DOCUMENT RESUME

ED 255 051 FL 014 935

AUTHOR Garcia, Eugene E.
TITLE Becoming Bilingual During Early Childhood. Bilingual Education Paper Series, Vol. 6, No. 7.
INSTITUTION California State Univ., Los Angeles. Evaluation, Dissemination and Assessment Center.
SPONS AGENCY University of Southern California, Los Angeles. Dept. of Linguistics.
PUB DATE Feb 83
NOTE 51p.; Paper presented at the Meeting of the International Association of Behavioral Development (Toronto, Ontario, 1982).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Bilingualism; English; Family Environment; *Language Acquisition; Language Dominance; Language Research; *Language Usage; *Preschool Children; Spanish

ABSTRACT

Spanish-English bilingual and monolingual English children aged 3-5 years were recorded in interaction with their mothers. Bilingual children were recorded twice each month, once in Spanish and once in English, and were also observed in a home situation. An analysis of the recorded language was done using selected morphological and syntactic features. An analysis of home language use was also performed for the bilingual children. Results indicate: (1) a definite bilingual proficiency character with greater proficiency in English; (2) no significant difference on English measures between bilingual and monolingual children; and (3) a differential language use pattern for Spanish and English by bilingual children in the home. The results provide new insights into the bilingual acquisition phenomenon in early childhood. (Author/MSE)

ISSN 0161-3707

Vol. 6 No. 7
February 1983

Bilingual Education PAPER SERIES

BECOMING BILINGUAL DURING EARLY CHILDHOOD

Eugene E. Garcia
Arizona State University

Evaluation, Dissemination and Assessment Center
California State University, Los Angeles
5151 State University Drive
Los Angeles, CA. 90032

The subject of this publication was supported in whole or in part by the United States Education Department. The opintons expressed herein do not necessarily reflect the position or policy of the United States Education Department; no official endorsement by the United States Education Department should be inferred.

This publication was printed with funds provided by the Bilingual Education Act, Title VII of the Elementary and Secondary Education Act of 1965, as amended by Public Law 93.380.

BECOMING BILINGUAL DURING EARLY CHILDHOOD*

Eugene E. Garcia

ABSTRACT

Spanish/English bilingual and monolingual English children ages 3-5 years were recorded during interactions with their mothers. Bilingual children were recorded twice each month--once in Spanish and once in English--and were also observed in a home situation. An analysis of the recorded language was performed utilizing selected morphologic and syntactic features. An analysis of home language use was also performed for bilingual children. Results indicate: (1) a definite bilingual proficiency character with "weighted" proficiency in English, (2) no significant difference on English measures between bilingual and monolingual children, and (3) a differential language use pattern for Spanish and English by bilingual children in the home. These results provide new insights into the bilingual acquisition phenomenon in early childhood.

INTRODUCTION

Certainly, one of the most impressive characteristics of children's development is related to language acquisition. It seems remarkable that within the first few years of life, drastic changes in linguistic competence can clearly be identified (Menyuk, 1971). Although the exact variables influencing this development are still not evident, research in this field has been voluminous and theoretically varied (Lenneberg and Lenneberg, 1975; DeVilliers and DeVilliers, 1978). The main focus of this research has centered on single-language acquisition (Brown, 1973), although more recent research has employed comparative linguistic analysis with children who learn different languages (Bowerman, 1975; Braine, 1974). Compared to these bodies of literature, very little systematic investigation is available regarding

---

*This paper was presented at the meeting of the International Association of Behavioral Development, Toronto, Canada, 1982.

children who acquire more than one language simultaneously during the early part of their lives.

It does seem clear that children can and do learn more than one linguistic communicative form in many societies throughout the world. Sorenson (1967) describes the acquisition of three to four languages by young children who live in the Northwest Amazon region of South America. In this Brazilian-Colombian border region, the Tukano tribal language serves as the **lingua franca**, but some 25 clearly distinguishable linguistic groups continue to exist. In the United States, Skrabanek (1970) reports continued acquisition and support of both English and Spanish language systems among young preschool children of the Southwest for the last 100 years, with no indication that this phenomenon will be disrupted. Although not apparent from a cursory scanning of linguistic literature, research with bilinguals is not a recent sub-area of linguistic or psychological interest. Ronjat (1913) reports the development of French and German in his own son. Finding few deleterious effects of bilingual development, he attributed such positive outcomes to the separation of the languages. In this particular case, one parent consistently spoke French and the other, German. Pavlovitch (1920) also reports the development of two languages, French and Serbian, in his son. Similarly, languages were separated across individuals. The languages reportedly developed simultaneously with minimal confusion. Geissler (1938) reports, anecdotally, that as a teacher of foreign languages, he observed young children acquire up to four languages simultaneously without apparent difficulty. However, Smith (1935), in a study of missionary families who spoke English and Chinese, reports difficulty during simultaneous acquisition. This difficulty was most apparent in the language-mixing character of some children's speech.

One of the first systematic investigations of bilingual acquisition in young children was reported by Leopold (1939, 1947, 1949a, 1949b). He set out to study the simultaneous acquisition of English and German in his own daughter. These initial descriptive reports indicate that as the subject was exposed to both languages during infancy, she seemed to weld both languages into one system during initial language production periods. For instance, early language forms were characterized by free mixing. Language production during later periods seem to indicate that the use of English and German grammatical forms developed independently.

More recent studies have systematically addressed several issues relevant to bilingual acquisition. Carrow (1971, 1972) restricted her study to the receptive domain of young bilingual Mexican-American children in the Southwest. Children (ages 3 years, 10 months to 6 years, 9 months) from bilingual Spanish/English home environments were administered the **Auditory Test for Language Comprehension.** This test consists of a series of pictures representing referential categories that can be signaled by words, morphological constructions, grammatical categories, and syntactic structures. These include verbs, adjectives, adverbs, nouns, pronouns, morphological endings, prepositions, interrogatives, and syntax complexity in both languages. A comparison of English and Spanish comprehension on this task for bilinguals revealed: (1) linguistically, children were very heterogeneous; some scored better in one language than another, others were equal in both; (2) a greater proportion of children scored higher in English than in Spanish; and (3) older children scored higher on these measures in both languages (Carrow, 1971). (This was the case even though Spanish was not used as a medium of instruction for children who were in educational programs.)

In a cross-sectional comparison of English comprehension among monolingual English and bilingual Spanish/English children (ages 3 years, 10 months to 6 years, 9 months), Carrow (1972) reports a positive developmental trend for both Spanish and English in bilingual children. Additionally, bilingual children tended to score lower than monolingual children on English measures during ages 3 years, 10 months to 5 years, 9 months; but for the final age comparison group (6 years, 9 months), bilingual and monolinguals did not differ significantly on these same English measures. These combined results seem to indicate that, at the receptive level, Spanish/English bilingual children were: (a) progressing (increasing their competence) in both Spanish and English; (b) heterogeneous as a group, most favoring one language (typically English) over another; and (c) "lagging" behind monolingual children in their acquisition of English at an early age (4-5), but eventually "catching up" at a later age (6-7). Since these studies were only at the receptive level, used specific "test" procedures, and restricted the population of study to one regional bilingual Hispanic population (Texas Mexican-Americans), there exist serious limitations on the above conclusions. But, they do offer some initial empirical information relevant to the study of early childhood bilingual development.

