THE UTILITY OF THE SPANISH TRANSLATION OF THE PEABODY PICTURE VOCABULARY TEST WITH YOUNG SPANISH-AMERICAN BILINGUAL CHILDREN

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CHAPTER I

INTRODUCTION AND REVIEW OF THE LITERATURE

Introduction

The area of language development is one in which speech pathology researchers have demonstrated a continuing interest through the years. In the past research investigators and authors in this area have concerned themselves with various aspects of language development. Some (3, 27, 37) have attempted to divide the complex language phenomena into its various aspects and components. Others (29, 33) have endeavored to ascertain the developmental ages at which the numerous components of language can be anticipated to emerge and expand. Still others (3, 24, 27) have assessed and enumerated certain of those factors which have exhibited an influence on the rate of language development.

One of the factors cited as displaying an influence on the pace and sequence of language development is that of bilingualism. McCarthy (23, p. 591) notes that those children who encounter two conflicting language systems in their preschool years are more likely to manifest a delay in their development of both languages than those children who must learn a single language. This same finding has been noted by numerous additional investigators, including Menyuk, Bangs, Van Riper, Myklebust, and Wood (3, 26, 27, 35, 37).

One of the most difficult problems confronting researchers and speech diagnosticians is that of the assessment of the language capabilities of the bilingual child. All too frequently, these investigators are monolingual or have only limited fluency in one of the languages spoken by the bilingual child. The child is usually presented with a series of language tests which is administered in English, even though English may be the child's second language. The extent to which the child is penalized by this method of test administration can only be speculated at this time since few attempts to assess the influence of testing the bilingual child's second language have been made.

This investigation researched the problem of bilingualism in connection with one aspect of language, the auditory receptive component. Receptive language refers to the ability to understand or comprehend language in its written or spoken form. Recently a commonly used test of single-word receptive language functioning, the Peabody Picture Vocabulary Test, Form A, has been translated into the Spanish language. This test constitutes one of the basic test materials of the current study. The test is designed as a measure of the single-word receptive vocabulary of a Spanish-speaking population. As such it constitutes one of the limited number of language tests and most recent attempts to overcome certain difficulties encountered in the language evaluation of a foreign-speaking client. Several questions, however, remain to be considered with this test. First, its utility in the

assessment of the Spanish-English bilingual individual has yet to be determined. Secondly, the norms provided with the English version of the Peabody Picture Vocabulary Test are being used with its Spanish translation. The validity of such a procedure, particularly with a bilingual population, has yet to be established. Finally, the question arises whether the Spanish translation, when it is administered in isolation, provides a better assessment of the bilingual child's level of language development than the English version.

Purpose of the Study

This study was designed to investigate the usefulness of the administration of a Spanish translation of the Peabody Picture Vocabulary Test, Form A, in the language assessment of bilingual children.

Statement of the Problem

The purpose of this study was to examine the utility of the Spanish translation of the Peabody Picture Vocabulary Test with young Spanish-American children. Specifically, it attempted to answer the three following questions:

(1) Is an estimate of the bilingual child's total receptive vocabulary achieved by comparing the items (test words) of both the Spanish version and the English version of the Peabody Picture Vocabulary Test? Both the Spanish translation and the English version of the Peabody Picture Vocabulary Test were given to each child. The examiner studied

comparable items on both tests individually to determine which words were in error and if the same test items were failed on both the Spanish and English test presentation. By examining error words in both languages, the examiner achieved an overview of the child's total receptive vocabulary.

(2) On which version of the Peabody Picture Vocabulary Test does the bilingual child show a better raw score? The examiner compared the child's raw scores received on both vocabulary tests. Since the raw score is equal to the number of test words correct, this comparison revealed the language in which the child evidenced better performance under the experimental conditions.

(3) Can the norms for raw score as reported in the English Peabody Picture Vocabulary Test manual be compared with the raw scores achieved by the bilingual group on the Spanish Peabody Picture Vocabulary Test? Since standardization procedures have not been completed at the University of Mexico, the examiner is advised to use the norms which were standardized for the English version of the Peabody Picture Vocabulary Test. The Peabody Picture Vocabulary Test was standardized on 4,012 English-speaking subjects. It seemed appropriate to question the use of English norms with a Spanish test.

Definitions

The word "language" has been defined from numerous viewpoints which emphasize different aspects of this highly

complicated phenomenon. McCarthy (23, pp. 492-493) reports that theorists in the early twentieth century--Wundt, Dewey, De Laguna, and Esper--expressed contrasting definitions of language. She states that Wundt considered language to be the expression of ideas and feelings, with communication as a secondary purpose. De Laguna and Esper disagreed with Wundt's definition by stressing the importance of the function of language as it relates to the total environment. Dewey defines language as follows:

> Language is not "expression" of something antecedent, much less expression of antecedent thought. It is communication; the establishment of cooperation in an activity in which there are partners and in which the activity of each is modified and regulated by partnership.

More recent definitions of language include those by Myklebust, Carroll, Johnson, Darley, and Spriestersbach, Wood, and Gray and Wise (6, 14, 16, 27, 37). Myklebust (27, p. 10) defines language as "a part of symbolic behavior" which incorporates receptive and expressive capabilities. Carroll (6, p. 744), a researcher in the area of linguistics and language learning, defines language in an operational manner as "a structured system of arbitrary vocal sounds and sequences of sounds which is used in interpersonal communication and which rather exhaustively catalogs the things, events, and processes of human experience." Johnson, Darley, and Spriesterbach (16, p. 160) refer to language as "the symbolization process and the symbolic systems that distinguish man

uniquely from all other creatures." Wood (37, p. 2) explains language as the ability to use symbols for communicative purposes. Language is defined by Gray and Wise (14, p. 2) as "a systemized code of arbitrary symbols, basically vocal, but reinforced by visible body activity." They stated that "communication through language" has permitted people to adjust to society and their environment, and to learn the culture of their social and physical environment.

Speech pathologists have described language in terms of its two major components, receptive abilities and expressive abilities. Receptive language: Myklebust (27, pp. 9-16) and Darley (10, p. 15) have employed the term "receptive language" to describe one's ability to understand verbal symbols spoken by others. Expressive language: This term has been described as the ability to formulate and use language symbols in order to express thoughts, ideas, emotions, and feelings to others (10, p. 15; 27, pp. 9-16).

Bilingualism has been defined by Berry and Eisenson (5, pp. 34-35) as subjecting the child to "the influence of two or more languages before he has arrived at a fair degree of proficiency in one." The child does not choose to learn two languages but is forced to learn them because of his environment. Eisenson, Auer, and Irwin (12, p. 222) feel that a difference should be made between learning two languages because of the influence of the child's initial environment and learning a second language as a student's academic effort.

Only in the first instance would the individual be bilingual according to these authors. Van Riper (35, p. 144) briefly defines bilingualism as the use of "two languages at the same time." Webster's Seventh New Collegiate Dictionary (36) states that bilingualism was the ability "to use two languages."

The mean length of response, a measure of verbal output, was defined by McCarthy (23, p. 550) as the average sentence length.

Webster's Seventh New Collegiate Dictionary (36) defines the word "vocabulary" as a "sum or stock of words employed by a language, group, individual, or work in a field of knowledge." Word groups used in daily conversation have been divided into recognition vocabularies and use vocabularies by Johnson, Darley, and Spriestersbach (16, p. 175). Recognition vocabulary was described as word groups which an individual understands. Use vocabulary was described as words which are used for speech.

Bangs (2, p. 8) defined the syntactic features of language as those that "deal with the order in which the words are put together to form phrase or sentence structures."

The rules which determine the social acceptability of the structure of the language are called "grammar" (2, p. 8).

Review of the Literature

Effects of Bilingualism on Language Skill

From earlier language studies we can anticipate that the child who is confronted with the necessity of learning

dual language vocabularies and syntaxes frequently will be delayed in his language development. McCarthy (23, p. 591) has stated that bilingualism is often a deterrent to a young child's development of language. She continues by reporting that in a majority of cases bilingualism becomes a handicap to the child's school adjustment and achievement.

At the conclusion of his discussion of the topic of bilingualism Thompson (34, p. 367) concludes:

> There can be no doubt that the child reared in a bilingual environment is handicapped in his language growth. One can debate the issue as to whether speech facility in two languages is worth the consequent retardation in the common language of the realm. There is no research evidence that might help answer this important question.

Leopold (19), a linguist, conducted several longitudinal studies to observe the speech development of his young bilingual daughter, Hildegard, who was raised in the presence of English and German from birth. Diary records, phonetic transcriptions, and vocabulary lists of the child's utterances were obtained. An interesting outcome of his observations was that at first the child did not separate the two languages. this was most noticeable in her vocabulary, when occasionally she used both English and German words in the same phrase. The division of the two languages into two separate communication systems did not occur until the child was considerably older.

Leopold (20) wrote about bilingualism's effect upon areas such as Alsace-Lorraine, Luxemburg, Belgium, Switzerland,

Wales, South Africa, India, and the United States, where this condition existed as an educational problem. Educators and teachers who encountered language barriers in the schools wrote on the subject of bilingualism. Leopold felt that Ronjat's case study of his son's development of a French-German language system was a classic case history on bilingualism. The study is a systematic description of the linguistic development of a dual language system and the retarding influence of resultant bilingualism on the child's enlarging vocabulary, grammas, and syntax. Another major work emphasized by Leopold was Geissler's book on German bilingual children. Geissler analyzed the influence of bilingualism on the linguistic development of preschool children, of school children, and of adolescents in Germany. As had previously been observed by other investigators, these bilingual children evidenced difficulty in using either language system. Geissler further noted that this language difficulty frequently persisted into late childhood and early adolescence. Leopold concluded his review with recognition of the marked consequences of bilingualism on language and vocabulary development, and of the need for careful investigation of the influence of early bilingualism upon linguistic development.

Smith (32) described the effect of bilingualism on Chinese and Japanese populations in Hawaii. In 1935 she investigated the development of language in eight children from a family speaking both Chinese and English. Upon

finishing the study, she made the following conclusions: 1) that it is less confusing when a child learns two languages from two separate sources; 2) that change from a monolingual environment is detrimental to the child's language development; 3) that this type of change is more harmful to a twelve-to-eighteen-months-old child than it is to an older child; and 4) that the detrimental effects do not delay the young child's acquisition of his first word but do seem to delay later development of language.

One thousand children in Hawaii were used by Smith in a second study on the effect of bilingualism on language development by Smith (31). The subjects varied in racial background and in the extent of the bilingualism. All the children in the study preferred to speak English and about eighty-eight per cent of their utterances were in English. Smith compared the "island" bilingual group to a Caucasian bilingual group, and discovered that the non-Caucasian bilingual group were seriously handicapped in usage of the English language. This retardation was so severe that the average child from the bilingual "island" background was on the level of a three-year-old child from a monolingual Caucasian environment.

A few years later (1949), Smith (30) tested a group of thirty bilingual children of Chinese origin who ranged in age from thirty-seven to seventy-seven months from parents of above-average socio-economic status. The vocabularies of

these children were tested in both languages, English and Chinese. When compared to monoglots their same age, the bilingual group had vocabularies which were smaller than average in each language. If both English and Chinese vocabularies were added together, only two-fifths of the bilingual group would exceed the norm. Based on these findings, Smith concluded that the average bilingual child failed to reach the vocabulary level of the average monoglot. She recommended that, at least during preschool years, it is better not to expose a child to two languages unless he possesses superior linguistic abilities.

Holland (15), studying a group of thirty-six Spanish-English-speaking children, utilized both languages to test each child with a special adaptation of the Wechsler Intelligence Scale for Children. The results showed all but three of the children to be deficient in language skills. Of the remaining thirty-three subjects, eight showed very serious language delay, seven showed serious language delay, and eighteen demonstrated moderate language delay. Over forty per cent did not comprehend English well, a barrier which proved to be detrimental to their educational adjustment. The language barrier seemed to decrease with added schooling; however, it was still apparent as late as the fifth grade. Holland described the children's language patterns as "a complex mixture of both languages and seldom exclusively one or the other." He concluded that these Spanish-English-

speaking children were actually "sub-standard" speakers of both languages.

Bean's research findings (4) on the oral language skills of bilingual Mexican-American children conflict with Holland's results. Bean measured the bilingual children's mean length of response and their correctness of usage. The bilingual group's performance was then compared to the performance of American monoglots. Bean's major findings were that in oral language skills, there was no significant difference between the groups or within each group.

Carrow (7) carefully matched fifty monolingual children with fifty bilingual Spanish-American children for the purpose of investigating several language skills. Findings in favor of the monolingual group showed significant differences in tests of oral reading accuracy and comprehension, hearing and speaking vocabulary, and arithmetic reasoning. The areas of silent reading comprehension and vocabulary, oral reading rate, spelling, verbal output, length of clause, and degree of subordination showed no significant differences. The bilingual children were noted to make more articulation and grammar errors.

The Effect of Bilingualism on Verbal Intelligence Testing

An important aspect of much intelligence testing is concerned with the subject's ability to understand and manipulate language symbols. As could be anticipated in view of

the apparent language deficit in the majority of bilingual children, results from verbal intelligence tests reflect the lowered level of language functioning. Altus (1) reports lowered verbal intelligence, in his study of Mexican-American children in California. Kralovich (18) studied the effect of bilingualism upon intelligence as measured by the Wechsler Intelligence Scale for Children. He noted that scores of bilingual children of Slavic origin were appreciably lowered in the area of vocabulary. Levinson (22) investigated the verbal and performance abilities of monolingual and bilingual young Jewish children. The monolingual population of the New York Jewish children received higher scores on the verbal section of the Wechsler Intelligence Scale for Children than did the bilingual group. Another study which compared the performance of young bilingual children on verbal and non-verbal tests of intelligence was that conducted by Darcy (9). Her results indicate that bilingualism has an adverse effect on the usual verbal measures of intelligence.

W. R. Jones (17), following an investigation of Welsh bilingual children in England, stated that bilingualism need not be a source of intellectual liability for a child if non-verbal tests of intelligence are utilized with a bilingual child. The use of verbal intelligence testing, however, reflects the bilingual child's language problem in the form of reduced scores.

Corwin (8) examined the influence of culture and language on the performance of Mexican-American children on the

English Peabody Picture Vocabulary Test and the Wechsler Intelligence Scale for Children. She matched her experimental group of fourth, fifty, and sixth grade bilingual children to a control group of monolingual children in the same grades. The bilingual group were lower in mean I.Q. scores than were the monoglots on both tests. The bilingual group received their lowest mean I.Q. scores in the verbal and vocabulary sections.

The additional vocabulary studies of Altus (1) and of Norman and Mead (28), using a Spanish-American bilingual population, also demonstrated lower-than-average scores for the bilingual group.

The Effects of Bilingualism on Receptive Language Assessment

One of the major difficulties which faces the speech pathologist who works with a bilingual child is that of appraising the child's language. The purpose of the language evaluation may be for the placement of a child new to a school, to obtain an estimate of his language functioning in order to make recommendations for remedial procedures, or as part of a diagnostic test battery.

A major feature of such a language evaluation is an assessment of the receptive component of language. Some of the devices which have been used in the past to measure receptive language skills include a battery of tests developed by T. Bangs (2). Her test items for auditory reception of

oral language utilize verbal instructions, but do not require spoken response. The battery of tests includes the Ammons Full Range Picture Vocabulary Test, selected subtests from the Revised Stanford-Binet Intelligence Scale, form L-M, and the Gesell Developmental Scale for use with children ranging in age from two through six years. For example, the receptive test items included from the Revised Stanford-Binet Intelligence Scale and the Gesell Developmental Scale for the age range of two to two-and-one-half years are as follows:

(1) (G) Picture Cards--dog, shoe, cup, house, clock, basket, leaf, flag, star. The child selects a picture of the above-listed objects upon the examiner's request.

(2) (BL) Identifying Parts of the Body--hair, mouth, ear, hands. The child indicates the body part named by the examiner.

(3) (BL) Identifying Objects by Use--Show me what we drink out of, goes on our feet, we buy candy with, we cut with, we ride in, we use to iron clothes. The child points to the appropriate miniature object.

(4) (BM) Obeying Simple Commands--Give me the dog. Put the button in the box. Put the scissors beside the block. The child performs the indicated activity.

(5) (BM) Identifying Objects by Name--dog, ball, train, bed, doll, scissors. The child selects the respective named object.

Darley (10, p. 20) suggests that the receptive component of language can be estimated at higher age levels by selecting subtests as the Revised Stanford-Binet Intelligence Scale and the Wechsler Intelligence Tests.

One of the more comprehensive tests of a child's language function is the Illinois Test of Psycho-Linguistic Abilities (25, p. 4-7). By selecting appropriate subtests, the examiner may use this test to measure the receptive component of language. For example, subtest 1, auditory decoding, examines the ability to understand running speech by means of a controlled vocabulary test in which the subject answers "yes" or "no" to a series of questions. For instance, one item asks, "Do birds fly?" Auditory-vocal association, the ability to comprehend meaningful relationships between words, is subtest 3 of the Illinois Test of Psycho-Linguistic Abilities. The subject is required to supply the missing word to the test statement. For example, one item asks, "Soup is hot; ice cream is _____." Auditory reception and auditory memory skills are necessary to perform adequately in subtest 8, Auditory-Vocal Sequencing, in which the subject must repeat a sequence of digits which are first spoke by the examiner.

Still other materials which have been used to test receptive language abilities are single-word receptive vocabulary test. One of the first tests to assess the growth of receptive vocabulary was conducted by Smith (29), who conducted a 203-word test for children ages two to six. Using every twentieth word from Thorndike's word list and excluding any word which was not published in any of the seventy-seven children's vocabulary lists which she studied, she compiled

the test words. This procedure has been questioned, however, because the test words were selected from a sample of words rather than from a total population of words, making the test of limited usefulness.

One of the most frequently used tests of receptive vocabulary is the Peabody Picture Vocabulary Test, forms A and B (11), a single-word, receptive vocabulary test which requires no verbal response. Two groups of 150 test words were selected from 3885 picturable words chosen from all entries in the Merrian-Webster New College Dictionary. These word groups comprise Forms A and B of this test. The test material consists of 150 plates, each containing four pictures. The raw score obtained is equal to the number of correct responses and can be converted into a mental age, a standard I.Q. score, and a percentile. Separate norms for ages two years, six months through eighteen years are provided in the manual for each of the two forms of the test, Forms A and B.

The instructions and test items of all of the cited receptive language assessment devices are administered in English. Few bilingual tests are currently available and very limited information regarding the performance of the bilingual child on routine receptive language evaluation procedures is reported in the literature. Published literature is available in which the Peabody Picture Vocabulary Test was administered to populations such as the mentally retarded, the cerebral palsied, the gifted, the deaf, the emotionally

disturbed and others. No study has been published in which the Peabody Picture Vocabulary Test was administered to a Spanish-American bilingual population. The Ammons Full Range Picture Vocabulary Test, another single-word, receptive vocabulary test, was admimistered to a Spanish-American bilingual population by R. D. Norman and D. F. Mead (28). They found the scores of these children to be considerably lower than monolingual children on the Full Range Picture Vocabulary Test. Altus (1) examined patterns of a selected sample of bilingual Mexican-American children on the Wechsler-Intelligence Scale for Children and found their English vocabulary scores to be significantly lowered. He concluded that research indicates that the child who speaks both Spanish and English does not perform as well on English vocabulary tests as does the child who speaks English only.

The need for a Spanish-language test which could be used with the bilingual Spanish-American child is obvious. To date there are few published Spanish language tests of receptive vocabulary. This type of Spanish language test could be especially useful with the Spanish-American bilingual child in the kindergarten and primary grades. Recently, an experimental translation of the Peabody Picture Vocabulary Test has been developed by Margaret Moreau, of the University of Mexico (21). The Spanish version, which was published in the spring of 1969, requires the translation of the directions and stimulus words into Spanish, and if necessary, selection of an alternate stimulus word and appropriate illustration.

Until standardization procedures are completed at the University of Mexico, the examiner is advised to follow the English word-order and to use the English norms. One unpublished paper was written which examined the relationship between the Spanish Peabody Picture Vocabulary Test and the Goodenough-Harris Drawing Test. To date, no other study has been published in which the Spanish Peabody Picture Vocabulary Test and the Goodenough-Harris Drawing Test was administered to a Mexican-American population in California. One hundred and fifty-four children were given the vocabulary test; ninety children were also given the drawing test. The upper age range of the group was thirteen years, five months. The mean I.Q. scores of this bilingual group on the Spanish test were below those reported in the norms for the English version of the Peabody Picture Vocabulary Test. At all age levels tested the bilingual group achieved higher mean I.Q. scores on the Goodenough-Harris Drawing Test than they did on the Spanish Peabody Picture Vocabulary Test.

Summary

Because of its complexity and its influence, bilingualism has been a subject for considerable concern and numerous research investigations. Bilingualism has been studied with regard to its effects on language skill, verbal intelligence testing, and receptive language evaluation. Studies reported by McCarthy (23), Thompson (34), Smith (30, 31, 32), Leopold (19, 20), Holland (15), and Carrow (7) showed bilingualism

to have detrimental effects upon development of language skills in children.

The effect on bilingualism on intelligence testing seems to be adverse when the usual verbal measures of intelligence are used. Altus (1), Kralovich (18), Levinson (22), and Darcy (9) report that the language deficit of the bilingual child is reflected in lowered verbal intelligence scores.

Methods of evaluating receptive language have been proposed by Bangs (2), Darley (10), and J. McCarthy (25), using selected subtests of standard intelligence tests, using selected items from the Gesell Developmental Scale, and using appropriate subtests from the Illinois Test of Psycholinguistic Abilities. Other materials which have been used to test receptive language capabilities are single-word receptive vocabulary tests such as those designed by Smith (29) and Dunn (11). No study has been published on the Peabody Picture Vocabulary Test in which it was administered to a bilingual Spanish-American population. Norman and Mead (28) administered the Ammons Full-Range Picture Vocabulary Test to a Spanish-American bilingual group and found the scores of the bilingual group to be considerably lower than those of monolingual children. Altus (1) reported lower scores on the vocabulary subtest of the Wechsler Intelligence Scale for Children for a Spanish-American bilingual group. From these studies it appears that bilingualism tends to lower the English receptive vocabulary scores.

Recently, the Peabody Picture Vocabulary Test has been translated into Spanish by Moreau, of the University of Mexico. Fitzpatrick's unpublished study of this test (13) showed the scores of the bilingual children to be lower than those reported in the norms for the English version of the Peabody Picture Vocabulary Test. The effect of bilingualism upon Spanish vocabulary scores warrants further investigation.

CHAPTER BIBLIOGRAPHY

1. Altus, G. T., "WISC Patterns of Selected Samples of Bilingual School Children," Journal of Genetic Psychology, LXXXIII (December, 1953), 241-248.

2. Bangs, Tina E., "Evaluating Children with Language Delay," Journal of Speech and Hearing Disorders, XXV (February, 1961), 6-18.

3. _____, Language and Learning Disorders of the Pre-Academic Child, New York, Appleton-Century-Crofts, 1968.

4. Bean, J. P., "The Effects of Socio-Economic Status on Oral Language Skills," Voice, XVI (June, 1967), 103-113.

5. Berry, M. and J. Eisenson, Speech Disorders, New York, Appleton-Century-Crofts, 1956.

6. Carroll, John B., "Language Development," Encyclopedia of Educational Research," Third edition, edited by C. W. Harris, New York, The Macmillan Company, 1960.

7. Carrow, Sister Mary A., "Linguistic Functioning of Bilingual and Monolingual Children," Journal of Speech and Hearing Disorders (September, 1957), 371-380.

8. Corwin, Betty J., "The Influence of Culture and Language on Individual Ability Tests," unpublished study, Division of Education, San Fernando Valley State College, Northridge, California, 1962.

9. Darcy, Natalie T., "The Effect of Bilingualism Upon the Measurement of the Intelligence of Children of Preschool Age," Journal of Educational Psychology, XXXVII (January, 1946), 21-44.

10. Darley, Frederic L., Diagnosis and Appraisal of Communication Disorders, Englewood Cliffs, New Jersey, Prentice-Hall, Inc., 1964.

11. Dunn, L. M., Peabody Picture Vocabulary Test, Nashville, American Guidance Service, 1959.

12. Eisenson, J., J. J. Auer, and J. V. Irwin, Psychology of Communication, New York, Appleton-Century-Crofts, 1963.

13. Fitzpatrick, Robert A., "An Investigation of a Spanish Adaptation of the Peabody Picture Vocabulary Test," unpublished study, presented to the faculty of the School of Education, San Diego State College, San Diego, California, 1968.

14. Gray, Giles W. and Claude M. Wise, The Bases of Speech, New York, Harper and Brothers, 1959.

15. Holland, W. R., "Language Barrier as an Educational Problem of the Spanish-Speaking Child," Exceptional Child, XXVII (September, 1960), 42-50.

16. Johnson, W., F. L. Darley, and D. C. Spriestersbach, Diagnostic Methods in Speech Pathology, New York, Harper and Row, 1963.

17. Jones, W. R., "A Critical Study of Bilingualism and Non-verbal Intelligence," British Journal of Educational Psychology, XXX (February, 1960), 71-77.

18. Kralovich, A. M., "The Effect of Bilingualism on Intelligence Test Scores as Measured by the Weshler Intelligence Scale for Children," unpublished master's thesis, Fordham University, 1954.

19. Leopold, W. F., "Speech Development of a Bilingual Child: A Linguist's Record, Vol. III, Grammar and General Problems in the First Two Years," Northwestern University Studies of Humanity, Evanston, Northwestern University Press, 1949.

20. _____, "The Study of Child Language and Infant Bilingualism," Word, IV (April, 1948), 1-17.

