appreciation has come so late: until the last decade the state was legally bilingual, and more than half its population was of Spanish-American descent. No great diminishing of the problem is in sight. During the decade before 1960, New Mexico's Indian population increased nearly 15,000. Currently, over 40 per cent of the state's school population is made up of students with a non-Anglo¹ background.

Each of these students is handicapped to some degree, in the traditional public school system with its characteristic Anglo and middle-class orientation, because of cultural and language differences. Whether the educational goal for non-Anglos is the correct one will not be argued here, but it would seem that some educators are optimistic if they believe that they can prepare a Navajo child for middle-class Anglo society by feeding him the typical Anglo reading program, beginning with the first grade. Nonetheless, in many reservation schools, this is essentially

¹Anglo is a term used in New Mexico to differentiate between English-speaking cultural groups and those of Indian or Spanish-American descent.

the case. A similar lack of understanding of the child's background can be observed where Spanish-American students are placed with Anglos in the classroom.

Perhaps the basic fault of teachers who deal with bilinguals lies in the assumption of a one-to-one correspondence in translating--that is, this word in your native language means this word in English. Such an assumption ignores the close ties of language with culture, and the impact which culture will have on many different areas of language. One such area which immediately comes to mind is the idiom, in which English abounds, and which seldom is translatable word-for-word to another language. Sometimes the idiom can not be translated at all. Another such area is that of multiple meanings. Fries notes that "very few words have only one meaning; usually they have from fifteen to twenty."² It is the meaning aspect of English, and the problems which it brings to the student to whom another language is native, which will be pursued in this thesis.

II. THE PROBLEM

Statement of the Problem

The purpose of this investigation was to determine the understanding which certain bilingual students have of the different

²Charles C. Fries, Teaching and Learning English As a Foreign Language (Ann Arbor: University of Michigan Press, 1952), p. 41.

meanings of some words in the English language in comparison to the understanding which Anglos have.

The procedure followed in carrying out the study was five-fold: (1) to prepare two tests of equal difficulty in the multiple meanings of words from reading textbooks of fourth-grade reading difficulty; (2) to administer these two tests to a selected sample of fourth graders in the Albuquerque Public Schools in order to establish norms for comparison; (3) to administer the same tests to selected New Mexico fourth and sixth grade students of Indian and Spanish-American background; (4) to compare the performances of the norming and test groups, thereby determining the extent of understanding of the multiple meanings of words; and (5) to formulate recommendations for teachers of reading in elementary schools based upon the results of the comparisons.

Importance of the Study

There is no questioning the fact that Indian and Spanish-American children do not achieve as well in school as Anglos do. Young points out in the 1958 Navajo Yearbook that only 6 per cent of Navajo students in reservation schools are up to grade.³ Coombs and others tested over 23,000 students, more than half of them Indian, and found that the Indians do not do as well in the basic skill subjects as Anglos do.⁴ Peterson and Anderson had

³Robert W. Young (editor), The Navajo Yearbook (Washington: Government Printing Office, 1958), p. 9.

⁴L. Madison Coombs, et al., The Indian Child Goes to School (Washington: United States Department of the Interior, Bureau of Indian Affairs, 1958), pp. 2, 4.

previously reported the same results regarding Indian students.^{5,6}

The educational retardation of the Spanish-American is equally demonstrable. Sanchez,⁷ Tireman,⁸ Zintz,⁹ Kelley,¹⁰ and others report a history of educational retardation, over-ageness, and early drop-outs for these students.

The anthropologists have told us that there is no proof which would explain this difference in achievement on the basis of innate intelligence.¹¹ The problem must lie, then, within the culture or in the classroom--with things that are learned or with the instruction. It becomes the obvious duty of educators to examine and to solve the problem.

Insofar as education will play a part in erasing these differences in achievement, it follows that educators must know as much as possible about the areas in which bilinguals are not up to par. They can not read as well as Anglos, even though they have been taught from the same books and in the same manner as Anglos--in fact, even as if they were Anglos. Perhaps it is

⁵Shailer Peterson, How Well Are Indian Children Educated? (Washington: Bureau of Indian Affairs, 1948), p. 14.

⁶Kenneth E. Anderson, et al., The Educational Achievement of Indian Children (Washington: Bureau of Indian Affairs, 1953).

⁷George I. Sanchez, Forgotten People (Albuquerque: University of New Mexico Press, 1940), pp. 28-35.

⁸Lloyd S. Tireman, Teaching Spanish-Speaking Children (Albuquerque: University of New Mexico Press, 1948), pp. 45-50.

⁹Miles V. Zintz, Final Report of The Indian Research Study (Albuquerque: College of Education, The University of New Mexico, 1960), pp. 80-92. Mimeographed.

¹⁰Victor H. Kelley, "The Reading Abilities of Spanish and English Speaking Pupils," Journal of Educational Research, 29:209-211, November, 1935.

¹¹R. A. Schermerhorn, These Our People (Boston: D. C. Heath

here that our trouble lies; perhaps what are needed are different books, different methods, and a realization of how different cultural values affect behavior.

Before the new books and the new methods are devised, however, a practical goal must be established: what are the needs of bilinguals in school? It is in search of that goal that this study is directed.

An examination of the commonly used reading materials reveals that they contain very little direct instruction in the multiple meanings of common English words. It remains for others to ascertain how, then, the Anglo may gain his advantage over the bilingual in this area. But if such a deficiency exists for the bilingual, then it represents a reading vocabulary weakness which should be recognized, and which ultimately should be strengthened through the use of special teaching methods and materials not now used in the classrooms.

III. DEFINITIONS OF TERMS USED

Bilingual. The bilingual is one whose native language is not that of the school, or, to state this another way, is different from that of the majority culture of his school environment.

and Company, 1949), pp. 19-53; Franz Boas, Anthropology and Modern Life (New York: W. W. Norton and Co., Inc., 1932), p. 60.

that our trouble lies not only in the lack of
 books, different methods, and a realization of the situation
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 exists for the bilingual, then it is necessary to establish a
 lary meanings which should be recognized and which bilingual
 should be strengthened through the use of a bilingual teaching method
 and materials not only in the classroom.

III. BILINGUAL TEACHING METHOD

Bilingualism. The bilingual in school is the bilingual
 not that of the school, or, as stated in the previous section, the bilingual
 and from that of the majority culture and the majority environment.

Multiple Meanings. The term multiple meanings is used in this study to refer to the different dictionary meanings which an English word has.

Spanish-American. In this study the term Spanish-American is used to designate anyone of Spanish descent whose ancestry was the small enclave of settlers on the Middle Rio Grande Valley.

IV. DELIMITATIONS OF THE STUDY

Comparative results for percentile ranks for the Control Group were obtained by administering the test to ninety-five typical, middle-class fourth grade students living in Albuquerque, New Mexico.

This study is limited to the fourth and sixth grade pupils attending schools that participated in an Indian Research Study in the College of Education at the University of New Mexico.¹² This group included Navajo, Apache, Pueblo, Spanish-American, and Anglo pupils.

V. ORGANIZATION OF THE REMAINDER OF THE STUDY

A review of the literature related to this problem is presented in Chapter II. Chapter III contains a discussion of the interdependence of language and culture. In Chapter IV will be found

¹² Miles V. Zintz, director, The Indian Research Study: The Adjustment of Indian and Non-Indian Children in the Public Schools of New Mexico, Sponsored under grant-in-aid from the U. S. Office of Education, 1957-1960, at the University of New Mexico, College of Education, Albuquerque.

multiple meanings. The term multiple meanings is used in this study to refer to the different meanings which an English word has.

Spanglish. This is a mixture of Spanish and English. It is used to designate a language which is a mixture of the two. The result are new expressions which are not found in either language.

Comparative results for the two groups were obtained by statistical analysis. The results are presented in the form of tables and graphs. Typical, middle-class families were selected for the study.

New Mexico. This study is limited to the Spanish-speaking population attending schools in the State of New Mexico. This group included Navajo, Apache, Pueblo, and other Indian groups.

Anglo pupils. A review of the literature related to this problem is given in Chapter II. Chapter III contains a description of the study. Chapter IV contains the results and conclusions. Chapter V contains the bibliography.

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The data are presented and analyzed, and the significance of the
study are summarized. Chapter VI contains the summary, conclusions,
and implications for education.

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CHAPTER II

REVIEW OF THE LITERATURE

I. INTRODUCTION

An examination of the literature revealed no studies reported which deal directly with understanding by bilinguals of the multiple meanings of words, save for a casual observation that words do have more than one meaning. It will be necessary in this review of literature, then, to cite studies and reports bearing upon and supporting this study.

Most of the literature reviewed here deals with the reading achievement of the bilingual person as compared to the monolingual person. It must be emphasized initially that there is no evidence to support the theory that these differences in achievement can be explained on the basis of innate differences in race. Schermerhorn says that the conclusion of the scientist is that "inherent differences in intelligence and achievement cannot be proved . . . the inherent abilities are as nearly equal as refined analysis can discover."¹ And Boas asserts:

The general experience of ethnologists who deal with recent ethnological phenomena indicates that whatever organic differences between the great races there may be, they are insignificant when considered in their effect upon cultural life.²

¹R. A. Schermerhorn, These Our People (Boston: D. C. Heath and Company, 1949), pp. 53.

²Franz Boas, Anthropology and Modern Life (New York: W. W. Norton & Co., Inc., 1932), p. 60.

Nonetheless, in intelligence tests given to the bilingual child, it is found that he scores lower than his Anglo classmates. Educators have sought for some time to devise tests that will be free of cultural bias.

II. STUDIES OF INTELLIGENCE

Among the earliest to investigate this phenomenon and to try to do something about it were Pintner and Keller, who in 1922 found the average I.Q. for foreign-speaking students to be eight points below that for English speakers on a revised version of the Binet Test. Both groups improved when given the Pintner Non-Language Group Test, but the foreign speakers more so, leading the investigators to the conclusion that:

Children who hear a foreign language at home, test lower as a rule when given the revisions of the Binet Test than when given tests which require a minimum knowledge of English.³

A year later Pintner observes that "a teacher's estimate of a child's intelligence will unquestionably be influenced by the child's ability to use the English language."⁴ He states further:

It is inconceivable that children living in an English-speaking environment, hearing, speaking, reading nothing but English should not have a distinct advantage in tests requiring the finding of opposites of words, the hunting for an appropriate analogy, the filling in of an uncompleted sentence, and the like, as compared with children who hear

³R. Pintner and R. Keller, "Intelligence Tests of Foreign Children," Journal of Educational Psychology, 13:222, April, 1922.

⁴R. Pintner, "Comparison of American and Foreign Children on Intelligence Tests," Journal of Educational Psychology, 14:292, May, 1923.

Kamath, in intelligence tests, has found that
child, it is found that he scores lower than the normal
Kamath have found for a child in the normal range
free of cultural bias.

II. KAMATH'S EXPERIMENT

Among the earliest to investigate the child's
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2. Kamath and A. Miller, "Intelligence Tests of Foreign
Children," *Journal of Educational Psychology*, 1932, 23, 1-10.
3. Kamath, "Comparison of American and Foreign Children
on Intelligence Tests," *Journal of Educational Psychology*, 1932, 23,
May, 1932.

a foreign language at home and in many cases are required to communicate in a foreign language to some people in their environment.⁵

Kittell recently compared bilinguals of Chinese, French, Japanese, and other language backgrounds with monolinguals in performance on the short form of the California Test of Mental Maturity, and concluded that the bilinguals scored lower on the language section than the unilinguals.⁶ The Times Educational Supplement cites test results in which children of Welsh background score lower than those of English background on non-verbal tests.⁷

Darcy reviewed the literature on the effects of bilingualism upon the measurement of intelligence. She discards the majority of 110 references in the bibliography as lacking in experimental method, but puts the remainder in three categories: (1) two studies in the British Isles in which bilingualism was found to have a favorable effect upon the measure of intelligence (she reports that there was little attempt in these two studies to control variables); (2) twenty-three studies in which bilingualism was found to have an unfavorable effect upon the measurement of

⁵Ibid.

⁶Jack E. Kittell, "Bilingualism and Language--Non-Language Intelligence Scores of Third-Grade Children," Journal of Educational Research, 52:263-268, March, 1959.

⁷"Effects of Bilingualism," article in The Times Educational Supplement, London, December 13, 1957.

A foreign language as home and in many cases is required to communicate in a foreign language to some extent in the environment.

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Ability, and concluded that the bilinguals scored lower on the

language section than the monolinguals.⁶ The same experimental

design also was used in which children of Welsh parents

scored lower than those of English background on non-verbal

tests.

Barry reviewed the literature on the effects of bilingual-

ism upon the measurement of intelligence. He discussed the impor-

tance of IQ reference in the bibliography as leading to experimental

method, but notes the limitations in these categories: (1) the

method as the British Isles in which bilingualism was found to

have a favorable effect upon the measure of intelligence (2)

reports that there was little attempt to control the studies so

control variables; (3) twenty-three studies in which bilingualism

was found to have an unfavorable effect upon the measurement of

Intelligence.

Jack E. Kirby, "Bilingualism and Intelligence--Non-Language Intelligence Scores of Bilingual Children," *Journal of Educational Research*, 32:283-288, March, 1939.

"Intelligence of Bilinguals," a paper in *The Welsh Language*, English, London, December 12, 1937.

intelligence; and (3) eleven studies where bilingualism was found to have no effect upon the measurement of intelligence. The general findings here, says Darcy, were that bilinguals are penalized on the verbal tests but not on the non-language tests.⁸

Intelligence Testing of Spanish-Americans and Other Spanish-Speaking People

Several studies deal specifically with intelligence test results for Spanish-Americans and other Spanish-speaking children. Altus compared two dull groups of children, one of Mexican descent, the other of English-speaking backgrounds. On the Wechsler Intelligence Scale for Children, the non-Mexican students scored an average of 88.98 on the verbal portion of the test and 86.43 on the performance section. The bilinguals averaged 72.07 on the verbal part and 84.01 on the performance.⁹

Sanchez gave several forms of the Stanford Achievement Test and the Haggerty Intelligence Tests to the same group of Spanish-American children over a period of nearly a year and a half, and discovered a gain in average mental age. He attributed this gain to increased ability in reading and added language facility.¹⁰

⁸Natalie T. Darcy, "A Review of the Literature on the Effects of Bilingualism Upon the Measurement of Intelligence," The Journal of Genetic Psychology, 82:21-57, March, 1953.

⁹Grace T. Altus, "W.I.S.C. Patterns of a Selective Sample of Bilingual School Children," The Journal of Genetic Psychology, 93:241-248, 1953.

¹⁰I. Sanchez, "Scores of Spanish Speaking Children on Repeated Tests," Pedagogical Seminary and Journal of Genetic Psychology, 40:223-231, 1932.

intelligence; and (3) eleven months before birth, the infant was found to have no effect upon the growth and development of the infant. The findings here, says Gandy, were that the infant was not able to learn the verbal tests but not the non-verbal tests.

Intelligence Testing of Spanish-Speaking Children in the Hospital

Several studies have been conducted in the hospital to determine the intelligence of Spanish-speaking children and to determine the effect of the hospital environment upon the intelligence of these children. A study was conducted by the author and others, comparing the intelligence of Spanish-speaking children with the intelligence of English-speaking children. The results of this study are as follows: The mean age of the Spanish-speaking children was 3.5 years, and the mean age of the English-speaking children was 3.5 years. The mean intelligence of the Spanish-speaking children was 3.5 years, and the mean intelligence of the English-speaking children was 3.5 years.

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⁸ Katsaris, T. H., "The Intelligence of Spanish-Speaking Children in the Hospital," *Journal of Genetic Psychology*, 52:1-2, 1932, 111.

⁹ Gandy, T. A., "The Intelligence of Spanish-Speaking Children in the Hospital," *Journal of Genetic Psychology*, 52:1-2, 1932, 111.

¹⁰ Gandy, T. A., "The Intelligence of Spanish-Speaking Children in the Hospital," *Journal of Genetic Psychology*, 52:1-2, 1932, 111.

Haught and Holland put their faith in such an assumption.^{11,12} Haught set out to prove that the higher the bilingual child went in school, the higher his I.Q. would go, but discovered just the opposite of his hypothesis. Holland gave the W.I.S.C. to a few Spanish-American children from each of several grades, and concluded that the language barrier diminishes as the child rises in grade level. It should be noted that Holland also encountered a difference of over ten points between the verbal and performance sections: a mean of 80.6 on the verbal, an average of 90.8 on the performance. Further, when he translated into Spanish those verbal sections where the child did not understand the English, Holland gained nearly a five-point rise, on the average, for the verbal section.

Others have attempted to correct for a language barrier, as Holland did, by putting the test into Spanish. Mitchell gave the Otis Group Intelligence Test in English and in Spanish to 236 Spanish-speaking students in grades one to three, and reported a mean I.Q. on the Spanish translation that was 9.28 points higher than that on the English version.¹³

¹¹B. F. Haught, "Language Difficulties of Spanish-American Children," Journal of Applied Psychology, 15:92-95, 1931.