With respect to expressive development, Padilla and Liebman (1975) report the longitudinal analysis of Spanish/English acquisition in three-year-old bilingual children. These researchers followed the model of Brown (1973) in recording linguistic interactions of children over a five-month period. By an analysis of several dependent linguistic variables (phonological, grammatical, syntactic, and semantic characteristics) over this time period, they observed gains in both languages. While several English forms were in evidence, similar Spanish forms were not. They also report the differentiation

of linguistic systems at phonological, vocabulary, and syntactic levels. Padilla and Liebman (1975) conclude:

> The appropriate use of both languages even in mixed utterances was evident; that is, correct word order was preserved. For example, there were no occurrences of "raining esta" or "a es baby" but there was evidence for such utterances as "esta raining" and "es a baby." There was also an absence of the redundance of unnecessary words which might tend to confuse meaning. (p. 51)

Garcia (1983) reports developmental data related to the acquisition of Spanish and English for Spanish/English bilingual preschoolers (3-4 years old) and the acquisition of English for a group of matched English-only speakers. The results of that study can be summarized as follows: (a) acquisition of both Spanish and English was evident at complex morphological (grammatical) and syntactic levels for Spanish/English four-year-old children; (b) for the bilingual children studied, English was more advanced based on the quantity and quality of obtained morphological and syntactic instances of language productions; and (c) there was no quantitative or qualitative difference between Spanish/English bilingual children and matched English only controls on English language productions.

Huerta (1977) has provided a report of a longitudinal analysis for a bilingual Spanish/English, two-year-old child. She reports a similar pattern of continuous Spanish/English development, although identifiable stages appeared in which one language forged ahead of the other. Moreover, she reports the significant occurrence of mixed language utterance that used both Spanish and English lexicon as well as Spanish and English morphology. In all such cases, these mixed linguistic utterances were well formed and communicative. Garcia (1981), in a national study of bilingual children aged four, five, and six years, found regional differences in the relative occurrence of switched-language utterances. That is, bilingual Spanish/English children from Texas, Arizona, Colorado, and New Mexico showed higher (15-20

percent) incidences of language-switched utterances than children from California, Illinois, New York, or Florida, especially at prekindergarten levels. These findings suggest that some children may very well develop an "interlanguage" in addition to the acquisition of two independent language systems later in development.

The above "developmental" findings can be capsulized succinctly but not without acknowledging their tentative nature:

1. The acquisition of more than one language during early childhood is a documented phenomenon.

2. The acquisition of two languages can be parallel but need not be. That is, the qualitative character of one language may lag behind, surge ahead, or develop equally with the other language.

3. The acquisition of two languages may very well result in an interlanguage, incorporating the aspects (lexicon, morphology, and syntax) of both languages.

4. The acquisition of two languages need not hamper, developmentally, the acquisition of either language.

Of course, these conclusions are very broad. The specific nature of bilingual development and its causal links to environmental variables remains unavailable.

BILINGUAL ACQUISITION IN EARLY CHILDHOOD: AN EMPIRICAL STUDY

The following study attempts to address various aspects of bilingualism. First, it is a description of bilingual development in that children under study were from bilingual home environments, and measures were obtained in each language. Second, it allows the comparison of bilingual and monolingual children across various linguistic measures. Subsets of children matched by age and socio-economic status were included in the study. In doing so, some notions of positive and negative transfer were considered. The availability of home language measures adds an additional dimension insofar as it is related to overall language input and use across the bilingual's two

languages. In summary, the investigation attempts to generate some initial answers to questions of use, input, and transfer that are of special theoretical and applied importance to early childhood bilingualism.

Subjects were participants in one bilingual/bicultural preschool program and several neighboring preschool programs not emphasizing bilingual/bicultural curricula. These preschools existed in a section of a moderately-sized (150,000 population) city within a predominantly Mexican-American neighborhood. At the time of the study, the Spanish-surnamed population of the city was close to 10 percent; of this population, 75 percent of the Spanish-surnamed children attended the five public schools in this neighborhood.

The bilingual preschool was staffed by one Early Childhood Specialist, certified as a preschool instructor and who served as coordinator and head teacher. Additionally, each mother served as a teacher on at least one day each week, with a minimum of two mothers assuming this role each day. Mothers were also required to spend an additional day, usually Fridays, developing and preparing curricula for those days they taught. (Mothers were paid on an hourly basis for each of these staff functions.)

All families of the children involved in the study lived within the designated area indicated earlier and can be described as economically disadvantaged (as defined by the United States Department of Labor per annum family income, 1976). Children's ages ranged from 3 to 5 years; mothers' ages ranged from 18 to 33 years. All participants of the bilingual preschool were advised of the bilingual/bicultural curriculum effort prior to inclusion in the preschool. It was necessary for each mother to speak both Spanish and English, although the ability to speak each language varied individually.

From this population, 12 bilingual children and one monolingual (Spanish-speaking) child were identified for extensive observation. The

criterion used for identification of this group was two-fold. First, preentry interviews with mothers included questions on mothers', children's, and families' use of Spanish and English in the home. Second, the preschool staff was asked to rate the children's ability in each language, given their performance within the preschool setting. Those children whose mothers indicated use of both languages in the home, and specifically indicated that both they and their child used both languages at home, were considered for inclusion in the longitudinal observations. Children with a high rating in use of both languages by the preschool staff and who fulfilled the previous requirements were considered bilinguals and included in the longitudinal observations. Sixteen children initially met the requirements; four of these left the preschool before completion of 12 consecutive monthly observations. Monolingual children whose only home language was English were recruited from neighboring preschool programs. Table 1 presents the age in months for all children during their participation in the study.

Collection and Transcription of Language Samples

A small 8' x 10' room located at the preschool was used to record mother-child interaction. A TEAC 140 cassette recorder was used to record all language interactions. Mother-child interactions were recorded semi-monthly in each language for bilingual pairs and once a month for monolingual pairs. During the first six months of the study, the mother-child pairs used a standardized free-productive language stimulus item (Educational Testing Service Test: Circo, a productive test 10C) during each recording session. The picture portrayed a circus scene with several items that could be discussed (i.e., animals, clowns, balls, etc.) and was intended as a catalyst for increased mother-child interaction.

Table 1

AGE OF BILINGUAL AND MONOLINGUAL SUBJECTS IN MONTHS DURING THEIR PARTICIPATION IN THE STUDY

Bilinguals

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
Age	36-48	37-49	37-49	36-48	35-47	35-47	36-48	38-50	38-50	38-50	38-50	38-50
Sex	M	F	F	M	M	F	F	M	F	M	M	F

Monolinguals

	#13	#14	#15	#16	#17	#18	#19	#20	#21	#22	#23	#24	#25*
Age	36-48	37-49	36-48	37-49	37-49	38-50	37-49	37-49	38-50	38-50	38-50	38-50	37-49
Sex	F	M	F	M	M	F	F	M	M	F	F	M	M

*Monolingual Spanish speaker

At the beginning of each session the mother was given a set of instructions and then left in the room with her child. Mothers were requested to carry on a normal conversation with their child and to use the picture as an initiator. (Bilingual mothers were requested to do so in either language.) During the last six months of the study, another type of language stimulus, a three-dimensional playhouse with a number of fixed objects (i.e., furniture, people, etc.) was used during the recording session. Instructions given before the beginning of a session were similar to those used during the previous months of the study. Each session allowed for 10-15 minutes of uninterrupted dialogue between mother and child.