21. Letter from Margaret Moreau, Master of Arts, University of Mexico, D. F., February 5, 1969.

22. Levinson, B. M., "A Comparison of the Performance of Bilingual and Monolingual Native Born Jewish Children of Traditional Parentage on Four Intellectual Tests," Journal of Clinical Psychology, XV (March, 1959), 74-76.

23. McCarthy, Dorthea, "Language Development in Children," Manual of Child Psychology, edited by Leonard Carmichael, New York, John Wiley and Sons, 1954.

24. McCarthy, Dorthea, "The Language Development of the Preschool Child," Child Welfare Monographs, No. 4, Minneapolis, University of Minnesota Press, 1930.

25. McCarthy, J. J. and S. A. Kirk, Illinois Test of Psycholinguistic Abilities: Examiner's Manual, Urbana, Illinois, University of Illinois Institute for Research on Exceptional Children, 1961.

26. Menyuk, P., "Comparison of Grammar of Children with Functionally Deviant and Normal Speech," Journal of Speech and Hearing Research, VII (June, 1969), p. 109-121.

27. Myklebust, Helmer R., Auditory Disorders in Children, New York, Grune and Straton, 1954.

28. Norman, R. D. and D. F. Mead, "Spanish-American Bilingualism and the Ammons Full-Range Picture Vocabulary Test," Journal of Social Psychology, LI (June, 1960), 319-330.

29. Smith, Madorah E., "An Investigation of the Development of the Sentence and the Extent of Vocabulary in Young Children," University of Iowa Studies in Child Welfare, III, No. 5 (November, 1926), 1-25.

30. _____, "Measurement of Vocabulary of Young Bilingual Children in Both Languages Used," Journal of Genetic Psychology, LXXIV (June, 1949), 305-310.

31. _____, "Some Light on the Problem of Bilingualism as Found from a Study of the Progress in Mastery of English among Preschool Children of Non-American Ancestry in Hawaii, Genetic Psychology Monographs, XXI (January, 1939), 121-284.

32. _____, "A Study of the Speech of Eight Bilingual Children of the Same Family," Child Development, VI (March, 1935), 19-25.

33. Templin, Mildred C., "Certain Language Skills in Children: Skill Development and Interrelations," Institute of Child Welfare Monograph Series, Minneapolis, University of Minnesota Press, 1957.

34. Thompson, G. G., Child Psychology: Growth Trends in Psychological Adjustment, Boston, Houghton Mifflin Company, 1952.

35. VanRiper, Charles, Speech Correction, Englewood Cliffs, New Jersey, Prentice-Hall, Inc., 1954.

36. Webster's Seventh New Collegiate Dictionary, Springfield, Massachusetts, G. and C. Merriam, 1961.

37. Wood, Nancy E., Language Disorders in Children, Chicago, National Society For Crippled Children and Adults, 1959.

CHAPTER II

EXPERIMENTAL POPULATION, INSTRUMENTATION, AND DESIGN

Experimental Population

The experimental population consisted of twenty bilingual children, nine females and eleven males, between the ages of five years, nine months, and six years, eight months. The mean age of the experimental group was six years, three months. The nine girls ranged in age from five years, nine months, to six years, seven months, with a mean age of six years, three months. The eleven boys ranged in age from five years, eleven months, to six years, eight months, with a mean age of six years, three months. The subjects were selected from an original group of one hundred twenty-five children attending kindergarten at Robstown Elementary School, Robstown, Texas.

Each of these children spoke Spanish as a first language and English as a second language. Through classroom-teacher interviews and parental questionnaires, this investigator determined the amount of time Spanish and English were spoken in the home in each child's presence.

The twenty children who comprised the experimental population were selected on the basis of the following criteria:

(1) Each child had a mental age equal to or slightly exceeding chronological age, on non-verbal tasks. This was

determined through the administration of the Goodenough-Harris Drawing Test and the block design sub-test of the Wechsler Intelligence Scale for Children.

(2) Any child with a significant hearing loss was excluded from the experimental population. In order to determine the presence of hearing loss each child was administered a pure-tone hearing test for bilateral auditory sensitivity. Intensity screening levels re: ISO were selected as follows: 10 dB for frequencies 125, 250, 500, 100, 2000, and 4000 Hz; 15 dB for the frequency 4000 Hz. Any child who failed one or more frequencies was excluded from the experimental population.

(3) Those children who demonstrated consonant-sound misarticulations which could not be anticipated on the basis of chronological age were excluded from the experimental group. Articulation development was assessed with the modified Hejna Developmental Articulation Test. Any child presenting an articulation error which was not consistent with his chronological age was excluded. The norms provided by Templin (6) for the earliest age levels at which 75 per cent of the children tested correctly produced consonant sounds in the three positions in words were used to determine the adequacy of the child's articulation.

Instrumentation

Beltone 10D Audiometer

A Beltone 10D audiometer was used to screen the subjects' hearing. Its frequency range was from 125 Hz, to 8000 Hz and

inaccuracy of frequency calibration was less than 2 per cent at the indicated frequencies. All harmonics of any frequency were no greater than 25 dB below the fundamental frequency. Its range of attenuation was 0 to 110 dB re: ISO values, and attenuator linearity was within 1.5 dB for every 5 dB interval within the range of attenuation. The Beltone 10D Audiometer had an accumulated tolerance of less than 4 dB over the entire range.

Tape Recorder

A 3M Wollensak magnetic tape recorder was used in administering the Spanish Peabody Picture Vocabulary Test and the English Peabody Picture Vocabulary Test. At a speed of 3 3/4 ips the frequency response was ± 2 dB from 125 Hz to 4000 Hz and +2-4 dB from 125 Hz to 6000 Hz. The signal-to-noise ratio was 52 dB for full track.

Test Tape

A type 1841, splice-free audiotape was used to administer both the Spanish and the English Peabody Picture Vocabulary Tests. This 1800-foot test tape on a one-millimeter acetate base was played at a speed of 3 3/4 ips. The test tape was recorded in a sound-treated I.A.C. booth at North Texas State University, Denton, Texas. The tape contained two instructional sets and test items in the appropriate language.

Subject Selection Materials

Block Design Subtest of the Wechsler Intelligence Scale for Children

The Wechsler Intelligence Scale for Children has a reported reliability of .84 for the age group under investigation (five and one-half to seven years) (7). This subtest entails the presentation of a design pictorially, for a specified length of time. The child is then required to reproduce the design through the arrangement of colored blocks. This subtest was chosen because of its high reliability and its non-verbal administration and response. Correlation of the Block Design Subtest of the Wechsler Intelligence Scale for Children with the Stanford-Binet for normal children ranging in age from five to six years has been reported to be .61 by Kureth, Muhr, and Weisgerber (5, p. 7). Since bilingual children are often delayed in language skills (3, pp. 591-594), it was felt that a verbal intelligence screening device would unduly limit the children's performance.

Goodenough-Harris Drawing Test

This screening test represents a revision of the Goodenough Draw-A-Man test, in which the child is required to draw a human figure. Scoring is based on the amount of detail represented in the drawing rather than the child's drawing skills. The Goodenough-Harris provides separate norms for males and females. Its reliability and correlation to the Stanford-Binet Intelligence Test have been reported to be .94 and .76 (for mental ages), respectively (5, pp. 41-43).

Audiometric Screening Test

For the pure-tone screening, a Beltone 10D audiometer was utilized to survey the frequencies 125, 250, 500, 1000, 2000, 4000, and 8000 Hz. Intensity levels were arbitrarily selected as follows: 125 Hz-10 dB, 250 Hz-10 dB, 500 Hz-10 dB, 1000 Hz-10 dB, 2000 Hz-10 dB, 4000 Hz-15 dB, 8000 Hz-10 dB. These levels were chosen as it was felt they would eliminate any child from consideration who evinced a significant problem with auditory sensitivity, and that more stringent requirements would be unrealistic in view of the ambient noise levels encountered in non-sound-treated rooms.

Modified Hejna Articulation Test

An articulation inventory was administered in which the following consonant speech sounds were tested in the initial, medial, and final positions of single words:

Test Sounds	Test Words
m	monkey, hammer, broom
n	nails, penny, lion
p	pig, puppy, cup
h	house, dog-house
w	window, spider-web
b	boat, baby, bib
k	cat, chicken, book
g	girl, wagon, pig
f	fork, telephone, knife
j	yellow, onion fingers, ring
d	dog, ladder, bed
l	lamp, ballon, ball
r	rabbit, barn, car
t	table, potatoes, coat
s	shoe, dishes, fish
ts	chair, matches, watch
blends	drum, clock, blocks, glasses, crayons

v	vacuum, television, stove
	thumb, toothbrush, teeth
d	jumprope, orange-juice, orange
s	sun, pencil, bus
z	zebra, scissors, rubbers
blends	train, star, slide, swing, spoon
	this, feathers
blends	scooter, snowman, desk, nest

All misarticulations (substitutions, omissions, and distortions) were recorded and Templin's development norms (6), showing the age at which 75 per cent of the children tested could correctly produce each speech sound, were used. These norms were utilized in determining those articulation errors which were inconsistent with the chronological age of each subject.

Parental Questionnaires

These questionnaires were sent to parents of each of the original one hundred twenty-five children. The parents were requested to estimate the amount of Spanish spoken in the home environment in the presence of the child. Their responses were grouped into three major categories: 1) Spanish spoken all of the time at home, 2) Spanish spoken approximately one-half the time at home, 3) Spanish spoken only a limited amount of time at home.

Teacher Interviews

The teacher of each child included in the investigation was interviewed to obtain 1) a second estimate of the amount of Spanish spoken at home, and 2) to determine the child's language preference and ability when he entered school.

Experimental Materials

Peabody Picture Vocabulary Test Form A (English version)

This test is designed to assess single-word receptive vocabulary. The subject is asked to listen to the examiner say a word and to select the one of four pictures which depicts the stimulus word. One hundred and fifty words are contained in Form A of the Peabody Picture Vocabulary Test. These words are presented in a predetermined sequence representing gradually increasing difficulty. Each word is administered in order until the subject incorrectly responds to six stimulus words in eight presentations. This test provides norms for correct responses for ages two and one-half years through sixteen years. This test's reliability is reported to be .77 (1). Its validity correlation with the Stanford-Binet Intelligence Scale is .83. The stimulus words and their order of presentation are as follows:

1.car
2.cow
3.baby
4.girl
5.ball
6.block
7.clown
8.key
9.can
10.chicken
11.blowing
12.fan
13.digging
14.skirt
15.catching
16.drum
17.leaf
18.tying
19.fence
20.bat
21.bee
22.bush
23.pouring
24.sewing
25.wiener
26.teacher
27.building
28.arrow
29.kangaroo
30.accident
31.test
32.caboose
33.envelope
34.picking
35.badge
36.goggles
37.peacock
38.queen
39.coach
40.whip
41.net
42.freckle
43.eagle
44.twist
45.shining
46.dial
47.yawning
48.tumble
49.signal
50.capsule
51.submarine
52.thermos
53.projector
54.group
55.tackling
56.transportation
57.counter
58.ceremony
59.pod
60.bronco
61.directing
62.funnel
63.delight
64.lecturer
65.communication
66.archer
67.stadium
68.excavate

69.assaulting
70.stunt
71.meringue
72.appliance
73.chemist
74.arctic
75.destruction
76.porter
77.coast
78.hoisting
79.wailing
80.coil
81.kayak
82.sentry
83.furrow
84.beam
85.fragment
86.hovering
87.bereavement
88.crag
89.tantrum
90.submerge
91.descent
92.hassock
93.canine
94.probing
95.angling
96.appraising
97.confining
98.precipitation
99.gable
100.amphibian
101.graduated
102.hieroglyphic
103.orate
104.cascade
105.illumination
106.nape
107.genealogist
108.embossed
109.mercantile
110.encumbered
111.entice
112.concentric
113.vitreous
114.sibling
115.machete
116.waif
117.cornice
118.timorous
119.fettered
120.tartan
121.sulky
122.obelisk
123.eclipse
124.entomology
125.bumptious
126.dormer
127.coniferous
128.consternation
129.obese
130.gauntlet
131.inclement
132.cupola
133.obliterate
134.burnishing
135.bovine
136.eminence
137.legume
138.senile
139.deleterious
140.raze
141.ambulation
142.cravat
143.impale
144.marsupial
145.predatory
146.incertitude
147.imbibe
148.homunculus
149.cryptogam
150.pensile

Peabody Picture Vocabulary Test Form A (Spanish Translation)

This test is a duplication of the Peabody Picture Vocabulary Test, Form A (English translation) with the exception of utilizing Spanish stimulus words. This test was constructed by translating each of the English words into a Spanish vocabulary word. The same pictures are used for both translations and the examiner is instructed to utilize the norms for the English translation in interpreting the results of the Spanish translation. The stimulus words and their order of presentation are as follows:

1. coche
2. vaca
3. niño
4. perro
5. pelota
6. pistola
7. payaso
8. llava
9. lata
10. gallina
11. soplar
12. fregadero
13. casa
14. falda
15. tocar
16. tambor
17. hoja
18. clavar
19. hacha
20. chimenea
21. abeja
22. planta
23. echar
24. coser
25. naranja
26. profesora
27. construir
28. flecha
29. canguro
30. accidente
31. nido
32. tanque
33. sobre
34. remedar
35. pala
36. anteojos
37. pavo real
38. barbero
39. carruaje
40. látigo
41. red
42. peca
43. girafa
44. torcido
45. brillar
46. marcar
47. bostezar
48. resbalar
49. semáforo
50. cápsula
51. submarino
52. termo
53. termometro
54. grupo
55. taladrar
56. transportación
57. alacenas
58. ceremonia
59. borla
60. chimpancé
61. enyesar
62. embudo
63. deleite
64. esprádacin
65. comunicación
66. arquería
67. estudio
68. excabar
69. riña
70. asta
71. merengue
72. cantimplora
or enrejado
73. químico
74. ártico
75. destrucción
76. cadete
77. costa
78. izar
79. agotamiento
80. proyector
81. kayak
82. centinela
83. surco
84. alero
85. fragmento
86. revoloteandos
87. aflicción
88. despeñaderos
89. rabieta
90. sumergido
91. descender
92. busto
93. canino
94. prevención
95. trucha
96. tasar
97. confinado
98. precipitación
99. conducto
100. anfibio
101. graduado
102. jeoglífico
103. perorar
104. laberiento
or cúspido
105. quinqué
106. cutículo
107. genealogista
108. atavío
109. emporia
110. estrategia
111. inducir
112. concéntrico
113. orfebrería
114. reo
115. monograma
116. mostrenca
117. barendal
118. rumiante
119. eslabón
120. toga
121. prensil
122. obelisco
123. óvalo
124. entomología
125. letárgico
126. buhardilla
127. conífero
128. consternación
129. emaciación
130. mandril
131. inclemente
or derelicto
132. cubilete
133. extirpar
134. bruñido
135. carnivoro
136. curial
137. estípite
138. senil
139. detereoro
140. asolar
141. esculcar
142. holgura
143. espetar
144. marsupial
145. predatoria
146. rumiadura
147. beborrotear
148. homunculo
149. criptógama
150. pensil

Design

Pilot Investigation

A pilot investigation was conducted at the North Texas State University Speech and Hearing Clinic. This pilot study was undertaken in order to insure the feasibility of the planned experimental procedure. During the pilot study the experimental procedure was followed using ten bilingual (Spanish-English) children residing in the Denton area. The pilot investigation showed that the planned experiment procedure was practical.

Procedure

All testing was conducted in a vacant, isolated classroom at Robstown Elementary School, Robstown, Texas. During the data-gathering sessions the classroom contained a Wollensak 3M tape recorder for the test administration, and a Beltone 10D Audiometer for hearing screening. Each subject was seated at a table facing the examiner. Each child of the original one hundred twenty-five kindergarten children was administered the battery of screening tests. Those children who failed one or more of the screening criteria were excluded from the final experimental population. The screening battery was administered as follows:

(1) Block Design Subtest from the Wechsler Intelligence Scale for Children: The instructions, administration, and scoring were followed according to the manual for the Wechsler

Intelligence Scale for Children (7, pp. 77-79, 113). For Design A, the examiner picked up four blocks and said, "You see these blocks have different colors on their different sides; watch me." The four blocks were arranged by the examiner to duplicate a picture and then four additional blocks were given to the child. The examiner said, "Now make one just like mine." If the child did not make the design correctly, the examiner said, "Watch me again," and gave a second demonstration, using the subject's blocks. The subject's blocks were mixed, but the examiner's blocks were left as a model. The examiner said, "Now you try it again and be sure to make it just like mine." Instructions and administration of Design B and Design C were similar to those for Design A. The test was discontinued if the child failed both trials on either Design B or Design C. Designs 1 through 7 were made from the picture only and the child was not given a second chance to complete the design.

Success on the first trial of Designs A, B, and C was credited with two points; success on the second trial of Designs A, B, and C was credited with one point. Correct performance on Designs 1 through 7 was scored four points. No points were given for failure (faulty design or failure to complete the design in the allotted time). The points were then totaled and this sum was equal to the raw score. A chart showing test age equivalents for sub-test raw scores was used to interpret the child's performance.

(2) Goodenough-Harris Drawing Test: This test was administered to each child individually according to the directions from the test manual which were contained in Harris' book (2, pp. 239-316). The child was given a pencil and two pieces of paper. For the first drawing the examiner told the child the following:

> I am going to ask you to make two picture for me today. We will make them one at a time. On this first page, I want you to make a picture of a man, a daddy. Make the very best picture that you can; take your time and work very carefully. I want to see if the boys and girls in Robstown Elementary School can do as well as those in other schools. Try very hard and see what good picture you can make. Be sure to make the whole man, not just the head and shoulders.

The examiner praised the child's work and instructed him for the second drawing by saying:

> This time I want you to make a picture of a woman, a mommy. Make the very best picture that you can; take your time and work very carefully. Be sure to make the whole woman, not just her head and shoulders.

After both drawings were completed, any unrecognizable parts of the drawing were labeled.

Separate scoring scales were used for the man drawing and the woman drawing. The examiner followed the rules cited in the manual and scored each item on a pass-fail system. Each item passed was credited with one point and all items credited were summed to obtain a raw score. The raw score and child's chronological age were used to determine the standard score equivalents for each drawing. The two standard

score equivalents were then averaged to find a mean score on the man and woman drawings.

(3) Audiological Screening: During the pure-tone audiometric testing, the child stood with his back toward the examiner. The subject was told to listen very carefully for the "beep" and to signal his detection of the tone by raising his hand. The ear phones were placed on the child's ear. First the right ear and then the left ear were tested by obtaining air conduction threshold measures at 125 hz, 250 hz, 500 hz, 1000 hz, 2000 hz, 4000 hz, and 8000 hz. Threshold was considered to be the lowest hearing level at which the subject responded to the tone half of the time (4, p. 74).

(4) Modified Hejna Developmental Articulation Test: As the examiner held up a picture card, the child was instructed to name the item. The examiner attempted to elicit a spontaneous response to all test words but occasionally it was necessary to obtain an imitative response. Errors were recorded as substitutions, distortions, or omissions on the test blank. The test findings were analyzed with the normative data reported by Templin (6).

(5) Parental questionnaires and teacher interviews: The parent questionnaires were sent home with each child in the kindergarten classes of Robstown Elementary School and were returned to the classroom teacher. Both the parent and the teacher of each child were asked to estimate the amount of Spanish spoken in the home, the child's language preference, and his language ability at the beginning of school.

Following the administration of the screening tests, twenty subjects of the original one hundred twenty-five were determined eligible for the experimental group. This group was then administered the experimental test material, the Spanish and the English Peabody Picture Vocabulary Tests, Form A. These two tests were administered individually to each child. One-half of the experimental group was administered in Spanish translation first and the English Peabody Picture Vocabulary Test second. The remaining half of the subject population was administered the English Peabody Picture Vocabulary Test first and the Spanish translation subsequently. This procedure was followed in order to eliminate the potential biasing effect of the test presentation sequence. The subjects were assigned to the two groups (those receiving the Spanish translation first and those receiving the English Peabody Picture Vocabulary Test first) on the basis of random selection.

Both the test instructions and the test stimuli were recorded on a tape recorder and were administered by a Spanish-speaking adult and an English-speaking adult. This was done in order to insure uniformity of test presentation and to eliminate the effects of a speech accent during the presentation of the Spanish translation. Two sets of instructions in the appropriate language were tape-recorded on the initial segment of each test tape. The first instructions were given exactly as recommended in the manual:

I want to play a picture game with you. See all the pictures on this page. (Point to the pictures in turn.) I will say a word, then, I want you to put your finger on the picture of the word I have said. Lets try one. Put your finger on "bed." That's fine. Now, put your finger on "fish." Good! Show me butterfly. Fine! Now I am going to show you some other pictures. Each time I say a word, you find a picture of it. When we get further along in the book you may not be sure you know the word, but I want you to look carefully at all the pictures anyway and choose the one you think is right.

Quiero jugar un juego de retratos con tigo. Mire todos los retratos en esta pagina. Yo te dire una palabra, y despues quiero que tu pongas tu dedo en el retrato de la palabra que yo dije. Vamos a tartar una. Pon tu dedo in "cama." Muy bien. Ahora, pon tu dedo en "pescado." Bien. Enseñeme "lapiz." Bueno. Ahora te voy a enseñar otros retratos. Cado vez que yo digo una palabra, busque el retrato de esa palabra. Cuando caminamos mas en el libro tu no estaras seguro de la palabra. Pero quiero que tu mires bien todas los retratos como quiera y pon tu dedo in el retrato que piensas que es correcto.

If the child failed to respond to these instructions, simpler instructions were available on the tape:

Look at the pictures. Point to "bed." Fine! Point to "fish." Good! Show me "butterfly." That's good!

Mire los retratos. Punte a "cama." Bien. Ahora, punte a "pescado." Muy bien. Enseñeme "lapiz." Bueno.

In no instance were the simpler instructions required, since each child was able to perform the experimental task following the presentation of the first instructions in the appropriate language.

Following the instructions, a carrier phrase, "Point to _____," and the stimulus word, were presented via the tape

recorder. Each stimulus word, with the carrier phrase, was recorded at each second number on the tape position reminder at ten-second intervals. This recording procedure enabled the examiner to quickly locate any stimulus word and insured a sufficient lapse of time between each stimulus word and the following carrier phrase to turn the tape recorder off and on when the child's rate of response warranted this administration method. When a child achieved a ceiling (six incorrect responses in eight consecutive presentations) on both tests, the experimental session was terminated for that child.

The subject population of this study was divided into three subgroups on the basis of the amount of Spanish spoken in the home. For ease in presentation those children whose families spoke only Spanish in the home will be referred to as Group A, those children whose families spoke Spanish half of the time at home will be referred to as Group H, and those whose families spoke Spanish less than half the time at home will be referred to as Group S. The number of subjects assigned to Group A, Group H, and Group S were six, six, and eight, respectively.

Summary

Twenty bilingual children who spoke Spanish and English were selected for the experimental population for this study on the basis of (1) intellectual capabilities commensurate with chronological age, as determined by two intellectual

screening measures, the Block Design Subtest of the Wechsler Intelligence Scale for Children and the Goodenough-Harris Drawing Test, (2) the absence of a significant hearing loss, (3) the absence of articulation disorder, and (4) the amount of Spanish spoken in the home in the child's presence. These twenty children were subsequently administered the Peabody Picture Vocabulary Test, Form A, and a Spanish translation of this test. Each test and its instructions were presented via a tape recorder. A Spanish-speaking adult presented the stimulus words and test instructions, while an English-speaking adult presented the English stimulus words and test instructions.

CHAPTER BIBLIOGRAPHY

1. Dunn, L. M., Peabody Picture Vocabulary Test, Nashville, American Guidance Service, 1959.

2. Harris, Dale B., Children's Drawings as Measures of Intellectual Maturity, New York, Harcourt, Brace and World, Inc., 1963.

3. McCarthy, Dorthea, "Language Development in Children," Manual of Child Psychology, edited by Leonard Carmichael, New York, John Wiley and Sons, 1954.

4. Newby, Hayes A., Audiology, New York, Appleton-Century-Crofts, 1964.

5. Sells, S. B., "Evaluation of Psychological Measures Used in the Health Examination Survey of Children Ages 6-11," Vital and Health Statistics, Series 2, Number 15, United States Department of Health, Education, and Welfare, March, 1966.

6. Templin, Mildred C., "Certain Language Skills in Children: Skill Development and Interrelations," Institute of Child Welfare Monograph Series, Minneapolis, University of Minnesota Press, 1957.

7. Wechsler, D., Wechsler Intelligence Scale for Children, New York, Psychological Corporation, 1949.

CHAPTER III

RESULTS

The present study was designed to investigate the effects of bilingualism on measurements of single-word receptive vocabularies of twenty Spanish-American, kindergarten children. The subjects were administered Form A of the Peabody Picture Vocabulary Test in Spanish and in English by means of a prepared tape recording of the test in each language. The results of the study are presented in three sections: (a) findings relating to the use of items of both the Spanish version and the English version of the Peabody Picture Vocabulary Test, (b) findings relating to overall raw scores obtained on the two test versions, and (c) findings relating to the use of the norms reported for the English Peabody Picture Vocabulary Test.