¹²William R. Holland, "Language Barrier as an Educational Problem of Spanish-Speaking Children," Exceptional Children, 27:42-50, September, 1960.

¹³A. J. Mitchell, "The Effect of Bilingualism in the Measurement of Intelligence," Elementary School Journal, 38:29-37, September, 1937.

Haugt and Holland put their faith in such an auditory basis. Haugt did not fail to prove that the higher the children were in school, the higher his I.Q. would go, and this was true for the opposite of his hypothesis. Holland gave each of his Spanish-American children two each of auditory tests, and concluded that the language barrier hindered the children in this level. It should be noted that Holland also encountered a difference of over ten points between the two and performance sections: a mean of 84.5 on the verbal, an average of 70.8 on the performance. Further, when he turned over into Spanish those verbal sections which the child did not understand the English, Holland gained nearly a 10-point rise on the average, for the verbal section.

Ochs have attempted to correct the language factor, as Holland did, by putting the tests into Spanish. They gave the Otis Group Intelligence Test to Spanish and in Spanish to 126 Spanish-speaking children in grades one to five, and reported a mean I.Q. on the Spanish version of 84.5, 22 points higher than that on the English version.

11. E. W. Haugt, "Language Intelligence in Spanish-American Children," *Journal of Applied Psychology*, 1937, 22:1-10.

12. William W. Holland, "Language Intelligence in Spanish-American Children," *Journal of Applied Psychology*, 1937, 22:42-50, September, 1937.

13. L. A. Mitchell, "The Effect of Bilingualism on the Measurement of Intelligence," *Journal of Applied Psychology*, 1937, 22:29-37, September, 1937.

Keston and Jimenez, on the other hand, report opposite results from those of Mitchell, and seem rather to support the contentions of Sanchez, Haught, and Holland. They gave two forms of the Stanford-Binet Intelligence Test, one of which had been translated into Spanish, to fifty Spanish-American fourth graders in Albuquerque schools. Both tests were given by the same examiner, who spoke Spanish. The scores on the English form ranged from 58 to 121, and averaged 86.0, and the scores on the Spanish form ranged from 62 to 97, and averaged 71.8. The authors concluded that Spanish-Americans perform better in the language in which they have had formal instruction, but that they are still discriminated against on this test.^{14,15}

Carlson and Henderson, after giving the California Test of Mental Maturity to a group of Spanish-speaking students, questioned "the appropriateness of the common practice in schools of recording for predictive purposes an index of intellectual brightness for a child who is not a member of the cultural group upon which the test was standardized."¹⁶

The effect of time limits upon the test performance of Spanish-speaking children was measured by Knapp when he gave

¹⁴Morton J. Keston and Carmina Jimenez, "A Study of the Performance on English and Spanish Editions of the Stanford-Binet Intelligence Test by Spanish-American Children," Journal of Genetic Psychology, 85:263-269, December, 1954.

¹⁵It should be noted here that authorities in the Spanish language have found the native Spanish-speaking New Mexicans to have a limited ability in Spanish. It is likely that the conceptual background of bilinguals is limited in Spanish but lower in English, signifying that they learn more concepts in school than they have in their own language.

¹⁶Hilding B. Carlson and Norman Henderson, "The Intelligence

two forms of the Cattell Culture-Free Intelligence Test, one for power and the other for speed, to the same 100 Mexicans and 100 Anglos. Knapp found that putting a time limit on the test was significantly more detrimental to the Mexican scores than to the Anglo ones.¹⁷

Intelligence Testing of Indians

The scarcity of reports on intelligence testing of Indians might indicate an acknowledgment on the part of educators that such activity would be a waste of time, due to an obvious verbal problem. In 1928, Jamieson and Sandiford gave a series of intelligence tests to 700 bilingual Indians, and report the following median I.Q.'s: (a) 80 on the National Intelligence Test, Scale A, Form I; (b) 78 on the Pintner-Cunningham Primary Mental Test; (c) 97 on the Pintner Non-Language Scale; and (d) 92 on the Pintner-Patterson Performance Scale. They conclude that there was a severe language handicap in their group.¹⁸

On the other hand, Havighurst and Hilkevitch gave the Arthur Point Performance Scale to 670 Southwest Indians and conclude that they rated about the same as the Anglos, and in

of American Children of Mexican Parentage," Journal of Abnormal and Social Psychology, 45:550, July, 1950.

¹⁷Robert R. Knapp, "The Effects of Time Limits on the Intelligence Test Performance of Mexican and American Subjects," Journal of Educational Psychology, 51:14-20, February, 1960.

¹⁸E. Jamieson and P. Sandiford, "The Mental Capacity of Southern Ontario Indians," Journal of Educational Psychology, 19:313-328, May, 1928.

two forms of the Cattell Intelligence Scale, one for
power and the other for speed, in the early 1930s and 1930s.
Anglo. Many found that within a class of 100 or 150
slightly better than the average, and the difference was
slight.

Intelligence Testing of Indians

The results of reports on intelligence testing of Indians
might indicate an acknowledgment on the part of researchers that
such activity would be a waste of time, and in some cases
problem. In 1933, Jackson and Smith reported a study of
Indians from 700 different Indians, and found the following
median I.Q.'s: (a) 65 on the National Intelligence Test;
Form I; (b) 65 on the Minnesota-Composite; and (c) 65 on the
(c) 65 on the Binet Non-language Test; and (d) 65 on the
Binet-Tested Performance Test. The authors concluded that
was a severe language handicap in their group.

On the other hand, Hargreaves and Hargreaves have
shown that performance levels of 70 and over are not
conclude that they tested about the same as the Indians, and

of American Children of Indian Ancestry, Journal of American
and Social Psychology, 40:155, May, 1952.

¹⁷Robert H. Knapp, "The Effects of the Indians on the
Intelligence Test Performance of Indians and American Children,"
Journal of Educational Psychology, 41:1-2, 1949.

¹⁸E. Jackson and S. Smith, "The Intelligence of
Southern Ontario Indians," Journal of American Psychology,
19:311-328, May, 1923.

fact, that the Hopi norms were above those of the Anglo.¹⁹ Again, Havighurst and others gave the Goodenough Draw-A-Man Test to 325 Indians and got scores superior to 66 Midwestern Anglos.²⁰

Norman and Midkiff tried to find if the Raven Progressive Matrices would appear similarly culture-free, but conclude that they were inadequate as a cross-cultural instrument for evaluating intelligence.²¹ Coombs and his associates reported in 1958 that the U.S. Bureau of Indian Affairs was unable to find any intelligence tests that would have been valid, that is, which would not have discriminated against the Indian.²²

The effects of other cultural orientations besides language upon intelligence testing might be pointed to at this time. Angel observes that members of other cultures may select from the environment objects of concern which differ from those in the Anglo world or in the Anglo textbooks.²³ This point will be developed further in Chapter III. Zintz, too, lists differences in cultural orientations which may affect intelligence testing. Members of the Anglo world, for example, think in terms of the

¹⁹R. J. Havighurst and R. H. Milkevitch, "The Intelligence of Indian Children as Measured by a Performance Scale," Journal of Abnormal and Social Psychology, 39:419-32, 1944.

²⁰R. J. Havighurst, et al., "Environment and the Draw-A-Man Test," Journal of Abnormal and Social Psychology, 41:50-63, 1946.

²¹R. D. Norman and Katherine Midkiff, "Navajo Children on Raven Progressive Matrices and Goodenough Draw-A-Man Tests," Southwestern Journal of Anthropology, 11:120-136, Summer, 1955.

²²L. Madison Coombs, et al., The Indian Child Goes to School (Washington: U. S. Department of the Interior, 1958), p. 39.

²³Conversation with Dr. Frank Angel, Professor of Education, University of New Mexico.

fact, that the best results were obtained from the use of the
 Haysman and others have shown that the use of the
 Indians and not scores of other people in the
 Haysman and others have shown that the use of the
 Haysman would appear to be a very important factor in the
 they were regarded as a very important factor in the
 being intelligent. 21. Could not the same thing be said of the
 that the U.S. Bureau of Indian Affairs has been in the
 intelligence tests that would have been used, and that
 would not have demonstrated a great deal of intelligence.
 The effects of other cultural or educational factors
 gauge upon intelligence testing, and the importance of the
 Angel observes that the use of other cultural or educational
 the environment of objects of concern which will be found in the
 the Anglo world or in the Anglo world. 22. This paper will be
 developed further in Chapter III. The use of the
 in cultural orientation which will be found in the
 Members of the Anglo world, for example, in the use of the

19. J. Haysman and E. J. Haysman, "The Intelligence
 of Indian Children as Measured by a Haysman Test," *Journal
 of Abnormal and Social Psychology*, 1911-12, 1912.
 20. J. Haysman, et al., "The Intelligence of Indian
 Men Test," *Journal of Abnormal and Social Psychology*, 1912-13, 1913.
 21. E. J. Haysman and E. J. Haysman, "The Intelligence
 of Indian Children as Measured by a Haysman Test," *Journal
 of Abnormal and Social Psychology*, 1911-12, 1912.
 22. E. J. Haysman and E. J. Haysman, "The Intelligence
 of Indian Children as Measured by a Haysman Test," *Journal
 of Abnormal and Social Psychology*, 1911-12, 1912.
 (Washington: U. S. Department of the Interior, 1912).
 23. Haysman and others have shown that the use of the
 Haysman would appear to be a very important factor in the
 they were regarded as a very important factor in the
 being intelligent. 21. Could not the same thing be said of the
 that the U.S. Bureau of Indian Affairs has been in the
 intelligence tests that would have been used, and that
 would not have demonstrated a great deal of intelligence.

future, and are, therefore, said to have a "future-time orientation," while Indians and Spanish-Americans have a "present-time orientation," and are more concerned with the "here and now." Similarly, the Anglo believes that hard work will produce future success, while the Indian and the Spanish-American work only to satisfy present needs; and while the Anglo may seek to harness nature and make it work for him, the Indian will seek to achieve harmony with nature by obeying its laws.²⁴

III. STUDIES OF ACHIEVEMENT

Researchers report generally that bilinguals are low in achievement scores as well as on tests of intelligence. Singer says:

Most studies show that bilingualism exerts an unfavorable influence on school achievement in the early years of elementary school, especially in the language arts, for only when the child has become fluent in the medium of instruction used is he able to begin to catch up to his mental age peers.²⁵

Achievement Testing of Spanish-American and Other Spanish-Speaking People

Kelley, reporting in 1935 on results of the Iowa Silent Reading Test, notes that Spanish-American children were deficient

²⁴Miles V. Zintz, "Conflicts in Cultural Values," (unpublished manuscript, The College of Education, University of New Mexico, Albuquerque, 1959).

²⁵H. Singer, "Bilingualism and Elementary Education," Modern Language Journal, 40:450-451, December, 1956.

English, the one, the other, said to have a human-like quality,
while Indians and people of Indian descent are said to have
and are more human-like than the other. The one, the other,
Anglo believes that the one is more human-like than the other,
the Indian and the Anglo-American are said to have a human-like
quality, and while the one is more human-like than the other,
work for him, the Indian will work for him, and the Anglo-American
by working for him.

THE INDIAN AND THE ANGLO-AMERICAN

Anglo-American people, the one, the other, said to have a human-like
quality, and while the one is more human-like than the other,
work for him, the Indian will work for him, and the Anglo-American
by working for him.

Anglo-American people, the one, the other, said to have a human-like
quality, and while the one is more human-like than the other,
work for him, the Indian will work for him, and the Anglo-American
by working for him.

Most studies show that the Indian is more human-like than the Anglo-American,
this difference of quality, and while the one is more human-like than the other,
work for him, the Indian will work for him, and the Anglo-American
by working for him.

Anglo-American people, the one, the other, said to have a human-like quality, and while the one is more human-like than the other, work for him, the Indian will work for him, and the Anglo-American by working for him.

Anglo-American people, the one, the other, said to have a human-like
quality, and while the one is more human-like than the other,
work for him, the Indian will work for him, and the Anglo-American
by working for him.

Anglo-American people, the one, the other, said to have a human-like
quality, and while the one is more human-like than the other,
work for him, the Indian will work for him, and the Anglo-American
by working for him.

Anglo-American people, the one, the other, said to have a human-like
quality, and while the one is more human-like than the other,
work for him, the Indian will work for him, and the Anglo-American
by working for him.

Anglo-American people, the one, the other, said to have a human-like
quality, and while the one is more human-like than the other,
work for him, the Indian will work for him, and the Anglo-American
by working for him.

in all areas of reading ability, including vocabulary, when compared to Anglos, and observes that this "reveals a serious problem in educating the Spanish-speaking pupils."²⁶

Johnson concludes, after having given the Inglis Tests of English Vocabulary to pupils in Grant County, New Mexico, schools, that "Spanish-American high school pupils labor with a definite vocabulary handicap as compared with Anglo-Americans in the same schools and as compared with the norms for the Inglis Tests of English Vocabulary."²⁷

Tireman and Woods gave the Durrell-Sullivan Reading Capacity and Achievement tests to Spanish-speaking children at the Nambé School in New Mexico, and found that the Spanish-Americans could read English better than they could understand spoken English.²⁸ A few years later Tireman tested this point by giving 100 words from Stone's primary list to eighty-four second-semester fourth grade Spanish-Americans. He found that 46 per cent of the words were not understood, 15 per cent were

²⁶Victor H. Kelley, "The Reading Abilities of Spanish and English Speaking Pupils," Journal of Educational Research, 29:211, November, 1935.

²⁷Loaz W. Johnson, "A Comparison of the Vocabularies of Anglo-American and Spanish-American High School Pupils," Journal of Educational Psychology, 29:142, February, 1938.

²⁸L. S. Tireman and Velma E. Woods, "Aural and Visual Comprehension of English by Spanish-Speaking Children," Elementary School Journal, 40:204-211, November, 1939.

in all areas of reading, writing, listening, and speaking.

to Anglo, and the other that was a native speaker of

abstracting the Spanish-speaking groups.

Johnson concludes, after noting that the two

of English Vocabulary is given in the same manner.

schools, that the two groups of children who were

definite vocabulary knowledge as compared with the other

the same schools who were compared with the other

Tests of English Vocabulary.

Thurman and Johnson give the following

Capacity and Achievement tests in Spanish and English

at the same school in the same place, and found that the

Spanish could read slightly better than the English

spoken English. A few years later Johnson (1933) found

by giving 100 words from Spanish to the English

second-semester fourth grade Spanish students. The mean

46 per cent of the words were recognized, and the

26 Victor H. Kelley, "The Reading Ability of Spanish
and English Speaking Children," *Journal of Educational Psychology*,
23:211, November, 1932.

27 Louis W. Johnson, "The Reading Ability of Spanish-
Anglo-American and Spanish-American High School Pupils,"
Journal of Educational Psychology, 23:211, November, 1932.

28 L. W. Johnson and Victor H. Kelley, "The Reading
Comprehension of English by Spanish-Speaking Children,"
Elementary School Journal, 43:211-212, January, 1933.

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pronounced correctly but their meanings distorted, and 25 per cent were mispronounced.²⁹

Both Tireman and Borrego note that Spanish-Americans tend to alter English grammar and pronunciation patterns to fit their own, and that this leads them into errors of understanding as well as oral use of the language.^{30,31} (This will be brought out more fully in the following chapter.)

In 1955, Tireman again reports the Spanish-American's vocabulary problem:

One of the most fundamental problems (regarding the learning of reading skills) relates to the matter of vocabulary. In its most readily recognized aspect this appears as a lack of English words. In its more subtle aspect it refers to the inability to distinguish between shades of meaning as expressed by words.³²

Carrow compares English language ability and achievement between third grade Anglo and Spanish-American children, and finds a significant difference in favor of the Anglos in oral reading accuracy and comprehension, hearing vocabulary, and speaking vocabulary.³³

²⁹L. S. Tireman, "A Study of Fourth-Grade Reading Vocabulary of Native Spanish-Speaking Children," Elementary School Journal, 46:225, December, 1945.

³⁰Ibid., p. 226.

³¹Eva R. Borrego, "The American Child With a Two Language Heritage," The National Elementary Principal, 25:32-35, June, 1946.

³²L. S. Tireman, "The Bilingual Child and His Reading Vocabulary," Elementary English, 32:34, January, 1955.

³³Sister Mary Arthur Carrow, "Linguistic Functioning of Bilingual and Monolingual Children," Journal of Speech and Hearing Disorders, 22:371-380, September, 1957.

presented correctly but their knowledge of the word was not
adequate for its use.

Both groups and individuals were given the same
test to assess their knowledge of the words. The results
showed that the group as a whole had a better understanding
of the words than the individuals. This was true for all
the words tested.