Scoring

The analysis of language use of mother and child in English and/or Spanish was conducted by three bilingual graduate students. One student, T1, transcribed and analyzed all Spanish language sessions. Another student, T2, transcribed all English sessions. A third graduate student, T3, transcribed both the Spanish and English language sessions. An utterance was defined following the rules specified by Brown (1973). Only one additional constraint was added: Complete imitation (repetition) by either mother or child of a previous utterance was not included in the detailed analysis. This became important due to the very high rate of imitation by bilingual children during Spanish language sessions. It was felt that separate treatment of imitated and nonimitated utterances would add qualitatively to the analysis. Reliability of language transcriptions was established by comparing the language scripts of the two transcribers. (T3 compared her scripts with those of T1 and T2.) Only language transcriptions that were unanimously agreed upon were included in the pool of utterances analyzed.

This agreement criterion led to the elimination of 2-18 percent range of utterances per session.

Analysis of Language Samples

The present collection of language samples allows several questions concerning bilingualism and early childhood to be addressed. One important possible analysis was of a longitudinal nature. A minimum of 12 sequential monthly recordings were taken for each bilingual mother-child pair in both Spanish and English. Monolingual mother-child pairs had six sequential monthly measures. The small and variable number of utterances within each of these separate intervals posed serious problems for a detailed monthly longitudinal analysis. Bilingual children emitted very few Spanish utterances during each session. The range of Spanish utterances per session was between 2 and 53 with a session mean of 18.32. For English, the range of utterances per session was 11-64 with a session mean of 37.5. For both groups of children, therefore, it became impossible to make any valid analysis of longitudinal changes on a monthly basis. Previous work has attempted to include at least 100 utterances at each of several temporal periods (Cazden, 1972).

Instead of a precise month-by-month longitudinal analysis, a first-half to second-half analysis was completed for bilingual children. For purposes of this analysis, the separate temporally-obtained samples for the first six-month recordings were combined, and a total of 100 utterances was selected. Selection of utterances was completed so that one-third was from the initial sequence of sessions, one-third from the middle sequence of sessions, and one-third from the terminal sequence of sessions. This same procedure was

used to select an additional 100 utterances for the second six months of recordings. It was this set of 200 utterances, both for mothers and children, that were used in the analysis. Monolingual children had only 100 utterances analyzed in detail. This was done because recordings for these children were only taken for a six-month period.

Of primary interest were several structural and nonstructural dependent measures that have been extensively studied in monolingual children. These included Mean Length of Utterance (MLU) morphological structures (plural, prepositions, contractions, copula, and articles), gender and number agreement, vocabulary (number and typed token sets), in addition to several other qualitative comparisons (negative syntactic constructions, imitation, and use of nonspecific nouns). Following is a description of these language measures.

1. **Mean Length of Utterance** (MLU). This measure has been proposed as a relatively standard assessment of language development in children (Snow, 1972; Brown, 1973). It has as an index the number of morphemes per utterance, where an utterance is a unit of speech demarcated prosodically and by pauses. Mean Length of Utterance for English language samples was calculated in this manner. For Spanish language samples, these same considerations were also used as the basic guide. One major problem with this measure, when comparing across Spanish and English, is the idiosyncratic morpheme structures within each language. For example, the utterance "**la muchacha**" would receive a score of three, given the morpheme guide, because the article "**la**" must agree in gender and number with the noun "**muchacha.**" This is not the case for English translation of this utterance, "the girl," which would receive a score of two. Because of several of these inequalities, it is not appropriate to directly compare the

presently calculated English MLU to Spanish MLU, although some rough comparisons may be beneficial heuristically. (Tables 2 and 3 present the rules for MLU computations for English and Spanish, respectively.)

2. **Plurals.** The use and construction of the plural morpheme is similar in each language (an addition of the inflection s or es). The use of obligatory plurals was assessed in each language. (Obligation was determined by the previous statement(s) by the mother. Example: "What are these?" calls for a plural response by the child.)

3. **Prepositions.** The correct use of prepositions in each language was important because of the varied use of translated prepositional labels across Spanish and English. For example, **in** (English) and **en** (Spanish) are directly translatable in some cases and not in others. **En** has approximately eight possible meanings in Spanish; this is not the case for the English **in** (Stockwell **et al.**, 1965). Appropriate use of the following prepositions was observed: English: in, on, for, with; Spanish: **en, por, para, de, con.**

4. **Contractions.** These forms exist only in English and only rarely in Spanish. Specific contractions observed were: can't, don't, I'm, and they're.

5. **Copula.** In English, correct use of the verb to be was of interest because of its contrast in Spanish. In Spanish, two verb possibilities exist: **ser** (permanent status) and **estar** (temporary status).

6. **Articles.** For English, the correct use of articles (a, an, the) was assessed. For Spanish, the use of articles with respect to gender agreement (**el, la, un, una**) and number agreement (**el, los; la, las; una, unas; uno, unos**) was evaluated.

Table 2

RULES FOR CALCULATING MEAN LENGTH OF UTTERANCE: ENGLISH*

1. Start with the first utterance of the transcription.

2. Only fully transcribed utterances are used; none with blanks. Portions of utterances, entered in parentheses to indicate doubtful transcription, are used.

3. Include all exact utterance repetitions (marked with a plus sign in records). Stuttering is marked as repeated efforts at a single word; count the word once in the most complete form produced. In the few cases where a word is produced for emphasis or the like (no, no, no), count each occurrence.

4. Do not count such fillers as "mm" or "oh," but count "no," "yeah," and "hi."

5. All compound words (two or more free morphemes), proper names, and ritualized reduplications count as single words. Examples: birthday, rackety-boom, choo-choo, quack-quack, night-night, pocketbook, and see-saw. Justification is that no evidence that the constituent morphemes function as such for these children.

6. Count as one morpheme all irregular past forms of the verb (got, did, went, and was). Justification is that there is no evidence that the child relates these to present forms.

7. Count as one morpheme all diminutives (doggie, mommie) because these children at least do not seem to use the suffix productively. Diminutives are the standard forms used by the child.

8. Count as separate morphemes all auxiliaries (is, have, will, can, must, and would). Also count all catenatives (gonna, wanna, hafta). These later counted as single morphemes rather than as "going to" or "want to" because evidence is that they function so for the children. Count as separate morphemes all inflections, for example, possessive (s), plural (s), third person singular (s), regular past (d), progressive (i).

---

*Reprinted from Garcia, Eugene E., Maez, Lento, and González, Gustavo. A National Study of Spanish/English Bilingualism in Young Hispanic Children of the United States. **Bilingual Education Paper Series**, July 1981, **4** (12), p. 9.

Table 3

RULES FOR CALCULATING MEAN LENGTH OF UTTERANCE: SPANISH*

1. Start with the first utterance.

2. Only fully transcribed utterances are used; none with blanks. Portions of utterances, entered in parentheses to indicate doubtful transcription, are used.

3. Include all exact utterance repetitions (marked with a plus sign in records). Stuttering is marked as repeated efforts at a single word; count the word once in the most complete form produced. In the few cases where a word is produced for emphasis or the like (no, no, no), count each occurrence.

4. Do not count such fillers as "eh," "mm," or "oh," but count "no," "sí," "oye," "ese," and "hola."

5. All compound words (two or more free morphemes), proper names, and ritualized reduplications count as single words. Examples: **rompecabezas**/puzzle, **sacapuntas**/pencil sharpener, **cumpleanos**/birthday, **abrelatas**/can opener. Justification is that no evidence that the constituent morphemes function as such for these children.

6. Count as one morpheme all irregular pasts of the verb (**hice, fui,** and **puse**). Justification is that there is no evidence that the child relates these to present forms.

7. Count as one morpheme all diminutives (**perrito, mamá/mamacita**) because these children at least do not seem to use the suffix productively. Diminutives are standard forms used by the child.