Estimation of the Bilingual Child's Vocabulary

One of the objectives of the present study was to evaluate whether a better estimate of the bilingual child's total receptive vocabulary is achieved by comparing the items (test words) of both the Spanish version and the English version of the Peabody Picture Vocabulary Test. Figure 1 graphically presents the percentage of correct responses made by by the entire group of twenty children on the Spanish version of the Peabody Picture Vocabulary Test, on the English version

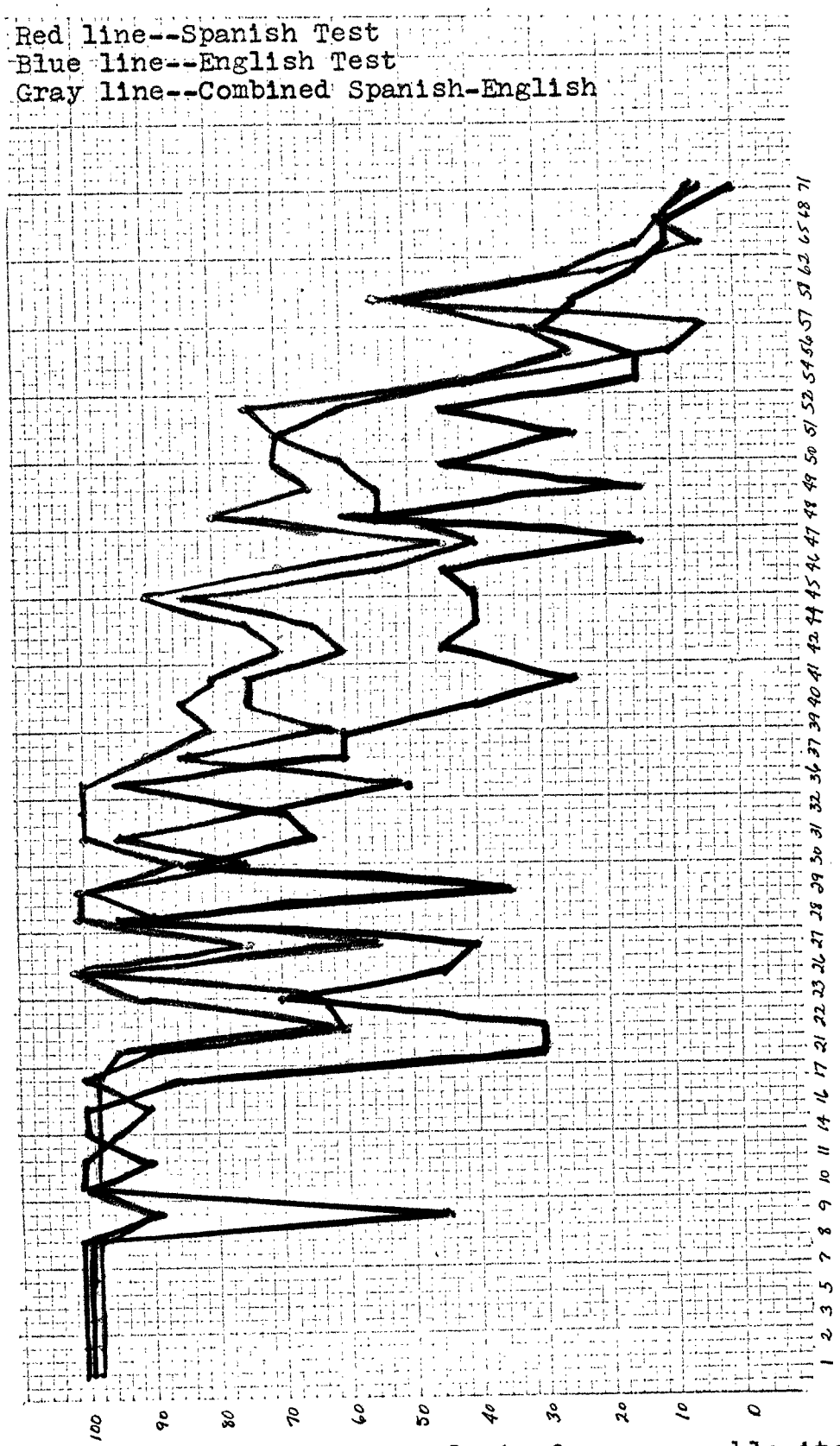


Fig. 1--Level of difficulty analysis for comparable items on each test for entire subject population.

of the Peabody Picture Vocabulary Test, and when any correct responses were accepted without regard for test version. Inspection of this graph indicates that there is a substantial rise in estimate of the child's total receptive vocabulary when a correct response on either test version is accepted and totaled. When a correct response to a test item on either test is accepted, excluding test item (word) 22, accurate responses of seventy-five per cent or better are obtained through item forty-six. When only selections on the Spanish Peabody Picture Vocabulary Test and the English Peabody Picture Vocabulary Test are considered, correct responses of seventy-five per cent or better are obtained only through items eight and twenty-one respectively. Correct responses of fifty per cent or better were obtained through items fifty-six, twenty-one, and thirty-six for the combined Spanish-English, Spanish, and English versions, in that order. (Combined Spanish-English refers to a correct selection on a test item if it occurs in response to either a Spanish or English stimulus word.)

When the subject population is divided into three groups on the basis of Spanish spoken in the home, it can be seen that for each subgroup a more favorable estimate of receptive vocabulary is obtained by using combined Spanish-English scores in lieu of using either the Spanish version or the English version in isolation. The percentage of correct responses for each test item for Group A is presented in Figure 2.

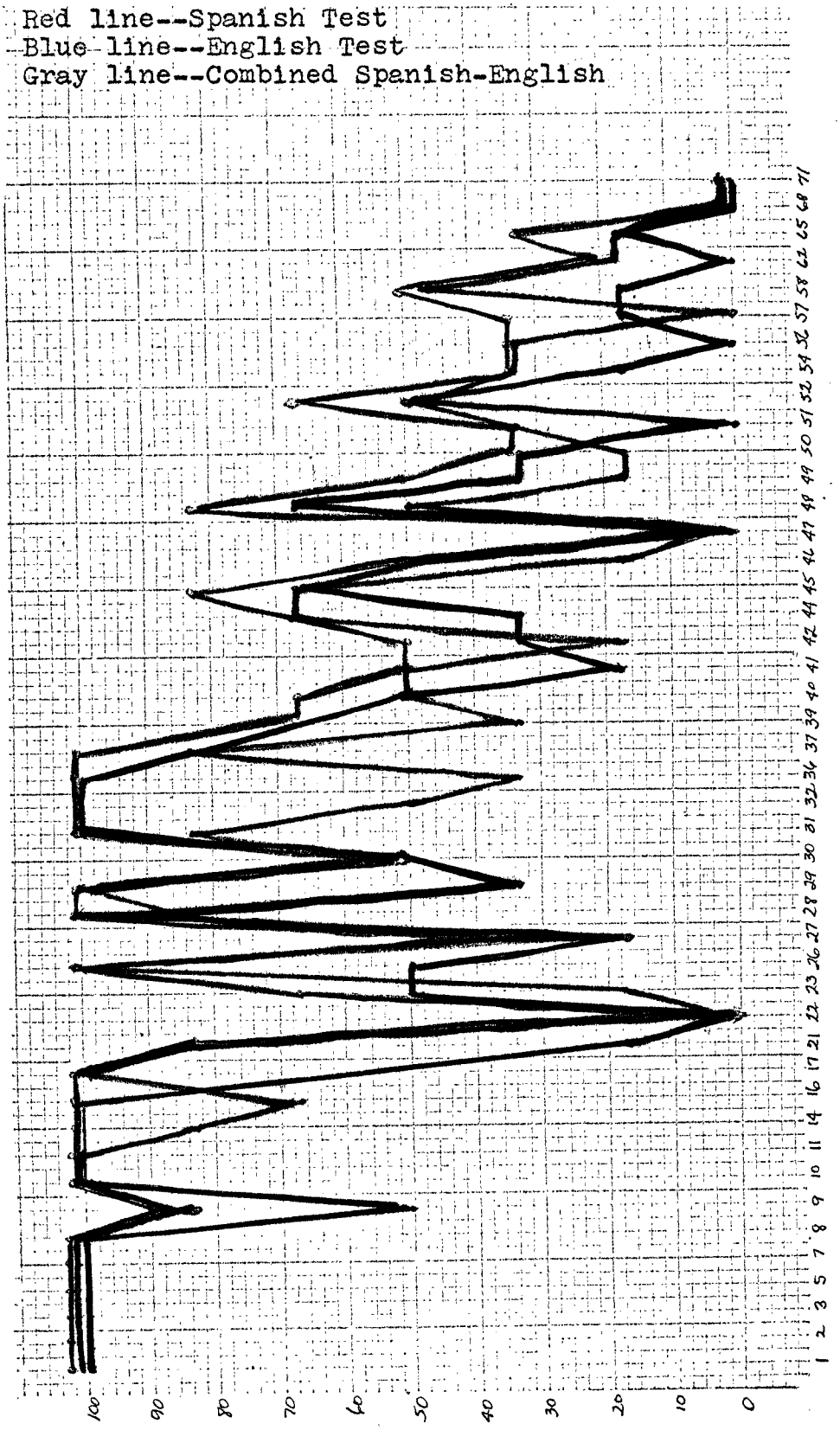


Fig. 2--Level of difficulty analysis for comparable items on each test for subgroup A.

Of forty-five comparable test items a score of seventy-five per cent correct or better was achieved on twenty-two test items for the combined Spanish-English. For the Spanish Peabody Picture Vocabulary Test, Group A totaled fifteen and twenty-five test items on which correct responses were achieved at a seventy-five per cent or better level and at fifty per cent or better level, respectively. For the English Peabody Picture Vocabulary Test, Group A achieved a seventy-five per cent or better level on seventeen and twenty-seven items, in that order.

The percentage of correct responses for each test item for Group H is presented in Figure 3. Of forty-five comparable test items a score of seventy-five per cent correct or better was achieved on twenty-six test items for the combined Spanish-English. Correct responses of fifty per cent or better were obtained for thirty-six of the forty-five test items on the combined Spanish-English. For the Spanish Peabody Picture Vocabulary Test, Group H totaled fifteen and twenty-three test items on which correct responses were achieved at a seventy-five per cent or better level, respectively. For the English Peabody Picture Vocabulary Test, Group H achieved a seventy-five per cent or better level and a fifty per cent or better level on twenty-one and thirty-four items, in that order.

The percentage of correct responses for each test item for Group S is presented in Figure 4. Of forty-five comparable

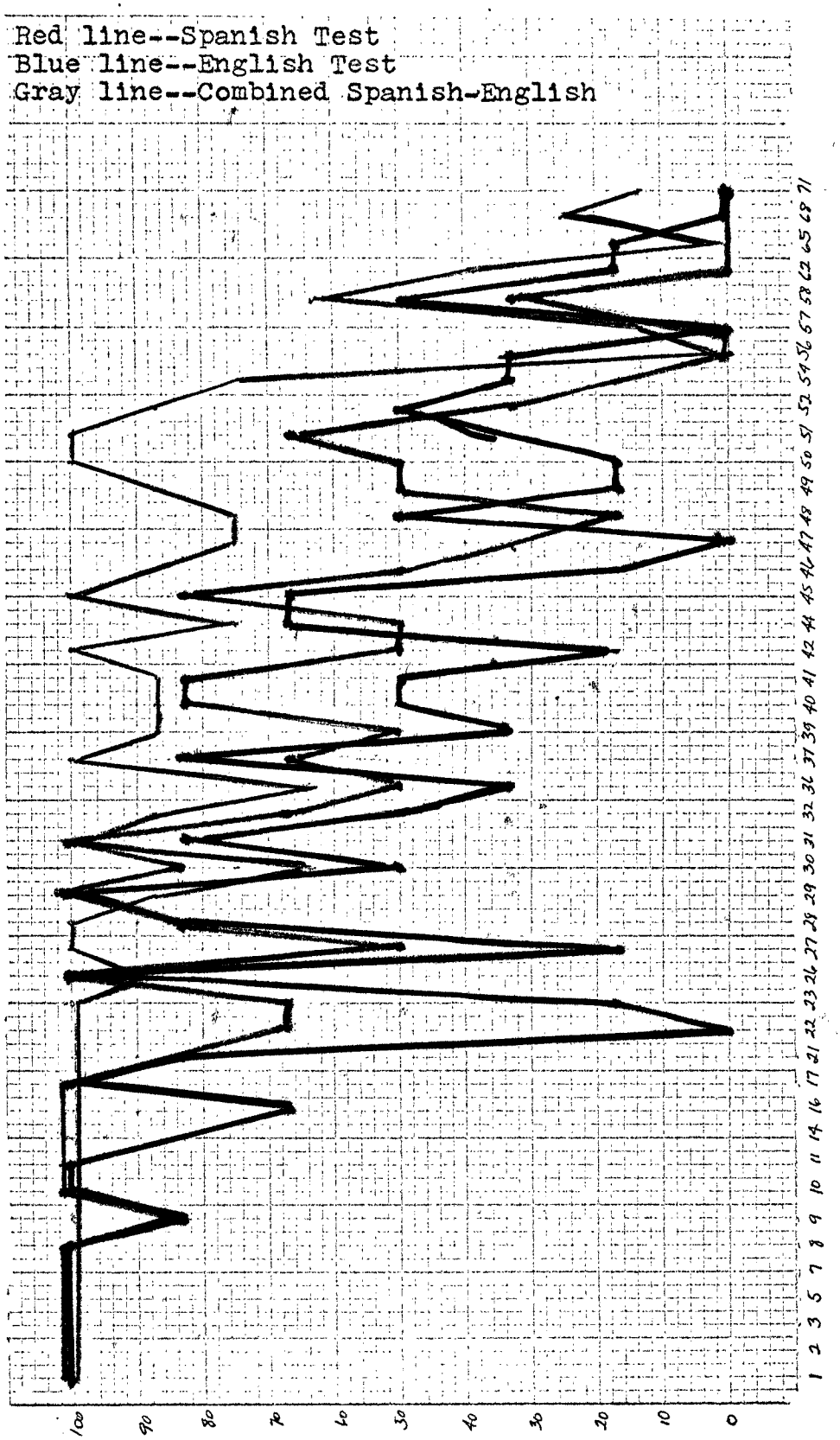


Fig. 3--Level of difficulty analysis for comparable items on each test for subgroup H.

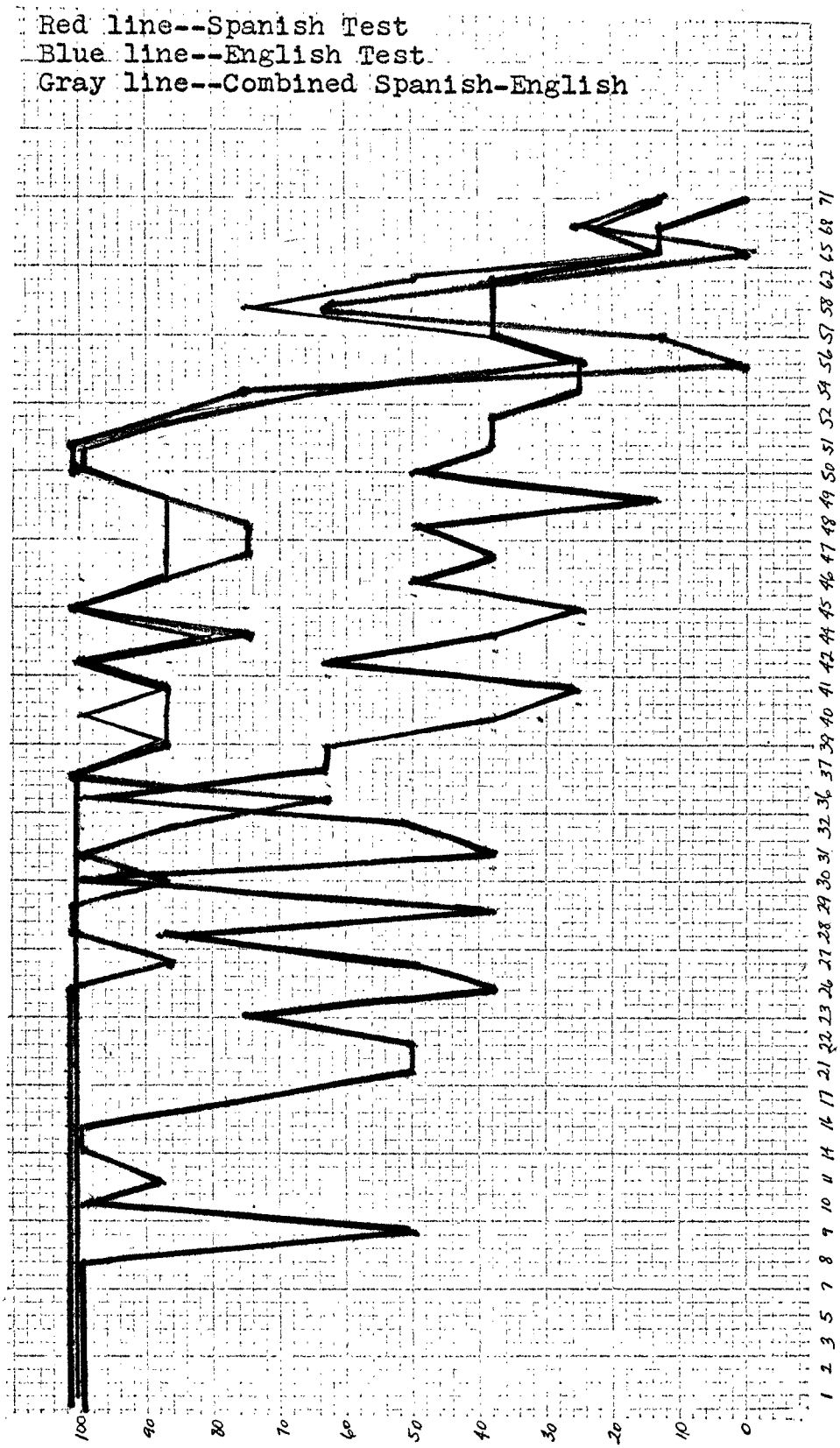


Fig. 4--Level of difficulty analysis for comparable items on each test for subgroup S.

test items a score of seventy-five per cent correct or better was achieved on thirty-eight test items for the combined Spanish-English. Correct responses of fifty per cent or better were obtained for forty of the forty-five test items on the combined Spanish-English. For the Spanish Peabody Picture Vocabulary Test, Group S totaled fifteen and twenty-five items on which correct responses were achieved at a seventy-five per cent or better level and at a fifty per cent or better level, respectively. For the English Peabody Picture Vocabulary Test, Group S achieved a seventy-five per cent or better level on thirty-seven and thirty-nine items, in that order.

Figures 5, 6, and 7 graphically present the percentage of correct responses for the three group obtained on the Combined Spanish-English, the Spanish Peabody Picture Vocabulary Test, and the English Peabody Picture Vocabulary Test. The percentage of correct responses for each test item for the three groups on the combined Spanish-English is presented in Figure 5. Group A totaled twenty-two and thirty-three test items on which correct responses were achieved at a seventy-five per cent or better level and at a fifty per cent or better level, respectively, for the combined Spanish-English. For the combined Spanish-English, Group H achieved a seventy-five per cent or better level and a fifty per cent or better level on twenty-six and thirty-six items, in that order. Group S for the combined Spanish-English obtained thirty-eight

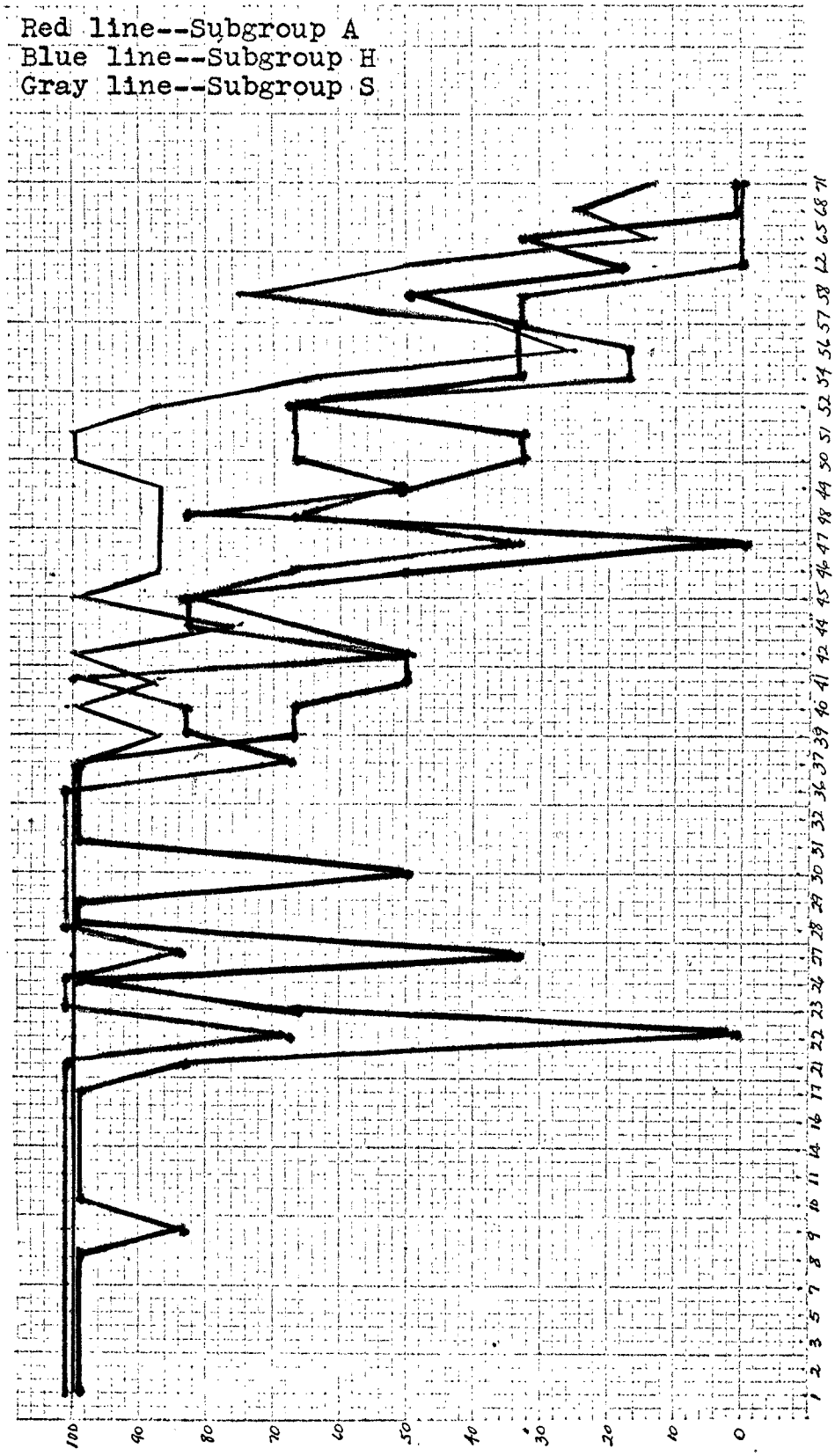


Fig. 5--Level of difficulty analysis for comparable items on Combined Spanish-English for each of the subgroups.

and forty test items on which correct responses were achieved at a seventy-five per cent or better level and at a fifty per cent or better level, respectively.

Figure 6 presents the percentage of correct responses for each test item for the three groups on the Spanish Peabody Picture Vocabulary Test. Group A totaled fifteen and twenty-five test items on which correct responses were achieved at a seventy-five per cent or better level and at a fifty per cent or better level, respectively, for the Spanish Peabody Picture Vocabulary Test. Of forty-five comparable items, a score of seventy-five per cent or better and a score of fifty per cent or better was achieved on fifteen and twenty-three items, in that order, by Group H for the Spanish Peabody Picture Vocabulary Test. Group S for the Spanish Peabody Picture Vocabulary Test obtained fifteen and twenty-five items on which correct responses were achieved at a seventy-five per cent or better level and at a fifty per cent or better level, respectively.