In 1955, the results of the test were as follows:
Vocabulary problem:

One of the most important problems in learning
a new language is the problem of vocabulary. In a
foreign language, the words are new and the meanings
are different. This is why it is so difficult to
learn a new language. The first step is to learn
the words. The second step is to learn the meanings.
The third step is to learn how to use the words.
The fourth step is to learn how to understand the
words. The fifth step is to learn how to speak
the language. The sixth step is to learn how to
write the language. The seventh step is to learn
how to read the language. The eighth step is to
learn how to understand the language. The ninth
step is to learn how to use the language. The
tenth step is to learn how to speak the language.

29. L. E. Brown, "A Study of the Vocabulary of
School Children," *Journal of Educational Psychology*,
1913, Vol. 4, No. 1, pp. 1-10.

30. L. E. Brown, "A Study of the Vocabulary of
School Children," *Journal of Educational Psychology*,
1913, Vol. 4, No. 1, pp. 1-10.

31. L. E. Brown, "A Study of the Vocabulary of
School Children," *Journal of Educational Psychology*,
1913, Vol. 4, No. 1, pp. 1-10.

32. L. E. Brown, "A Study of the Vocabulary of
School Children," *Journal of Educational Psychology*,
1913, Vol. 4, No. 1, pp. 1-10.

33. L. E. Brown, "A Study of the Vocabulary of
School Children," *Journal of Educational Psychology*,
1913, Vol. 4, No. 1, pp. 1-10.

Achievement Testing of Indians

Coombs reports that, in general, Indian pupils also do not achieve as well in the basic skill subjects as do Anglos, and that the Indians performed worst of all on reading vocabulary. The study he and his associates conducted covered six U. S. Bureau of Indian Affairs areas, comprising 23,608 pupils (42 per cent of them Anglo, the rest Indian) in Federal, public, and mission schools of eleven states. The New Mexico-Colorado area Indians ranked in fifth place of the six areas in achievement. No Navajos or Hopis were included.³⁴

Peterson points out that most of the Navajo children who enroll in Federal schools are unable to understand English at all, and that among the Pueblos, many are tri-lingual, "speaking a little Spanish and a little English mixed with a large proportion of Indian dialect."³⁵

Anderson, reporting on the achievement of Indian students, found them below Anglo students in all areas in both the eighth and twelfth grades, but that the differences were not as great in the twelfth grade. High drop-out rates may explain much of the latter.³⁶

³⁴Coombs, op. cit., pp. 1-3.

³⁵Shailer Peterson, How Well Are Indian Children Educated? (Washington: Bureau of Indian Affairs, 1948), p. 10.

³⁶Kenneth E. Anderson, et al., The Educational Achievement of Indian Children (Washington: Bureau of Indian Affairs, 1953), pp. 78-79.

Goetz reports that, in general, Indian pupils are not
achieve as well in the basic skills subjects as do Anglo pupils.
The Indian percentage of all on the vocabulary test
study he and his associates conducted showed 11.1% for
of Indian Affairs Bureau, comparing 21.0% for Anglo
of this Anglo, the rest Indian in the test, reading and writing
schools of eleven states. The percentage of Indian pupils
ranked in fifth place of the states in achievement.
However, for the states where Indians
Peterson points out that most of the states where
who enroll in Federal schools are made to meet the English
at all, and that among the English, the 100-100
"speaking a little English" and a little English, and with
large proportion of Indian Affairs.
Anderson, reporting on the achievement of Indian students,
found that below Anglo students in all cases, the Indian
and twelfth grades, but that the difference was not so great
in the twelfth grade. High school test results show
the latter.

³⁴Goetz, *op. cit.*, pp. 1-3.

³⁵Esther Peterson, *How Well Are the Indian Children*
(Washington: Bureau of Indian Affairs, 1937), p. 17.

³⁶Samuel A. Anderson, *et al.*, *The Educational Situation of*
of Indian Children (Washington: Bureau of Indian Affairs, 1937),
pp. 78-79.

It appears that, in the main, these students are at a distinct disadvantage which is scarcely ever made up. Young reports that of 9,751 children in Navajo Reservation schools operated by the Indian Bureau on December 1, 1957, 6 per cent were up to grade, 40 per cent were one year educationally retarded, and 54 per cent were two or more years educationally retarded.³⁷

IV. RECOMMENDATIONS BY RESEARCHERS

The researchers discussed in this chapter have not been hesitant to indicate how the underachievement of bilinguals might be lessened. Many of their recommendations follow a similar pattern. Some of the general comments for improving bilingual underachievement follow.

Tireman calls for "a rich and satisfying" school program, especially where the experiences of the home environment are meager, and for a direct attack on vocabulary.³⁸ He makes a similar plea, when he stated in 1941:

. . . it is suggested that more attention should be given to the peculiar kinds of errors made by bilinguals in oral and written English, reading, and thinking. Their individual errors should be intensively studied

³⁷ Robert W. Young (ed.), The Navajo Yearbook (Washington: Government Printing Office, 1958), p. 9.

³⁸ Tireman, "The Bilingual Child and His Reading Vocabulary," op. cit., pp. 34-35.

in an attempt to find the causes. Once these are known, curriculum adjustments are possible.³⁹

Singer and Rowan also call for special teaching methods for bilinguals, and Mahlerbe thinks that the language of the playground should be capitalized on as a means of learning the second language.^{40,41,42}

Wallace believes that educators cause much retardation in bilinguals simply by labeling them as such when they enter school, which, she notes, is a practice contrary to modern educational concepts. She observes that much good can be accomplished with patience and with time, during which the child is given many opportunities to hear the language.⁴³

*Labeling the
bilingual as
retarded?*

Speaking specifically of the bilingual problem as it applies to the Spanish-American, Carrow says that guidance should be given in correcting and enlarging meanings of words and in acquiring mastery of new words. Two of the best means of achieving this, she indicates, are: "(1) providing a rich and stimulating background of first-hand experiences, and

³⁹L. S. Tireman, "Bilingual Children," Review of Educational Research, 11:349-350, June, 1941.

⁴⁰Singer, op. cit., p. 451.

⁴¹Bob Rowan, "The Teaching of Bilingual Children," Education, 70-423-426, March, 1950.

⁴²E. G. Mahlerbe, The Bilingual School (London: Longmans, Green and Co., 1946), p. 25.

⁴³A. Wallace, "Bilingualism and Retardation," Elementary English, 33:303-304, May, 1956.

(2) offering numerous opportunities to the children for oral language listening and expression."⁴⁴

Tireman offers perhaps the most complete program for Spanish-Americans in the schools in his book Teaching Spanish-Speaking Children. Among his recommendations are: readiness, wide experience, enlargement of vocabulary, accuracy in pronunciation, a strong phonics program, and motivation of a genuine desire to read.⁴⁵

Specific recommendations also have been made regarding the Indian student's educational retardation. Coombs and his associates quote Hildegard Thompson, chief of the Bureau of Indian Affairs' Branch of Education, as saying:

Perhaps the time is long overdue when we need to cease generalizing about such broad, and sometimes vague, concepts as "acculturation" and begin to spell out with teachers, and in turn with Indian parents and community members, the specific things which they need to do if Indian children are to stand on an equal footing with their white neighbors in their school work.⁴⁶

The authors of this report also note that the school has a "special obligation to enrich this [the Indian] pupil's language opportunities by every means at its command."⁴⁷

⁴⁴Carrow, op. cit., p. 379.

⁴⁵L. S. Tireman, Teaching Spanish-Speaking Children (Albuquerque: The University of New Mexico Press, 1948), pp. 91-132.

⁴⁶Coombs, op. cit., p. ix.

⁴⁷Ibid., p. 152.

(3) offering numerous opportunities to the children to read
language listening and speaking.

It is an effort to make the most complete use of the

Spoken-English in the classroom in the first few years of the

Spoken-English. Among the various methods used in the

wide experience, emphasis is placed on the use of the

classroom, a strong phonetic program, and the use of a

device to read.

Specific recommendations have been made regarding

the English teacher's educational background, training and the

educational goals of the program, and the use of the

Indian teacher, training of the teacher, and the use of the

Parents are urged to take an active part in the program to
secure generally in the home the same kind of atmosphere
concepts as those in the classroom. It is suggested that the
teachers, and in some cases the parents, should be encouraged
to use the spoken-English in the home. It is suggested that
Indian children are to be encouraged to use the spoken-English
with their white neighbors in their school work.

The authors of this report also note that the school has a

"special obligation to provide for the Indian child in the

language opportunities by every means at its command."

⁴⁴ O'Leary, op. cit., p. 27.

⁴⁵ L. S. Stearns, Spoken-English in the Classroom (Albuquerque: The University of New Mexico Press, 1945),
pp. 91-132.

⁴⁶ Condon, op. cit., p. 11.

⁴⁷ Ibid., p. 11.

Peterson declares:

Experiences and skills that are taken for granted by the teachers of white children in the kindergarten or first grade cannot be taken for granted by the teachers of Indian children.⁴⁸

Anderson concludes that:

. . . as the cultural and educational backgrounds of Indian children become more like those of white children in the public schools, the more closely will the educational achievement of Indian children match that of white children.⁴⁹

V. A NEW APPROACH

As was previously noted in this chapter, no work directly similar to this study on multiple meanings of words was available for examination, but a few other researches into like areas can be mentioned. Analyzing children's ability with facets of the language represented a new approach. In 1959, Yandell made the first such exploration when she compared the ability of bilinguals to understand English idioms with that of Anglos. The latter did significantly better on her test.⁵⁰ Dudding also found the sixth grade bilinguals significantly below fourth grade Anglos in the delineation of antonyms, and Mercer offers similar findings in understanding simple analogies.⁵²

⁴⁸Peterson, loc. cit.

⁴⁹Anderson, op. cit., pp. 49-79.

⁵⁰Maurine Dunn Yandell, "Some Difficulties Which Indian Children Encounter with Idioms in Reading" (unpublished Master's thesis, University of New Mexico, Albuquerque, 1959).

⁵¹Christine Dudding, "An Investigation into the Bilingual Child's Comprehension of Antonyms," (unpublished Master's thesis, University of New Mexico, Albuquerque, 1961).

⁵²Veta W. Mercer, "The Efficiency of Bilingual Children in Understanding Analogies in the English Language" (unpublished Master's thesis, University of New Mexico, Albuquerque, 1960).

CHAPTER III

THE INTERDEPENDENCE OF LANGUAGE AND CULTURE

Few educators today would deny the importance of moving from the concrete to the abstract in teaching. The first-grade reading teacher bounces a ball around, or shows a picture of it, before proceeding to the word itself. Generally, the child's initial basic vocabulary is developed within a framework that he is familiar with. The family background is a typical pattern. The important thing is that the child understands the concept of a word before he sees the word itself. No conscientious teacher would seriously consider doing otherwise.

Yet the same teacher, faced with a student of foreign language and culture in his classroom, often seems to forget what is common practice for the rest of his students.

The language handicap can be recognized by the teacher. What is not so easily recognized is the concomitant cultural handicap. Commonly, the teacher thinks of the cultural handicap of the Navajo, for example, in terms of a narrow life-space--desert lands, hogans, simple existence, medicine men, and so on. He may even be aware of differences in attitude orientation toward such concepts as time, work, science, and competition.

Typically, then, the teacher may look upon the education of the Navajo as a sort of "starting from scratch." The teacher may think:

I will broaden his life space, make him aware of new things in the world. Most of the words I teach him will be new concepts; therefore, he will not have to go through the process of translating into his old language to get the idea. His attitudes will change as he gets to playing with the children on the playground.

Most of this is true, and quite good, but from one standpoint it is quite impossible. Brought into focus, this notion of the teacher clearly appears to be an attempt to remold completely the Navajo child without respect to his previous language and culture.

If such a thing were possible, the problem would dissolve in little time. But how can one erase six or more formative years of experiences--years when every phenomenon which the child's senses can recognize is collated, organized, given meaning to, and processed into the symbols called language?

Fries notes:

Our language is an essential part of every portion of our experience; it gets all its meaning from our experience, and it is in turn our tool to grasp and realize experience. Every language is thus inextricably bound up with the whole life experience of the native users of that language. The linguistic forms of my language "mean" the situations in which I use them. For me to be thoroughly understood, therefore, the hearer must in some way grasp completely the "situations" as they stimulate my utterances.¹

Holier points out that language is far more than a technique of communication. It is, he says:

¹ Charles C. Fries, Teaching and Learning English As A Foreign Language (Ann Arbor: University of Michigan Press, 1952), p. 57.

. . . a way of directing the perceptions of its speakers and it provides for them habitual [italics not in original] modes of analyzing experience into significant categories. And to the extent that languages differ markedly from each other, so should we expect to find significant and formidable barriers to cross-cultural communication and understanding.²

And Davies observes:

Everyone must have his own orientation to life, and language provides the most natural means of reacting to life. In the deepest things of the heart, a man or a woman turns naturally to the mother tongue.³

It becomes evident from these remarks that whatever is done for the bilingual child in the Anglo school must be done with the child's first language in mind, since he relates all new experience, via language, to his past experience. Furthermore, one cannot expect that the child will be able to translate English into his own first language and thereby get a clear-cut understanding of the English. These two points will be elaborated shortly.

✓ It is well known that the senses perceive many things which are ignored or not reacted to. It may not be so well known that many things which are ignored in the Anglo culture are not ignored in ~~other~~ cultures. Equally important, people of other cultures are apt to react differently to what seem to be ~~the~~ same external stimuli. Lee observes how closely personal

²Harry Hoijer, "The Sapir-Whorf Hypothesis," Language in Culture, Vol. 56, No. 6, Part 2, Memoirs No. 77-79 (Chicago: University of Chicago Press, The American Anthropological Association, December, 1954), p. 94.

³R. E. Davies, Bilingualism In Wales (Cape Town: Juta and Co., Ltd., 1954), p. 14.

background is related to an interpretation of the "real" world:

The breaking of the soil in the agricultural process may be an act of violence . . . of mastery . . . or it may be an act of tender fostering . . . of helping the land to bring forth in its due time; it may be an act of worship. . . .⁴

There are many ways of perceiving behavior, she says, exemplifying:

When I throw a ball, do I perform an aggressive causal act, as my culture predisposes me to believe? Or does the ball leave my hand, as the Greenland Eskimo puts it, or do I merely actualize the ball's potential to move, as the Navaho would have it?⁵

Summing up, Lee writes:

My own culture, with its laws of logic, its principles of cognition, its rigidly defined limits of validation, offers me a strongly bounded and precategorized view of reality.⁶

According to Kluckhohn and Leighton:

Every language is also a means of categorizing experience. . . . What people think and feel, and how they report what they think and feel, is determined, to be sure, by their individual physiological state, by their personal history, and by what actually happens in the outside world. But it is also determined by a factor which is often overlooked; namely, the pattern of linguistic habits which people have acquired as members of a particular society. The events of the "real" world are never felt or reported as a machine would do it. There is a selection process and an interpretation in the very act of response. Some features of the external situation are highlighted; others are ignored or not fully discriminated. . . . The language says, as it were,

⁴Dorothy Lee, Freedom and Culture (Englewood Cliffs: Prentice-Hall, Inc., 1959), pp. 1-2.

⁵Ibid., p. 2.

⁶Ibid.

"Notice this," "Always consider this separate from that," "Such and such things belong together." Since persons are trained from infancy to respond in these ways they take such discrimination for granted. . . . But when we see two peoples with different social traditions respond in different ways to what appear to the outsider to be identical stimulus-situations, we realize that experience is much less a "given," an absolute, than we thought. Every language has an effect upon what the people who use it see, what they feel, how they think, what they can talk about.⁷

The authors conclude that "in the last analysis most linguistic differentiations, like other sorts of cultural selectivity, rest upon the historical experience of the people."⁸

Sapir says that "meanings are not so much discovered in experience as imposed upon it, because of the tyrannical hold that linguistic form has upon our environment in the world."⁹

Voegelin and others note that even nouns are more than mere labels for things, since things are perceived differently according to the culture. For example, Anglo culture sees the constellation Ursa Major as a dipper. Voegelin writes:

We question whether all references in all cultures are to four plus three stars. The Chukchee see six plus one stars, with the last called a "double star"

⁷ Clyde Kluckhohn and Dorothea Leighton, The Navajo (Cambridge: Harvard University Press, 1956), p. 197.

⁸ Ibid., p. 203.

⁹ Edward Sapir, "Conceptual Categories in Primitive Language," Science, 74:578, 1931.