8. Count as separate morphemes all auxiliaries. Examples: **Dudo que él puede ir. ¿Sabe usted jugar al** golf? Auxiliary: "can."

   Ella podía cantar bien.
   Pablo no pudo terminar el trabajo. Auxiliary: "could"

   Usted debería ir a verlos. Auxiliary: "should"
   Yo sabia que debía buscarle.

9. Count as separate morphemes all inflections, for example, plural (s, es) **casas, trenes;** progressive (**iendo, ando**) **comiendo, tomando.**

---

*Reprinted from Garcia, Eugene E., Maez, Lento, and González, Gustavo. A National Study of Spanish/English Bilingualism in Young Hispanic Children of the United States. **Bilingual Education Paper Series,** July 1981, 4(12), pp. 10-11.

Table 3 (continued)

10. Count as separate morphemes all single articles (**el**, **la**, etc.) and demonstrative pronouns (**esta**, **este**, etc.)

11. Count as separate morphemes all contractions (**de el = del, a el = al**). (**Viene del norte. Vamos al cine.**) These seem to be standard forms.

12. Count as additional morphemes article-noun and pronoun-noun agreement for both number and gender (**el pato, los patos: el** is scored as two morphemes because it agrees in number and gender with **pato**).

7. **Demonstrative Pronouns.** Of interest was the obligatory agreement inherent in each language. In English, agreement with respect to number is obligatory (this, these; that, those). In Spanish, both gender and number agreement is necessary (**este, esta, estos, estas; esa, ese, esos, esas**).

8. **Use of "se" for unspecified agent.** This is a particular characteristic of Spanish. It was of interest due to its morphological complexity and the absence of a parallel form in English.

9. **Vocabulary.** A vocabulary score was derived for each child based on the number of different lexical items recorded within the utterances analyzed.

10. **Type-Token Ratio.** An additional vocabulary diversity computation considered the repetition factor in the child's dialogue. "Typed" refers to vocabulary items; "token" refers to occurrences of any item. As this ratio approaches 1.0, an increase in vocabulary diversity is indicated. This measure was calculated on the first 100 vocabulary items recorded within each 100 utterances analyzed for each child in the study.

11. **Negative Syntactic Construction.** In English, negative construction calls for the insertion of **no** or **not** after a designated verb form ("I do **not** want"). In Spanish, **no** is inserted prior to the verb form ("**Yo no quiero**"). Therefore, this measure allowed an analysis of structurally different syntactic forms across the languages of the bilingual children.

12. **Imitation.** Exact utterance repetitions of the mother's preceding utterance by the child were treated separately from "spontaneous" (non-repeated) utterances for purposes of analysis. A percent of imitation was calculated from those sessions from which the completely "spontaneous"

utterances analyzed were selected. This measure was calculated from each session by dividing the numbered of imitated utterances by the total number of utterances and multiplying it by 100.

13. **Nonspecific Nouns.** Recently, Brown (1977) has suggested an alternative measure for gauging the complexity of a spontaneous utterance. It is a simple cognitive index dealing with nouns only. It divides them into two classes: (a) Specific--the child-speaker had something specific in mind as a referent; (b) Nonspecific--the child-speaker had in mind a nonspecific instance of a set, some nonspecific set of instances, all of a general class, any abstraction (time, idea, etc.), or any metalinguistic meaning (e.g., **name**). Excluded were numerals, letters, greetings, and formulas (e.g., "wait a minute"). Although narrowly focusing on nouns, this technique avoids the problem of idiosyncratic language (or dialect) differences in morphology and syntax across languages. Its emphasis on the semantic quality of an utterance may be a more useful base for a comparative analysis of language acquisition across the bilingual's languages.

Language Use in the Home

During four months (months 3, 6, 9, and 12) of the study, observations of Spanish and English use were also conducted in the home of each of the bilingual children. During these sessions, an outside observer, also bilingual, visited the home sometime after school and before the evening meal. The observer remained in the home for one hour during each visit, but officially recorded speech use only during the last half hour. The observer coded the use of Spanish and/or English within 10 second intervals. Any recognizable Spanish or English word or combination of words sufficed to indicate language use. (Excluded were proper nouns, "oh," "ah," and "no.")

Present during these observations were the child, the child's mother, and at least one older sibling. Each bilingual subject in the study had at least one older sibling, had one or more younger siblings, and two children had more than one older sibling. The age range for older siblings was six to nine years. The observer further coded the initiator and the intended receiver of the utterance. The observer seated herself at a distance from the child under observation and followed that child throughout the house, if necessary. (A conscious attempt was made to have the observer remain unobtrusive by minimizing the physical movement, physical proximity, and verbal involvement.) At no time did the observer leave the confines of the home during these visits. During one of these visits to each subject's home, a second observer was present to assess interobserver agreement. The observers coded language use with the same procedures, each independently from the other. Percent of agreement was calculated for each form of coded interaction in Spanish: (1) mother to child, (2) child to mother, (3) sibling to child, and (4) child to sibling. Interobserver agreement ranged between 83 and 97 percent, with a mean of 86.2 percent for each type of coded interaction during these visits.

The Spanish and English of the Bilingual

A comparison between the languages of the bilingual subjects is presented in Table 4. For each subject, Spanish and English measures of MLU, vocabulary count, type-token ratio, percentage of nonspecific nouns, percentage of imitated utterances, absolute number of identified plurals, articles, prepositions, and conjunctions are presented. Each of these measures is presented for the first six months (a) and the second six months (b) of the study. An inspection of these dependent measures for each language longitudinally suggests little, if any, developmental trend. That is, measures

Table 4

A COMPARISON OF SPANISH AND ENGLISH ON SELECTED LINGUISTIC MEASURES FOR BILINGUAL SUBJECTS OF THE STUDY FOR THE FIRST NINE MONTHS (a) AND SECOND NINE MONTHS (b) OF THE STUDY

		Subject: #1		#2		#3		#4	
		Span.	Eng.	Span.	Eng.	Span.	Eng.	Span.	Eng.
Mean Length of Utterance	(a)	2.38	1.95	1.55	3.36	1.66	3.56	1.62	3.59
	(b)	2.48	2.38	1.67	3.49	1.73	3.79	1.61	3.71
Vocabulary	(a)	77	50	50	100	38	110	49	120
	(b)	81	73	63	98	41	117	59	116
Type-Token Ratio	(a)	.50	.26	.43	.55	.37	.51	.41	.47
	(b)	.51	.38	.35	.59	.41	.56	.38	.56
Percentage of Nonspecific Nouns	(a)	3	1	2	41	2	14	2	12
	(b)	8	9	4	38	6	19	2	26
Percentage of Imitated Utterances	(a)	45	38	52	14	51	7	53	15
	(b)	31	31	41	3	38	11	42	0
Plurals	(a)	5	10	12	9	7	12	9	9
	(b)	5	7	7	11	12	14	11	4
Articles	(a)	24	16	7	21	9	14	9	24
	(b)	19	19	11	13	6	17	12	17
Prepositions	(a)	1	4	2	16	1	11	2	6
	(b)	6	5	2	12	6	9	4	11
Conjunctions	(a)	1	1	0	7	2	0	1	11
	(b)	3	7	3	14	4	2	3	17

Table 4 (continued)