On Figure 7, Group A totaled seventeen and twenty-seven test items on which correct responses were achieved at a seventy-five per cent or better level and at a fifty per cent or better level, respectively, for the English Peabody Picture Vocabulary Test. Group H, for the English Peabody Picture Vocabulary Test, achieved at a seventy-five per cent or better level and at a fifty per cent or better level on twenty-one and thirty-four items, in that order. Group S, for the English

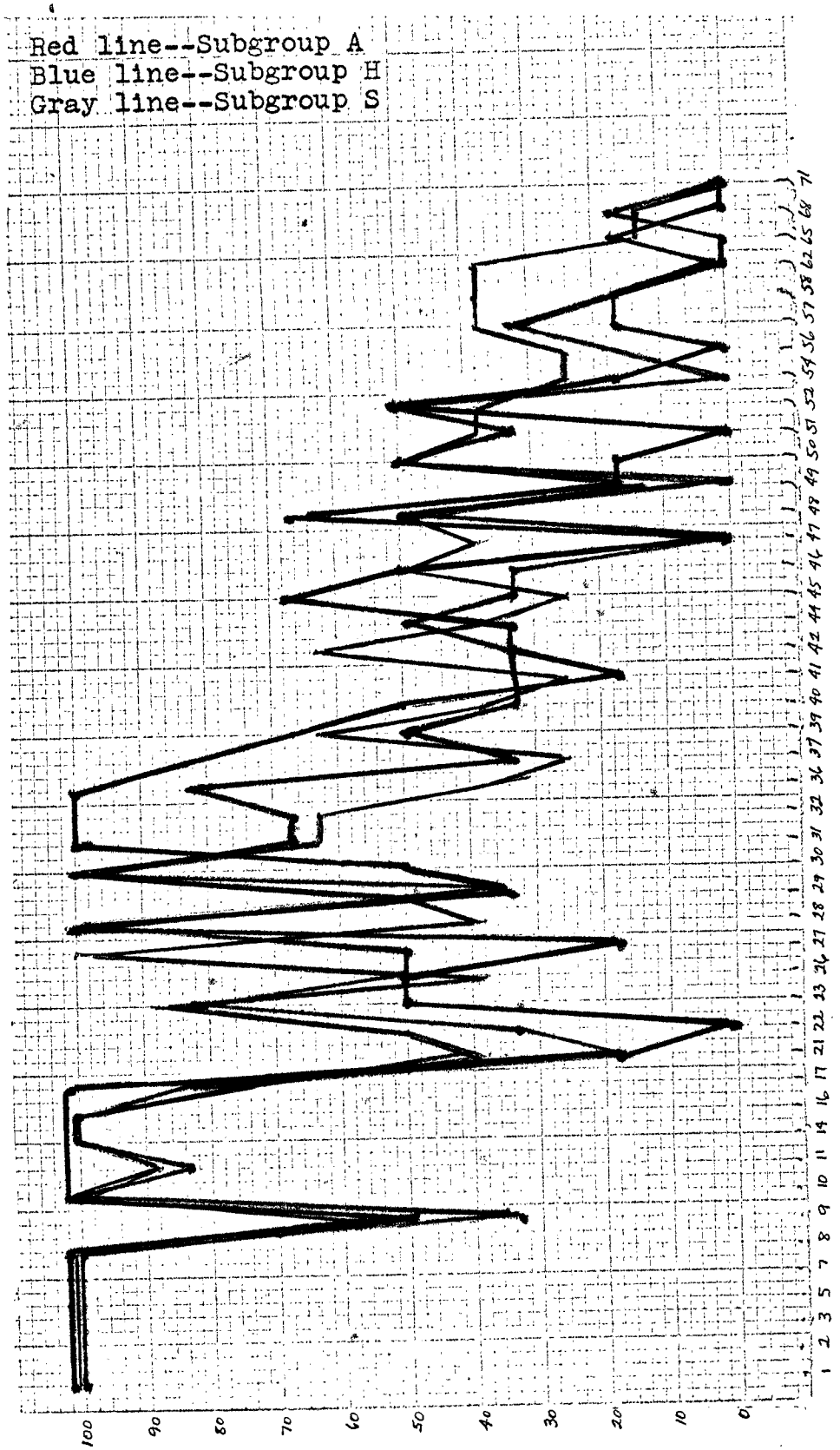


Fig. 6--Level of difficulty analysis for comparable items on the Spanish Peabody Picture Vocabulary Test for each of the subgroups.

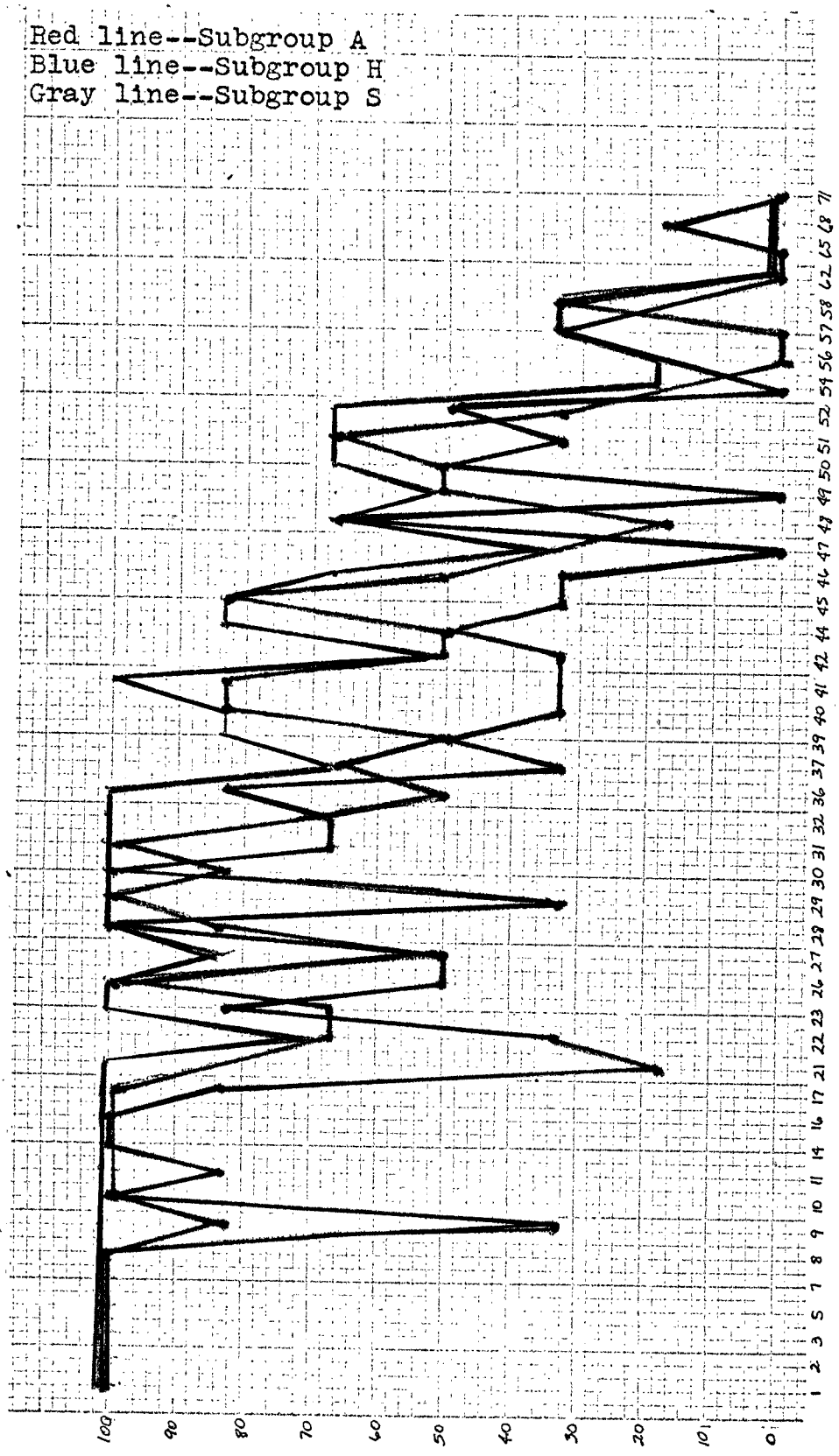


Fig. 7--Level of difficulty analysis for comparable items on the English Peabody Picture Vocabulary Test for each of the subgroups.

Peabody Picture Vocabulary Test, obtained thirty-seven and thirty-nine items on which correct responses were achieved at a seventy-five per cent or better level and at a fifty per cent or better level, respectively.

Tables 1, 2, 3, and 4 present the percentage of correct responses obtained for the total subject population and for each subgroup on each comparable test item for each test version and the combined Spanish-English. Inspection of Table 1 (Percentage of Correct Responses for Comparable Items on Each Test for the Total Study Population) indicates that there is a substantial rise in estimates of the child's total receptive vocabulary when a correct response on either test version is accepted and totaled. Tables 2, 3, and 4 (Percentage of Correct Responses for Comparable Items on Each Test for Subgroup A, Subgroup H, and Subgroup S, in that order) reveal that for each subgroup, a more favorable estimate of receptive vocabulary is obtained by using combined Spanish-English scores in lieu of using either the Spanish version or the English version in isolation.

A further inspection of Table 1 reveals a difference in the item difficulty of each word which is dependent on the language of presentation. For instance, item number 9 which is the English word "can" and its Spanish translation, "lata," appeared to be more difficult in Spanish than in English for the children of this study. A per cent correct score of 45 and 90 were obtained for the Spanish and English presentations,

TABLE 1

LEVEL OF DIFFICULTY ANALYSIS FOR COMPARABLE ITEMS ON EACH TEST FOR THE TOTAL STUDY POPULATION

Item Number	Percentage Correct Spanish Test	Percentage Correct English Test	Percentage Correct Combined Spanish-English
1	100	100	100
2	100	100	100
3	100	100	100
5	100	100	100
7	100	100	100
8	100	100	100
9	45	90	90
10	100	100	100
11	90	100	100
14	100	95	100
16	100	90	100
17	85	100	100
21	30	90	95
22	30	60	60
23	70	65	90
26	45	100	100
27	40	55	75
28	95	90	100
29	35	100	100
30	85	75	85

TABLE 1--Continued

Item Number	Percentage Correct Spanish Test	Percentage Correct English Test	Percentage Correct Combined Spanish-English
31	65	95	100
32	70	70	100
36	95	50	100
37	60	85	90
39	60	60	80
40	40	75	85
41	25	75	80
42	45	60	70
44	40	65	75
45	40	85	90
46	45	55	70
47	15	40	45
48	60	55	80
49	15	55	80
50	45	60	70
51	25	70	70
52	45	60	75
54	15	40	40
56	15	10	25
57	30	5	30
58	25	50	55
62	15	20	25

TABLE 1--Continued

Item Number	Percentage Correct Spanish Test	Percentage Correct English Test	Percentage Correct Combined Spanish-English
65	10	5	15
68	10	10	10
71	0	5	5

TABLE 2

LEVEL OF DIFFICULTY ANALYSIS FOR COMPARABLE ITEMS ON EACH TEST FOR SUBGROUP A

Item Number	Percentage Correct Spanish Test	Percentage Correct English Test	Percentage Correct Combined Spanish-English
1	100	100	100
2	100	100	100
3	100	100	100
5	100	100	100
7	100	100	100
8	100	100	100
9	50	83	83
10	100	100	100
11	100	100	100
14	100	83	100
16	100	67	100

TABLE 2--Continued

Item Number	Percentage Correct Spanish Test	Percentage Correct English Test	Percentage Correct Combined Spanish-English
17	100	100	100
21	17	83	83
22	0	0	0
23	50	17	67
26	50	100	100
27	17	17	33
28	100	83	100
29	33	100	100
30	50	50	50
31	100	83	100
32	100	50	100
36	100	33	100
37	83	83	100
39	67	33	67
40	50	50	67
41	17	50	50
42	33	17	50
44	33	67	67
45	67	67	83
46	50	17	50
47	0	0	0
48	67	50	83

TABLE 2--Continued

Item Number	Percentage Correct Spanish Test	Percentage Correct English Test	Percentage Correct Combined Spanish-English
49	33	17	50
50	33	17	33
51	0	33	33
52	50	50	67
54	17	33	33
56	0	33	33
57	17	0	33
58	17	50	50
62	0	17	17
65	17	17	33
68	0	0	0
71	0	0	0

TABLE 3

LEVEL OF DIFFICULTY ANALYSIS FOR COMPARABLE ITEMS ON EACH TEST FOR SUBGROUP H

Item Number	Percentage Correct Spanish Test	Percentage Correct English Test	Percentage Correct Combined Spanish-English
1	100	100	100
2	100	100	100

TABLE 3--Continued

Item Number	Percentage Correct Spanish Test	Percentage Correct English Test	Percentage Correct Combined Spanish-English
3	100	100	100
5	100	100	100
7	100	100	100
8	100	100	100
9	33	83	100
10	100	100	100
11	83	100	100
14	100	100	100
16	100	100	100
17	83	100	100
21	17	83	100
22	33	67	67
23	83	67	100
26	50	100	100
27	50	50	83
28	100	83	100
29	33	100	100
30	100	83	100
31	67	100	100
32	67	67	100
36	83	50	100
37	33	67	67

TABLE 3--Continued

Item Number	Percentage Correct Spanish Test	Percentage Correct English Test	Percentage Correct Combined Spanish-English
39	50	50	83
40	33	83	83
41	33	83	100
42	33	50	50
44	50	50	83
45	33	83	83
46	33	50	67
47	0	33	33
48	67	17	67
49	0	50	50
50	50	50	67
51	33	67	67
52	50	33	67
54	0	17	17
56	17	0	17
57	33	0	33
58	17	33	33
62	0	0	0
65	0	0	0
68	17	0	0
71	0	0	0

TABLE 4

LEVEL OF DIFFICULTY ANALYSIS FOR COMPARABLE ITEMS ON EACH TEST FOR SUBGROUP S

Item Number	Percentage Correct Spanish Test	Percentage Correct English Test	Percentage Correct Combined Spanish-English
1	100	100	100
2	100	100	100
3	100	100	100
5	100	100	100
7	100	100	100
8	100	100	100
9	50	100	100
10	100	100	100
11	88	100	100
14	100	100	100
16	100	100	100
17	75	100	100
21	50	100	100
22	50	100	100
23	75	100	100
26	38	100	100
27	50	87	100
28	88	100	100
29	38	100	100
30	100	87	100

TABLE 4--Continued

Item Number	Percentage Correct Spanish Test	Percentage Correct English Test	Percentage Correct Combined Spanish-English
31	38	100	100
32	50	87	100
36	100	63	100
37	63	100	100
39	63	87	87
40	38	87	100
41	25	87	87
42	63	100	100
44	38	75	75
45	25	100	100
46	50	87	87
47	38	75	87
48	50	75	87
49	13	87	87
50	50	100	100
51	38	100	100
52	38	87	87
54	25	75	63
56	25	0	25
57	38	13	38
58	38	63	75
62	38	38	50

TABLE 4--Continued

Item Number	Percentage Correct Spanish Test	Percentage Correct English Test	Percentage Correct Combined Spanish-English
65	13	0	13
68	13	25	25
71	0	13	13

respectively. Additional test terms follow this same trend. The following represents such test items and the per cent correct scores in Spanish and English: (1) item number 21, which represents the English word, "bee" and the Spanish word, "abeja," received percentage correct scores of 30 and 90 in Spanish and English, in that order; (2) item number 26, which represents the English word, "teacher" and the Spanish word, "profesora," received percentage correct scores of 45 and 100 in Spanish and English, respectively; (3) item number 29, which represents the English word, "kangaroo," and the Spanish word, "canguro," received percentage correct scores of 35 and 100 in Spanish and English, in that order; (4) item number 41, which represents the English word, "net," and the Spanish word, "red," received percentage correct scores of 25 and 75 in Spanish and English, respectively; and (5) item number 51, which represents the English word, "submarine," and the Spanish word, "submarino," received percentage correct scores of 25 and 70 in Spanish and English, in that order.

The only test item which appeared to be less difficult in Spanish than in English for the experimental population was item number 36, which represents the English word, "glggles," and the Spanish word, "anteojos." This item received a percentage correct score of 95 in Spanish and 50 in English.

Raw Score Comparisons

Another goal of the present study was to determine whether the Spanish-English bilingual child exhibited differences in his performance on a Spanish receptive language test when compared to an English receptive language test, and, if such difference did exist, to determine which language provided the most favorable picture of the child's overall single-word, receptive language development. When the responses of the entire group of bilingual children were compared on the two language measures, a significant difference in the raw scores was obtained. Table 5 presents the raw scores of each subgroup and the total group on the Spanish Peabody Picture Vocabulary Test and the English Peabody Picture Vocabulary Test. It is apparent that when the raw scores were averaged across subgroups, a better performance was achieved on the English version than on the Spanish version of the Peabody Picture Vocabulary Test. An average raw score of 44.95 was obtained for the English test, while an average raw score of 37.45 was obtained for the Spanish test. In view of an anticipated raw score of 54 to 59 based on the English Peabody Picture

Vocabulary Test norms, it appears that the subject group as a whole achieved a lowered raw score on both the Spanish and English test. Performance of the group on the English test was equivalent to that obtained by the four years, five-months-old age group utilized to develop the Peabody Picture Vocabulary Test norms. Performance on the Spanish test was equal to that achieved by the three years, seven-months-old norm group. No significant differences were found on mean raw scores between boys and girls in the total group.

When the mean raw scores for each subgroup are viewed for the two tests, significant differences among the subgroups become apparent. Group A obtained an average score of 34.83 on the English Peabody Picture Vocabulary Test, while an average raw score of 36.33 was achieved on the Spanish version. In view of an anticipated raw score of 54 to 59 based on the English Peabody Picture Vocabulary Test norms, it appears that Group A achieved a lowered raw score on both the Spanish and the English tests. Performance of the group on the English test was equivalent to that obtained by the three years, five-months-old age group utilized to develop the Peabody Picture Vocabulary norms. Performance on the Spanish test was equal to that achieved by the three years, six-months-old norm group.

Group H obtained an average score of 42.33 on the English Peabody Picture Vocabulary Test, while an average raw score of 36.17 was achieved on the Spanish version. In view of an

TABLE 5

RAW SCORES OF EACH SUBJECT ON EACH TEST

Subject	English Peabody Picture Vocabulary Test	Spanish Peabody Picture Vocabulary Test
A1	31	30
A2	29	36
A3	43	44
A4	45	38
A5	21	37
A6	40	33
Average Raw Score for Subgroup A	34.83	36.33
H1	48	22
H2	35	29
H3	30	43
H4	41	39
H5	44	39
H6	56	45
Average Raw Score for Subgroup H	42.33	36.17
(S1)	47	46
S2	53	39
(S3)	60	57
S4	68	44

TABLE 5--Continued

Subject	English Peabody Picture Vocabulary Test	Spanish Peabody Picture Vocabulary Test
S5	54	25
S6	51	31
S7	49	34
S8	54	30
Average Raw Score for Subgroup S	54.50	38.25
Average Raw Score for Total Group	44.95	37.05

(S1) and (S3) not included in analysis of variance.

anticipated raw score of 54 to 58 based on the English Peabody Picture Vocabulary Test norms, it appears that Group H achieved a lowered raw score on both the Spanish and the English test. Performance of the group on the English test was equivalent to that obtained by the four-year-old age group utilized to develop the Peabody Picture Vocabulary norms. Performance on the Spanish test was equal to that achieved by the three year, six-months-old norm group.

Group S obtained an average score of 54.50 on the English Peabody Picture Vocabulary Test, while an average raw score of 38.25 was achieved on the Spanish version. In view of an anticipated raw score of 54 to 59 based on the English

Peabody Picture Vocabulary Test norms, it appears that Group S achieved a lowered raw score on the Spanish test but their scores were not substantially lowered on the English test. Performance of the group on the English test was equivalent to that achieved by the five year, nine-months-old age group utilized to develop the Peabody Picture Vocabulary Test norms. Performance on the Spanish test was equal to that achieved by the three year, eight-months-old norm group.

An analysis of variance using a two-factor experimental design with repeated measures on one factor, the tests, was performed (2, p. 306). A .05 significance level was selected for the analysis. The main effects were subgroups, determined by the extent of Spanish spoken in the home, and two variations of the Peabody Picture Vocabulary Test.

The results of the analysis of variance are presented in Table 6. The results indicate that the mean raw scores obtained on the two tests, the Spanish and the English Peabody Picture Vocabulary Tests, are significantly different. This difference was significant at the .01 level. This finding suggests that the performance of a group of bilingual children on a single-word receptive vocabulary test can be expected to vary with the language of presentation.

A first-order interaction, between the experimental subgroups and the experimental tasks, was also found to be significant at the .01 level. Figure 8 presents a graphic representation of the obtained interaction. This finding

TABLE 6

SUMMARY OF ANALYSIS
OF VARIANCE

Source of variation	SS	df	MS	F
Between subjects	1612.22	17		
A Groups (by degrees of Spanish in home)	463.39	2	231.69	3.02
Subjects within groups	1148.83	15	76.59	
Within subjects	2125.00	18		
B (tests)	658.78	1	658.78	14.51**
AB	785.06	2	392.53	8.64**
Bx subjects within groups	681.17	15	45.41	

**significant at the .01 level

suggests that the performance of the three subgroups varies on the two receptive-vocabulary tests. As seen in Figure 8, Group A demonstrated a higher performance level on the Spanish translation than on the English Peabody Picture Vocabulary Test. Group H performed equally well on the two language measures, while Group S showed a higher performance on the English rather than on the Spanish Peabody Picture Vocabulary Test.

Norm Usage

In order to evaluate the feasibility of employing the norms developed for the English Peabody Picture Vocabulary

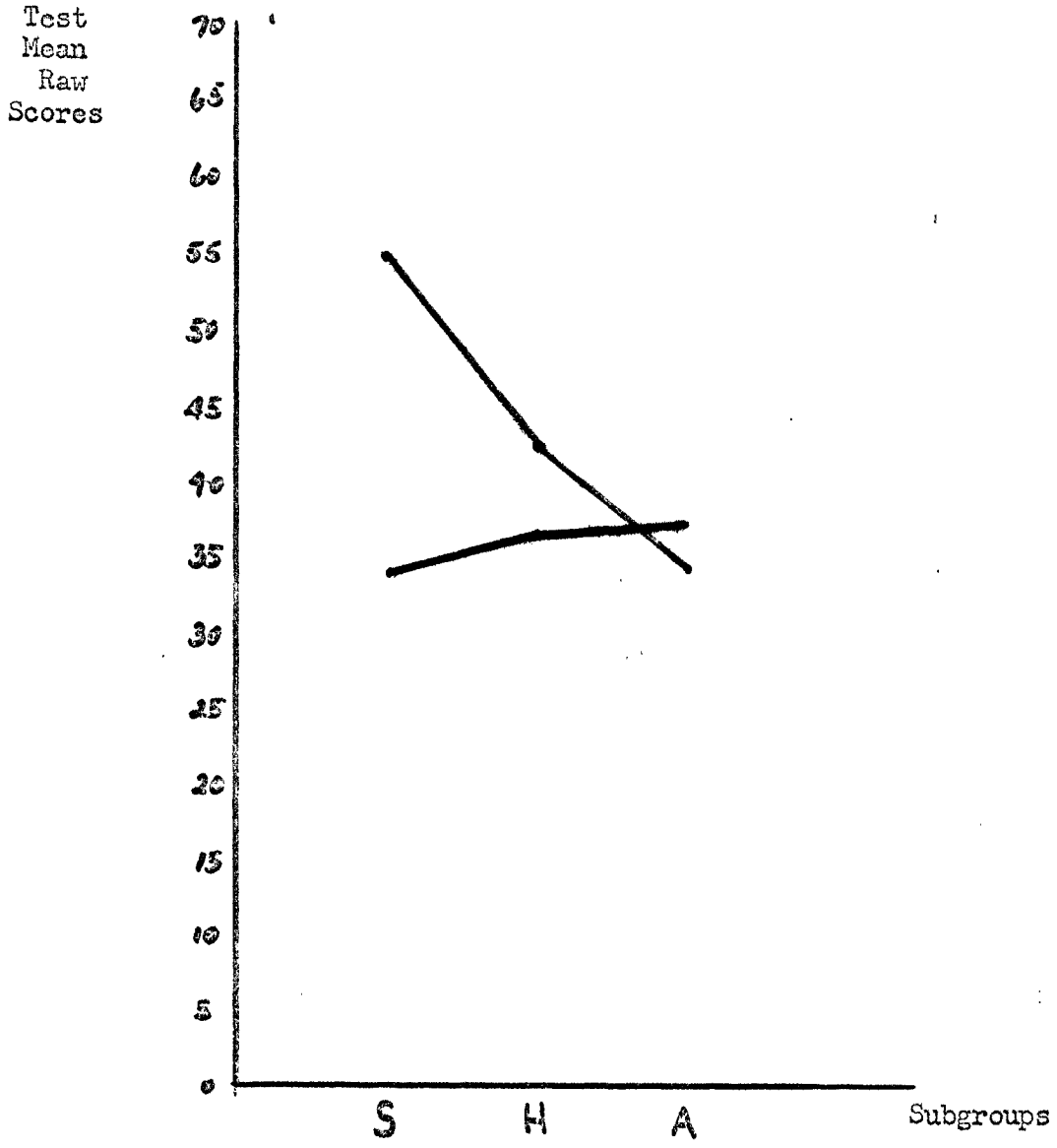


Fig. 8--Interaction between tests and degrees of Spanish spoken in the home.

Red line - Spanish test; Blue line - English test.

Test with the Spanish Peabody Picture Vocabulary Test, product-moment and rank order correlations were computed between the raw scores obtained on each of the tests. For the group as a whole a non-significant product-moment correlation of .22 and a rank order correlation of .26 were obtained between the Spanish Peabody Picture Vocabulary Test and the English Peabody Picture Vocabulary Test. Subgroup A received a rank order correlation of .37 between the two measures, while rank order correlations of .07 and .07 were found for subgroups H and S, respectively, for the two language tests. As seen in Table 7, none of the results of the rank order correlations between raw scores on the two tests were significant.

TABLE 7

RANK ORDER CORRELATIONS BETWEEN RAW SCORES ON THE SPANISH AND ENGLISH TESTS

Group	Rank Order Correlations
Entire Subject Population	.26
Subgroup A	.37
Subgroup H	.07
Subgroup S	.07

CHAPTER BIBLIOGRAPHY

1. Dunn, L. M., Peabody Picture Vocabulary Test, Nashville, American Guidance Service, 1959.

2. Winer, B. J., Statistical Principles in Experimental Design, New York, McGraw-Hill Company, Inc., 1962.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

This study was designed to evaluate the performance of twenty Spanish-English bilingual children on the Peabody Picture Vocabulary Test and a Spanish translation of this test. An original group of one hundred twenty-five kindergarten children were evaluated on the basis of the following screening criteria:

(1) Each child had a mental age equal to or slightly exceeding chronological age on non-verbal tasks as determined through the administration of the Goodenough-Harris Drawing Test and the block design subtest of the Wechsler Intelligence Scale for Children.

(2) Any child with a significant hearing loss was excluded from the experimental population. In order to determine the presence of hearing loss, each child was administered a pure-tone hearing test for bilateral sensitivity at 10 dB re ISO for frequencies 125, 250, 500, 1000, 2000, and 8000 Hz. and 15 dB re ISO at 4000 Hz. Any child failing one or more frequencies was excluded as a subject.