(which is plainly true to those with good eyesight; actually there are at least four stars there); moreover, they see two figures, the six equals "men hunting," and the double star equals "fox chewing on antlers."¹⁰

Boas makes a telling point regarding the relationship of language to culture. In speaking of the relationships between people in our culture, he notes, that they are based upon the principles of generation, sex, direct descent or side line. Hence, an uncle is a person of the first ascendant generation male, side line. But, he says:

Among other people the principles may be quite different. For instance, the difference between direct and side line may be disregarded, while the terms may differ according to the sex of the speaker. Thus a male calls his mother and all females of the first ascendant generation by one term, and also his sons and nephews by a single term. The concept and emotional significance of our term mother cannot persist in such a terminology. The adjustment to the new concepts that make impossible the customary automatic reaction to the terms of relationship will also be exceedingly difficult.¹¹

What becomes apparent from this discussion is that the child who has been reared in one language and culture, as in the cases of the Indian and Spanish-American of New Mexico, cannot be expected to discard his cultural experience and its definition of the world he lives in, as well as his behavior, as he takes on the Anglo language and culture. The school does not ask the

¹⁰C. F. Voegelin, et al., "Shawnee Laws: Perceptual Statements for the Language and for the Content," Language in Culture, Vol. 56, No. 6, Part 2, Memoirs 77-79 (Chicago: University of Chicago Press, The American Anthropological Association, December, 1954), p. 33.

¹¹Franz Boas, Anthropology and Modern Life (New York: W. W. Norton & Co., Inc., 1932), p. 151.

bilingual to study about American culture; it expects him to internalize it, thus reconstructing the whole gamut of his personality. But in the early years, and for as long as his culture has a strong hold on him, the bilingual will perceive new concepts in the light of his first culture. And this may last for a lifetime or for several generations.

Keeping all this in mind, we turn then to the comprehension of words with more than one meaning, or, to put it another way, to the different meanings which may be expressed by one word. This is not easy to determine, since we are constantly changing the language in ways that add new meanings to words, or change or drop old ones. Hayakawa declares that "one of the premises upon which modern linguistic thought is based . . . [is] that no word ever has exactly the same meaning twice."¹²

Though Hayakawa makes a good theoretical case for this, and, scientifically speaking, is right, the users and teachers of English must take a more practical point of view. Even so, the problems are manifold. Fries reports, "The total number of different meanings recorded and illustrated in the Oxford English Dictionary for the first five hundred words of the Thorndike Word List is 14,070; and for the first thousand it is nearly 25,000."¹³

¹²S. I. Hayakawa, Language In Action (New York: Harcourt, Brace and Company, 1941), p. 65.

¹³Fries, op. cit., p. 41.

with a view to study about the subject; at the same time to
 illustrate it, thus demonstrating the whole nature of the
 economy. But in the early years, and for as long as the
 had a strong hold on him, the Bible had with it a new
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 time or for several generations.
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1394th, 1395th, 1396th, 1397th, 1398th, 1399th, 1400th, 1401st, 1402nd, 1403rd, 1404th, 1405th, 1406th, 1407th, 1408th, 1409th, 1410th, 1411st, 1412th, 1413th, 1414th, 1415th, 1416th, 1417th, 1418th, 1419th, 1420th, 1421st, 1422nd, 1423rd, 1424th, 1425th, 1426th, 1427th, 1428th, 1429th, 1430th, 1431st, 1432nd, 1433rd, 1434th, 1435th, 1436th, 1437th, 1438th, 1439th, 1440th, 1441st, 1442nd, 1443rd, 1444th, 1445th, 1446th, 1447th, 1448th, 1449th, 1450th, 1451st, 1452nd, 1453rd, 1454th, 1455th, 1456th, 1457th, 1458th, 1459th, 1460th, 1461st, 1462nd, 1463rd, 1464th, 1465th, 1466th, 1467th, 1468th, 1469th, 1470th, 1471st, 1472nd, 1473rd, 1474th, 1475th, 1476th, 1477th, 1478th, 1479th, 1480th, 1481st, 1482nd, 1483rd, 1484th, 1485th, 1486th, 1487th, 1488th, 1489th, 1490th, 1491st, 1492nd, 1493rd, 1494th, 1495th, 1496th, 1497th, 1498th, 1499th, 1500th, 1501st, 1502nd, 1503rd, 1504th, 1505th, 1506th, 1507th, 1508th, 1509th, 1510th, 1511st, 1512th, 1513th, 1514th, 1515th, 1516th, 1517th, 1518th, 1519th, 1520th, 1521st, 1522nd, 1523rd, 1524th, 1525th, 1526th, 1527th, 1528th, 1529th, 1530th, 1531st, 1532nd, 1533rd, 1534th, 1535th, 1536th, 1537th, 1538th, 1539th, 1540th, 1541st, 1542nd, 1543rd, 1544th, 1545th, 1546th, 1547th, 1548th, 1549th, 1550th, 1551st, 1552nd, 1553rd, 1554th, 1555th, 1556th, 1557th, 1558th, 1559th, 1560th, 1561st, 1562nd, 1563rd, 1564th, 1565th, 1566th, 1567th, 1568th, 1569th, 1570th, 1571st, 1572nd, 1573rd, 1574th, 1575th, 1576th, 1577th, 1578th, 1579th, 1580th, 1581st, 1582nd, 1583rd, 1584th, 1585th, 1586th, 1587th, 1588th, 1589th, 1590th, 1591st, 1592nd, 1593rd, 1594th, 1595th, 1596th, 1597th, 1598th, 1599th, 1600th, 1601st, 1602nd, 1603rd, 1604th, 1605th, 1606th, 1607th, 1608th, 1609th, 1610th, 1611st, 1612th, 1613th, 1614th, 1615th, 1616th, 1617th, 1618th, 1619th, 1620th, 1621st, 1622nd, 1623rd, 1624th, 1625th, 1626th, 1627th, 1628th, 1629th, 1630th, 1631st, 1632nd, 1633rd, 1634th, 1635th, 1636th, 1637th, 1638th, 1639th, 1640th, 1641st, 1642nd, 1643rd, 1644th, 1645th, 1646th, 1647th, 1648th, 1649th, 1650th, 1651st, 1652nd, 1653rd, 1654th, 1655th, 1656th, 1657th, 1658th, 1659th, 1660th, 1661st, 1662nd, 1663rd, 1664th, 1665th, 1666th, 1667th, 1668th, 1669th, 1670th, 1671st, 1672nd, 1673rd, 1674th, 1675th, 1676th, 1677th, 1678th, 1679th, 1680th, 1681st, 1682nd, 1683rd, 1684th, 1685th, 1686th, 1687th, 1688th, 1689th, 1690th, 1691st, 1692nd, 1693rd, 1694th, 1695th, 1696th, 1697th, 1698th, 1699th, 1700th, 1701st, 1702nd, 1703rd, 1704th, 1705th, 1706th, 1707th, 1708th, 1709th, 1710th, 1711st, 1712th, 1713th, 1714th, 1715th, 1716th, 1717th, 1718th, 1719th, 1720th, 1721st, 1722nd, 1723rd, 1724th, 1725th, 1726th, 1727th, 1728th, 1729th, 1730th, 1731st, 1732nd, 1733rd, 1734th, 1735th, 1736th, 1737th, 1738th, 1739th, 1740th, 1741st, 1742nd, 1743rd, 1744th, 1745th, 1746th, 1747th, 1748th, 1749th, 1750th, 1751st, 1752nd, 1753rd, 1754th, 1755th, 1756th, 1757th, 1758th, 1759th, 1760th, 1761st, 1762nd, 1763rd, 1764th, 1765th, 1766th, 1767th, 1768th, 1769th, 1770th, 1771st, 1772nd, 1773rd, 1774th, 1775th, 1776th, 1777th, 1778th, 1779th, 1780th, 1781st, 1782nd, 1783rd, 1784th, 1785th, 1786th, 1787th, 1788th, 1789th, 1790th, 1791st, 1792nd, 1793rd, 1794th, 1795th, 1796th, 1797th, 1798th, 1799th, 1800th, 1801st, 1802nd, 1803rd, 1804th, 1805th, 1806th, 1807th, 1808th, 1809th, 1810th, 1811st, 1812th, 1813th, 1814th, 1815th, 1816th, 1817th, 1818th, 1819th, 1820th, 1821st, 1822nd, 1823rd, 1824th, 1825th, 1826th, 1827th, 1828th, 1829th, 1830th, 1831st, 1832nd, 1833rd, 1834th, 1835th, 1836th, 1837th, 1838th, 1839th, 1840th, 1841st, 1842nd, 1843rd, 1844th, 1845th, 1846th, 1847th, 1848th, 1849th, 1850th, 1851st, 1852nd, 1853rd, 1854th, 1855th, 1856th, 1857th, 1858th, 1859th, 1860th, 1861st, 1862nd, 1863rd, 1864th, 1865th, 1866th, 1867th, 1868th, 1869th, 1870th, 1871st, 1872nd, 1873rd, 1874th, 1875th, 1876th, 1877th, 1878th, 1879th, 1880th, 1881st, 1882nd

But these are only dictionary meanings. Fries lists three other levels of meaning as well: the syntactical (how words are placed in position), the morphological (forms of words), and the meanings imparted by the pitch contours with which words are spoken.¹⁴ If a child has trouble at the first level, one can only guess, and shudder, at the troubles involved at the other three levels.

Bound up in the problem of meaning is that of sounds. No two languages use the same set of sounds, Fries says.¹⁵ He exemplifies:

In Spanish there are only five vowel differences that are distinctive; in English there are eleven. In Spanish there are only 19 consonant differences that are distinctive; in English there are twenty-four. For the Spanish speaker who wishes to learn English there are, then, at least a dozen sounds not in his pattern which he must learn to discriminate when he hears English and to produce when he speaks it.¹⁶

The problem is much greater for the Navajo. Young notes that the English phonemes represented by the letters f, v, gl, d, g, p, and ng have no corresponding sounds in Navajo. Navajo vowels, in addition, may be long or short in duration, oral or nasoral, and high or low in voice pitch, and the purpose of these features is to change the meanings of words.¹⁷

¹⁴Ibid., p. 38.

¹⁵Ibid., p. 15.

¹⁶Ibid.

¹⁷Robert W. Young (ed.), The Navajo Yearbook (Washington: Government Printing Office, 1958), pp. 209, 202.

Recalling how cultural learning binds us to discriminate in certain ways, it becomes easy to see how difficult it is to change these patterns when we learn a new language, and why Mahlerbe says that complete bilingualism is all but nonexistent.¹⁸ Fries puts it:

If a sound feature is used in my native language to distinguish meanings, then it is easy for me to hear that feature when it is used in a foreign language. But if in my language a difference between two sounds is never used to distinguish meanings, it is difficult for me to hear that difference in another language when it is thus used.¹⁹

It must be this difficulty of learning the new sounds that leads the Spanish to say in English what sounds like "raid" when he means "red." The short "e" sound is not a distinctive one in Spanish, hence it is hard to learn to produce. This sort of thing inevitably leads to what we call the "foreign accent."

This might be more easily understood from the English point of view. The "ng" in "king" and "sung" is used frequently at the ends of words in English, but never at the beginning. Therefore, as Fries points out, we might have a difficult time using this sound at the beginning of a word, and might, in fact, have a tendency to change the sound.²⁰ Similarly, the Spanish use "st" and "sp," but never initially in words. Hence they tend to say

¹⁸ E. G. Mahlerbe, The Bilingual School (London: Longmans, Green and Co., 1946), pp. 17-29.

¹⁹ Fries, op. cit., p. 16.

²⁰ Ibid., p. 26.

Localizing the cultural factor is not to be done

in certain ways, it is necessary to be able to

change these patterns when we learn a new language, and

Nagler says that comparative analysis is not a

French page 11:

If a sound feature is not to be active, it must be
distinguished from it, that is, it must be shown
first before what it is not, a foreign language.
But if in my language a feature is active, it must
never need to distinguish it from it, it is active
as to that feature, it must be shown that it is
in this way.

It must be this distinction of features that is made

inside the Spanish to say the truth, and now it is

as we say "red." The point is that it is not a

in Spanish, because it is not to be shown. The point

of being the study is to show that it is not

This might be very easily shown by the

of view. The way in which we learn to handle

ends of words in English, but never in the beginning.

as French points out, we do not have a similar

sound at the beginning of a word, and that is

tendency to change the sound. So, it is

and "as" but never "initially" or "final" or "end" or

12
J. C. Marshall, The English Language, London: Longman,
Green and Co., 1940, pp. 17-21.

13
Ibid., pp. 17-21.

20
Ibid., p. 20.

"estudy" instead of "study," and "espend" instead of "spend."

English also distinguishes between the "s" and "z" sounds as the only contrasting item to different meanings of words such as "race" and "raze," "rice" and "rize," "peace" and peas," "lacy" and "lazy." The Spanish never uses this contrast.

It is little wonder that Tireman pleads, "The non-English speaking child lives in a strange world where many words are vague, indistinct, foggy, cloudy, and obscure. Is it any wonder that he is frustrated and emotionally disturbed?"²¹ Tireman reports observing these examples of word distortion by Spanish-Americans:

blot--where blood comes from (elot)
spool--a place where there is water (pool)
won--the Indians have a wigwon
task--They cut the tasks of the elephant.²²

Tireman also writes:

The tragedy of the situation is that for every misconception we note there are dozens, and probably hundreds, that occur to confuse the reader and we are unaware of them.²³

Borrego has observed that children of Spanish-speaking background alter English grammar to fit their own, for example, putting an adjective immediately after a noun, which is common in Spanish but uncommon in English, instead of in front of it.

²¹L. S. Tireman, "The Bilingual Child and His Reading Vocabulary," Elementary English, 32:34, January, 1955.

²²Ibid.

²³Ibid.

These children also make literal translations of idioms, she says, hence, "I touch the piano," (toco el piano), for "I play the piano."²⁴

Tireman also reports that Nambé children, once they get a minimum English vocabulary, begin to "talk around" a new situation, "as did a Nambé child who, while watching the felling of a tree, said, 'They throw the tree down.'"²⁵

One can only wonder what goes on in the Spanish-American child's mind when he tries to translate English "table" into the Spanish "mesa." As Fries points out, "mesa" is not used to express such ideas as "table of figures," or "time table," nor is the English "table" used, as "mesa" is, to describe "the landing of a staircase," or an "executive board."²⁶

Holjer observes a similar problem in translating from English to Navajo, or vice versa. For example, "his horse" and "his horses" are difficult to say in Navajo because (1) the Navajo has no plural nouns, (2) the Navajo language lacks the English distinction between his, her, its, and their, and (3) Navajo makes a distinction between a third person who is psychologically close (such as a Navajo's horse) and a third person who is psychologically remote (as a non-Navajo's horse).

²⁴Eva R. Borrego, "The American Child With a Two Language Heritage," The National Elementary Principal, 25:34, June, 1946.

²⁵L. S. Tireman and Velma E. Woods, "Aural and Visual Comprehension of English by Spanish-Speaking Children," Elementary School Journal, 40:209, November, 1939.

²⁶Fries, op. cit., p. 40.

These children also have literary knowledge of English, and have
hence, "I found the picture," (from a picture), "I saw the picture."
The woman also reports that these children, when they see a
picture of English vocabulary, they can find a word, and then say
"as this is English, this is English, and this is English, and this
is English." They know the words, and they know the meaning of the words.
One can only wonder what goes on in the child's mind when he
child's mind when he sees a picture of English vocabulary, and
the Spanish word, "Spanish word," and he can find the word in
English such as "table of English," or "table of English," or
is the English "table" word, and he can find the word in
English of a Spanish, or an English word.
The child's answer is that he is in English, and he is in
English to Navajo, or vice versa, for example, "this word is
"this word" are difficult to say in English, (1) the
Navajo has no plural form, (2) the Navajo has no plural form, (3)
English distinction between the, that, and which, and
(3) Navajo makes a distinction between a word and a thing, and
psychologically close (such as a thing, a word, and a thing)
person who is psychologically remote (such as a word, a word, and a word).

24. W. A. Rorer, "The Navajo Language," *The National Geographic Magazine*, Vol. 4, No. 1, 1905, p. 100.
25. W. A. Rorer and V. A. Rorer, "The Navajo Language," *The National Geographic Magazine*, Vol. 4, No. 1, 1905, p. 100.
26. W. A. Rorer, "The Navajo Language," *The National Geographic Magazine*, Vol. 4, No. 1, 1905, p. 100.
27. W. A. Rorer, "The Navajo Language," *The National Geographic Magazine*, Vol. 4, No. 1, 1905, p. 100.

He gives another good example: Navajo has two words for the English word "black," but only one for both "blue" and "green."²⁷

Kluckhohn and Leighton say that what makes English so hard for the Navajo is that he feels, quite correctly, that there is so much idiom.²⁸

Bilingual children find that reading and hearing English words involve different kinds of problems. The word a bilingual sees in print may not seem like the one he hears, hence he sees no association between the two, not only in sound but in meaning as well. This may lead to a phenomenon which Tireman calls the "false homonym," and which he describes as "a response in which, by mispronouncing either the word being tested or some other word, the child achieved a similarity of sounds."²⁹

An example of a false homonym occurs when a Spanish-American pronounces "hit" so that the "i" sounds like "long e" (as it always does in Spanish), and comes up with "heat," and then uses the word in a sentence which involves "heat of the stove."