		Subject: #5 Span	#5 Eng.	#6 Span.	#6 Eng.	#7 Span.	#7 Eng.	#8 Span	#8 Eng.
Mean Length of Utterance	(a)	1.75	3.61	1.81	3.71	1.48	3.77	1.71	4.01
	(b)	1.63	3.84	1.96	3.62	1.55	4.16	1.83	3.94
Vocabulary	(a)	46	96	73	120	56	89	48	98
	(b)	42	109	79	131	50	112	61	93
Type-Token Ratio	(a)	.38	.61	.31	.51	.39	.50	.36	.48
	(b)	.35	.52	.39	.53	.31	.53	0	0
Percentage of Nonspecific Nouns	(a)	4	33	6	18	0	21	4	36
	(b)	2	39	7	14	1	17	11	39
Percentage of Imitated Utterances	(a)	38	6	29	0	42	14	38	4
	(b)	21	6	27	1	19	4	27	3
Plurals	(a)	10	8	6	7	7	4	6	9
	(b)	7	11	5	11	5	4	11	8
Articles	(a)	9	10	11	7	9	18	13	16
	(b)	12	14	15	12	11	12	11	19
Prepositions	(a)	4	12	6	11	4	6	4	11
	(b)	4	11	14	8	7	9	6	14
Conjunctions	(a)	1	6	0	4	3	11	4	11
	(b)	5	9	2	3	9	14	3	16

Table 4 (continued)

		Subject: #9		#10		#11		#12	
		Span	Eng.	Span.	Eng.	Span.	Eng.	Span	Eng.
Mean Length of Utterance	(a)	1.96	4.03	1.56	4.18	1.71	4.40	1.38	4.49
	(b)	1.93	3.96	1.61	4.09	1.65	4.21	1.56	4.21
Vocabulary	(a)	70	109	62	121	61	114	46	131
	(b)	65	126	54	118	53	131	53	138
Type-Token Ratio	(a)	.40	.43	.31	.47	.42	.46	.41	.51
	(b)	.40	.51	0	0	.38	.42	.50	.47
Percentage of Nonspecific Nouns	(a)	1	20	3	27	6	17	0	19
	(b)	1	21	4	31	4	25	5	26
Percentage of Imitated Utterances	(a)	35	1	27	0	31	0	36	1
	(b)	31	0	19	0	25	0	33	0
Plurals	(a)	5	11	7	14	6	18	5	7
	(b)	7	9	5	10	9	14	5	11
Articles	(a)	12	15	16	21	7	28	11	19
	(b)	16	21	14	9	16	21	13	17
Prepositions	(a)	17	6	3	14	8	14	0	5
	(b)	11	21	7	12	8	19	2	9
Conjunctions	(a)	0	1	0	9	4	14	1	9
	(b)	1	7	1	14	7	9	3	5

taken during the first six months of the study, when compared to those of the second six months, reveal no statistically significant increases or decreases. Although slight increases or decreases are apparent for several subjects, no consistent pattern emerges.

Although developmental changes were not observed, these measures indicate some level of language production in each language for all children. In almost all cases, these measures indicate a more "advanced" use of English than Spanish. Although English and Spanish MLU are not directly comparable due to differential calculation formulas, a consistently higher English MLU score resulted for all subjects except S1. At this level of acquisition, it seems reasonable to suggest that Spanish MLU may be "inflated" with respect to English MLU because of article-noun obligatory agreements (both in number and gender) in Spanish that do not exist in English. Yet, English MLU was higher for each of these subjects, nearly 2.00 units for each child.

These differences were also apparent in other measures. Vocabulary count and type-token ratio favored English. The percentage of nonspecific nouns in each language also suggests more weighted developments in English. For each subject, the percentage of nonspecific nouns was higher in English. The percentage of imitated utterances was high in Spanish and almost nonexistent in English. This high frequency of imitation has been correlated previously with low MLU in children's acquisition of a single native language (Bloom et al., 1974).

Subject 1 stands out as substantially different from the previously described subjects. On each of the measures in which other subjects differed across languages, this subject did not differ. Measures of MLU, vocabulary count, type-token ratio, percentage of nonspecific nouns, and percentage of imitated utterances indicated near equal performance in Spanish. It is im-

portant to note that this subject scored much lower on these measures in English than did the other subjects, although Spanish measures were higher.

In summary, these data indicate that on the linguistic measures utilized here, 11 of 12 subjects were substantially advanced in English as compared to Spanish. One subject was near equal in each language, but was substantially lower in English and somewhat higher in Spanish than his bilingual age peers.

Were these children actually bilingual? The levels at which these bilinguals function on several morphological and syntactic classes which differ between languages are a necessary component in answering this question. Of specific interest at this level of development were gender and number agreement of article-noun constructions obligatory in Spanish, but not in English. The gender agreement required for demonstrative pronouns in Spanish, but not in English, and the number agreement of demonstrative pronouns necessary in English, and the number agreement of demonstrative pronouns necessary in both languages are of corollary interest. Of additional interest were the negative syntactic constructions in each language. Negative constructions in Spanish differ from those in English in the placement of the "negative" agent. The use of **se** for unspecified agent(s) in Spanish, a structural feature not found in English, was of comparative interest. Also of valued comparison was the appropriate use of the copula. In Spanish, copula mastery requires the use of two semantically differentiated verbs: **ser** and **estar**. Table 5 presents each of the above linguistic categories for each language with specific examples provided.

Table 6 presents the results of these comparisons for bilingual subjects. It presents both the total number of observed instances and the percent correct of the linguistic features of interest in either (or both)

Table 5

COMPARATIVE ANALYSIS OF LINGUISTIC FEATURES
IN EACH LANGUAGE

Spanish	English
1. Gender Agreement	1. Gender Agreement
a. articles (**el, un, la, una**) (**el muchacho, la muchacha**)	a. none required
b. demonstrative pronouns (**este, esta**) (**este muchacho, esta muchacha**)	b. none required
2. Number Agreement	2. Number Agreement
a. articles (**los, las**) (**el pato, los patos**)	a. none required
b. demonstrative pronouns (**este, estos**) (**este muchacho, estos muchachos**)	b. demonstrative pronouns (this, these; that, those)
3. Use of **se** for unspecified agent(s) (**se quebro**)	3. non-existent
4. Negative Construction	4. Negative Construction
(Yo no quiero)	(I do not want)
5. Copula	5. Copula
a. **ser** (permanent status)	to be
b. **estar** (temporary status)	

Table 6

PERCENT CORRECT AND TOTAL NUMBER OF SELECTED SPANISH AND ENGLISH LINGUISTIC MEASURES FOR BILINGUAL CHILDREN

		Gender Agreement		Number Agreement			Coupla		Negative Construction
		Article-Noun	Demonstrative Pronoun-Noun	Article-Noun	Demonstrative Pronoun-Noun	Se	to be ser	estar	
Spanish	%	91*	100	95	100	100	93	100	100
	No.	271	58	271	58	26	83	23	31
English	%				100		91		88
	No.				48		111		131

*Of the errors identified, more were Spanish nonagreement errors (un instead of una) and few were English substitution errors (a instead of un).

Spanish and English. With respect to gender agreement, subjects indicated near perfect correct obligatory agreement for both article-noun productions and demonstrative pronoun-noun production. High number agreement was also indicated for article-noun productions in Spanish and demonstrative pronoun productions in both Spanish and English. The use of **se** in Spanish to indicate unspecified agent(s) was used infrequently, but always correctly. Negative constructions were observed more in English than in Spanish, but in all cases were also used correctly in all cases in each language.

Copula constructions were of special interest in Spanish because of the two separate morphemes (**ser** and **estar**) available in Spanish. Although the use of **ser** was observed more often than **estar**, correct use of each was high (90 percent for **ser** and 100 percent for **estar**). In addition, correct use of the English copula was observed at the same high level (91 percent) correct.