(3) Those children who evidenced consonant-sound misarticulations which could not be anticipated on the basis of chronological age level as determined by an articulation

screening test, and Templin's norms were not utilized in the final subject population. Any child who failed to meet one or more of these selection criteria was eliminated from the experimental population.

From the one hundred twenty-five children, twenty were chosen as having satisfied the selection criteria. These twenty children were then administered the Peabody Picture Vocabulary Test, Form A, and a Spanish translation of this test. The tests were administered in alternating order in individual testing situations conducted during the last month of school.

Both the test instructions and the test items were previously tape-recorded by a native-English speaker and a native-Spanish speaker. Two repetitions of the test instructions in the appropriate language were placed on the tape-recording prior to the presentation of the test items. The first instructions follow exactly those contained in the Peabody Picture Vocabulary Manual. A simpler set of instructions were also recorded which were to be administered in the event that any child failed to understand the original instructions. In no instance were the simpler instructions required.

The carrier phrase, "Point to _____," followed by the stimulus word was recorded at ten-second intervals on the test tape. This procedure enabled the examiner to select any stimulus item on the tape and insured a sufficient lapse of

time between each stimulus presentation to turn the tape recorder on and off when this method of test administration was necessary.

On the basis of parental questionnaires and teacher interviews, the subject population was divided into three groups according to the amount of Spanish that was spoken at home in the child's presence. Group A was comprised of those children whose parents always spoke Spanish in the child's presence at home. Group H was composed of children whose parents were estimated to use Spanish in the child's presence approximately one-half the time. Group S was composed of those children whose parents were estimated to speak Spanish less than one-half the time in the child's presence. Following the analysis of the questionnaires and interviews, six children, three boys and three girls, were assigned to Group A; six children, three boys and three girls, were assigned to Group H; and eight children, five boys and three girls, were assigned to Group S.

While the inferences which can be drawn are necessarily limited to the conditions of the present study and cannot be generalized to the bilingual population as a group, the following conclusions appear to be warranted:

(1) Regardless of the amount of Spanish spoken in the home, a more favorable profile of the Spanish-English bilingual child's single-word receptive vocabulary is obtained by evaluating his understanding of both Spanish and English vocabulary words.

(2) The bilingual child appears to be slower in single-word receptive language development in both languages than the monolingual child of the same age.

(3) The greater per cent of the time that Spanish is spoken in the home in the presence of the Spanish-English bilingual child living in an English-speaking culture, the greater will be the extent of his delay in receptive language acquisition.

(4) Viewed as a group, the Spanish-English bilingual population in this study achieved a better raw score on the English than on the Spanish Peabody Picture Vocabulary Test.

(5) For Group A, those children whose parents speak Spanish all of the time in the home environment, better raw scores were obtained on the Spanish translation of the Peabody Picture Vocabulary Test than on the English Peabody Picture Vocabulary Test; the two other groups in this study, Groups H and S, performed better in terms of raw scores on the English than on the Spanish Peabody Picture Vocabulary Test.

(6) Poor product-moment (.22) and rank order (.26) correlations were found to obtain between the Spanish and English Peabody Picture Vocabulary Tests which would contra-indicate the use of norms developed for the English version of this test with the Spanish translation.

Implications

In view of the limited subject sample in the present

study, results must be considered to be tentative and subject to revision by additional investigation into the problem of bilingualism; however, certain findings are consistent with those previously reported in the literature and seem to have implications for clinical speech and language pathology.

The findings and conclusions obtained in the present study suggest that the speech and language diagnostician who is confronted with the task of evaluating a Spanish-English bilingual child might obtain a better profile of the child's overall single-word receptive language vocabulary development if he were to assess the child's functioning in both languages. The Spanish translation of the Peabody Picture Vocabulary Test, while a new test instrument, provides the diagnostician with a means of assessing the child's single-word receptive vocabulary in Spanish.

It would also appear that the speech and language diagnostician and therapist can anticipate a delay in the acquisition of single-word receptive language skills in the young bilingual child. This finding has previously been noted by authors such as McCarthy, Van Riper, Berry and Eisenson, and Eisenson, Auer, and Irwin (1, pp. 34-35; 2, p. 222; 3, pp. 591-594; 4, p. 144). It would further appear that the more time that Spanish is spoken in the home, in the instance of the Spanish-English bilingual child in an English-speaking culture, the greater the single-word receptive vocabulary delay that could be expected.

Since only low correlations were obtained between the average raw scores on the Spanish and English Peabody Picture Vocabulary Tests, it seems that the use of the norms developed for the English test with the Spanish translation is unwarranted. Such a use would lead the diagnostician to errors in the evaluation which would unnecessarily penalize the child. At present it appears that a better use of the Spanish translation of the Peabody Picture Vocabulary Test would be to use the Spanish translation to supplement the English Peabody Picture Vocabulary Test in order to ascertain whether the child possessed the stimulus in either language.

It is hoped that additional research with a larger subject population will be conducted in order to verify or refute the trends observed in the present study.

CHAPTER BIBLIOGRAPHY

1. Berry, M. and J. Eisenson, Speech Disorders, New York, Appleton-Century-Crofts, 1964.

2. Eisenson, J., J. J. Auer, and J. V. Irwin, Psychology of Communication, New York, Appleton-Century-Crofts, 1963.

3. McCarthy, Dorthea, "Language Development in Children," Manual of Child Psychology, edited by Leonard Carmichael, New York, John Wiley and Sons, 1954.

4. Van Riper, Charles, Speech Correction, Englewood Cliffs, New Jersey, Prentice-Hall, Inc., 1954.

APPENDIX

THESIS WORKSHEET

Name A 1 Sex F Date of Birth 7-13-63

Date of Testing 5-22-69 Chronological Age 5-10

1. Background Information:

Parental occupation:
mother- housewife
father- unemployed

Parental response to questionaire:
We speak Spanish at home all of the time.

Teacher response to interview:
parents always speak Spanish at home; spoke little English at onset of school.

2. Testing Results:

WISC Block Design Subtest: MA 6-6

Goodenough-Harris Drawing Test: Average Standard Score 91

Weiss Articulation Test: within normal limits

Hearing Screening Test: normal sensitivity

Lee-Clark Reading Readiness Test: above average performance

English Version of the Peabody Picture Vocabulary Test: raw score 31

Spanish translation of the Peabody Picture Vocabulary Test: raw score 30

3. Item Analysis of the Spanish PPVT and the English PPVT:

Spanish words	English words
1. + (4) coche	1. + (4) car
2. + (3) vaca	2. + (3) cow
3. + (1) nino	3. + (1) baby
5. + (1) pelota	5. + (1) ball
7. + (2) payaso	7. + (2) clown
8. + (1) llave	8. + (1) key
9. − (4) lata	9. − (4) can
10. + (2) gallina	10. + (2) chicken
11. + (4) soplar	11. + (4) blowing
14. + (1) falda	14. + (1) skirt
15. + (2) tambor	16. + (2) drum
17. + (3) hoja	17. + (3) leaf
21. − (4) abeja	21. + (4) bee
22. − (3) planta	22. − (3) bush
23. + (1) [illegible]	23. − (1) pouring
26. − (2) profesora	26. + (2) teacher
27. − (3) construir	27. − (3) building

A1

28. (3) flecha
29. (2) canguro
30. (3) accidente
31. (3) nido
34. (1) sobre
35. (3) anteojos
37. (2) pavo real
39. (4) carruaje
40. (1) latigo
41. (4) red
42. (4) peca
44. (2) torcido
45. (4) brillar
46. (2) marcar
47. (2) bostezar
48. (2) resbalar
49. (1) semaforo
50. (1) capsula
51. (4) submarino
52. (4) termo
54. (4) grupo
56. (1) transportacion
57. (1) alcanzar
58. (2) ceremonia
62. (4) embudo
65. (2) communicacion
68. (1) excabar
71. (1) merengue

28. (3) arrow
29. (2) kangaroo
30. (3) accident
31. (3) nest
32. (1) envelope
35. (3) goggles
37. (2) peacock
39. (4) coach
40. (1) whip
41. (4) net
42. (4) freckle
44. (2) twist
45. (4) shining
46. (2) dial
47. (2) yawning
48. (2) tumble
49. (1) signal
50. (1) capsule
51. (4) submarine
52. (4) thermos
54. (4) group
56. (1) transportation
57. (1) reaches
58. (2) ceremony
62. (4) funnel
65. (2) communication
68. (1) excavate
71. (1) meringue

TRUSIS WORKSHEET

Name A 2 Sex F Date of Birth 10-25-62

Date of Testing 5-21-69 Chronological Age 6-70

1. Background Information:

Parental occupation:
mother- house wife
father- carpenter

Parental response to questionaire:
We speak Spanish at home some of the time.

Teacher response to interview:
parents always speak Spanish at home/ very little English spoken at onset of School.

2. Testing Results:

WISC Block Design Subtest: 7-2 MA

Goodenough-Harris Drawing Test: Average Standard Score 95

Hejne Articulation Test: with in normal limits

Hearing Screening Test: normal sensitivity

Lee-Clark Reading Readiness Test: average performance

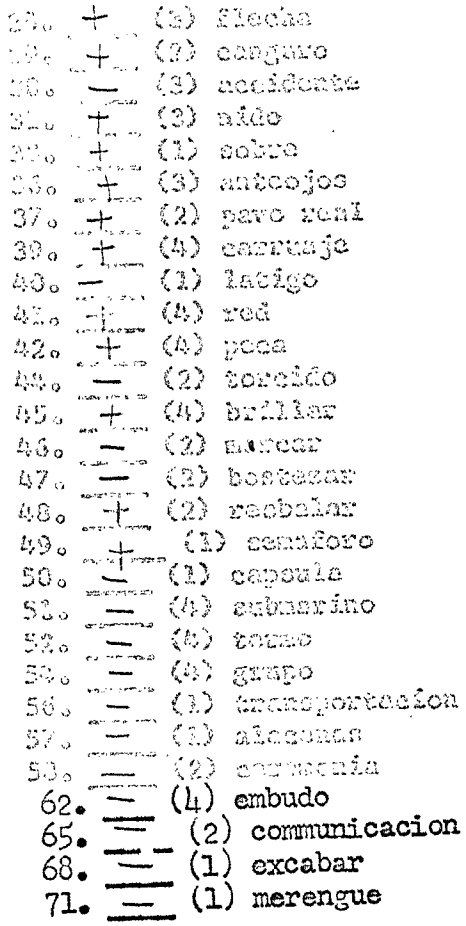
English Version of the Peabody Picture Vocabulary Test: raw score 29

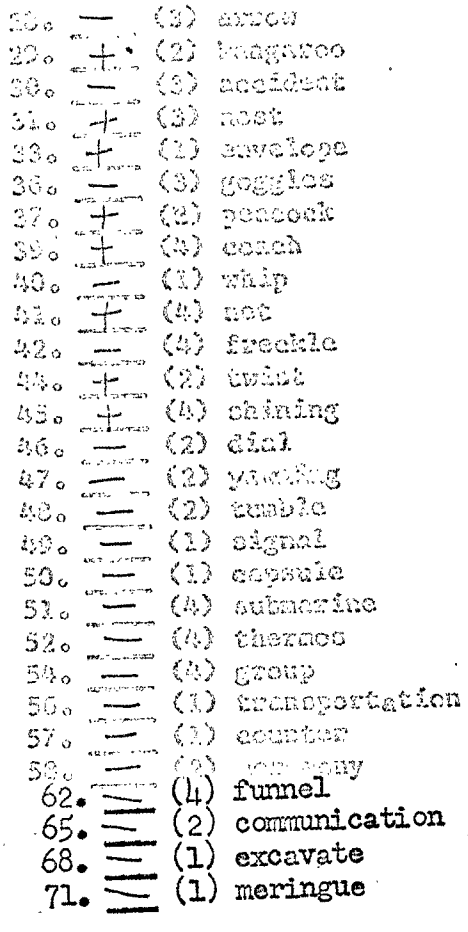
Spanish translation of the Peabody Picture Vocabulary Test: raw score 36

3. Item Analysis of the Spanish PPVT and the English PPVT:

Spanish words	English words
1. + (4) coche	1. + (4) car
2. + (3) vaca	2. + (2) cow
3. + (1) nino	3. + (1) baby
5. + (1) pelota	5. + (1) ball
7. + (2) payaso	7. + (2) clown
8. + (1) llave	8. + (1) key
9. − (4) lata	9. + (4) can
10. + (2) gallina	10. + (2) chicken
11. + (4) soplar	11. + (4) blowing
14. + (1) falda	14. + (1) skirt
16. + (1) tambor	16. + (1) drum
17. + (3) hoja	17. + (3) leaf
21. − (4) abeja	21. − (4) bee
22. − (3) planta	22. − (3) bush
23. + (1) echar	23. − (1) pouring
26. − (2) profesora	26. + (2) teacher
27. + (3) construir	27. − (3) building

A 2


(3) flecha
(2) canguro
(3) accidente
(3) nido
(1) sobre
(3) antecojos
(2) pavo real
(4) caracol
(1) latigo
(4) red
(4) poca
(2) soroido
(4) brillar
(2) anidar
(2) bostezar
(2) vacilar
(1) semaforo
(1) capsula
(4) submarino
(4) tanso
(4) grupo
(1) transportacion
(1) alcanzar
(2) comunidad
62. (4) embudo
65. (2) communicacion
68. (1) excabar
71. (1) merengue


(3) arrow
(2) magnroo
(3) accident
(3) nest
(2) envelope
(3) goggles
(2) peacock
(3) conch
(1) whip
(4) net
(4) freckle
(2) twist
(4) shining
(2) dial
(2) yawning
(2) tumble
(1) signal
(1) capsule
(4) submarine
(4) thermos
(4) group
(1) transportation
(1) counter
(2) [illegible]ony
62. (4) funnel
65. (2) communication
68. (1) excavate
71. (1) meringue

Name A 3 Sex F Date of Birth 12-12-62

Date of Testing 5-21-69 Chronological Age 6-5

1. Background Information:

Parental occupations:
Mother- housewife
Father- construction

Parental response to questionaire:
We speak Spanish at home all of the time.

Teacher response to interview:
parents always speak Spanish at home; spoke some English at onset of school.

2. Testing Results:

WISC Block Design Subtest: MA 7-2

Goodenough-Harris Drawing Test: Average Standard Score 96

Haskins Articulation Test: with in normal limits

Hearing Screening Test: normal sensitivity

Lee-Clark Reading Readiness Test: above average performance

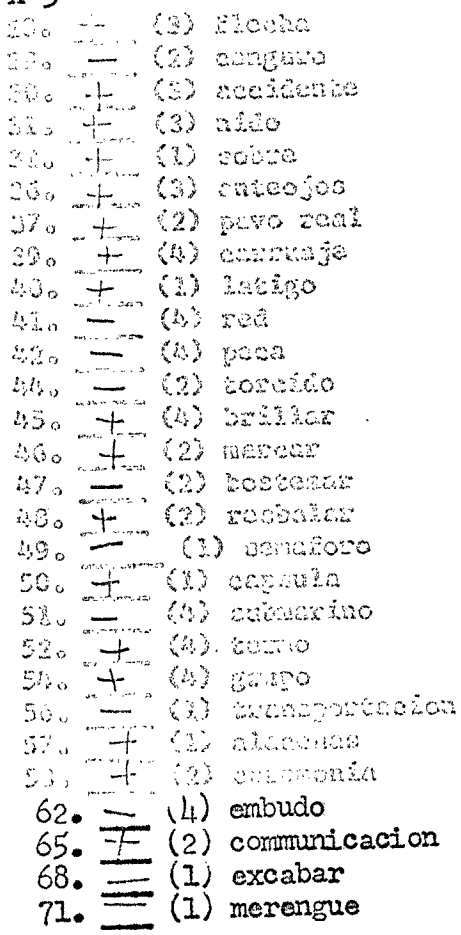
English Version of the Peabody Picture Vocabulary Test: raw score 43

Spanish translation of the Peabody Picture Vocabulary Test: raw score 44

3. Item Analysis of the Spanish PPVT and the English PPVT:

Spanish words		English words	
1. +	(4) coche	1. +	(4) car
2. +	(3) vaca	2. +	(3) cow
3. +	(1) nino	3. +	(1) baby
4. +	(1) pelota	5. +	(1) ball
5. +	(2) payaso	7. +	(2) clown
6. +	(1) llave	8. +	(1) key
7. -	(4) luna	9. +	(4) can
8. +	(2) gallina	10. +	(3) chicken
9. +	(4) tejado	11. +	(4) blowing
10. +	(1) falda	12. +	(1) shirt
11. +	(1) tambor	16. +	(2) drum
12. +	(3) leche	17. +	(3) leaf
13. -	(4) abrigo	21. +	(4) tree
14. -	(5) planta	22. -	(5) brush
15. -	(3) sabana	23. +	(5) pouring
16. -	(2) profesora	26. +	(2) teacher
17. -	(3) construir	27. -	(3) building

A 3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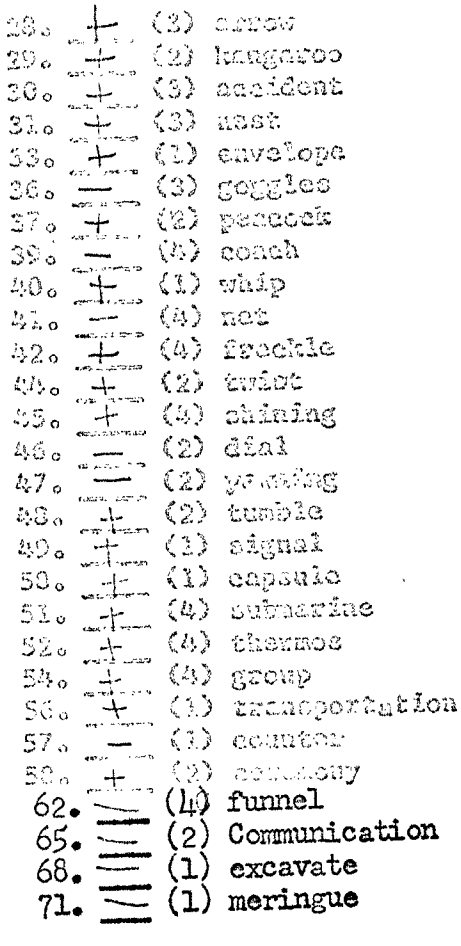
(2) canguro
(3) accidente
(3) nido
(1) sobre
(3) anteojos
(2) pavo real
(4) carruaje
(1) latigo
(4) red
(4) pesa
(2) torcido
(4) brillar
(2) mecer
(2) bostezar
(2) resbalar
(1) semaforo
(1) capsula
(4) submarino
(4) termo
(4) grupo
(3) transportacion
(2) alcachofa
(2) ceremonia
62. (4) embudo
65. (2) communicacion
68. (1) excabar
71. (1) merengue


(3) arrow
(2) kangaroo
(3) accident
(3) nest
(1) envelope
(3) goggles
(2) peacock
(4) conch
(1) whip
(4) net
(4) freckle
(2) twist
(4) shining
(2) dial
(2) yawning
(2) tumble
(1) signal
(1) capsule
(4) submarine
(4) thermos
(4) group
(1) transportation
(1) counter
(2) ceremony
62. (4) funnel
65. (2) Communication
68. (1) excavate
71. (1) meringue

Name A 4 Sex M Date of Birth 6-10-63

Date of Testing 5-23-69 Chronological Age 5-11

1. Background Information:

Parental occupation:
Mother- housewife
Father- not recorded

Parental response to questionaire:
We speak Spanish at home all of the time.

Teacher response to interview:
Parents always speak Spanish at home. He spoke some English at the onset of School.

2. Testing Results:

WISC Block Design Subtest: MA 7-2

Goldenough-Harris Drawing Test: Average Standard Score 96.5

Weiss Articulation Test: within normal limits

Hearing Screening Test: normal sensitivity

Wide Rank Reading Readiness Test: above average performance

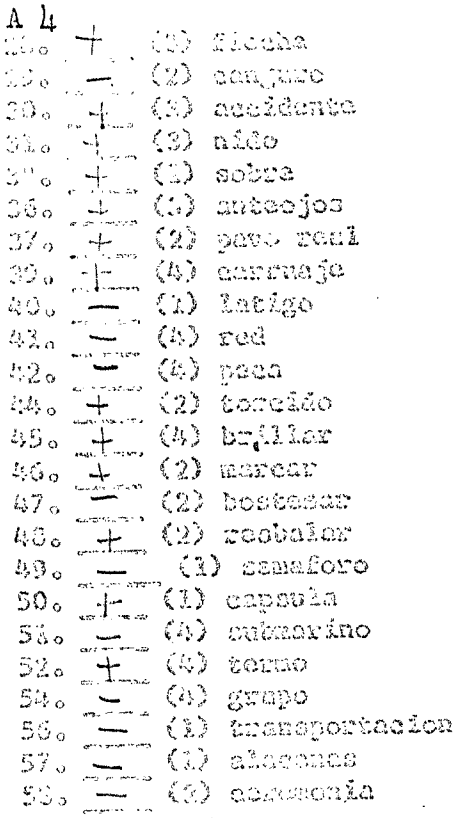
English Version of the Peabody Picture Vocabulary Test: raw score 45

Spanish translation of the Peabody Picture Vocabulary Test: raw score 38

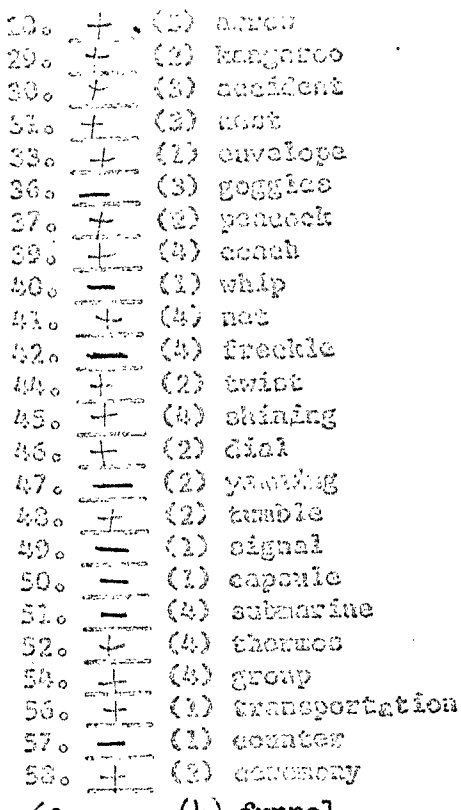
3. Item Analysis of the Spanish PPVT and the English PPVT:

Spanish words		English words	
1.	+ (3) coche	1.	+ (4) car
2.	+ (3) vaca	2.	+ (3) cow
3.	+ (1) nino	3.	+ (1) baby
4.	+ (1) pelota	5.	+ (1) ball
7.	+ (2) payaso	7.	+ (2) clown
8.	+ (1) llave	8.	+ (1) key
9.	+ (4) luna	9.	+ (4) can
10.	+ (2) gallina	10.	+ (2) chicken
11.	+ (4) sujetar	11.	+ (4) blowing
14.	+ (1) falda	14.	+ (1) skirt
15.	+ (1) sombra	16.	+ (1) drum
16.	+ (3) bote	17.	+ (3) leaf
18.	− (0) abeja	21.	+ (4) bee
20.	− (3) pintar	22.	− (3) brush
22.	+ (1) cabeza	23.	− (3) pouring
24.	+ (2) pendiente	26.	+ (2) teacher
27.	− (3) construir	27.	+ (3) building

A 4



62. (4) embudo
65. (2) communicacion
68. (1) excabar
71. (1) merengue



62. (4) funnel
65. (2) communication
68. (1) excavate
71. (1) meringue

Name A 5 Sex M Date of Birth 12-28-62

Date of Testing 5-22-69 Chronological Age 6-5

1. Background information: **parents separated; mother lives in another town.**

Parental occupation:
Mother-
Father- **meat company**

Parental response to questionnaire:
We speak Spanish at home **some** of the time.

Teacher response to interview:
Parent speaks Spanish at home all of the time. He spoke little English at the onset of school.