²⁷ Hoijer, op. cit., pp. 95-96.

²⁸ Kluckhohn and Leighton, op. cit., p. 208.

²⁹ L. S. Tireman, "A Study of Fourth-Grade Reading Vocabulary of Native Spanish-Speaking Children," Elementary School Journal, 46:223, 226, December, 1945.

If this same child took the Multiple Meanings test, Form I,³⁰ in which he was asked to pick out the sentence where "hit" was used incorrectly, he might feel that "He hit the ball with a bat," was as wrong as "There was a hit in the jar."

On the other hand, it must be remembered, as Fries points out, that a child or anyone learning a language will make such mistakes as "He knowed it," "They swimmied fast," or "three mans."³¹ If a child thought, then, that the sentence meant "He heated the ball with a bat," he would be scientifically accurate in assuming that this was a true statement. It might seem like a strange way of saying that kinetic energy has been transformed into heat energy, but English is all rather strange to this child anyway.

What is more likely in this case, however, is that the child might recall his mother canning peaches, and think, "There was a heat in those jars."

³⁰ See Appendix for copy of this test.

³¹ Fries, op. cit., p. 28.

It is also said that the child was found in the

1, 30 in which he was found to have been a child, and that

was used in connection with the child, and that the child

was a child, and that the child was found in the

On the other hand, it is also said that the child

was found in the child, and that the child was found in the

was found in the child, and that the child was found in the

"This is said to be a child, and that the child was found in the

means "he found the child with a child, and that the child was found in the

accusation in connection with the child, and that the child was found in the

seem like a strange way of saying that the child was found in the

transformed into a child, and that the child was found in the

to this child anyway.

What is more likely in this case, however, is that the

child might recall the child, and that the child was found in the

was a child in those days.

30 The Appendix for copy of the report.

31 Brian, op. cit., p. 30.

COLLON COURTNEY

CHAPTER IV

PROCEDURES OF THE STUDY

The initial step in this research was to formulate a pair of multiple meanings tests which could be used to test how well bilingual Indians and Spanish-Americans compared with Anglos in the understanding of the different meanings of English words. These tests were then given to an Anglo control, or norming, group, and then to a selected experimental, or test, group. In this chapter will be discussed the methods and materials used in constructing the tests, the procedures used in the giving of the tests, descriptions of the norming and experimental groups, and techniques of analysis.

I. THE MULTIPLE MEANINGS TEST

To insure that words used in this study would not be too difficult for the test and norming subjects, the author selected items from standard reading texts¹ of fourth grade level and below, then ascertained the several meanings as

¹ Mabel O'Donnell, The New If I Were Going (Evanston, Illinois: Row, Peterson and Company, 1952); Arthur I. Gates and Jean Ayer, Let's Look Around (New York: The Macmillan Company, 1948); William S. Gray and May Hill Arbuthnot, Times and Places (Chicago: Scott, Foresman and Company, 1942); Gertrude Hildreth, et al., Today and Tomorrow (Philadelphia: The John C. Winston Company, 1953); David H. Russell, et al., Roads to Everywhere (Boston: Ginn and Company, 1953).

given in a beginning elementary dictionary.²

Since the ultimate purpose of the test was to compare the abilities of the bilinguals with those of the Anglos, it was not felt necessary to make a more thorough validation than this. Additional validity of a subjective nature was provided, however, first by giving the tests to a sixth-grade class, then, after some editing, to two fourth-grade classes, where overall accuracies of 87 per cent on Form I and 66 per cent on Form II were obtained. It was assumed that these percentages showed the tests to be well within the range of expected performance by fourth graders.

The final tests, called Form I and Form II, each had thirty multiple meaning items. Each item was composed of four sentences, and each sentence contained, underlined, the word for which understanding of multiple meanings was being sought. (See Appendix for copies of each of the forms.) In three of the sentences, the word was used correctly, but in one it was used incorrectly. The task of the pupil was to indicate in which sentence the word was used incorrectly.

It was recognized at the outset that certain types of wrong word usages could throw the pupil off. In some wrong sentences, for example, the word in question might rhyme with

² E. L. Thorndike and Clarence L. Barnhart, Beginning Dictionary (Chicago: Scott, Foresman and Company, 1952),

given in a beginning elementary dictionary.

Since the ultimate purpose of the test was to compare the abilities of the bilingual with those of the monolingual, it was not felt necessary to make a more thorough validation than this. Additional validity of a representative sample was provided, however, since it giving the test to a sixth-grade class, then, after some editing, to two fourth-grade classes, whose overall accuracies of 87 per cent on form I and 86 per cent on form II were obtained. It was assumed that these percentages showed the tests to be well within the range of expected performance by fourth graders.

The final tests, called form I and form II, each had thirty multiple-choice items. Each item was composed of four sentences, and each sentence contained, underlined, the word for which understanding of multiple meanings was being sought. (See Appendix for copies of each of the forms.) In form I the sentences, the word was used correctly, but in one it was used incorrectly. The task of the pupil was to indicate in which sentence the word was used incorrectly.

It was recognized at the outset that certain types of wrong word usage could throw the pupil off. In some wrong sentences, for example, the word in question might figure with

the incorrect pronunciation of another word which would make the sentence correct. It would be presumptuous to say that all of this type sentence had been identified, but it appeared that there were eighteen, and an equal number of items containing this phenomenon were put in each form. The same was done for two items where a change in verb form would have made the incorrect sentence sound right. In the rest of the items, as nearly as it was possible to tell, the sentence with the incorrect usage was nonsensical.

Directions at the top of the test requested the student to "put an 'X' over the letter of the sentence in which the underlined word is not used correctly." It was pointed out that there was only one incorrect sentence in each problem. Three examples were given at the top of each form. Teachers were asked to go over the directions and the examples with the students before giving the tests.

There were spaces at the top of each test for students to put such pertinent information as name, grade, sex, ethnic group, school, city, teacher, date of birth, language spoken in the home, and date of testing.

II. THE SAMPLE

The experimental group selected for testing consisted of 657 students in the fourth and sixth grades of schools participating in the Indian Research Study being conducted at the time by the College of Education of the University of New Mexico. These schools, all in New Mexico, were Thoreau, Cuba, Moriarty,

the incorrect presentation of material which would make the
content correct. It is to be pointed out that the type
type material had been furnished, but it appeared that the
eighteen, and an equal number of items on each side of the
were put in each group. The same was done for the first
change in with four words, and the second change in with
right. In the rest of the list, an equal number of items
to fill the sentence with the incorrect material was furnished.
Directions at the top of the test material were furnished
to "put an 'X' over the letter of the sentence in which the
found word is not used correctly." It was pointed out that there
was only one incorrect sentence in the group. These sentences
were given at the top of each page. The same was done for the
the directions and the material with the group of sentences at the
the bottom.

There were placed at the top of each page of the test material
to put each sentence in the position of the word, and the
group, school, etc., and the word of the group, school, etc.,
the same, and date of testing.

The experimental group selected for testing consisted of
652 students in the fourth and fifth grades of the primary
grades in the 12 schools of the city, and consisted of a total
by the College of Education of the University of California.
These schools, all in the city, were: Lincoln, Grant, Franklin,
Washington, and the others.

Santo Domingo, Jemez Springs, Encino, Estancia, Vaughn, Dulce, and Mescalero.

The composition of this group by grade and ethnic group is as follows: 30 fourth grade Navajos, 26 sixth grade Navajos, 39 fourth grade Apaches, 52 sixth grade Apaches, 97 fourth grade Pueblos, 71 sixth grade Pueblos, 78 fourth grade Spanish-Americans, 92 sixth grade Spanish-Americans, 79 fourth grade Anglos, and 93 sixth grade Anglos. This information, along with a division by school, is shown in Table I.

TABLE I
ETHNIC GROUP DISTRIBUTION BY SCHOOLS

School	Navajo 4th	Navajo 6th	Apache 4th	Apache 6th	Pueblo 4th	Pueblo 6th	Span. Am.4	Span. Am.6	Anglo 4th	Anglo 6th	Total
Cuba	5	6					6	2	10	5	34
Dulce	5	2	16	41			2	9	3	1	79
Encino							12	8	5	1	26
Estancia							7	10	20	28	65
Jemez Springs					10	7	18	10	4	4	53
Moriarty							6	12	19	20	57
Santo Domingo					87	64		2		1	154
Thoreau	20	18							11	18	67
Vaughn							25	32	6	9	72
Mesca- lero			23	11			2	7	1	6	50
Totals	30	26	39	52	97	71	78	92	79	93	657

III. THE CONTROL GROUP

A control group of 95 fourth grade Anglo students in the Albuquerque Public Schools was used to establish norms for comparison with the test groups. Both forms of the test were given by the teachers of these children, then returned to the investigator for grading.

This control group was selected for what was believed to be its typical, perhaps slightly above average, middle-class Anglo, socio-economic, and academic performance characteristics. All the children spoke English as their first language. The size of the group would seem to guarantee the normal expectations with regard to intelligence.

IV. ADMINISTRATION OF THE TEST

Initial contact and arrangements for testing the experimental groups were made through the office of Dr. Miles V. Zintz, director of the Indian Research Study. A few days prior to the test date, the tests were mailed to the respective teachers who would be giving the tests. Accompanying the tests were instructions to aid the teachers in getting the appropriate information at the top of each test form and for giving the test itself.

The tests were not timed, but it was suggested that probably thirty minutes would be sufficient time for each form, and that a brief rest period should be given between the two forms. The tests were returned to the investigator for grading.

V. TECHNIQUES OF ANALYSIS

The reliability of the multiple meanings test was determined by finding a coefficient of correlation between the two forms of the test. The product-moment method, which gives what is known as the Pearson r , and which is based upon the deviations from the means of each series, was used to make this determination. The difference formula was used.

The scores made by the various test groups were compared from two points of view: (1) their central tendencies in terms of medians, quartiles, and means; and (2) their variability in terms of range and standard deviation. The significance of the differences between the means of the several groups was established by finding critical ratios, an interpretation of the difference between the means found by dividing this difference by the standard error of the difference between the means.

THE RELIABILITY OF THE MULTIPLE CHOICE TEST

The reliability of the multiple choice test is a function of the number of choices, the proportion of correct choices, and the proportion of incorrect choices. The present study was designed to determine the effect of these factors on the reliability of the multiple choice test. The results of the study are presented in Table I. The table shows that the reliability of the multiple choice test is a function of the number of choices, the proportion of correct choices, and the proportion of incorrect choices. The reliability of the multiple choice test is highest when the number of choices is large, the proportion of correct choices is high, and the proportion of incorrect choices is low. The reliability of the multiple choice test is lowest when the number of choices is small, the proportion of correct choices is low, and the proportion of incorrect choices is high.

CHAPTER V

ANALYSIS OF THE DATA

This chapter includes raw results of the multiple meanings test for both the norming and test groups, a statement of the reliability of the test, and a comparison of the performance of each of the test groups with that of the norming group. Although it was not the express purpose of the study to so show, some comparisons of the test groups with each other also are indicated.

I. RESULTS OF THE MULTIPLE MEANINGS TEST

For purposes of comparison, the results of both forms of the multiple meanings test were combined to give each student one total score. The test was administered to 95 fourth grade students who served to make up the norming group, and to 657 fourth and sixth grade students who made up the test group. The frequencies of raw scores for both groups are shown in Table II, page 44.

The range of raw scores was as follows: from 60 to 12 for the Control Group, 40 to 11 for the Navajo Fourth Grade, 60 to 4 for the Navajo Sixth Grade, 57 to 19 for the Apache Fourth Grade, 59 to 21 for the Apache Sixth Grade, 49 to 15 for the Pueblo Fourth Grade, 58 to 16 for the Pueblo Sixth Grade, 60 to 10 for the Spanish-American Fourth Grade, 60 to 16 for the Spanish-American Sixth Grade, 60 to 17 for the Anglo Fourth Grade, and 60 to 24 for the Anglo Sixth Grade.

TABLE II

FREQUENCY OF RAW SCORES

Score	Control	Navajo 4th	Navajo 6th	Apache 4th	Apache 6th	Pueblo 4th	Pueblo 6th	Spanish Am. 4th	Spanish Am. 6th	Anglo 4th	Anglo 6th	Total
60	4		1					1	1	7	10	24
59	12			1				1	5	10	14	43
58	14						1	5	4	5	12	41
57	8			1	5			2	6	4	10	36
56	10				2		1	1	5	4	9	32
55	11		1	1	1		2	3	7	6	7	39
54	5			1	1		1	3	4	7	6	28
53	5			2			1	2	2	3	2	17
52	3				1		2	1	3	2	5	17
51	3				5		2	2	4	3	5	24
50	4				3			2	3	3		16
49			1		5		1	5	3	1	1	21
48	1				4		2	5	2	2	3	19
47	4						1	3	5	2		19
46	1				1		1	2	1	2	3	13
45					3		3	4	5		1	19
44			1		2	3		1	3	2	1	15

TABLE II (continued)

Score	Control	Navajo 4th	Navajo 6th	Apache 4th	Apache 6th	Pueblo 4th	Pueblo 6th	Spanish Am. 4th	Spanish Am. 6th	Anglo 4th	Anglo 6th	Total
43	2		1	3	1		5	1	3	2	1	19
42			2	2	3	3	1	0	2	1		14
41	2			2		3	2	1	2	1	1	14
40		1	1	6		4	3	3	1	1		20
39		1	1	2		1	2	3	3	1		14
38		1	3		2	1	2	3	2	4		18
37		1	2	3	1	1	1	2	2	1	1	15
36			2			1	3	2				8
35	1	3			2	2	4	1	1			14
34			1		2	4	2	1				10
33	1		2		1	3	3		1			11
32		1		1		4	3	1				10
31	1		1			6	2	1	3	1		15
30		3		1		2	4	3	1	1		15
29		3		1			2		2	1		9
28		2	1		1	7			2			13
27		6				4	2					12
26		3			2	3	2					10
25		1			1	3	2	1				8
24		1			1	8	1	3	1		1	16

TABLE II (continued)

Score	Control	Navajo 4th	Navajo 6th	Apache 4th	Apache 6th	Pueblo 4th	Pueblo 6th	Spanish Am. 4th	Spanish Am. 6th	Anglo 4th	Anglo 6th	Total
23	1					5		2				8
22						4	1					5
21					1	3	2	1				7
20						5	2	1	1			9
19			1	1		3	1					6
18	1	1				3			1			6
17						5		1		2		8
16						1	1	1	1			4
15			1			2		2				5
14												0
13			1									1
12	1											1
11		2										2
10								1				1
9												0
8												0
7												0
6												0
5												0
4			1									1
Totals	95	30	26	39	52	97	71	78	92	79	93	

MILLERS

CUTTING

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

(continued)

An overall percentage of correctness for each ethnic group, as well as the control group, was figured, and is presented in Table III. As can be seen from this table, the Control Group's accuracy was 88 per cent, a value exceeded only by the Sixth Grade Anglo group, which had 91 per cent accuracy. Fourth Grade Anglos, with an 85 per cent accuracy, almost achieved this norming accuracy, however. The lowest percentages of accuracy were those of the Fourth Grade Navajo at 47 per cent, and the Fourth Grade Pueblo at 48 per cent.

TABLE III

PER CENT OF ITEMS CORRECT BY GRADE AND ETHNIC GROUP

Group	Per Cent Correct
Control Group	88
Fourth Grade Navajo	47
Sixth Grade Navajo	60
Fourth Grade Apache	71
Sixth Grade Apache	75
Fourth Grade Pueblo	48
Sixth Grade Pueblo	62
Fourth Grade Spanish-American	70
Sixth Grade Spanish-American	78
Fourth Grade Anglo	85
Sixth Grade Anglo	91

From these overall correctness percentages and the table of frequencies, one can deduce a rank order of performance by the various groups as follows: Sixth Grade Anglo, Control Group, Fourth Grade Anglo, Sixth Grade Spanish-American, Sixth Grade Apache, Fourth Grade Apache, Fourth Grade Spanish-American, Sixth Grade Pueblo, Sixth Grade Navajo, Fourth Grade Pueblo, and Fourth Grade Navajo.

II. RELIABILITY OF THE TEST

The reliability of this test was established on the Control Group by finding a coefficient of correlation between their scores on the two halves of the test. The difference formula for the product-moment, or Pearson r , method was used, producing a correlation of .87, highly significant for this sampling at the 1 per cent level of confidence. It may be concluded that scores made on one form of the test will be highly predictive of those on the other, and that approximately equal scores can be expected on further administrations of the test.

III. COMPARISON OF SAMPLE TO CONTROL GROUP

A look at the control and experimental groups in terms of some of their central tendencies is presented in Table IV, page 49.