The main purpose of those comparisons presented in Table 6 and discussed above has been to substantiate the bilinguality of the subjects. Although MLU was consistently low in Spanish, as were general production levels, these children showed the ability to handle complex forms of Spanish morphology and syntax. In those areas of structure where the languages differ either by nonexistence of particular structures or differential structural forms, children handled these inconsistencies across the languages quite well and with very few errors. This conclusion is important since it is an independent indicator that these children exemplified a complex level of bilingual functioning.

The English of the Bilinguals and Monolinguals

Considering that the bilingual children in the study were characterized by more than simple functioning capabilities in Spanish, the intriguing comparison between these children's English language development and that of monolingual English-speaking children is of both theoretical and applied importance. The notion of negative transfer within these bilingual children, at a general level, might predict delayed English development. At a more specific level, examination of lexical, morphological, and syntactic features in English might yield a more thorough understanding of positive and negative transfer.

Table 7 presents a comparison of bilingual and monolingual children matched as closely as possible on English MLU for selected linguistic features in English. Subjects 1 and 13 obtained relatively low MLU scores (1.95 and 1.88, respectively). All other subjects' MLU scores were noticeably higher (3.36 to 4.81). Even with the earliest research using MLU as an indicator of developmental language change (Cazden, 1972), its idiosyncratic nature across children has been recognized. Such idiosyncracies were noted with these children, and for this reason, subjects were matched on MLU to compare English performance across other linguistic indices.

When such a comparison is made of matched pairs, it is difficult to ascertain any systematic difference: For vocabulary count, monolinguals seem to demonstrate a somewhat greater degree of vocabulary diversity; and although this is consistent, differences are very small. The type-token ratio provides another measure of vocabulary diversity. Differences are almost nonexistent between matched pairs, although this diversity-measure seems to increase with an increase in MLU. Similar results are evident for the use of nonspecific nouns. (Recall that this measure attempts to identify lexical

Table 7

A COMPARISON OF BILINGUAL AND MONOLINGUAL CHILDREN MATCHED FOR ENGLISH MLU ON SELECTED ENGLISH LINGUISTIC MEASURES

	Subjects:							
	#1	#13	#2	#14	#3	#15	#4	#16
Mean Length of Utterance	1.95	1.88	3.36	3.34	3.56	3.58	3.59	3.59
Vocabulary	50	60	100	129	110	102	120	130
Type-Token Ratio	.26	.45	.55	.54	.51	.50	.47	.56
Percentage of Nonspecific Nouns	1	4	41	26	14	7	12	26
Percentage of Imitated Utterances	38	34	14	5	7	11	15	18
Plurals	10	10	9	7	12	6	9	8
Articles	16	1	21	18	14	11	24	28
Prepositions	4	0	16	6	11	8	6	20
Conjunctions	1	0	7	0	0	4	11	20
Contractions	6	9	14	20	24	16	36	14

Table 7 (continued)

	Subjects: #5	#17	#6	#18	#7	#19	#8	#20
Mean Length of Utterance	3.61	3.65	3.71	3.68	3.77	3.85	4.01	3.96
Vocabulary	96	116	120	117	89	119	98	130
Type-Token Ratio	.61	.52	.51	.41	.50	.56	.48	.43
Percentage of Nonspecific Nouns	33	28	18	27	21	26	36	19
Percentage of Imitated Utterances	6	3	0	2	14	6	4	0
Plurals	8	16	7	6	4	11	9	5
Articles	10	7	7	14	18	16	16	13
Prepositions	12	14	11	9	6	7	11	6
Conjunctions	6	9	4	8	11	5	11	15
Contractions	14	11	12	6	17	8	15	7

Table 7 (continued)

	Subjects:							
	#9	#21	#10	#22	#11	#23	#12	#24
Mean Length of Utterance	4.03	4.10	4.18	4.28	4.40	4.45	4.49	4.81
Vocabulary	109	113	121	131	114	131	131	129
Type-Token Ratio	.43	.51	.47	.54	.46	.52	.51	.45
Percentage of Nonspecific Nouns	20	18	27	31	17	25	19	26
Percentage of Imitated Utterances	1	0	0	3	0	0	1	0
Plurals	11	16	14	11	18	11	7	9
Articles	15	21	21	16	28	23	19	29
Prepositions	6	2	14	11	8	16	5	8
Conjunctions	1	11	9	4	4	6	9	6
Contractions	6	7	17	26	17	21	9	15

use of specificity and abstractness.) No major systematic difference is evident for the matched pairs. But as MLU increases for these pairs, relative use of nonspecific nouns increases. The imitation of mother's utterances also follows this same pattern. Differences between matched pairs on this measure were very small. Yet for the low MLU subjects, this measure was much higher (34 percent and 38 percent for S1 and S13, respectively) than for the remaining high MLU subjects (range of 5 percent to 18 percent). A review of matched pair comparisons of bilingual and monolingual subjects on the remainder of the morpheme measures in Table 7 indicated the absence of any systematic differences.

Chi-square comparisons of the absolute number of plurals, articles, prepositions, conjunctions, and contractions were performed for bilingual and monolingual English subjects. Except for those comparisons involving Subjects 1 and 13, no significant differences were found on these measures. For those comparisons involving these two subjects with other subjects, all subjects scored significantly higher on these measures. (Recall that these two subjects were lowest in English MLU; see Table 7.)

Only a tentative comparison of Spanish among bilinguals and monolinguals was possible because of the inclusion of a single monolingual Spanish speaker in the study. Table 8 presents a comparison of representative subjects and the monolingual speaker on the same Spanish linguistic measures identified earlier. Although all subjects were approximately the same age, each of the bilingual's Spanish MLU is much lower than that of the Spanish monolingual (differences range from 1.62 to 2.56). With respect to vocabulary, the monolingual speaker produced a higher total of different lexical items and scored higher on the vocabulary diversity measure (type-token ratio). Yet it was clear that the bilingual subjects did demonstrate a substantial vocabulary

Table 8

A COMPARISON OF SPANISH MEASURES FOR FOUR REPRESENTATIVE BILINGUAL SUBJECTS AND A MONOLINGUAL (SPANISH) SUBJECT

	Subjects				
	Bilingual (Spanish/English)				Monolingual (Spanish)
	#1	#2	#3	#4	#25
Age (months)	40	43	43	42	43
Mean Length of Utterance	2.48	1.67	1.73	1.61	4.00
Vocabulary	81	63	41	59	93
Type-Token Ratio	.51	.35	.41	.41	.57
Percentage of Nonspecific Nouns	8	4	6	2	21
Percentage of Imitated Utterances	31	41	38	42	1
Plurals	5	7	12	11	14
Articles	19	11	6	12	34
Prepositions	6	2	6	4	19
Conjunctions	3	3	4	3	14

count. The increased use of nonspecific nouns is weighted in the direction of high MLU. That is, as MLU increased in Spanish, the percentage of nonspecific nouns also increased. The monolingual child scored highest on this measure. The most striking difference between the bilingual and monolingual subjects was observed in the percentage of imitated utterances. For bilinguals this ranged between 31-52 percent, while for the monolingual Spanish subjects, it was one percent.

With respect to particular morphological classes, little difference was apparent in the plural and article categories. Bilinguals' use of these forms was lower in absolute number but still reliably observable in each child. The number of prepositions and conjunctions for bilinguals differed substantially from that of the monolingual. (For bilinguals, 2-6 prepositions were observed; 19 were observed in the monolingual. The range of conjunctions observed in bilinguals was 3-4, while a total of 14 were observed in the monolingual's speech.)