2. Testing Results:

WISC Block Design Subtest: **MA 6-6**

Goodenough-Harris Drawing Test: **Average Standard Score 102**

Tulsa Articulation Test: **within normal limits**

Hearing Screening Test: **normal sensitivity**

Ives-Clark Reading Readiness Test: **slightly below average performance**

English Version of the Peabody Picture Vocabulary Test: **raw score 21**

Spanish translation of the Peabody Picture Vocabulary Test: **raw score 37**

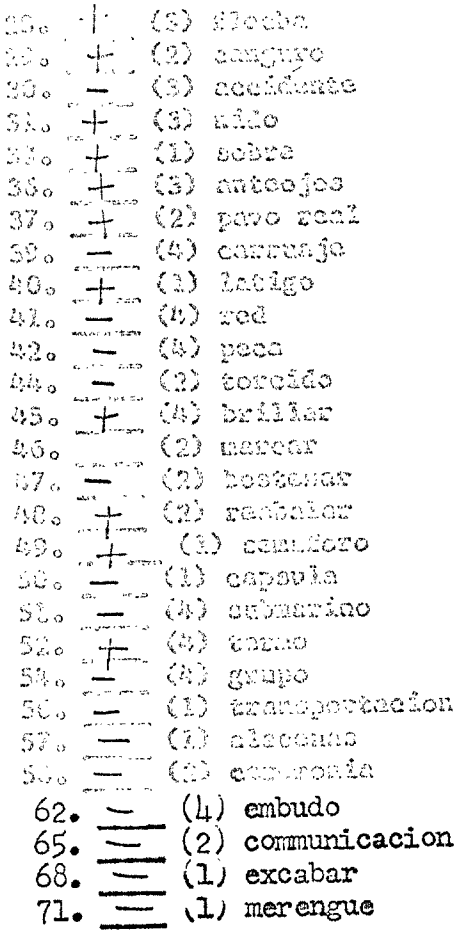
3. Item Analysis of the Spanish PPVT and the English PPVT

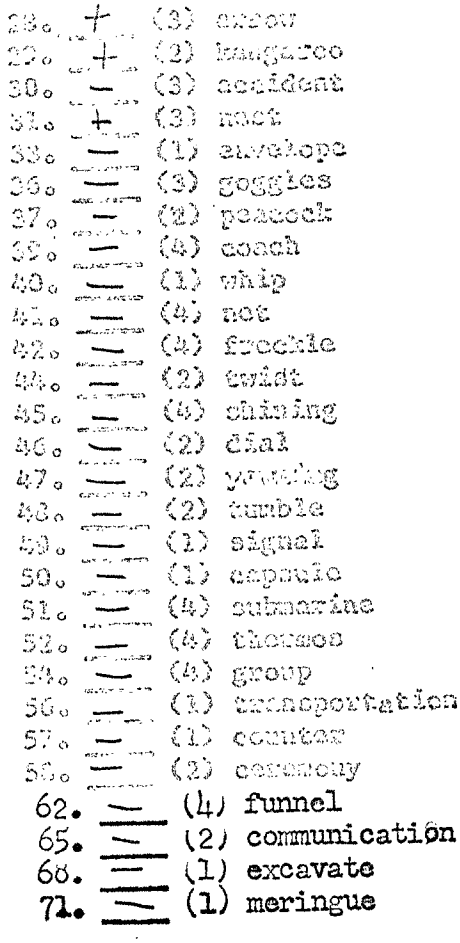
Spanish words		English words	
1.	+ (4) coche	+ (4) car	1.
2.	± (0) vaca	± (2) cow	2.
3.	+ (1) niño	± (1) baby	3.
5.	+ (1) pelota	+ (1) ball	5.
7.	± (2) payaso	± (2) clown	7.
8.	+ (1) llave	+ (1) key	8.
9.	± (4) lata	± (4) can	9.
10.	± (2) gallina	± (2) chicken	10.
11.	± (4) soplar	± (4) blowing	11.
14.	+ (1) falda	— (1) shirt	14.
15.	± (1) tarjeta	— (1) arch	15.
17.	± (2) hoja	± (3) leaf	17.
18.	+ (4) abeja	± (4) bee	21.
19.	— (3) pie pan	— (3) brush	22.
23.	— (1) pulso	— (1) pouring	23.
24.	± (4) profesora	± (2) teacher	24.
27.	— (2) construir	— (3) building	27.

A 5

28. + (3) flecha
29. + (2) canguro
30. − (3) accidente
31. + (3) nido
33. + (1) sobre
36. + (3) anteojos
37. + (2) pavo real
39. − (4) carruaje
40. + (1) latigo
41. − (4) red
42. − (4) peca
44. − (2) torcido
45. + (4) brillar
46. (2) marcar
47. − (2) bostezar
48. + (2) resbalar
49. + (1) semaforo
50. − (1) capsula
51. − (4) submarino
52. + (4) termo
54. − (4) grupo
56. − (1) transportacion
57. − (1) alacenas
58. − (2) ceremonia
62. − (4) embudo
65. − (2) communicacion
68. − (1) excabar
71. − (1) merengue

28. + (3) arrow
29. + (2) kangaroo
30. − (3) accident
31. + (3) nest
33. − (1) envelope
36. − (3) goggles
37. − (2) peacock
39. − (4) coach
40. − (1) whip
41. − (4) net
42. − (4) freckle
44. − (2) twist
45. − (4) shining
46. − (2) dial
47. − (2) yawning
48. − (2) tumble
49. − (1) signal
50. − (1) capsule
51. − (4) submarine
52. − (4) thermos
54. − (4) group
56. − (1) transportation
57. − (1) counter
58. − (2) ceremony
62. − (4) funnel
65. − (2) communication
68. − (1) excavate
71. − (1) meringue





A 6 Sex M Date of Birth 5-5-63

Date of Testing 5-23-69 Chronological Age 6-0

1. Background Information:

Parental occupation: not recorded
mother-
father-

Parental response to questionaire:
We speak Spanish at home all of the time.

Teacher response to interview:
Parents always speak Spanish at home. He spoke little English at the onset of school.

2. Testing Results:

WISC Block Design Subtest: MA 5-6

Goodenough-Harris Drawing Test: Average Standard Score 100

Fejna Articulation Test: within normal limits

Hearing Screening Test: normal sensitivity

Lee Clark Reading Readiness Test: slightly below average performance

English Version of the Peabody Picture Vocabulary Test: raw score 40

Spanish translation of the Peabody Picture Vocabulary Test: raw score 33

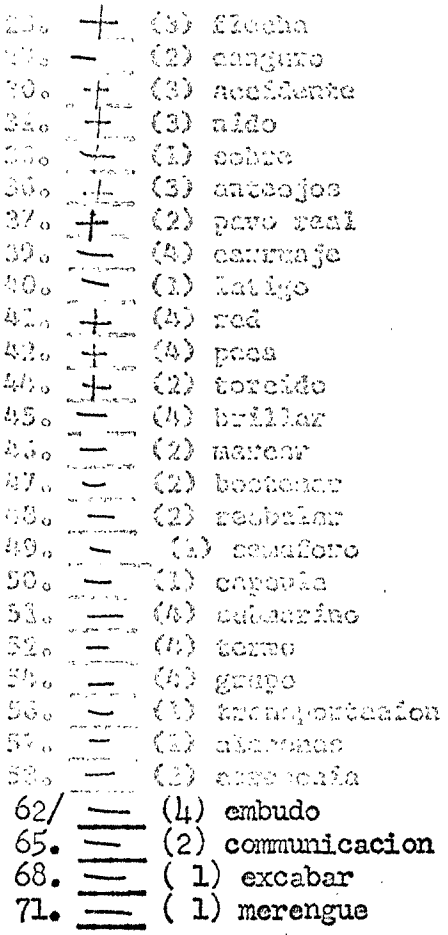
3. Item Analysis of the Spanish PPVT and the English PPVT:

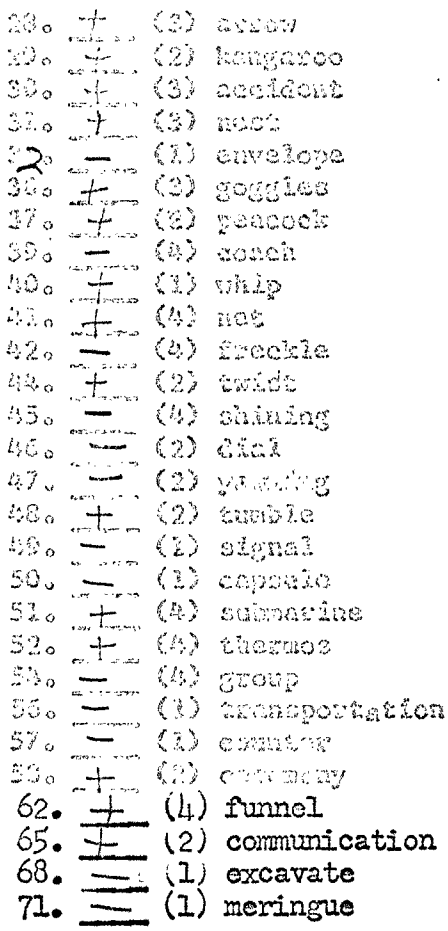
Spanish words	English words
1. + (4) coche	1. + (4) car
2. + (3) vaca	2. + (3) cow
3. + (1) niño	3. + (1) baby
5. + (1) pelota	5. + (1) ball
7. + (2) payaso	7. + (2) clown
8. + (1) llave	8. + (1) key
9. + (4) lata	9. + (4) can
10. + (2) gallina	10. + (2) chicken
11. + (4) soplar	11. + (4) blowing
14. + (1) falda	14. + (1) skirt
16. + (1) tambor	16. − (1) drum
17. + (3) hoja	17. + (3) leaf
21. − (4) abeja	21. + (4) bee
22. − (3) planta	22. − (3) bush
23. − (1) echar	23. − (1) pouring
26. + (2) profesora	26. + (2) teacher
27. − (3) construir	27. − (3) building

A 6

28.	+	(3)	flecha
29.	−	(2)	canguro
30.	+	(3)	accidente
31.	+	(3)	nido
32.	+	(1)	sobre
36.	+	(3)	anteojos
37.	+	(2)	pavo real
39.	−	(4)	carruaje
40.	−	(1)	latigo
41.	+	(4)	red
42.	+	(4)	peca
44.	+	(2)	torcido
45.	−	(4)	brillar
46.	−	(2)	marcar
47.	−	(2)	bostezar
48.	−	(2)	resbalar
49.	−	(1)	semaforo
50.	−	(1)	capsula
51.	−	(4)	submarino
52.	−	(4)	termo
54.	−	(4)	grupo
56.	−	(1)	transportacion
57.	−	(1)	alacenas
58.	−	(2)	ceremonia
62/	−	(4)	embudo
65.	−	(2)	communicacion
68.	−	(1)	excabar
71.	−	(1)	merengue

28.	+	(3)	arrow
29.	+	(2)	kangaroo
30.	+	(3)	accident
31.	+	(3)	nest
32.	−	(1)	envelope
36.	+	(3)	goggles
37.	+	(2)	peacock
39.	−	(4)	coach
40.	+	(1)	whip
41.	+	(4)	net
42.	−	(4)	freckle
44.	+	(2)	twist
45.	−	(4)	shining
46.	−	(2)	dial
47.	−	(2)	yawning
48.	+	(2)	tumble
49.	−	(1)	signal
50.	−	(1)	capsule
51.	+	(4)	submarine
52.	+	(4)	thermos
54.	−	(4)	group
56.	−	(1)	transportation
57.	−	(1)	counter
58.	+	(2)	ceremony
62.	+	(4)	funnel
65.	+	(2)	communication
68.	−	(1)	excavate
71.	−	(1)	meringue





TRESIS WORKSHEET

Name H 1 Sex F Date of Birth 1-26-63

Date of Testing 5-24-69 Chronological Age 6-4

1. Background Information:

Parental occupation:
mother- school teacher's aide
father- naval base

Parental response to questionnaire:
We speak Spanish at home some of the time.

Teacher response to interview:
Parents use Spanish in the home approximately half of the time. She spoke both languages at the onset of school.

2. Testing Results:

WISC Block Design Subtest: MA 6-6

Goodenough-Harris Drawing Test: Average Standard Score 94

Hejna Articulation Test: within normal limits

Hearing Screening Test: normal sensitivity

Lee-Clark Reading Readiness Test: above average performance

English Version of the Peabody Picture Vocabulary Test: raw score 48

Spanish translation of the Peabody Picture Vocabulary Test: raw score 22

3. Item Analysis of the Spanish PPVT and the English PPVT:

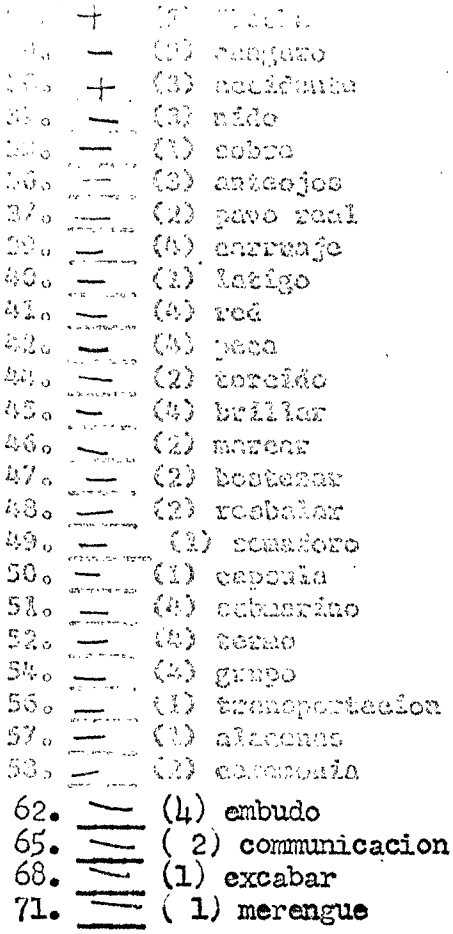
Spanish words

1. + (4) coche
2. + (3) vaca
3. + (1) nino
5. + (1) peleta
7. + (2) payaso
8. + (1) llave
9. + (4) lata
10. + (2) gallina
11. − (4) soplar
14. + (1) falda
16. + (1) tambor
17. − (3) hoja
21. − (4) abeja
22. + (3) planta
23. + (1) echar
26. − (2) profesora
27. − (3) construir

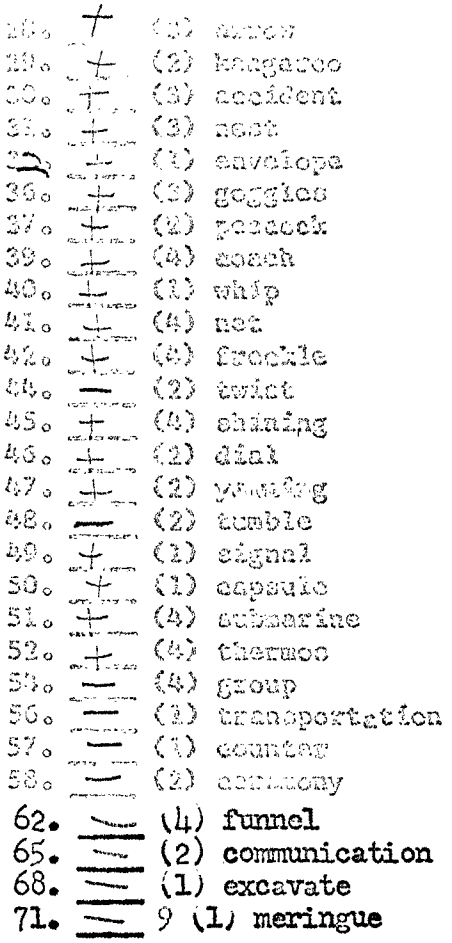
English words

1. + (4) car
2. + (3) cow
3. + (1) baby
5. + (1) ball
7. + (2) clown
8. + (1) key
9. + (4) can
10. + (2) chicken
11. + (4) blowing
14. + (1) skirt
16. + (1) drum
17. + (3) leaf
21. + (4) bee
22. + (3) bush
23. − (1) pouring
26. + (2) teacher
27. + (3) building

H 1



[illegible]	+	(2)	[illegible]
[illegible]	—	(2)	[illegible]
[illegible]	+	(3)	accidente
[illegible]	—	(3)	nido
[illegible]	—	(1)	sobre
36.	—	(3)	anteojos
37.	—	(2)	pavo real
39.	—	(4)	carruaje
40.	—	(1)	latigo
41.	—	(4)	red
42.	—	(4)	peca
44.	—	(2)	torcido
45.	—	(4)	brillar
46.	—	(2)	marcar
47.	—	(2)	bostezar
48.	—	(2)	resbalar
49.	—	(1)	semaforo
50.	—	(1)	capsula
51.	—	(4)	submarino
52.	—	(4)	termo
54.	—	(4)	grupo
56.	—	(1)	transportacion
57.	—	(1)	alacenas
58.	—	(2)	ceremonia
62.	—	(4)	embudo
65.	—	(2)	communicacion
68.	—	(1)	excabar
71.	—	(1)	merengue



28.	+	(3)	arrow
29.	+	(2)	kangaroo
30.	+	(3)	accident
31.	+	(3)	nest
32.	+	(1)	envelope
36.	+	(3)	goggles
37.	+	(2)	peacock
39.	+	(4)	coach
40.	+	(1)	whip
41.	+	(4)	net
42.	+	(4)	freckle
44.	—	(2)	twist
45.	+	(4)	shining
46.	+	(2)	dial
47.	+	(2)	yawning
48.	—	(2)	tumble
49.	+	(1)	signal
50.	+	(1)	capsule
51.	+	(4)	submarine
52.	+	(4)	thermos
54.	—	(4)	group
56.	—	(1)	transportation
57.	—	(1)	counter
58.	—	(2)	ceremony
62.	—	(4)	funnel
65.	—	(2)	communication
68.	—	(1)	excavate
71.	—	9 (1)	meringue

Name H 2 Sex F Date of Birth 8-26-63

Date of Testing 5-20-69 Chronological Age 5-9

1. Background Information:

Parental occupation:
mother- housewife
father- naval base

Parental response to questionaire:
We speak Spanish at home half of the time.

Teacher response to interview:
Parents use Spanish in the home approximately half of the time. She spoke both languages fairly well at the onset of school.

2. Testing Results:

WISC Block Design Subtest: MA 5-6

Goodenough-Harris Drawing Test: Average Standard Score 96.5

Wejne Articulation Test: within normal limits

Hearing Screening Test: normal sensitivity

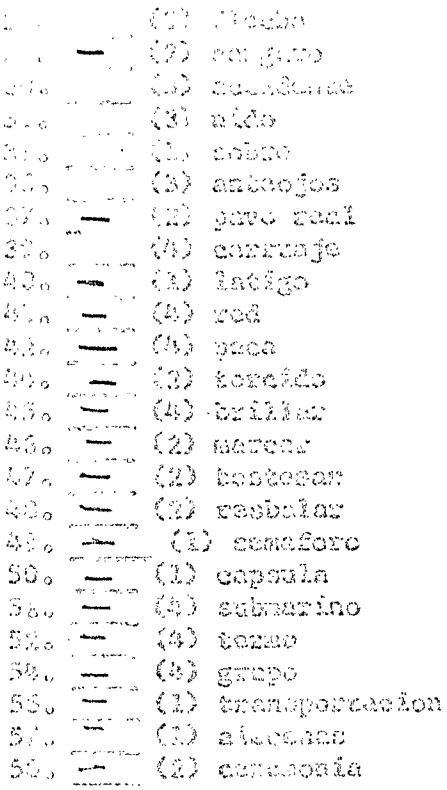
Lee-Clark Reading Readiness Test: slightly below average performance

English Version of the Peabody Picture Vocabulary Test: raw score 35

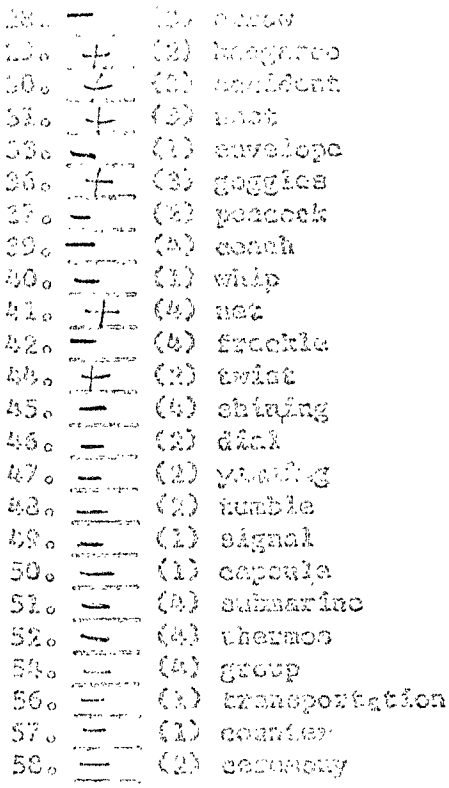
Spanish translation of the Peabody Picture Vocabulary Test: raw score 29

3. Item Analysis of the Spanish PPVT and the English PPVT:

Spanish words	English words
1. + (4) coche	1. + (4) car
2. + (3) vaca	2. + (3) cow
3. + (1) nino	3. + (1) baby
5. + (1) pelota	5. + (1) ball
7. + (2) payaso	7. + (2) clown
8. + (1) llave	8. + (1) key
9. − (4) lata	9. + (4) can
10. + (2) gallina	10. + (2) chicken
11. + (4) soplar	11. + (4) blowing
14. + (1) falda	14. + (1) skirt
16. + (1) tambor	16. + (1) drum
17. + (3) hoja	17. + (3) leaf
21. − (4) abeja	21. − (4) bee
22. − (3) planta	22. + (3) bush
23. + (1) echar	23. + (1) pouring
26. + (2) profesora	26. + (2) teacher
27. + (3) construir	27. − (3) building



62. (4) **embudo**
65. (2) **communicacion**
68. (1) **excabar**
71. (1) **merengue**



62. (4) **funnel**
65. (2) **communication**
68. (1) **excavate**
71. (1) **meringue**

TESTS WORKSHEET

Name H 3 Sex F Date of Birth 8-11-63

Date of Testing 5-22-69 Chronological Age 5-9

1. Background Information:

Parental occupation:
mother- housewife
father- farm equipment manager

Parental response to questionaire:
We speak Spanish at home half of the time.

Teacher response to interview:
Parents use Spanish in the home approximately half of the time. She spoke both languages equally well at the ondet of school.

2. Testing Results:

WISC Block Design Subtest: MA 7-2

Goodenough-Harris Drawing Test: Average Standard Score 99

Motor Articulation Test: within normal limits

Hearing Screening Test: normal sensitivity

Lee-Clark Reading Readiness Test: above average performance

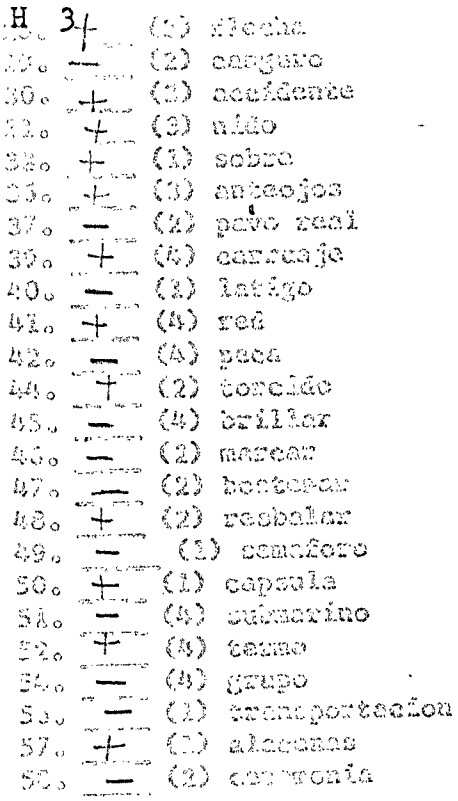
English Version of the Peabody Picture Vocabulary Test: raw score 30

Spanish translation of the Peabody Picture Vocabulary Test: raw score 43

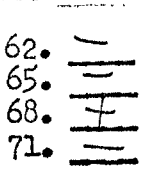
3. Item Analysis of the Spanish PPVT and the English PPVT:

Spanish words		English words	
1.	+ (4) cocha	1.	+ (4) car
2.	+ (3) vaca	2.	+ (3) cow
3.	+ (1) nino	3.	+ (1) baby
5.	+ (1) pelota	5.	+ (1) ball
7.	+ (2) payaso	7.	+ (2) clown
8.	+ (1) llave	8.	+ (1) key
9.	— (4) lata	9.	— (4) can
10.	+ (2) gallina	10.	+ (2) chicken
11.	+ (4) soplar	11.	+ (4) blowing
12.	+ (1) falda	14.	+ (1) skirt
15.	+ (1) tambor	16.	+ (1) drum
17.	+ (3) hoja	17.	+ (3) leaf
18.	— (4) abeja	21.	+ (4) bee
21.	— (3) pluma	22.	— (3) bush
23.	+ (1) sobre	23.	— (1) pouring
26.	+ (2) profesora	26.	+ (2) teacher
27.	— (3) construir	27.	— (3) building

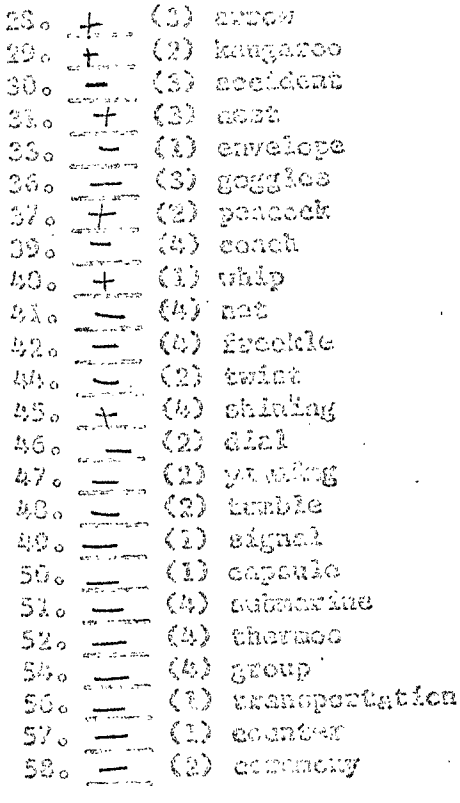
H 3



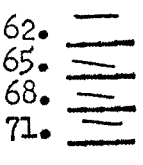
(2) flecha
(2) canguro
(3) accidente
(3) nido
(1) sobre
(1) anteojos
(2) pavo real
(4) carruaje
(2) latigo
(4) red
(4) paca
(2) torcido
(4) brillar
(2) mascar
(2) bombear
(2) resbalar
(3) semáforo
(1) capsula
(4) submarino
(4) tanque
(4) grupo
(2) transportacion
(1) alcanzar
(2) ceremonia



(4) embudo
(2) communicacion
(1) excabar
(1) merengue



(3) arrow
(2) kangaroo
(3) accident
(3) nest
(1) envelope
(3) goggles
(2) peacock
(4) conch
(1) whip
(4) net
(4) freckle
(2) twist
(4) shading
(2) dial
(2) yearning
(2) tumble
(2) signal
(1) capsule
(4) submarine
(4) thermos
(4) group
(1) transportation
(1) encounter
(2) ceremony



(4) funnel
(2) communication
(1) excavate
(1) meringue

CASE SUMMARY

S.C. H 4 Sex M Date of Birth 11-8-62

Date of Testing 5-23-69 Chronological Age 6-6

1. Background Information:

Parental occupations:
Mother- housewife
Father- American Smelting

Parental response to questionaire:
We speak Spanish at home half of the time.