As might be expected where sampling involves normal distribution of intelligence, the range of scores for each group is fairly large. The largest was for the Navajo Sixth graders, where scores

From these observations, it is evident that the results are
 irregular, one can observe a small number of irregularities in the
 various groups as follows: this is the case, however, in the
 Fourth Grade Anglo, Fifth Grade Anglo-American, Sixth Grade
 Anglo, Fourth Grade Anglo, Fifth Grade Anglo, Sixth Grade Anglo,
 Sixth Grade Anglo, Sixth Grade Anglo, Sixth Grade Anglo, and Sixth
 Grade Anglo.

II. RELIABILITY OF THE TEST

The reliability of this test was established by the
 Control Group by the use of the coefficient of correlation between
 their scores on the two halves of the test. The results are
 shown for the present group, or present group, and are
 showing a correlation of .85, which is a very high
 showing at the 1 per cent level of confidence. It would
 conclude that the test is a very reliable test, and that
 highly predictive of the test, and that the test is a
 good test, and that the test is a very reliable test.

CONTINUED ON REVERSE SIDE.

III. COMPARISON OF THE TEST WITH OTHER TESTS

A look at the other tests and the results of the test
 show of their central tendency in the present group, and
 as might be expected, the results of the test are very
 high of intelligence, the results of the test are very
 high. The results are in the present group, and the results

TABLE IV
NUMBER, RANGE, QUANTILES, AND MEDIAN
BY GRADE AND ETHNIC GROUP

Group	Number	Range	Q ₃	Q ₂	Q ₁	Median
Control	95	60-12	59	56	52	56
Navajo Fourth	30	40-11	32	28	27	28
Navajo Sixth	26	60-4	43	37	33	37
Apache Fourth	39	57-19	48	43	39	43
Apache Sixth	52	59-21	53	48	39	48
Pueblo Fourth	97	49-15	35	27	22	27
Pueblo Sixth	71	58-16	45	36	30	36
Spanish-American Fourth	78	60-10	52	45	35	45
Spanish-American Sixth	92	60-16	55	49	41	49
Anglo Fourth	79	60-17	58	54	47	54
Anglo Sixth	93	60-24	59	56	53	56

ranged from 4 all the way to a perfect score of 60. Six of the eleven groups ranged up to the perfection mark, indicating that the test did not measure the ultimate capability of higher achieving students. The only groups which did not come close to top scores were the Navajo Fourth with a high of 40, and the Pueblo Fourth with a high of 49.

Better measures of central tendency, of course, are medians and quartiles. A median (or Q₂) of 56 was achieved by both the

WILBERS

MINNESOTA, MAY 1917
 WILBERS

Group	July 1	July 2	July 3	July 4	July 5	July 6	July 7	July 8	July 9	July 10	July 11	July 12	July 13	July 14	July 15	July 16	July 17	July 18	July 19	July 20	July 21	July 22	July 23	July 24	July 25	July 26	July 27	July 28	July 29	July 30	July 31
Control	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Navajo Fourth	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Navajo Fifth	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Apache Fourth	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Apache Fifth	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Navajo Fourth	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Navajo Fifth	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Spanish-American Fourth	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Spanish-American Fifth	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Anglo Fourth	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Anglo Fifth	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

ranged from A all the way to a point where the range was
 eleven groups ranged up to the point where the range was
 that did not measure the altitude capability of the range
 altitude. The only group which did not make the range to top
 were the Navajo Fourth and the Anglo Fourth
 with a high of 4500.
 better measure of actual tendency, of course, and
 and quality. A range of 5000 to 6000 feet

Control Group and the Anglo Sixth Test Group. This means that half of each of these groups scored 56 or more out of 60 right, and the other half 56 or less right. The Anglo Fourth Grade median of 54 was near this mark, but such groups as the Navajo Fourth, with a median of 28, and the Pueblo Fourth, whose median was 27, were well below it.

The quartiles are other points which separate the testees of a group into two categories. The Q_3 score is that where 25 per cent of the group scored at Q_3 or above, and 75 per cent at Q_3 or below. And Q_1 shows the point where 75 per cent are at this score or above and the rest at this score or below.

When the medians of the test groups are compared with that of the Control Group, it is possible to obtain an approximate percentile ranking. This comparison is demonstrated in Table V, page 51. It will be noted that, since the Anglo Sixth Grade Group had the same median as the Control Group (56), this group's percentile ranking is 50, the point of comparison here. The medians of other groups ranged considerably lower, however, hence a fourth percentile ranking for the Navajo and Pueblo fourth graders, and sixth percentile ranking for the Navajo and Pueblo sixth graders.

The mean, a still better measure of central tendency, is shown for each ethnic group, and for the Control Group, on the aforementioned Table V. Here we find the experimental Anglo Sixth Grade Group outdoing the Control Group by nearly two points. The rest of the means give generally the same picture as that presented by the medians.

TABLE V
RESULTS OF THE MULTIPLE MEANINGS TESTING
AND COMPARISON WITH THE NORMING GROUP

Group	Number	Mean	SD	SE _D	CR	Confidence Level	Approximate Percentile rank of Median Score Compared with Norming Group
Control	95	52.85	8.45				
Navajo Fourth	30	28.35	6.00	1.40	17.50	1%	4
Navajo Sixth	26	35.70	12.20	2.54	6.73	1%	6
Apache Fourth	39	42.25	7.55	1.49	7.11	1%	10
Apache Sixth	52	44.85	10.00	1.63	4.91	1%	16
Pueblo Fourth	97	28.55	8.45	1.22	19.92	1%	4
Pueblo Sixth	71	36.40	10.80	1.55	10.61	1%	6
Spanish-American Fourth	78	41.55	12.75	1.68	6.73	1%	11
Spanish-American Sixth	92	46.55	10.45	1.39	4.53	1%	18
Anglo Fourth	79	50.40	9.25	1.35	1.81	NS	36
Anglo Sixth	93	54.65	5.50	1.04	1.73	NS	50

Also shown on Table V are standard deviations from the means, standard errors of the deviations from the means, critical ratios and confidence levels of these critical ratios. The standard deviation is a measure of variability, the larger scores indicating the more heterogeneity. As can be seen, many of the test groups had greater variability than the Control Group, and the Anglo Sixth Group, though its mean is higher than the Control's, seems to be much more homogeneous.

By finding the differences between the means of the test groups and that of the Control Group, and then the standard error of these differences, it was possible to obtain critical ratios, which in turn show whether the differences between the means are real or perhaps occurred through chance. The column of confidence levels shows how frequently chance may be expected to play a part in these differences. As evidenced in Table V, the differences between the mean of the Control Group and those of the test groups are highly predictable, except for those of the Anglo Fourth and Sixth test groups, whose differences from the Control mean are not significant.

Critical ratios also were determined to compare the difference between the mean of each of the test groups and that of all the other test groups. This information is provided in Table VI, page 53. The norming, or control, group also is included in this table. The table is read like a grid. For example, to find the critical ratio for the Apache Sixth and Spanish-American Sixth Groups, one can read across on Apache Sixth and down on Spanish-American Sixth until meeting at a critical ratio of .97, which is not significant (or one might read down on the Apache Sixth and across on the Spanish-American Sixth to find the same number). In another example, when Apache Fourth is compared with Navajo Sixth, a critical ratio of 2.44 is found, which is significant at the 5 per cent level of confidence. Exemplifying again, when comparing Anglo and Spanish-American Sixth graders, a critical ratio of 6.59 is found, which is significant at the 1 per cent level of confidence.

By finding the difference between the means of the two groups and that of the control group and then dividing the result by the standard error of the difference, it is possible to obtain a critical ratio, which is then compared with the critical ratio for the test or period of observation. In the case of confidence intervals those not statistically significant are rejected as being in the same difference. An example is given in Table 1, showing the difference between the mean of the control group and the mean of the test group are highly probable, as the critical ratio of the test group is 2.14, which is greater than the critical ratio of 1.96, which is significant.

Critical ratios also are obtained in comparing the difference between the mean of each of the test groups and that of the other test group. This information is reported in Table VI, page 22. The meaning of each of these ratios is explained in the text. The table is given in Table VI, for example, in Table VI, critical ratio for the Arabic-Arabic and English-Arabic groups, one can read across on Arabic-Arabic and English-Arabic American Arabic will result in a critical ratio of 2.14, which is not significant for one-tailed test and on the Arabic-Arabic and across on the English-Arabic will result in a critical ratio of 2.14. In another example, when a mean ratio is compared with 1.96, Sixth, a critical ratio of 2.14 is shown, which is significant at the 5 per cent level of confidence. In English-Arabic, one can read across on Arabic-Arabic and English-Arabic American Arabic will result in a critical ratio of 2.14, which is not significant for one-tailed test and on the Arabic-Arabic and across on the English-Arabic will result in a critical ratio of 2.14. In another example, when a mean ratio is compared with 1.96, Sixth, a critical ratio of 2.14 is shown, which is significant at the 5 per cent level of confidence. In English-Arabic, one can read across on Arabic-Arabic and English-Arabic American Arabic will result in a critical ratio of 2.14, which is not significant for one-tailed test and on the Arabic-Arabic and across on the English-Arabic will result in a critical ratio of 2.14.

TABLE VI

STATISTICAL SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MEANS

Group	Control	Navajo 4th	Navajo 6th	Apache 4th	Apache 6th	Pueblo 4th	Pueblo 6th	Spanish Am. 4th	Spanish Am. 6th	Anglo 4th	Anglo 6th
Control		17.50*	6.73*	7.11*	4.91*	19.92*	10.61*	6.73*	4.53*	1.81	1.73
Navajo Fourth	17.50*		2.41**	8.53*	9.32*	.14	4.76*	7.29*	11.74*	14.60*	21.21*
Navajo Sixth	6.73*	2.41**		2.44**	3.32*	2.81*	.26	2.10**	4.13*	5.72*	7.70*
Apache Fourth	7.11*	8.53*	2.44**		1.41	9.26*	3.32*	.37	2.64**	5.13*	9.25*
Apache Sixth	4.91*	9.32*	3.32*	1.41		10.00*	4.47*	1.65	.97	3.21*	6.53*
Pueblo Fourth	19.92*	.14	2.81*	9.26*	10.00*		5.10*	7.74*	12.95*	16.19*	25.34*
Pueblo Sixth	10.61*	4.76*	.26	3.32*	4.47*	5.10*		2.67*	6.04*	8.48*	13.04*
Spanish- American Fourth	6.73*	7.29*	2.10**	.37	1.65	7.74*	2.67*		2.76*	4.98*	8.45*
Spanish- American Sixth	4.53*	11.74*	4.13*	2.64**	.97	12.95*	6.04*	2.76*		2.55**	6.59*
Anglo Fourth	1.81	14.60*	5.72*	5.13*	3.21*	16.19*	8.48*	4.98*	2.55**		3.57*
Anglo Sixth	1.73	21.21*	7.70*	9.25*	6.53*	25.34*	13.04*	8.45*	6.59*	3.57*	

* Critical ratio significant at the 1% level of confidence.

** Critical ratio significant at the 5% level of confidence.

CHAPTER VI

CONCLUSIONS AND IMPLICATIONS FOR EDUCATION

Two forms of a multiple meanings test were constructed for use in comparing the performance of certain ethnic groups with that of an Anglo control group. Analysis of the forms after giving the test to 95 norming Anglo fourth grade children in Albuquerque showed a correlation of .87 between the two forms, significant at the 1 per cent level of confidence. The test was then given to 657 fourth and sixth grade Navajo, Apache, Pueblo, Spanish-American, and Anglo children in selected rural schools in New Mexico.

I. CONCLUSIONS

1. There is a difference which is statistically significant at the 1 per cent level of confidence between the means obtained by use of the multiple meanings test for the norming group and each ethnic group except the Anglo fourth and sixth graders, wherein there is no significant difference between the means.

2. An examination of the mean scores obtained in testing the norming and test groups shows an understanding of the multiple meanings of words, as measured by this test, according to the following rank order: (a) Anglo Sixth, (b) Norming, (c) Anglo Fourth, (d) Spanish-American Sixth, (e) Apache Sixth, (f) Apache Fourth, (g) Spanish-American Fourth, (h) Pueblo Sixth, (i) Navajo Sixth, (j) Pueblo Fourth, and (k) Navajo Fourth.

CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER STUDY

Two forms of a single test were constructed for use in comparing the performance of the groups with that of an average group. The results of the test are given in the following table. The results show a correlation of .77 between the two tests, significant at the 1 per cent level of confidence. The results were then given to 100 fourth and fifth grade pupils, Pueblo, Spanish-American, and Anglo children in selected schools in New Mexico.

1. SUMMARY

1. There is a difference in the performance of the groups at the 1 per cent level of confidence. The results of the test are given in the following table. The results show a correlation of .77 between the two tests, significant at the 1 per cent level of confidence. The results were then given to 100 fourth and fifth grade pupils, Pueblo, Spanish-American, and Anglo children in selected schools in New Mexico.
2. An examination of the results shows that the meaning of words, as measured by the test, according to the following rank order: (1) Anglo, (2) Pueblo, (3) Spanish-American, (4) Anglo, (5) Pueblo, (6) Spanish-American, (7) Anglo, (8) Pueblo, (9) Spanish-American, (10) Anglo, (11) Pueblo, (12) Spanish-American, (13) Anglo, (14) Pueblo, (15) Spanish-American, (16) Anglo, (17) Pueblo, (18) Spanish-American, (19) Anglo, (20) Pueblo, (21) Spanish-American, (22) Anglo, (23) Pueblo, (24) Spanish-American, (25) Anglo, (26) Pueblo, (27) Spanish-American, (28) Anglo, (29) Pueblo, (30) Spanish-American, (31) Anglo, (32) Pueblo, (33) Spanish-American, (34) Anglo, (35) Pueblo, (36) Spanish-American, (37) Anglo, (38) Pueblo, (39) Spanish-American, (40) Anglo, (41) Pueblo, (42) Spanish-American, (43) Anglo, (44) Pueblo, (45) Spanish-American, (46) Anglo, (47) Pueblo, (48) Spanish-American, (49) Anglo, (50) Pueblo, (51) Spanish-American, (52) Anglo, (53) Pueblo, (54) Spanish-American, (55) Anglo, (56) Pueblo, (57) Spanish-American, (58) Anglo, (59) Pueblo, (60) Spanish-American, (61) Anglo, (62) Pueblo, (63) Spanish-American, (64) Anglo, (65) Pueblo, (66) Spanish-American, (67) Anglo, (68) Pueblo, (69) Spanish-American, (70) Anglo, (71) Pueblo, (72) Spanish-American, (73) Anglo, (74) Pueblo, (75) Spanish-American, (76) Anglo, (77) Pueblo, (78) Spanish-American, (79) Anglo, (80) Pueblo, (81) Spanish-American, (82) Anglo, (83) Pueblo, (84) Spanish-American, (85) Anglo, (86) Pueblo, (87) Spanish-American, (88) Anglo, (89) Pueblo, (90) Spanish-American, (91) Anglo, (92) Pueblo, (93) Spanish-American, (94) Anglo, (95) Pueblo, (96) Spanish-American, (97) Anglo, (98) Pueblo, (99) Spanish-American, (100) Anglo.

3. The Navajo and Pueblo fourth graders, between whose means there is no statistically significant difference, have the least understanding of the multiple meanings of words.

4. The Navajo and Pueblo sixth graders, between whose means there is no statistically significant difference, have a poorer understanding of these meanings than any of the other sixth grade groups--poorer even than three of the fourth grade groups, Anglo, Spanish-American, and Apache.

5. Within the test groups, the difference between fourth and sixth grade mean scores for each ethnic group was statistically significant at the 1 per cent level of confidence for the Anglos, Spanish-Americans, and Pueblos; significant at the 5 per cent level of confidence for the Navajos; but not significant between the Apache fourth and sixth graders.

6. There was no statistical significance to the difference between the means of the Albuquerque Anglo Norming Group and the rural Anglo test groups.

7. All the experimental groups except the Anglo fourth and sixth graders fell below 20, on an average, in a percentile rank comparison with the norming group.

8. The critical ratios between each experimental group and all the other experimental groups reveal the following statistical significances:

- a. The difference in performance between the Navajo fourth graders and each of the other test groups is statistically significant at the 1 per cent level

3. The Navy and Air Force, following the

there is no statistically significant difference

understanding of the subject matter

4. The Navy and Air Force, following the

there is no statistically significant difference

understanding of the subject matter

groups--over even that of the Air Force

Spanish-American, and other

5. Within the first group, the Air Force

and sixth grade mean scores for each group was statistically

significant at the 1 per cent level of confidence for the Air Force

Spanish-American, and other groups, and the Air Force

of confidence for the Navy; however, no significant difference

Apache fourth and sixth grades

6. There was no statistically significant difference

between the mean of the Air Force and the

Naval Air Force

7. All the experimental groups scored the same fourth and

sixth grade level for 20, on an average, for the Air Force

comparison with the working group

8. The critical value for the experimental groups was

all the other experimental groups, and the following statistical

significance:

a. The difference in the mean scores for the Navy

fourth grade and sixth grade for the other two groups

the statistical significance of the difference between the

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of confidence, except for the Navajo sixth where the level of confidence is 5 per cent, and the Pueblo fourth where there was no significant difference.