Home Language

Analysis of bilingualism (and language in general) must incorporate naturalistic observations of language use to more fully investigate the phenomena. In the present study, it was not possible to obtain an utterance by utterance account of home language. But home observation did allow one level of language use information. Of particular interest was the use of Spanish, English, and mixed Spanish/English utterances by the subjects, their mothers, and their older siblings during after-school interactions at home. This level of information constitutes only a very gross measure of qualitative linguistic input and social norms of linguistic interaction. Yet it does give some impression of the Spanish, English, or mixed language models that were present in the child's home environment.

Table 9 presents the percent of ten-second intervals in which Spanish, English, or mixed utterances were directed by the mothers or older siblings to the subjects and vice-versa. Each ten-second interval was coded for the occurrence of English, Spanish, or both, for the subject, mother, and sibling. In addition, the direction of the coded utterance was indicated according to whether the utterance was initiated by the subject or directed to the subject by the mother or sibling. In general, mothers directed speech to the subjects predominantly in Spanish (a range of 65 to 89 percent of the intervals were coded as Spanish across the 12 mothers). Spanish and English directed from subjects to mothers was fairly evenly distributed. For mother-child speech interaction, few intervals were coded for mixed utterances (a range of 1 to 15 percent).

For subject-to-sibling and sibling-to-subject speech, English was the predominant language used. The percent of intervals coded as English-only ranged between 70-90 percent, while Spanish-only ranged between 8-29 percent. Few (0-5 percent) intervals were coded as having mixed language utterances for speech directed to subjects by siblings or vice-versa.

Several conclusions can be drawn from this data: (1) subjects' use of Spanish and English in the home was indeed occurring; (2) although this was the case, Spanish was confined to child-mother speech excnange; (3) English was predominant in subject-sibling speech exchange; and (4) mixed utterances were almost entirely absent from the coded speech, with its occurrence primarily confined to mother's speech directed to the subject.

GENERAL DISCUSSION

The present study has focused on the speech of young children and their mothers, in this particular case, children from either bilingual (Spanish and

Table 9

HOME OBSERVATIONS FOR BILINGUAL CHILDREN

	Mother-to-Subject			Subject-to-Mother			Sibling-to-Subject			Subject-to-Sibling		
	Spanish	English	Spanish/English	Spanish	English	Spanish/English	Spanish	English	Spanish/English	Spanish	English	Spanish/English
1	85	12	3	82	17	1	55	41	4	38	61	1
2	81	14	5	73	26	1	37	57	6	27	73	0
3	82	17	1	70	29	1	36	61	3	19	81	0
4	89	10	1	52	43	5	20	73	7	34	66	0
5	73	14	13	69	29	2	27	70	3	32	67	1
6	82	6	12	71	26	3	32	61	7	39	61	0
7	86	11	3	63	36	1	43	55	2	40	57	3
8	71	18	11	69	27	4	35	62	3	26	72	2
9	69	29	3	73	26	1	26	71	3	29	70	1
10	73	16	14	71	23	6	22	73	5	29	71	0
11	77	9	14	65	35	0	25	69	6	28	68	4
12	75	23	2	63	37	0	20	77	3	23	74	3
$\bar{X}$	78.58	14.92	6.83	68.41	29.50	2.08	31.50	64.17	4.33	30.33	68.42	1.17

Percent of 10-second intervals in which Spanish, English, and Spanish/English mixed utterances were directed by the mother or older sibling to the subject, and percent of intervals in which Spanish, English, and Spanish/English mixed utterances were directed by the subject to the mother or older sibling. Percent occurrence is calculated by considering the total number of intervals in which some language use was observed.

English) or monolingual (English) home environments. Children's utterances were selected from mother-child disclosure and subjected primarily to a structural analysis. A comparison of Spanish and English features of these utterances was conducted for the bilingual children of the study. Additionally, comparisons of bilinguals' Spanish and English to monolingual speakers of each of these languages were also conducted.

Valid conclusions concerning linguistic competence based only on counts of morphemes are most hazardous because of the present, experimentally derived speech elicitation situation, although these data were gathered in similar (somewhat standard) speech elicitation environments in both Spanish and English. Yet, some tentative conclusions seem warranted. For 11 of 12 bilingual children, Spanish/English comparisons across a wide range of dependent measures indicated a much higher level of performance in English than in Spanish. Since MLU is not a useful comparative measure across languages because of the inherent differences in its calculation between Spanish and English, measures on other linguistic parameters seem more appropriate for comparative analyses. These include vocabulary, nonspecific noun use, and limitation measures. It is on these measures that distinct English "weighting" is most obvious. The children tended to produce twice as many different vocabulary items in English than in Spanish; nonspecific noun use in relation to specific noun use was consistently higher for all children in English; and the percent of imitated-mother utterances was many times higher in Spanish than English. Each of these characteristics in Spanish is similar to characteristics of monolingual children at initial levels of language development (Brown, 1973).

It would be a mistake to conclude that these same children were not competent Spanish speakers at other than the most basic levels. An analysis of

number and gender agreement features of Spanish as they relate to article-noun and demonstrative-pronoun-noun utterances indicated otherwise. That is, these children demonstrated few errors in these obligatory contexts. Analysis of linguistic features nonexistent in English but available in Spanish (use of **se** for unspecified agent(s), and the multiple copula of **ser** and **estar**) as well as the correct formulation of negative constructions (which required different juxtapositioning of negative agents in Spanish and English) added still further evidence of "sophisticated" structural functioning in Spanish by these subjects.

For these bilingual subjects, a clear performance weight in favor of English was observed, although analysis of Spanish utterances indicated more than a basic use of Spanish. The twelfth bilingual child of the study (S1), was more clearly bilingual in that the results of linguistic measures used in this study were near equal in both languages. (This subject was more characteristic of a low level English speaker in MLU, vocabulary, imitation, and nonspecific measures than the other bilingual children on these same measures.)

When bilingual children were compared to monolingual speakers, Spanish performance was clearly much lower. In this form of comparison, MLU is an appropriate comparative tool, and for each bilingual child Spanish MLU was 50 percent lower than that for the monolingual Spanish child. (Remember that all of these children were approximately the same age.) A comparison of matched MLU pairs with children in English indicated very little systematic difference between bilinguals and monolinguals for combined counts of specific morpheme categories. A significant matched pair difference resulted for only subjects 1 and 13; it was these subjects who were lower in English MLU (1.95 and 1.88, respectively). When compared to each other, none of the

other subjects at MLU levels equal to or greater than 3.36 differed on the productions of the five morpheme categories in English. These results suggest that at a general level there was no apparent negative transfer (or retardation) effect for English due to the bilingual character of the children. It is possible that unequally weighted bilinguals, like the ones in this study (with English performance noticeably higher than Spanish), would not be likely candidates for negative transfer. Yet, these children were quite capable of conforming to morphological and syntactic rules of the Spanish language.

The additional observation of the bilingual children's home environment provides a further dimension to the extrapolation of the mother-child interaction data. In the home, Spanish and English directed toward the subjects seemed to be distributed across languages between mothers' speech to subjects (Spanish) and siblings' speech to subjects (English). This same division occurred for the subjects' own speech to either mother (Spanish) or siblings (English). Although these boundaries did exist, it was clear that the child's speech environment at home consisted of both languages. In addition, the child did emit a relatively large sample of both Spanish and English utterances.