Teacher response to interview:
Parents use Spanish in the home Approximately half of the time. Has spoke both languages equally well at the onset of school.

2. Testing Results:

WISC Block Design Subtest: MA 6-6

Goodenough-Harris Drawing Test: Average Standard Score 90.5

Wepman Articulation Test: within normal limits

Hearing Screening Test: normal sensitivity

Lee-Clark Reading Readiness Test: above average performance

English Version of the Peabody Picture Vocabulary Test: raw score 41

Spanish translation of the Peabody Picture Vocabulary Test: raw score 39

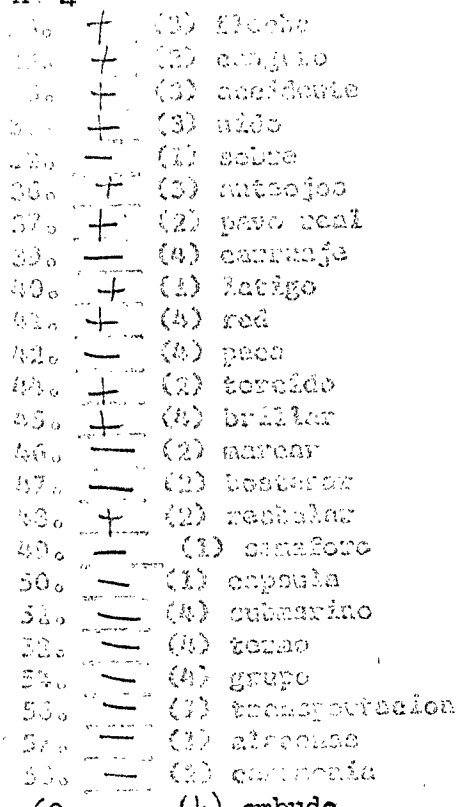
3. Item Analysis of the Spanish PPVT and the English PPVT:

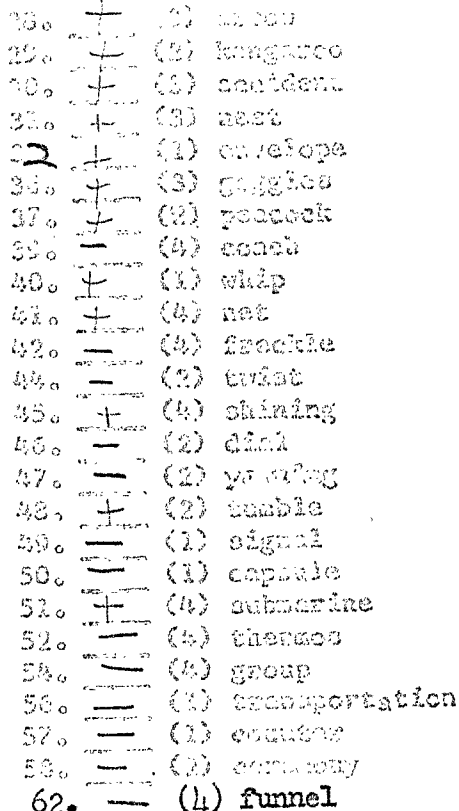
Spanish words		English words	
1. +	(4) coche	1. +	(4) car
2. +	(3) vaca	2. +	(3) cow
3. +	(1) nino	3. +	(1) baby
4. +	(1) pelota	5. +	(1) ball
5. +	(2) payaso	7. +	(2) clown
6. +	(1) llave	8. +	(1) key
7. +	(4) lata	9. +	(4) can
10. +	(2) gallina	10. +	(2) chicken
11. +	(4) nevera	11. +	(4) blowing
12. +	(1) falda	14. +	(1) skirt
13. +	(3) tambor	16. +	(1) drum
17. +	(3) hoja	17. +	(3) leaf
18. +	(4) abeja	21. -	(4) bee
20. +	(3) pin tan	22. +	(3) bush
21. -	(1) color	23. +	(3) pouring
24. +	(2) profesora	25. +	(2) teacher
27. +	(3) construir	27. +	(3) building

H: 4

[illegible]	+	(3)	flecha
[illegible]	+	(2)	[illegible]
[illegible]	+	(3)	accidente
[illegible]	+	(3)	nido
[illegible]	—	(1)	sobre
36.	+	(3)	anteojos
37.	+	(2)	pavo real
39.	—	(4)	carruaje
40.	+	(1)	latigo
41.	+	(4)	red
42.	—	(4)	peca
44.	+	(2)	torcido
45.	+	(4)	brillar
46.	—	(2)	marcar
47.	—	(2)	bostezar
48.	+	(2)	resbalar
49.	—	(1)	semaforo
50.	—	(1)	capsula
51.	—	(4)	submarino
52.	—	(4)	termo
54.	—	(4)	grupo
56.	—	(1)	transportacion
57.	—	(1)	alacenas
58.	—	(2)	[illegible]
62.	—	(4)	embudo
65.	—	(2)	communicacion
68.	—	(1)	excabar
71.	—	(1)	merengue

28.	+	(2)	arrow
29.	+	(2)	kangaroo
30.	+	(3)	accident
31.	+	(3)	nest
32.	+	(1)	envelope
36.	+	(3)	goggles
37.	+	(2)	peacock
39.	—	(4)	coach
40.	+	(1)	whip
41.	+	(4)	net
42.	—	(4)	freckle
44.	—	(2)	twist
45.	+	(4)	shining
46.	—	(2)	dial
47.	—	(2)	yawning
48.	+	(2)	tumble
49.	—	(1)	signal
50.	—	(1)	capsule
51.	+	(4)	submarine
52.	—	(4)	thermos
54.	—	(4)	group
56.	—	(1)	transportation
57.	—	(1)	counter
58.	—	(2)	[illegible]
62.	—	(4)	funnel
65.	—	(2)	communication
68.	—	(1)	excavate
j71.	—	(1)	meringue





Name H 5 Sex M Date of Birth 2-2-63

Date of Testing 5-20-69 Chronological Age 6-4

1. Background Information:

Parental occupation:
Mother- not recorded
Father- Nueces E county Drainage

Parental response to questionaire:
We speak Spanish at home half of the time.

Teacher response to interview:
Parents use Spanish in the home approximately half of the time. He spole both languages at the onset of school.

2. Testing Results:

WISC Block Design Subtest: MA 6-6

Goodenough-Harris Drawing Test: Average Standard Score 90

Templin Articulation Test: within normal limits

Hearing Screening Test: normal sensitivity

Lee-Clark Reading Readiness Test: slightly below average performance

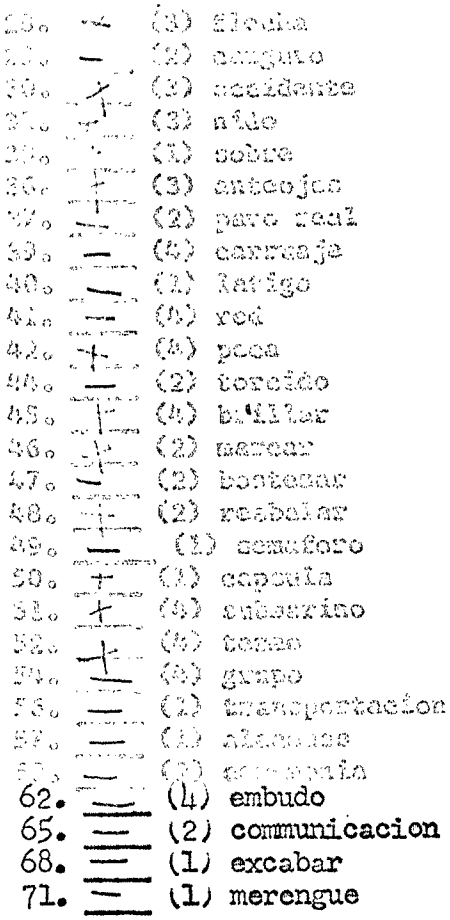
English Version of the Peabody Picture Vocabulary Test: raw score 44

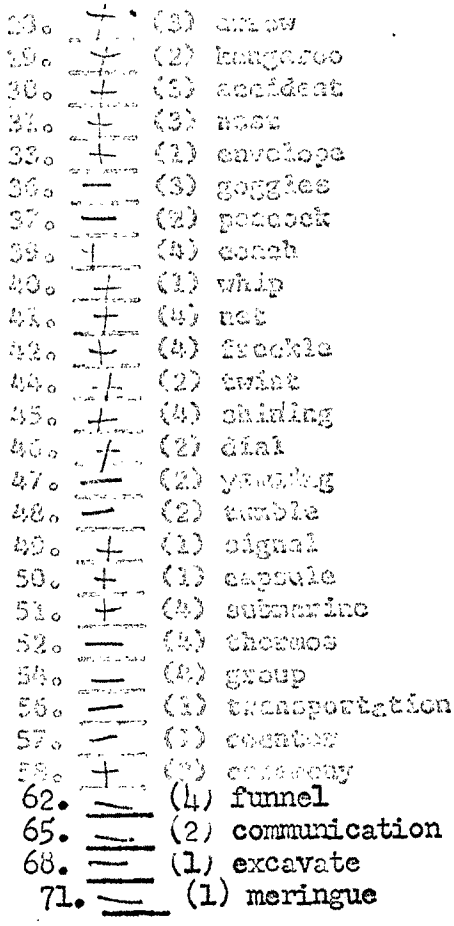
Spanish translation of the Peabody Picture Vocabulary Test: raw score 39

3. Item Analysis of the Spanish PPVT and the English PPVT:

	Spanish words	English words
1.	+ (4) cocha	+ (4) car
2.	+ (3) vaca	+ (3) cow
3.	+ (1) nino	+ (1) baby
4.	+ (1) paleta	+ (1) ball
5.	+ (2) payaso	+ (2) clown
6.	+ (1) llave	+ (1) key
7.	− (4) lata	+ (4) can
8.	+ (2) gallina	+ (2) chicken
9.	+ (4) noyla	+ (4) blowing
10.	+ (1) falda	+ (1) skirt
11.	+ (1) tambor	+ (1) drum
12.	+ (3) hoja	+ (3) leaf
13.	− (4) abeja	+ (4) bee
14.	− (3) pla nta	+ (3) bush
15.	− (1) nadar	+ (3) pouring
16.	− (2) profesora	+ (2) teacher
17.	+ (3) construir	− (3) building

H 5


(3) flecha
(2) seguro
(3) accidente
(3) nido
(3) sobre
(3) anteojos
(2) pavo real
(5) carruaje
(1) latigo
(4) red
(4) pesa
(2) torcido
(4) brillar
(2) nevar
(2) bostezar
(2) resbalar
(1) semaforo
(3) capsula
(4) submarino
(4) tomar
(4) grupo
(2) transportacion
(1) alcanzar
(3) ecuanimidad
62. (4) embudo
65. (2) communicacion
68. (1) excabar
71. (1) merengue


(3) arrow
(2) kangaroo
(3) accident
(3) nose
(2) envelope
(3) goggles
(2) peacock
(4) coach
(1) whip
(4) net
(4) freckle
(2) swing
(4) dividing
(2) dial
(2) yawning
(2) tumble
(1) signal
(1) capsule
(4) submarine
(4) chasmos
(4) group
(3) transportation
(1) counter
(3) equanimity
62. (4) funnel
65. (2) communication
68. (1) excavate
71. (1) meringue

[illegible]

Name Bobby Garza Sex M Date of Birth 11-23-62

Date of Testing 5-22-69 Chronogogical Age 6-6

1. Background Information:

Parental occupation:
mother- nurse
father- Celanese chemical plant

Parental response to questionaire:
We speak Spanish at home some of the time.

Teacher response to interview:
Parents use Spanish in the home approximately half of the time. He spoke both languages at the onset of school.

2. Testing Results:

WISC Block Design Subtest: 8-6

Goodenough-Harris Drawing Test: Average Standard Score 105

Heine Articulation Test: within normal limits

Hearing Screening Test: normal sensitivity

Lee-Clark Reading Readiness Test: above average performance

English Version of the Peabody Picture Vocabulary Test: raw score 56

Spanish translation of the Peabody Picture Vocabulary Test: raw score 45

3. Item Analysis of the Spanish PPVT and the English PPVT:

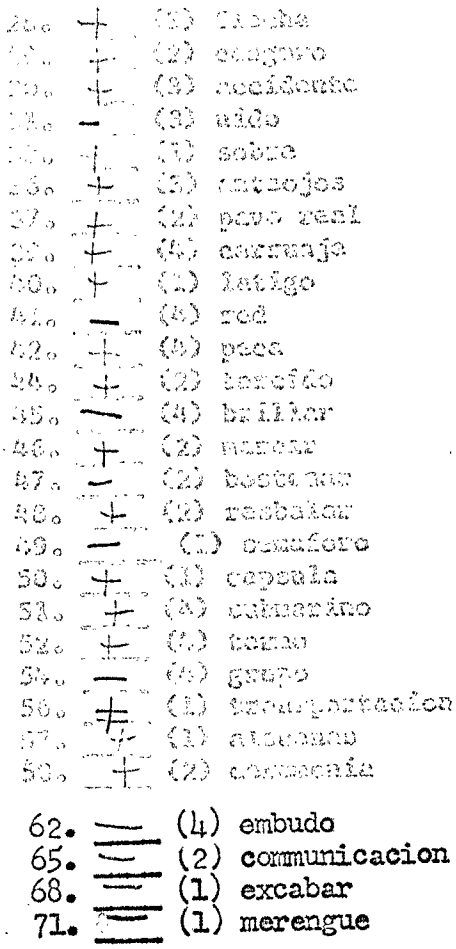
Spanish words	English words
1. + (4) coche	1. + (4) car
2. + (3) vaca	2. + (3) cow
3. + (1) nino	3. + (1) baby
5. + (1) pelota	5. + (1) ball
7. + (2) payaso	7. + (2) clown
8. + (1) llave	8. + (1) key
9. − (4) lata	9. + (4) can
10. + (2) gallina	10. + (2) chicken
11. + (4) soplar	11. + (4) blowing
14. + (1) falda	14. + (1) skirt
16. + (1) tambor	16. + (1) drum
17. + (3) hoja	17. + (3) leaf
21. − (4) abeja	21. + (4) bee
22. − (3) planta	22. + (3) bush
23. + (1) echar	23. + (1) pouring
26. − (2) profesora	26. + (2) teacher
27. − (3) construir	27. + (3) building

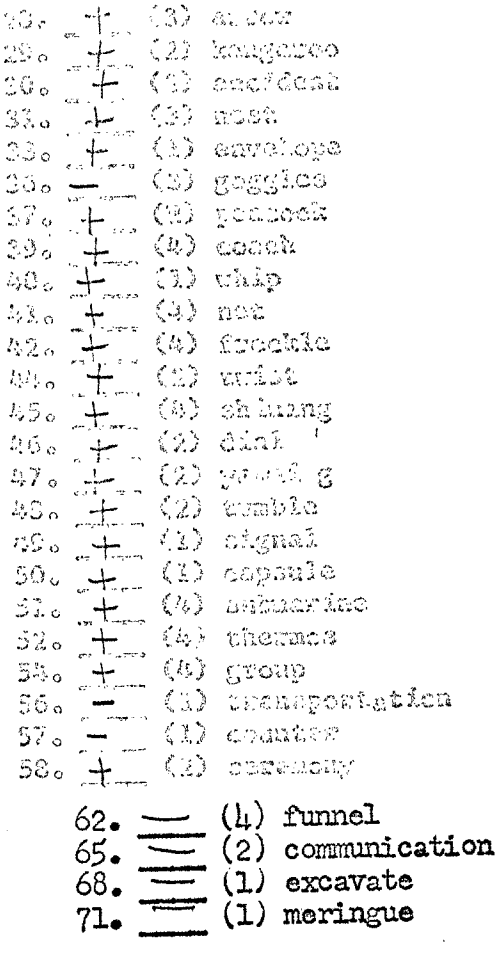
28.	+	(3)	flecha
29.	+	(2)	cangaro
30.	+	(3)	accidente
31.	−	(3)	nido
32.	+	(1)	sobre
36.	+	(3)	anteojos
37.	+	(2)	pavo real
39.	+	(4)	carruaje
40.	+	(1)	latigo
41.	−	(4)	red
42.	+	(4)	peca
44.	+	(2)	torcido
45.	−	(4)	brillar
46.	+	(2)	marcar
47.	−	(2)	bostezar
48.	+	(2)	resbalar
49.	−	(1)	semaforo
50.	+	(1)	capsula
51.	+	(4)	submarino
52.	+	(4)	termo
54.	−	(4)	grupo
56.	+	(1)	transportacion
57.	+	(1)	alacenas
58.	+	(2)	ceremonia

62. — (4) embudo
65. — (2) communicacion
68. — (1) excabar
71. — (1) merengue

28.	+	(3)	arrow
29.	+	(2)	kangaroo
30.	+	(1)	accident
31.	+	(3)	nest
33.	+	(1)	envelope
36.	−	(3)	goggles
37.	+	(2)	peacock
39.	+	(4)	coach
40.	+	(1)	whip
41.	+	(4)	net
42.	+	(4)	freckle
44.	+	(2)	twist
45.	+	(4)	shining
46.	+	(2)	dial
47.	+	(2)	yawning
48.	+	(2)	tumble
49.	+	(1)	signal
50.	+	(1)	capsule
51.	+	(4)	submarine
52.	+	(4)	thermos
54.	+	(4)	group
56.	−	(1)	transportation
57.	−	(1)	counter
58.	+	(2)	ceremony

62. — (4) funnel
65. — (2) communication
68. — (1) excavate
71. — (1) meringue





THESES WORKSHEET

Name S 1 Sex F Date of Birth 10-17-62

Date of Testing 5-24-69 Chronogogical Age 6-7

1. Background Information:

Parental occupation:
mother- housewife
father- construction

Parental response to questionaire:
We speak Spanish at home some of the time.

Teacher response to interview:
Parents speak Spanish less than one-half the time in the home. English was spoken fairly well at school onset.

2. Testing Results:

WISC Block Design Subtest: MA 8-6

Goodenough-Harris Drawing Test: Average Standard Score 91

Haine Articulation Test: within normal limits

Hearing Screening Test: normal sensitivity

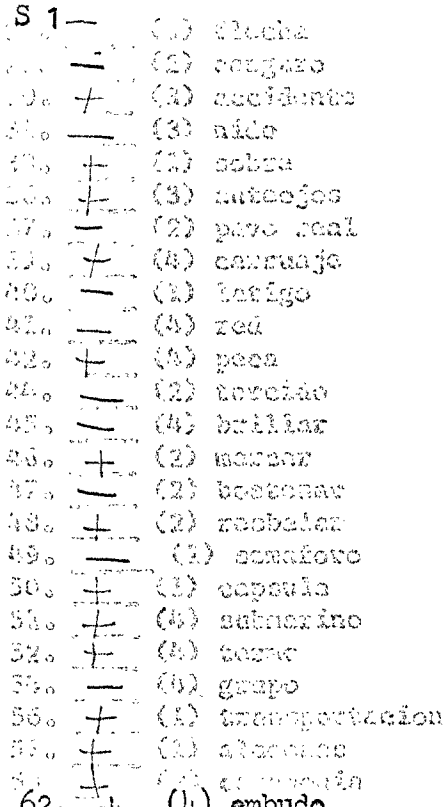
Lee-Clark Reading Readiness Test: above average performance

English Version of the Peabody Picture Vocabulary Test: raw score 47

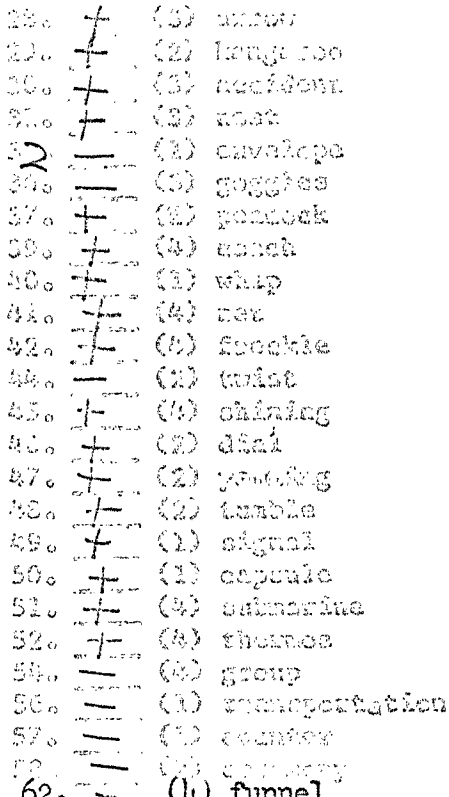
Spanish translation of the Peabody Picture Vocabulary Test: raw score 46

3. Item Analysis of the Spanish PPVT and the English PLPT:

Spanish words	English words
1. + (4) coche	1. + (4) car
2. + (3) vaca	2. + (3) cow
3. + (1) nino	3. + (1) baby
5. + (1) pelota	5. + (1) ball
7. + (2) payaso	7. + (2) clown
8. + (1) llave	8. + (1) key
9. + (4) lata	9. + (4) can
10. + (2) gallina	10. + (2) chicken
11. + (4) soplar	11. + (4) blowing
14. + (1) falda	14. + (1) skirt
16. + (1) tambor	16. + (1) drum
17. + (3) hoja	17. + (3) leaf
21. — (4) abeja	21. + (4) bee
22. — (3) planta	22. + (3) bush
23. + (1) echar	23. + (1) pouring
26. + (2) profesora	26. + (2) teacher
27. + (3) construir	27. + (3) building



S 1 — (1) flecha
[illegible] — (2) canguro
[illegible] + (3) accidente
[illegible] — (3) nido
[illegible] + (1) sobre
[illegible] + (3) anteojos
[illegible] — (2) pavo real
[illegible] + (4) carruaje
40. — (1) latigo
41. — (4) red
42. + (4) peca
44. — (2) torcido
45. — (4) brillar
46. + (2) marcar
47. — (2) bostezar
48. + (2) resbalar
49. — (1) semaforo
50. + (1) capsula
51. + (4) submarino
52. + (4) termo
54. — (4) grupo
56. + (1) transportacion
57. + (1) alcoholes
[illegible] + [illegible]
62. + (4) embudo
65. + (2) communicacion
68. — (1) excabar
71. — (1) merengue



28. + (3) arrow
29. + (2) kangaroo
30. + (3) accident
31. + (3) nest
32 — (1) envelope
34. — (3) goggles
37. + (2) peacock
39. + (4) coach
40. + (1) whip
41. + (4) net
42. + (4) freckle
44. — (2) twist
45. + (4) shining
46. + (2) dial
47. + (2) yawning
48. + (2) tumble
49. + (1) signal
50. + (1) capsule
51. + (4) submarine
52. + (4) thermos
54. — (4) group
56. — (1) transportation
57. — (1) counter
[illegible] — [illegible]
62. — (4) funnel
65. — (2) communication
68. — (1) excavate
71. — (1) meringue

[illegible]

Name S 2 Sex F Date of Birth 10-20-62

Date of Testing 5-21-69 Chronological Age 6-7

1. Background Information:

Parental occupation:
mother- housewife
father- Litchenstein's

Parental response to questionnaire:
We speak Spanish at home all of the time.

Teacher response to interview:
Parents speak Spanish less than one-half the time in the home. English was spoken fairly well at school onset.