- b. The difference in performance between the Navajo sixth graders and each of the other test groups is statistically significant at the 1 per cent level of confidence, except for the Navajo, Apache, and Spanish-American fourth graders where the level of significance is 5 per cent, and the Pueblo sixth where there was no significant difference.
- c. The difference in performance between the Apache fourth graders and each of the other test groups is statistically significant at the 1 per cent level of confidence, except for the Navajo and Spanish-American sixth where the level of confidence is 5 per cent, and the Apache sixth and Spanish-American fourth where there is no significant difference.
- d. The difference in performance between the Apache sixth graders and each of the other test groups is statistically significant at the 1 per cent level of confidence, except for the Apache fourth and the Spanish-American fourth and sixth where there is no significant difference.
- e. The difference in performance between the Pueblo fourth graders and each of the other test groups is statistically significant at the 1 per cent level of

confidence, except for the Navajo fourth where there is no significant difference.

- f. The difference in performance between the Spanish-American fourth graders and each of the other test groups is statistically significant at the 1 per cent level of confidence, except for the Navajo sixth where the level of confidence is 5 per cent, and the Apache fourth and sixth where there is no significant difference.
- g. The difference in performance between the Spanish-American sixth graders and each of the other test groups is statistically significant at the 1 per cent level of confidence, except for the Apache and Anglo fourth where the level of confidence is 5 per cent, and the Apache sixth where there is no significant difference.
- i. The difference in performance between the Anglo fourth graders and each of the other test groups is statistically significant at the 1 per cent level of confidence, except for the Spanish-American sixth where the level of confidence is 5 per cent.
- j. The difference in performance between the Anglo sixth graders and each of the other test groups is statistically significant at the 1 per cent level of confidence.

could have, except for the fact that it is not a hill.

2. The difference in position between the two hills is

approximately 100 feet, and the level of the hill is about 100 feet above the level of the hill. The level of the hill is about 100 feet above the level of the hill.

3. The difference in position between the two hills is

approximately 100 feet, and the level of the hill is about 100 feet above the level of the hill. The level of the hill is about 100 feet above the level of the hill.

4. The difference in position between the two hills is

approximately 100 feet, and the level of the hill is about 100 feet above the level of the hill. The level of the hill is about 100 feet above the level of the hill.

5. The difference in position between the two hills is

approximately 100 feet, and the level of the hill is about 100 feet above the level of the hill. The level of the hill is about 100 feet above the level of the hill.

II. IMPLICATIONS FOR EDUCATION

1. New Mexico's bilingual students need to obtain a fuller understanding of the different meanings which words have, and need to be able to ascertain these meanings as they see the words used in context on the printed page. As old words with new meanings appear in the reading, they should be treated as new words in explaining them to the bilingual child. That is, the teacher should begin with understanding of concepts, through the use of concrete examples, before continuing to definitions. In short, there must be direct attack on new meanings of words.

The direct attack may include a number of procedures, such as drill, use of the dictionary, discovering meaning from context, general discussion, use of concrete examples, experience programs, and writing lessons. One teacher has recalled how general discussion will help to develop different meanings of the same word:

The word track was being discussed in the classroom in connection with a story regarding street cars. Some of the children had never seen a street car, and so Bill, a city boy, said that they were cars that ran by electricity on tracks. When asked to describe what a track looked like, he said that it was a long steel thing that ran in two lines down the middle of the street. John, the "desert rat," with a puzzled look on his face, wanted to know what kind of tracks the car made. We got to talking about the words that looked the same, but meant different things, and it was suggested that each child tell what the word track meant to him.

Sharon said that many times her mother told her not to track up the clean kitchen floor. To her it meant to get something dirty. Melinda mentioned that she had heard her father discuss the sound track of his tape recorder. Steve contributed the fact that his father tracked a missile on a tracking board. Peter mentioned the new race track outside El Paso. Joe told of riding on a train which ran on tracks and how the wheels made a clicking sound as they went over the joints in the tracks. John told of the time he had found coyote tracks in the snow and had tracked them to the boundary lines of the Post. Bruce, the slow-poke of the class, said that his mother had told him to make tracks for school that morning. "She meant me to hurry up," he said by way of explanation.

1. New Mexico's Educational Situation

Understanding of the situation in New Mexico is essential to be able to ascertain the meaning of the word "education" in the context of the United States. The word "education" is used in the reading, that is, in the context of the United States, to be the bilingual child. This is, however, a word which is used in the reading of concepts. It is the use of the word "education" in the

context of the United States. In this, the word "education" is used in the

new meanings of words.

The first of these is the use of the word "education" in the

drill, use of the word "education" in the context of the United States.

discussion, use of the word "education" in the context of the United States.

lesson. One cannot use the word "education" in the context of the United States.

to develop different meanings of the word "education".

The word "education" is used in the context of the United States.

along with a story of a young child. The word "education" is used in the

never seen a young child. The word "education" is used in the

were called that the child was in the context of the United States.

what a young child is, the word "education" is used in the

that can be seen from the word "education" in the context of the United States.

"education" is used in the context of the United States.

kind of word is used in the context of the United States.

that looked like the word "education" in the context of the United States.

suggested the word "education" in the context of the United States.

Sharon said that the word "education" is used in the context of the United States.

up the word "education" in the context of the United States.

Melinda mentioned that the word "education" is used in the context of the United States.

each of the word "education" in the context of the United States.

rather than a word in the context of the United States.

By the time we were through, we had collected quite a few meanings for the word track and had learned a lesson in word comprehension. For, as one child expressed it, "You have to know what you are reading about to know what the word means."¹

Probably the most important procedures involved in discovering the new meanings of words have to do with the concrete example and actual experiences. When dealing with bilingual children, the teacher must be very cautious in making assumptions about previous experience. A group of middle-class Anglos, upon seeing a picture of a red ball, may be able to make a number of correct assumptions about the properties of the ball besides its color, that it is a sphere and not a disc, that it is rubber, that it bounces. They probably have had experiences with such a ball; they know how it tastes, how far they can throw it, how to get one like it, and a lot of games to play with it. The Navajo who has never seen such a ball will have to go through many experiences with one before his concept of it is as clear as that of the Anglo. The teacher will have to let him feel it, bounce it, throw it. It may be some time before the Navajo gets the main idea of a red rubber ball--that he can have fun with it.

The Navajo culture does not provide for the celebration of birthdays. The story about a birthday party in a first or second grade reader, then, is apt to be very puzzling to the Navajo child. It may be necessary for the teacher actually to hold a birthday party, complete with cake, candles, presents, colorful hats, games, and the inevitable "spansks" in order to get across the many concepts involved here.

The teacher who is faced with the job of developing the meaning of the word circus may find it necessary to simulate one. Pictures, discussion, acting out, costumes, and concrete objects will be standard

¹Marjorie F. Day, primary teacher, White Sands Missile Range, New Mexico, reported in Final Report of the Indian Research Study (Albuquerque, New Mexico, 1960, mimeographed), p. 148.

By the time we have finished, we shall have a new meaning for the word "ball" and a new meaning for the word "game". For, we shall have a new meaning for the word "ball" and a new meaning for the word "game".

Probably the most important problem in this connection

the new meaning of words has to be of the same kind as the

actual experience. When a ball is thrown, it is a ball, it is a ball

must be very cautious in making a judgment about an experience.

A group of children, when they are playing a game, they are playing a game

may be said to make a number of correct judgments about the game

ties of the ball. But the children, when they are playing a game, they are playing a game

that it is a ball, that it is a ball, that it is a ball, that it is a ball

with such a ball; they know that it is a ball, they know that it is a ball

how to get one like it, and a lot of other things. But the children

who have never seen a ball will have to be told that it is a ball

with one before the concept of it is as clear as that of the ball.

The teacher will have to tell the children, "This is a ball, this is a ball

may be some other things that they will have to be told that it is a ball

ball--that he can play with it.

The teacher must not only tell the children that it is a ball, but he must

also. The child, when he is playing a game, he is playing a game, he is playing a game

then, is not to be very particular about the ball, but he is playing a game

easy for the teacher to make a ball, easy for the teacher to make a ball

cake, candle, or even a ball, and the child will have to be told that it is a ball

in order to get a new meaning for the word "ball" and a new meaning for the word "game".

The teacher who is faced with this problem of teaching the meaning of

the word "ball" may find it necessary to make a ball, to make a ball, to make a ball

creation, but he must not, and he must not, and he must not, and he must not

question, but he must not, and he must not, and he must not, and he must not

question, but he must not, and he must not, and he must not, and he must not

question, but he must not, and he must not, and he must not, and he must not

question, but he must not, and he must not, and he must not, and he must not

requirements. Words like clown, paid, and tent will come up, and will have to be developed concretely as well. These concepts may be further developed and tested by having the students draw pictures and write stories. Discussions of the results of these activities will be of further help.

One researcher is making a controlled study of the effects of personal experience upon achievement. In this program, a group of eighty Indian first graders from Santo Domingo Pueblo is being taken on excursions to various Albuquerque sites, such as the telephone company, a television station, the zoo, a bank building. The sites were selected on the basis of concepts to be developed in typical science and social studies texts for the primary grades. The field trips are being supplemented by visual aids and activities designed to develop further many concepts related to unit subjects. Comparisons will be made of scores obtained from testing before and after the program in order to evaluate its success.²

As the teacher develops new concepts, he must constantly keep in mind the problems connected with the first culture of the bilingual. The typical Anglo sixth-grader, for example, comes to school with a burning curiosity about the world in which he lives. He reads and hears of fascinating scientific achievements every day. He seems to have a ready-made scientific attitude. The Indian and the Spanish-American, on the other hand, are reared to believe what they are told by their elders; curiosity is driven from them. Most Indian beliefs about the natural world can be contradicted by scientific investigation. They believe that rocks, trees, rain, and other natural phenomena are endowed

²Joyce Morris, "The Santo Domingo Program of Concept and Language Development," Research in progress, College of Education, University of New Mexico, Albuquerque, 1963.

with living souls which, if properly supplicated, can provide gifts to the people. Bad luck, such as illness, the Navajo attributes to his own misconduct, or to some witch. The Pueblo Indian believes that if he wants something from the gods, all he has to do is remain in harmony with nature and perform the proper ritual.

Because of such cultural values, the Indian will find it difficult to accept more scientific explanations of, say, rain. And perhaps the surest road to failure for the teacher of such children is to adopt an authoritative attitude. As his students begin to note the inconsistencies between what he says and what the students' elders taught them, the teacher will find himself confronted by confusion, suspicion, and finally boredom. If the Navajo is to decide that Mount Taylor was formed by a break-through of magma rather than by "First Man" and "First Woman," and that Spider Woman is part of the original geological strata out of which Canyon de Chelly was cut, and not one of the creatures that came up from the "First World," then it will not be because the teacher told him so, but because of concrete demonstrations and examples of vulcanism and erosion.

Teacher awareness should be extended to include the cultural backgrounds of the bilingual children in the classroom. It is accepted pedagogical practice to relate new concepts to the child's background, and to begin teaching at the point of understanding; it would seem to follow that a teacher must know what experiences the bilingual child has had. This knowledge may be obtained by some study of the cultures involved.

2. Teachers of bilingual children should become acquainted with the extent to which the different meanings of words present a problem in reading. Unless the teacher is convinced that such a problem exists,

with living souls which, if properly apprehended, can provide gifts to the people. Had such much as this, the Navajo attributes to his own misanthropy, or to some witch. The Pueblo Indian believes that if he wants something from the gods, all he has to do is remain in harmony with nature and perform the proper rituals.

Because of such cultural values, the Indian mind is difficult to accept more scientific explanations of, say, rain. And perhaps the surest road to failure for the teacher of such children is to adopt an authoritative attitude. As his students begin to note the inconsistencies between what he says and what the students' elders taught, they the teacher will find himself confronted by confusion, suspicion, and finally boredom. If the Navajo is to decide that Mount Taylor was formed by a break-through of magma rather than by "First Man" and "Water Woman," and that Spider Woman is part of the original geological strata out of which Canyon de Chelly was cut, and not one of the creatures that came up from the "First World," then it will not be because the teacher told him so, but because of concrete demonstrations and examples of volcanoes and erosion.

Teacher awareness should be extended to include the cultural backgrounds of the bilingual children in the classroom. It is recognized pedagogical practice to relate new concepts to the child's background, and to begin reading at the point of understanding; it would seem to follow that a teacher must know what experiences the bilingual child has had. This knowledge may be obtained by some study of the culture involved.

2. Teachers of bilingual children should become acquainted with the extent to which the different meanings of words present a problem in reading. Unless the teacher is convinced that such a problem exists,

then it is unlikely that he will make special preparations for remedying the situation.

We can also assume that the teacher needs to be made more aware of all of the special deficiencies which the bilingual may have, whether it be understanding of multiple meanings, understanding of idioms, understanding of synonyms and antonyms, or understanding of analogies. Research in some of these areas has already been alluded to.

3. Makers of texts, workbooks, and other reading materials should include in their regular editions, or else in special materials, work designed to give experience and practice in the multiple meanings of words. Some such work is now available, but in a given series it is unlikely that there will be sufficient work for the special requirements of the bilingual child. It will be necessary for the teacher to search through texts and workbooks of several series in order to find enough such material. Teachers may also devise their own practice lessons in this area. One teacher has made up two such exercises. In one, the student is required to fill in the blank spaces in several sentences with the same word or a form of that word. In the other exercise, the student reads several sentences in each of which there is a word that is one meaning of a "master" word, and the student is to underline that meaning in each sentence. For example, in the following sentences the student would underline meanings of record:

He read the minutes of the last meeting.
 The man had a criminal history.
 He set a new distance in the shot put.
 He bought a phonograph disc.³

Teachers may also have their students draw pictures, or cut

³Charles C. White, "Building Concepts for Words with Multiple Meanings, especially for Children for Whom English Is a Second Language," unpublished research paper, University of New Mexico, Albuquerque, 1962.

then it is unlikely that he will make special preparations to remedy the situation.

We can also assume that the teacher needs to be made aware of all of the special deficiencies which the bilingual may have, whether it be understanding of multiple meanings, understanding of idiom, understanding of synonyms and antonyms, or understanding of analogies. Search in some of these areas has already been alluded to.

3. Makers of texts, workbooks, and other reading materials should include in their regular editions, or also in special materials, work designed to give experience and practice in the multiple meanings of words. Some such work is now available, but it is a given word in its entirety that there will be sufficient work for the typical student of the bilingual child. It will be necessary for the teacher to search through texts and workbooks of several series in order to find enough such material. Teachers may also develop their own materials in this area. One teacher has made up two such exercises. In one, the student is required to fill in the blank space in several sentences with the same word or a form of that word. In the other exercise, the student reads several sentences in each of which there is a word that is one meaning of a "master" word, and the student is to underline that meaning in each sentence. For example, in the following sentences the student would underline meanings of water:

He read the minutes of the last water.
The man had a criminal water.
He sat a new water in the shop.
He bought a water glass.

Teachers may also have their students draw pictures of the

²Charles C. White, "Building Concepts for Words with Multiple Meanings, especially for Children for whom English is a second language," unpublished research paper, University of New Mexico, Albuquerque, 1957.

them out of magazines, to show the different meanings of a word. Practice lessons for finding the meanings of words from context may also be devised.

4. Further studies in the area of this research are needed in order to determine:

- a. The full extent and the degrees of trouble which each ethnic group has with the basic vocabulary in regard to the multiple meanings of words.
- b. The extent to which lack of understanding of multiple meanings may be due to problems of accent, or pronunciation.
- c. The extent to which lack of understanding of multiple meanings may be due to problems of syntax.
- d. The extent to which lack of understanding of multiple meanings may be due to problems of transliteration from or to the native tongue.
- e. The special problems which native language or culture may bring to bear upon comprehension of the multiple meanings of words by each of the ethnic groups.

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them out of magazines, to show the different meanings of a word.
Practice lessons for finding the meaning of words should also
also be devised.

4. Further studies in the area of this research should be
in order to determine

a. The full extent and the nature of the problem which
each ethnic group has with the basic vocabulary in
regard to the multiple meanings of words.

b. The extent to which lack of understanding of multiple
meanings may be due to problems of social or personal
translation.

c. The extent to which lack of understanding of
multiple meanings may be due to problems of syntax.

d. The extent to which lack of understanding of multiple
meanings may be due to problems of semantics.

e. The special problems which native speakers of
English may bring to bear upon comprehension of
the multiple meanings of words of each of the
ethnic groups.

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ALBUQUERQUE
22
COTTON CLOTH

MILLER FALLS
E. B. RASE
CONTENTS

APPENDIX

LIBRARY OF THE
BIBLIOTHECA

UNIVERSITATIS

THE UNIVERSITY OF NEW MEXICO
ALBUQUERQUE

April 1, 1960

Dear Teacher:

Let me thank you in advance for taking your time to help us in what we think is an important investigation into the language needs of bilingual students. The two forms of multiple meaning tests enclosed are being given to both fourth and sixth grades, in order that the relative performance of both age groups may be compared.

It is very important that all blanks at the top of each test form be filled in. Where it says "group," the child should put the name of the ethnic group to which he belongs, i.e., Spanish-American, Anglo, Navajo, or the name of one of the Pueblo tribes.

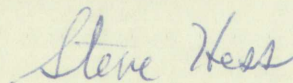
Before giving the test, it might be helpful to point out to the children that one word may have several different meanings. Then, if you will go over the three examples and see that each child has marked them correctly, it should be clear to the children what they are to do. Emphasize that only one use of each word is incorrect. After the test has begun, please give no further help.

This is not a timed test. Children should be allowed all the time they can profitably use. Each form of the test will probably take about 30 minutes, but the first one will probably take longer than the second. The children will do better if they have a short rest period between the two forms.

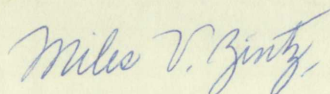
You need not be concerned with the scoring of the tests. As soon as possible after the test is given on or before April 7, please return them in the enclosed envelope. The raw scores will be sent back to you for your own use.

Again, let me thank you for your very helpful assistance.

Sincerely yours,



Steve Hess
Graduate Student



Miles V. Zintz
Associate Professor and Acting Chairman
Department of Elementary Education

April 1, 1960

Dear Teacher:

Let me thank you in advance for taking your time to help me in this. It is an important investigation into the language needs of bilingual students. The two forms of multiple meaning tests enclosed are being given to both fourth and sixth grades, in order that the relative performance of both age groups may be compared.

It is very important that all blanks at the top of each test form be filled in. Where it says "Group," the child should put the name of the ethnic group to which he belongs, i.e., Spanish-American, Anglo, Negro, or the name of one of the Pueblo tribes.

Before giving the test, it might be helpful to point out to the children that one word may have several different meanings. Then, if you will go over the three examples and see that each child has selected them correctly, it should be clear to the children what they are to do. Emphasize that only one use of each word is important. After the test has begun, please give me further help.

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Sincerely yours,

Steve Hess
Graduate Student

William F. Zinke
Associate Professor and Acting Chairman
Department of Elementary Education

MULTIPLE MEANINGS
FORM 1

YOUR NAME _____ GRADE _____ SEX _____ GROUP _____
(M or F)
SCHOOL _____ CITY _____ TEACHER _____
DATE OF BIRTH _____ LANGUAGE SPOKEN AT HOME _____ TODAY'S
DATE _____

In this test you are to put an X over the letter of the sentence in which the underlined word is not used correctly. There is only one incorrect sentence in each problem. (TEACHER: Please go over the directions and examples with the children. There is no time limit.)

EXAMPLE: a. Read the next line of the story.
b. Line the box with paper.
c. Throw your line into the water and catch a fish.
~~d.~~ The line is in the cage.

EXAMPLE: a. We don't like him.
b. The like sank when we got in.
c. We saw lions, tigers, and the like at the zoo.
d. Do it like a man.

EXAMPLE: a. His face was dirty.
b. Does your house face the mountains?
c. He face the telephone.
d. There are no Martians on the face of the earth.

1. a. It was light as day.
b. Feathers are light.
c. A light is good to eat.
d. We need more light on this subject.
2. a. Place the book on the table.
b. Save my place in line.
c. John won first place.
d. There was place on the dress.
3. a. He hit the ball with a bat.
b. We hit the right road in the dark.
c. There was a hit in the jar.
d. The new play is the hit of the year.
4. a. Did you see the bank of snow?
b. We put our money in the bank.
c. Bank him for the gift.
d. They saw the plane bank.
5. a. We went down the all.
b. All dogs have ears.
c. They came after all.
d. No one at all came to the party.

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6.
 - a. He hit the ball straight.
 - b. He ate a straight apple.
 - c. He was a straight thinker.
 - d. They set the room straight.
7.
 - a. Strike at the ball.
 - b. The workers were on strike.
 - c. A strike is good to eat.
 - d. Don't strike a match.
8.
 - a. The plain wore off his new coat.
 - b. It came in a plain package.
 - c. The answer is plain to everyone.
 - d. The house was built on a high plain.
9.
 - a. The book is mine.
 - b. He found a gold mine.
 - c. The ship hit an underwater mine.
 - d. I can't mine the children now.
10.
 - a. Let me range the desk for you.
 - b. What is your hearing range?
 - c. The cowboy rode the range.
 - d. Mother got a new electric range.
11.
 - a. Don't lean on the tree.
 - b. He likes lean meat.
 - c. Buy me a lean shirt.
 - d. He was a tall, lean man.
12.
 - a. He bit into the meat.
 - b. The bit ran around the room.
 - c. There wasn't a bit left.
 - d. He put the bit in the horse's mouth.
13.
 - a. Do you dull the dog?
 - b. The point of the sword was dull.
 - c. It was a dull party.
 - d. He is a dull boy.
14.
 - a. He put the short on the bread.
 - b. He was a short man.
 - c. We stopped short when we saw the bear.
 - d. He was short some of the money.
15.
 - a. He smokes a pipe.
 - b. The water pipe broke.
 - c. The pipe will eat soon.
 - d. He plays a pipe organ.

1. The first part of the report is a general statement of the purpose and scope of the study. It is followed by a brief review of the literature on the subject.

2. The second part of the report is a description of the methods used in the study. This includes a discussion of the subjects, the instruments used, and the procedures followed.

3. The third part of the report is a presentation of the results of the study. This includes a discussion of the data collected and the conclusions drawn from the data.

4. The fourth part of the report is a discussion of the implications of the study. This includes a discussion of the theoretical and practical implications of the findings.

5. The fifth part of the report is a conclusion. This includes a summary of the findings and a statement of the author's conclusions.

6. The sixth part of the report is a list of references. This includes a list of the books, articles, and other sources used in the study.

16. a. She blew out the match.
b. His socks don't match.
c. He put the food in a match.
d. We saw a boxing match.
17. a. The men walked single file.
b. We put the papers in the file.
c. You can make it smooth with a file.
d. The file sailed away.
18. a. There are three vacant lots on the street.
b. He has lots of marbles.
c. We lots him in the woods.
d. We drew lots to see who would go.
19. a. He got red and flash.
b. It all happened in a flash.
c. He will flash us a signal.
d. We saw a flash of lightning.
20. a. The boy ran to his father and said, "Hello, Pop."
b. The pop of it was painted red.
c. The man said he would "pop" him on the nose.
d. We heard the balloon pop.
21. a. He sawed the board.
b. His board was looking at us.
c. He got on board the train.
d. The school board met today.
22. a. March is the third month.
b. The soldiers made a long march.
c. The march was heating on the stone.
d. The band played a fast march.
23. a. He fell off of the trade.
b. Let's trade marbles.
c. He learned a new trade.
d. What do you know about the trade winds?
24. a. He has a part in the play.
b. Let's part friends.
c. He ate part of the apple.
d. He was part when he saw us coming.
25. a. Don't bend the branch.
b. The boat went around a bend in the river.
c. The bend hurt his head.
d. He did a deep-knee bend.

1. The first part of the story is about the discovery of the body.

2. The second part of the story is about the investigation of the crime.

3. The third part of the story is about the arrest of the suspect.

4. The fourth part of the story is about the trial of the suspect.

5. The fifth part of the story is about the conviction of the suspect.

6. The sixth part of the story is about the execution of the suspect.

7. The seventh part of the story is about the aftermath of the crime.

8. The eighth part of the story is about the legacy of the crime.

9. The ninth part of the story is about the impact of the crime.

10. The tenth part of the story is about the conclusion of the story.

26. a. He ran to first base.
b. He worked at the Army base.
c. He found some base in the ground.
d. The building rested on a base of rock.
27. a. Did you have bat in us.
b. It's my turn to bat.
c. The bat flew out of the cave.
d. The bat was broken.
28. a. Let's take a short cut.
b. Don't cut your finger.
c. The cold wind cut him to the bone.
d. The apple cut the knife.
29. a. Please fill the cup.
b. He ate his fill.
c. He fill and hurt himself.
d. You need more fill dirt for the yard.
30. a. He went down the slide.
b. He ran and slide from us.
c. Turn out the light so I can show the slide.
d. He let his work slide until it was too much to do.

Form 1. The first part of the report is a description of the work done during the period covered by the report. This part should be written in a clear and concise manner, and should include a statement of the objectives of the work, a description of the methods used, and a summary of the results obtained.

24. a. The first part of the report is a description of the work done during the period covered by the report. This part should be written in a clear and concise manner, and should include a statement of the objectives of the work, a description of the methods used, and a summary of the results obtained.

25. a. The first part of the report is a description of the work done during the period covered by the report. This part should be written in a clear and concise manner, and should include a statement of the objectives of the work, a description of the methods used, and a summary of the results obtained.

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28. a. The first part of the report is a description of the work done during the period covered by the report. This part should be written in a clear and concise manner, and should include a statement of the objectives of the work, a description of the methods used, and a summary of the results obtained.

MULTIPLE MEANINGS
FORM II

YOUR NAME _____ GRADE _____ SEX _____ GROUP _____
(M or F)
SCHOOL _____ CITY _____ TEACHER _____
DATE OF BIRTH _____ LANGUAGE SPOKEN AT HOME _____ TODAY'S
DATE _____

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EXAMPLE: a. We don't like him.
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c. We saw lions, tigers, and the like at the zoo.
d. Do it like a man.

EXAMPLE: a. His face was dirty.
b. Does your house face the mountains?
c. He face the telephone.
d. There are no Martians on the face of the earth.

1. a. The trunk of the tree is large.
b. I put my clothes in a trunk.
c. The elephant's trunk is long.
d. We have a trunk to the ball game.

2. a. Check grows on a tree.
b. Father will write a check for the man.
c. Check the paper carefully.
d. There was a small check in the pattern of the dress.

3. a. This is good land for a garden.
b. The pilot will land the airplane.
c. The thief will land in jail.
d. We went to the land concert.

4. a. Mary will take your hand.
b. We will bake a take.
c. I take cold easily.
d. Let us take a walk.

5. a. Please give me change for this quarter..
b. Did you have a change to go?
c. Do not change your mind.
d. John will change his clothes to go to the party.

6. a. He can shoot the gun.
b. The buds will shoot up soon.
c. Let me shoot your picture.
d. He read the shoot well.
7. a. He hurt my left hand.
b. There is nothing left.
c. We put left in the pan.
d. We left the city.
8. a. Pitch the ball.
b. We tried to pitch dinner for you.
c. That was a good pitch.
d. Help me pitch the tent.
9. a. Don't hold me.
b. Look in the hold of the ship.
c. The cup can hold water.
d. Your clothes are full of hold.
10. a. The sky is grade today.
b. The car went up a steep grade.
c. I will grade your paper now.
d. What grade are you in?
11. a. We heard the bar run past.
b. He had a drink in the bar.
c. He ate a bar of candy.
d. Don't bar the door.
12. a. We went to the fair.
b. He wasn't a fair judge.
c. Her skin was very fair.
d. I fair him when I see him.
13. a. We ate a square for lunch.
b. He drew a square on the paper.
c. The girl thought he was a "square shooter."
d. The speech was made in the public square.
14. a. You may put the shade up now.
b. Don't shade up when we go.
c. We sat in the shade and waited.
d. That is a nice shade of red.
15. a. Two lemonade stands were on the street.
b. He stands when a woman enters the room.
c. He sat in the stands to watch the game.
d. He wore the stands to work.

1. The first part of the report is a general statement of the situation. It is a summary of the facts and figures which are available at the present time. It is a statement of the facts and figures which are available at the present time.

2. The second part of the report is a statement of the causes of the situation. It is a statement of the causes of the situation. It is a statement of the causes of the situation.

3. The third part of the report is a statement of the effects of the situation. It is a statement of the effects of the situation. It is a statement of the effects of the situation.

4. The fourth part of the report is a statement of the measures which are being taken to deal with the situation. It is a statement of the measures which are being taken to deal with the situation. It is a statement of the measures which are being taken to deal with the situation.

5. The fifth part of the report is a statement of the results of the measures which are being taken to deal with the situation. It is a statement of the results of the measures which are being taken to deal with the situation. It is a statement of the results of the measures which are being taken to deal with the situation.

6. The sixth part of the report is a statement of the conclusions which are drawn from the facts and figures which are available at the present time. It is a statement of the conclusions which are drawn from the facts and figures which are available at the present time. It is a statement of the conclusions which are drawn from the facts and figures which are available at the present time.

7. The seventh part of the report is a statement of the recommendations which are made for the future. It is a statement of the recommendations which are made for the future. It is a statement of the recommendations which are made for the future.

8. The eighth part of the report is a statement of the conclusions which are drawn from the facts and figures which are available at the present time. It is a statement of the conclusions which are drawn from the facts and figures which are available at the present time. It is a statement of the conclusions which are drawn from the facts and figures which are available at the present time.

9. The ninth part of the report is a statement of the recommendations which are made for the future. It is a statement of the recommendations which are made for the future. It is a statement of the recommendations which are made for the future.

10. The tenth part of the report is a statement of the conclusions which are drawn from the facts and figures which are available at the present time. It is a statement of the conclusions which are drawn from the facts and figures which are available at the present time. It is a statement of the conclusions which are drawn from the facts and figures which are available at the present time.

16. a. The suit didn't fit him.
b. Mother had a fit when she saw her dirty boy.
c. The fit broke and spilled.
d. He isn't fit for the job.
17. a. Can you case it with you?
b. Go buy a case of dog food.
c. She had a case of measles.
d. Tell me in case it rains.
18. a. His heart is beating.
b. We heart her calling.
c. He learned it by heart.
d. He went to the heart of the matter.
19. a. She wore a long slip.
b. Don't slip in the mud.
c. I slip him yesterday.
d. He gave me a slip of paper.
20. a. The judge entered the court.
b. The policeman court him in the act.
c. We were at the tennis court.
d. The ladies of the king's court were beautiful.
21. a. Can I top you to the party?
b. We went to the top of the mountain.
c. I will spin the top.
d. The runners ran off at top speed.
22. a. He got a sun tan during the summer.
b. He wore a tan suit.
c. The tan comes in at nine o'clock.
d. If you tan the hide it becomes leather.
23. a. He ran up the steps.
b. He took steps to stop the noise.
c. The dancer knows some fancy steps.
d. The steps were speaking fast.
24. a. Can you spell this word?
b. You have to spell the pencil first.
c. He worked a long spell.
d. The princess was put under a spell.
25. a. We have a pass to the baseball game.
b. The cowboys rode through the pass.
c. Don't be so pass about it.
d. I saw him pass the house.

11-10-1917

11-10-1917

The first of the series of
lectures on the history of
the United States was given
by Mr. J. H. P. [unclear]
on the 11th of the month.
The lecture was very
interesting and well
attended. The speaker
discussed the early history
of the country and the
role of the various
states in the formation
of the Union.

The second lecture was
given by Mr. [unclear] on
the 18th of the month.
He discussed the history
of the [unclear] and the
role of the [unclear] in
the development of the
country. The lecture was
very interesting and well
attended.

The third lecture was
given by Mr. [unclear] on
the 25th of the month.
He discussed the history
of the [unclear] and the
role of the [unclear] in
the development of the
country. The lecture was
very interesting and well
attended.

The fourth lecture was
given by Mr. [unclear] on
the 2nd of the month.
He discussed the history
of the [unclear] and the
role of the [unclear] in
the development of the
country. The lecture was
very interesting and well
attended.

26. a. Will you hold the boy's hand?
b. We walked down the hand.
c. Hand the pencil to me.
d. He had no hand in the matter.
27. a. The thief is lying to us.
b. He played the lying well.
c. It is lying on the table.
d. We won't take this lying down.
28. a. We have a chance to win.
b. By chance are you going?
c. We will chance it if the sun is shining.
d. The chance stayed in the icebox.
29. a. A blow shoe fell on the floor.
b. He hit the man a blow on the head.
c. The wind will blow hard tonight.
d. Losing the game was a hard blow to the team.
30. a. We drove the duck of cattle.
b. We will have duck for lunch.
c. Do not duck anyone in the water.
d. Duck when you see the ball coming at you.



1. The first of these is the fact that the
2. second is the fact that the
3. third is the fact that the
4. fourth is the fact that the
5. fifth is the fact that the
6. sixth is the fact that the
7. seventh is the fact that the
8. eighth is the fact that the
9. ninth is the fact that the
10. tenth is the fact that the

WATER FALLS

WILSON BRILL

ROTTEN TOWN