2. Testing Results:

WISC Block Design Subtest: MA 6-6

Goodenough-Harris Drawing Test: Average Standard Score 92.5

Weiss Articulation Test: within normal limits

Hearing Screening Test: normal sensitivity

Lee-Clark Reading Readiness Test: slightly below average performance

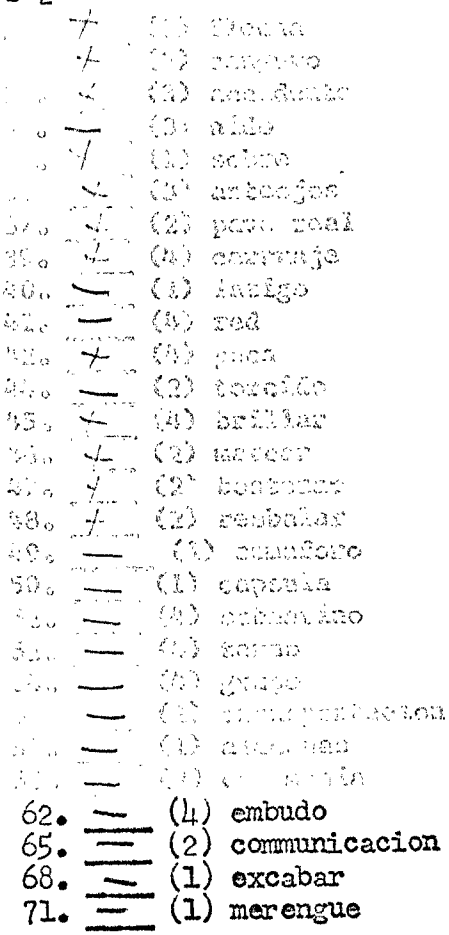
English Version of the Peabody Picture Vocabulary Test: raw score 53

Spanish translation of the Peabody Picture Vocabulary Test: raw score 39

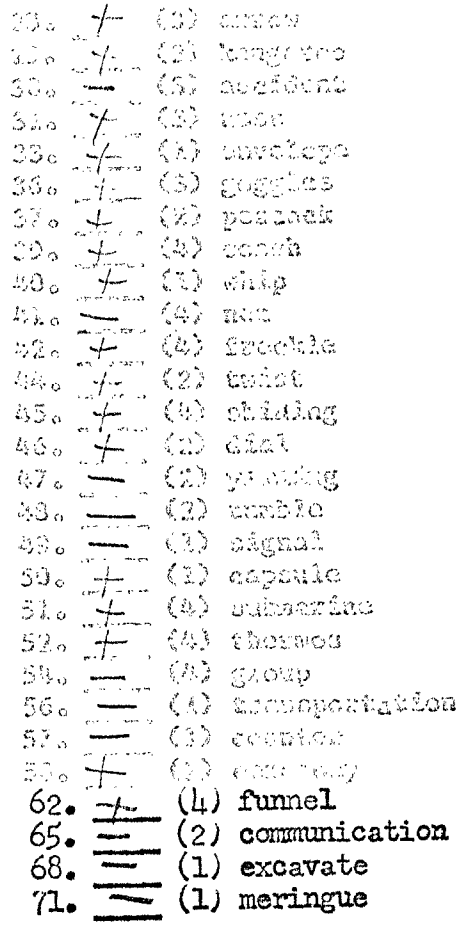
3. Item Analysis of the Spanish PPVT and the English PPVT:

Spanish words	English words
1. + (4) coche	1. + (4) car
2. + (3) vaca	2. + (3) cow
3. + (1) nino	3. + (1) baby
5. + (1) peleta	5. + (1) ball
7. + (2) payaso	7. + (2) clown
8. + (1) llave	8. + (1) key
9. − (4) lata	9. + (4) can
10. + (2) gallina	10. + (2) chicken
11. + (4) soplar	11. + (4) blowing
14. + (1) falda	14. + (1) skirt
16. + (1) tambor	16. + (1) drum
17. + (3) hoja	17. + (3) leaf
21. + (4) abeja	21. + (4) bee
22. + (3) planta	22. + (3) bush
23. − (1) echar	23. + (1) pouring
26. + (2) profesora	26. + (2) teacher
27. + (3) construir	27. − (3) building

S 2



62. (4) embudo
65. (2) communicacion
68. (1) excabar
71. (1) merengue



62. (4) funnel
65. (2) communication
68. (1) excavate
71. (1) meringue

Name S 3 Sex F Date of Birth 7-13-63

Date of Testing 5-21-69 Chronological Age 5-10

1. Background Information:

Parental occupation:
Mother- Hospital
Father- 'in Army

Parental response to questionaire:
We speak Spanish at home some of the time.

Teacher response to interview:
Parents speak Spanish less than one-half the time in the home. English was spoken well at school onset.

2. Testing Results:

WISC Block Design Subtest: 6-6

Goodenough-Harris Drawing Test: Average Standard Score 91

Heinz Articulation Test: within normal limits

Hearing Screening Test: normal sensitivity

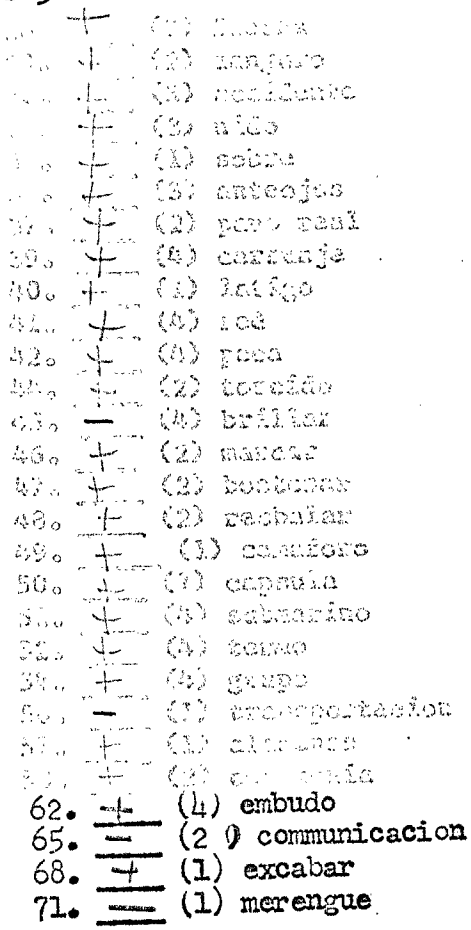
Lee-Clark Reading Readiness Test: above average performance

English Version of the Peabody Picture Vocabulary Test: raw score 60

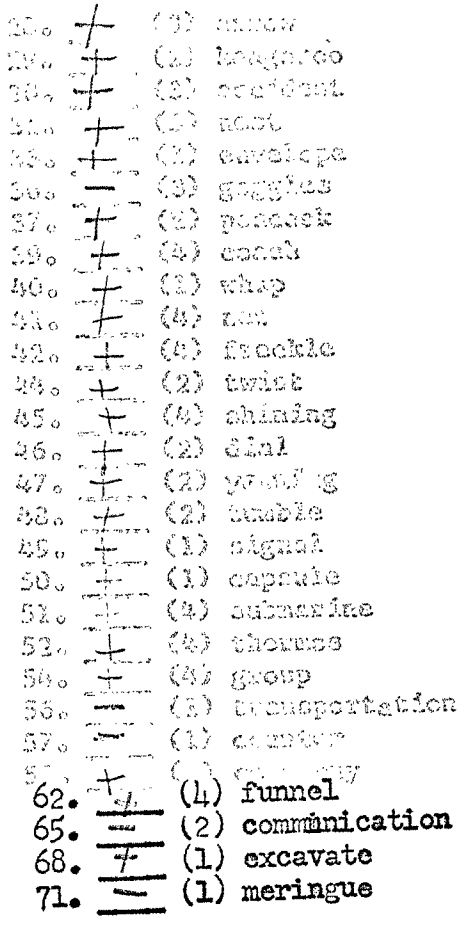
Spanish translation of the Peabody Picture Vocabulary Test: raw score 57

3. Item Analysis of the Spanish PPVT and the English PPVT:

Spanish words	English words
1. + (4) coche	1. + (4) car
2. + (3) vaca	2. + (3) cow
3. + (1) nino	3. + (1) baby
5. + (1) pelota	5. + (1) ball
7. + (2) payaso	7. + (2) clown
8. + (1) llave	8. + (1) key
9. + (4) lata	9. + (4) can
10. + (2) gallina	10. + (2) chicken
11. + (4) soplar	11. + (4) blowing
14. + (1) falda	14. + (1) skirt
16. + (1) tambor	16. + (1) drum
17. + (3) hoja	17. + (3) leaf
21. + (4) abeja	21. + (4) bee
22. + (3) planta	22. + (3) bush
23. + (1) echar	23. + (1) pouring
26. — (2) profesora	26. + (2) teacher
27. + (3) construir	27. + (3) building



62. (4) embudo
65. (2) communicacion
68. (1) excabar
71. (1) merengue



62. (4) funnel
65. (2) communication
68. (1) excavate
71. (1) meringue

S 4 Sex M Date of Birth 12-15-62

Date of Testing 5-24-69 Chronological Age 6-5

1. Background Information:

Occupational Status:
Mother: housewife
Father: Manager of H agar Slack Factory

Parental response to questionnaire:
He speak Spanish at home some of the time.

Significant comments to interviewer:
Parents speak Spanish less than one-half the time in the home. English was spoken very well at school onset.

2. Testing Results:

WISC Full Scale Subtests: 7-2

Goodenough Harris Drawing Test: Average Standard Score 101

Wide Articulation Test: within normal limits

Phonic Sensing Test: normal sensitivity

Gates-Huelt Reading Readiness Test: above average performance

English Version of the Peabody Picture Vocabulary Test: Raw Score 68

Spanish translation of the Peabody Picture Vocabulary Test: raw score 44

3. Item Analysis of the Spanish PPVT and the English PPVT:

Spanish words

1. + (4) coche
2. + (3) vaca
3. + (1) niño
4. + (3) pelota
5. + (2) payaso
6. + (1) lleva
7. + (4) luta
8. + (2) guitar
9. + (4) regalo
10. + (3) [illegible]
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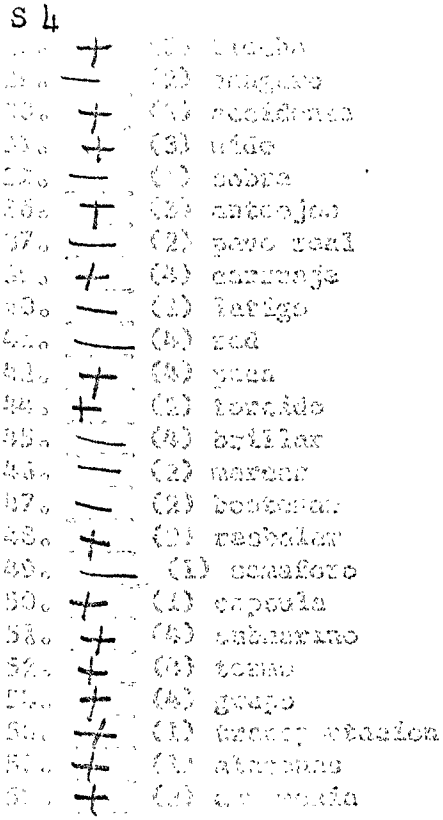
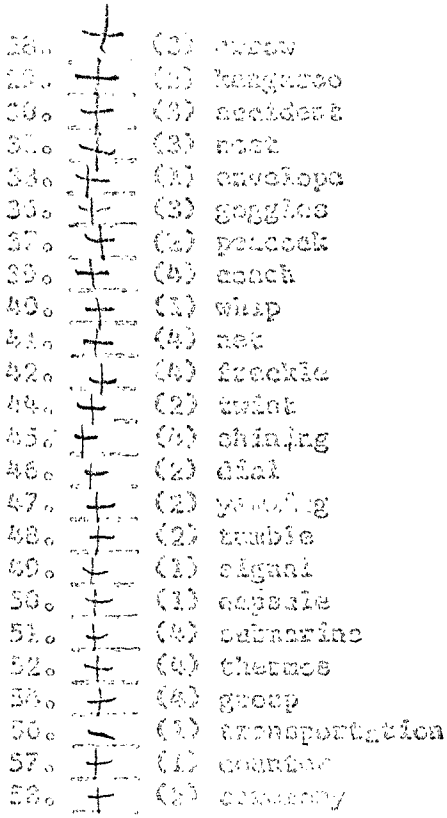


62. (4) embudo
65. (2) communicación
68. (1) excabar
71. (1) merengue



62. (4) funnel
65. (2) communication
68. (1) excavate
71. (1) meringue

S 5 M 9-12-62

5-20-69 6-8

housewife
civil service, naval base

some

Parents speak Spanish less than one-half the time in the home. English was spoken well at school onset.

7-2 MA

Average Standard Score 112

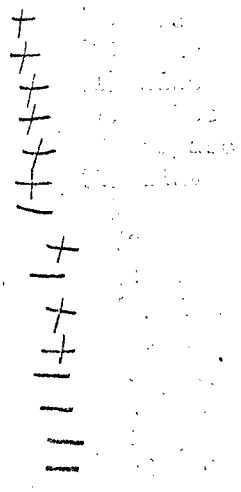
within normal limits

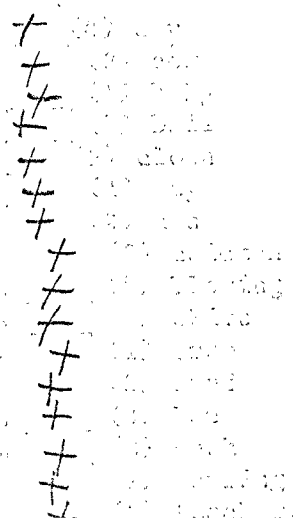
normal sensitivity

average performance

raw score 54

raw score 25





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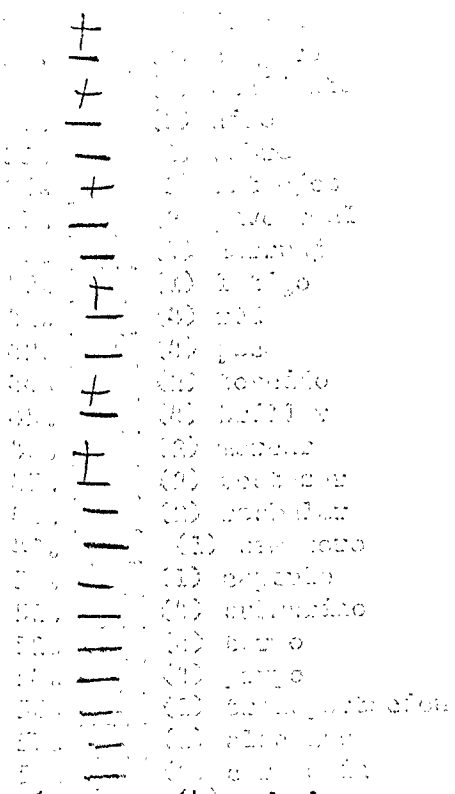
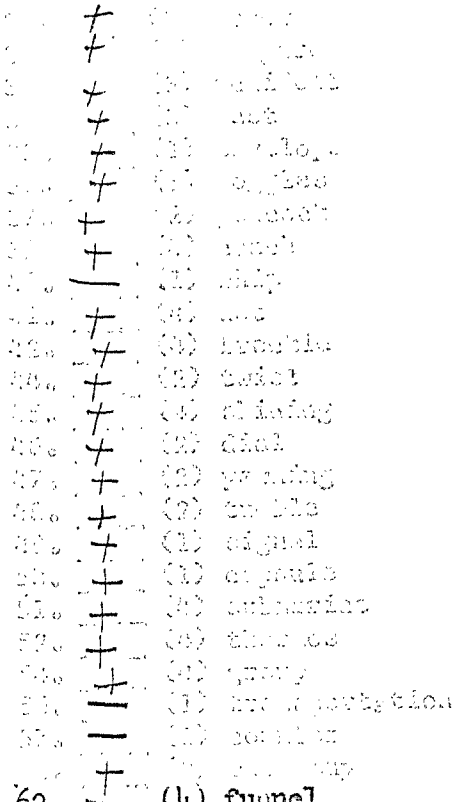


62. (4) embudo
65. (20) communicacion
68. (1) excabar
71. (1) merengue



62. (4) funnel
65. (2) communication
68. (1), excavate
71. (1) meringue

S 6 M 5-25-63

5-23-69 6-0

housewife
farm worker

some

Parents speak Spanish less than one-half the time in the home. English was spoken well at school onset.

MA 6-6

Average Standard Score 108

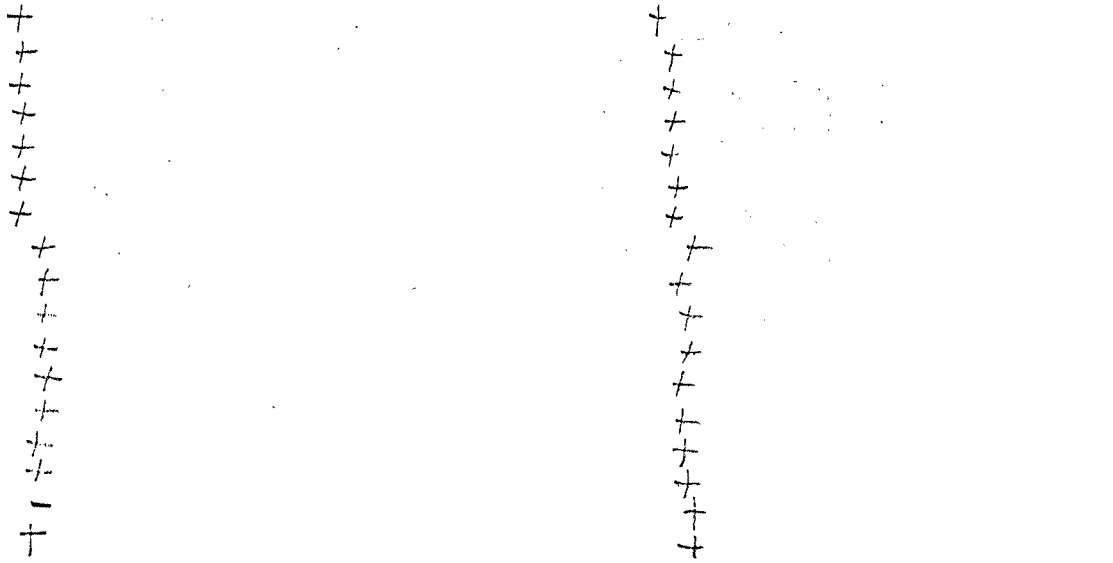
within normal limits

normal sensitivity

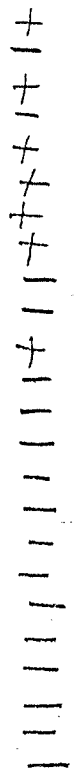
above average performance

raw score 51

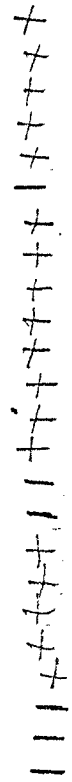
raw score 31



S 6



62. — (4) embudo
65. — (2) communicacion
68. — (1) excabar
71. — (1) merengue



62. — (4) funnel
65. — (2) communication
68. — (1) excavate
71. — (1) meringue

S 7 M 3-9-63

5-22-69 6-2

Lieberman's Department Store
Kroger's Discount Store

some

Parents speak Spanish less than one-half the time in the home.
English was spoken well at school onset.

8-2

Average Standard Score 96

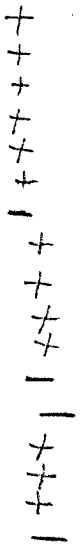
within normal limits

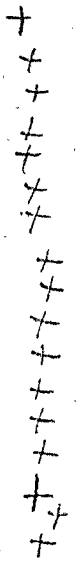
normal sensitivity

average performance

raw score 49

raw score 34





S 7

62. (4) cabado
65. (2) communication
68. (3) excabar
71. (1) mercugue

62. (4) tunnel
65. (2) communication
68. (1) excavate
71. (1) meringue

S 8 M 5-14-63

5-23-69 6-0

Hagar Slack Factory
Jennings Chevrolet

some

Parents speak Spanish less than one-half the time in the home.
English was spoken well at school onset.

7-10 MA

st Average Standard Score 107.5

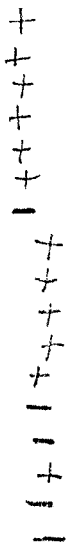
within normal limits

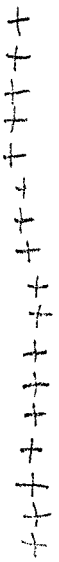
normal sensitivity

e above average performance

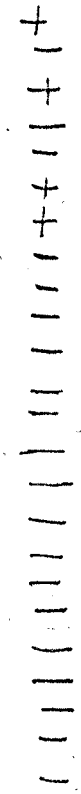
raw score 54

raw score 30





S 8



62. (4) embudo
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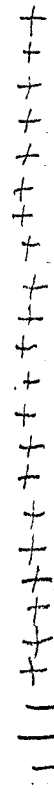
68. (1) excabar
71. (1) merengue



62. (4) funnel
65. (2) communication
68. (1) excavate
71. (1) meringue

BIBLIOGRAPHY

Books

Bangs, Tina E., Language and Learning Disorders of the Pre-Academic Child, New York, Appleton-Century-Crofts, 1968.

Berry, M. and J. Eisenson, Speech Disorders, New York, Appleton-Century-Crofts, 1956.

Darley, Frederic L., Diagnosis and Appraisal of Communication Disorders, Englewood Cliffs, New Jersey, Prentice-Hall, Inc., 1964.

Dunn, L. M., Peabody Picture Vocabulary Test, Nashville, American Guidance Service, 1959.

Eisenson, J., J. J. Auer, and J. V. Irwin, Psychology of Communication, New York, Appleton-Century-Crofts, 1963.

Gray, Giles W. and Claude M. Wise, The Bases of Speech, New York, Harper and Brothers, 1959.

Harris, Dale B., Children's Drawings as Measures of Intellectual Maturity, New York, Harcourt, Brace and World, Inc., 1963.

Johnson, W., F. L. Darley, and D. C. Spriestersbach, Diagnostic Methods in Speech Pathology, New York, Harper and Row, 1963.

McCarthy, Dorthea, "Language Development in Children," Manual of Child Psychology, edited by Leonard Carmichael, New York, John Wiley and Sons, 1954.

McCarthy, J. J. and S. A. Kirk, Illinois Test of Psycholinguistic Abilities: Examiner's Manual, Urbana, Illinois, University of Illinois Institute for Research on Exceptional Children, 1961.

Myklebust, Helmer R., Auditory Disorders in Children, New York, Grune and Straton, 1954.

Newby, Hayes A., Audiology, New York, Appleton-Century-Crofts, 1964.

Thompson, G. G., Child Psychology: Growth Trends in Psychological Adjustment, Boston, Houghton Mifflin Company,

Van Riper, Charles, Speech Correction, Englewood Cliffs, New Jersey, Prentice-Hall, Inc., 1954.

Webster's Seventh New Collegiate Dictionary, Springfield, Massachusetts, G. and C. Merriam, 1961.

Wechsler, D., Weshler Intelligence Scale for Children, New York, Psychological Corporation, 1949.

Winer, B. J., Statistical Principles in Experimental Design, New York, McGraw-Hill Company, Inc., 1962.

Wood, Nancy E., Language Disorders in Children, Chicago, National Society for Crippled Children and Adults, 1959.

Articles

Altus, G. T., "WISC Patterns of Selected Samples of Bilingual School Children," Journal of Genetic Psychology, LXXXIII (December, 1953), 241-248.

Bangs, Tina E., "Evaluating Children with Language Delay," Journal of Speech and Hearing Disorders, XXV (February, 1961), 6-18.

Bean, J. P., "The Effects of Socio-Economic Status on Oral Language Skills," Voice, XVI (June, 1967), 103-113.

Carrow, Sister Mary A., "Linguistic Functioning of Bilingual and Monolingual Children," Journal of Speech and Hearing Disorders (September, 1957), 371-380.

Darcy, Natalie T., "The Effect of Bilingualism Upon the Measurement of the Intelligence of Children of Preschool Age," Journal of Educational Psychology, XXXVII (January, 1946), 21-44.

Holland, W. R., "Language Barrier as an Educational Problem of the Spanish-Speaking Child," Exceptional Child, XXVII (September, 1960), 42-50.

Jones, W. R., "A Critical Study of Bilingualism and Nonverbal Intelligence," British Journal of Educational Psychology, XXX (February, 1960), 71-77.

Leopold, W. F., "Speech Development of A Bilingual Child: A Linguist's Record, Vol. III, Grammar and General Problems in the First Two Years," Northwestern University Studies of Humanity, Evanston, Northwestern University Press, 1949.

Leopold, W. F., "The Study of Child Language and Infant Bilingualism," Word, IV (April, 1948), 1-17.

Levinson, B. M., "A Comparison of the Performance of Bilingual and Monolingual Native Born Jewish Children of Traditional Parentage on Four Intellectual Tests," Journal of Clinical Psychology, XV (March, 1959), 74-76.

McCarthy, Dorthea, "The Language Development of the Preschool Child," Child Welfare Monographs, No. 4, Minneapolis, University of Minnesota Press, 1930.

Menyuk, P., "Comparison of Grammar of Children with Functionally Deviant and Normal Speech," Journal of Speech and Hearing Research, VII (June, 1969), 109-121.

Norman, R. D. and D. F. Mead, "Spanish-American Bilingualism and the Ammons Full-Range Picture Vocabulary Test," Journal of Social Psychology, LI (June, 1960), 319-330.

Smith, Madorah E., "An Investigation of the Development of the Sentence and the Extent of Vocabulary in Young Children," University of Iowa Studies in Child Welfare, III, No. 5 (November, 1926), 1-25.

_____, "Measurement of Vocabulary of Young Bilingual Children in Both Languages Used," Journal of Genetic Psychology, LXXIV (June, 1949), 305-310.

_____, "Some Light on the Problem of Bilingualism as Found from a Study of the Progress in Mastery of English among Preschool Children of Non-American Ancestry in Hawaii, Genetic Psychology Monographs, XXI (January, 1939), 121-284.

_____, "A Study of the Speech of Eight Bilingual Children of the Same Family," Child Development, VI (March, 1935), 19-25.

Templin, Mildred C., "Curtain Language Skills in Children: Skill Development and Interrelations," Institute of Child Welfare Monograph Series, Minneapolis, University of Minnesota Press, 1957.

Encyclopedia Article

Carroll, John B., "Language Development," Encyclopedia of Educational Research, Third edition, edited by C. W. Harris, New York, The Macmillan Company, 1960.

Public Document

Sells, S. B., "Evaluation of Psychological Measures Used in the Health Examination Survey of Children Ages 6-11," Vital and Health Statistics, Series 2, Number 15, United States Department of Health, Education, and Welfare, March, 1966.

Unpublished Materials

Corwin, Betty J., "The Influence of Culture and Language on Individual Ability Tests," unpublished study, Division of Education, San Fernando Valley State College, Northridge, California, 1962.

Fitzpatrick, Robert A., "An Investigation of A Spanish Adaptation of the Peabody Picture Vocabulary Test," unpublished study, presented to the faculty of the School of Education, San Diego State College, San Diego, California, 1968.

Kralovich, A. M., "The Effect of Bilingualism on Intelligence Test Scores as Measured by the Weshler Intelligence Scale for Children," unpublished master's thesis, Fordham University, 1954.

Letter from Margaret Moreau, Master of Arts, University of Mexico, D. F., February 5, 1969.