Since no detailed qualitative analysis of these data was possible, it remains unclear how these utterances were similar to or different from those observed during the recorded mother-child interaction sessions at the preschool, which have undergone detailed analysis here. It seems appropriate to conclude that these children were exposed to two languages at home, but that the focus of exposure for Spanish differed from that for English. These boundaries seem similar to those reported by sociolinguists who have attempted to map Spanish and English use outside of the home setting. Fish-

man et al. (1971) have documented some of these neighborhood boundaries for urban Puerto Rican populations. In this study, boundaries were observed within the home and related to particular social interactions and not physically confined to particular areas of the home. Further analyses of this type add significantly to understanding such language separations and their influence on acquisition and use.

Of continued interest in the study of bilingualism has been the interactive influences of two languages, traditionally labeled "interference" or transfer. Some analysis of transfer was possible by contrasting the use of specific morphological classes across the two languages. For instance, some indication of negative transfer might be substantiated by the children's errors of Spanish morphemes that exist in English, but that are structurally dissimilar. This might be the case for use of the Spanish copula, **ser** and **estar**; in English, only the copula **to be** is available for use. Yet bilinguals had little difficulty with the separate use of **ser**, although **estar** was used infrequently. These same children also had little difficulty with the use of the English copula (see Table 6). Another possible instance of negative transfer due to differences in surface structure across languages may be located in the construction of negative statements. In English **no** or **not** is placed after the verb form; in Spanish **no** is placed before the verb form. Again, few errors in applying these two different formulations were observed in the bilingual children (see Table 6).

Of course, positive transfer across linguistic modes must also be considered. It is very difficult to make a strong case for its occurrence in this study because of individual differences that were apparent. Yet several cautious remarks may indicate its possible occurrence. For example, Subject 1 produced a very high incidence of articles in English compared to his

English MLU matched monolingual subject (16 for S1 and 1 for S13). Article use in Spanish requires substantially more obligatory considerations than article use in English. A further possible indication of positive transfer is the nearly equal correct occurrence of pluralization for bilinguals in both languages and monolinguals in English. (Plurals are formed in similar ways in both languages.) It seems likely that such comparisons of performance across structurally similar classes of morphemes may be indications of positive transfer, just as analysis of errors across structurally dissimilar classes may serve as indications of negative transfer.

Studies of bilingual acquisition must be viewed from two perspectives: How do these studies reflect specific information of multilingual acquisition with respect to the languages studied? and How do they reflect a subset of research that is directed at understanding the general phenomena of language acquisition? Therefore, studies of bilingual language acquisition provide important information specific to subtests of a language population as well as information relevant to language acquisition in general. Investigators active in the bilingual research area must be willing to deal with each of these issues if their analyses are to have maximum effect. For example, Slobin (1971) has recommended the study of bilingual acquisition for investigating the theoretical notions of language universals. He suggests that linguistic features that first appear in bilinguals might empirically verify specific theoretical predictions of universals as well as simple vs. complex structural features. Although Padilla and Liebman (1975) point out particular problems with this line of thought, especially the assumption of equal language input or access, some analysis along these lines may prove useful.

In this study, lack of equal performance in the languages of the bilingual raises some issues with respect to language acquisition in general.

The home data indicated quite clearly that the children were exposed to substantial amounts of Spanish and English from both their mothers and siblings, although this exposure was weighted in Spanish for mothers and English for siblings. But in the detailed analysis of mother-child interaction recorded at the preschool, 11 of the 12 bilingual children performed at much higher levels in English than in Spanish. The 12th subject was nearly equal in both, but much lower than the other 11 subjects in English.

The fact that English was much higher than Spanish, despite substantial exposure to Spanish in the home, indicates two possible conclusions. First, it is possible that the "contexts" of the mother-child interaction as recorded at the preschool somehow limited a measure of Spanish competence. That is, since these interactions occurred at the preschool, Spanish performance in this setting was diminished due to its association with the social rule to speak English, not Spanish in school. Although this may have been operating, it is likely that its influence was minimized by the bilingual nature of the preschool and the customary presence of the mother in that setting. Yet, it is still possible, since other data indicate "rules" such as these are prevalent (Edelman, 1969). Second, if one assumes that the "contextual" influence discussed above is minimal, variables other than exposure to the language must be operating in order to account for the differences observed between Spanish and English performance. In essence, some sort of selective influence with respect to language acquisition must be operative. Brown (1973) suggests that in considering important influences during language acquisition, social variables do not account for the major improvement or change in a child's language. They do not impel children to speak like adults (Cazden and Brown, 1975). In the present study this alternative explanation cannot

be excluded. Other studies of bilingualism have also indicated the importance of social interaction variables (Gardner and Lambert, 1972); but the influence of such variables has been associated with use, not acquisition. Given the level of the present subjects' language, the role of socially identifiable variables in the acquisition process must also be considered. Therefore, the study of bilingualism, especially those studies directed at acquisition data that demonstrate unequal language acquisition, may shed some very interesting light on potential variables important during language acquisition.

REFERENCES

Bloom, L., Hood, L., and Lightbrown, P. Imitation in Language Development: If, when and Why. **Cognitive Psychology**, 1974, 6, 380-420.

Bowerman, M. Crosslinguistic Similarities at Two Stages of Syntactic Development. In E. Lenneberg and E. Lenneberg (Eds.), **Foundations of Language Development**. London: UNESCO Press, 1975.

Braine, M. D. S. Children's First Word Combinations. Monograph of the **Society for Research in Child Development**, 1974.

Brown, R. **A First Language: The Early Stages.** Cambridge, Massachusetts: Harvard University Press, 1973.

_____. **Psycholinguistic Review.** Paper presented at the meeting of the Eastern Psychological Association, Boston, Massachusetts, April 1977.

Carrow, Elizabeth. Auditory Comprehension of English by Monolingual and Bilingual Pre-school Children. **Journal of Speech and Hearing Research**, 1972, 15, 407-412.

_____. Comprehension of English and Spanish by Preschool Mexican-American Children. **Modern Language Journal**, May 1971, 55, 299-306.

Cazden, Courtney B. **Child Language and Education.** New York: Holt, Rinehart and Winston, 1972.

_____, and Brown, R. The Early Development of the Mother Tongue. In E. H. Lenneberg, and E. Lenneberg (Eds.), **Foundations of Language Development**. London: UNESCO Press, 1975.

DeVilliers, J., and DeVilliers, P. **Language Acquisition.** Cambridge, Massachusetts: Harvard University Press, 1978.

Edelman, M. The Contextualization of School Children's Bilingualism. **Modern Language Journal**, 1969, 53, 179-182.

Fishman Joshua A., Cooper, Robert L., and Ma, Roxana. **Bilingualism in the Barrio.** Bloomington: Indiana University Press, 1971.

Garcia, Eugene E. **Bilingualism in Early Childhood.** Albuquerque, New Mexico: University of New Mexico Press, 1983.

_____, Maez, Lento, and González, Gustavo. A National Study of Spanish/English Bilingualism in Young Hispanic Children of the United States. **Bilingual Education Paper Series,** July 1981, 4(12). Los Angeles: Evaluation, Dissemination and Assessment Center, California State University, Los Angeles.

Gardner, Robert C., and Lambert, Wallace E. **Attitudes and Motivation in Second Language Learning.** Rowley, Massachusetts: Newbury House, 1972.

Geissler, H. **Zwiesprachiq keit deutscher kinder in Ausland.** Stuttgart: Kohlhammer, 1938.

Huerta, Ana. The Development of Code-Switching in a Young Bilingual. **Working Papers in Sociolinguistics,** June 1977, 21.

Lenneberg, E. H., and Lenneberg, F **Foundations of Language Development.** London: UNESCO Press, 1975.

Leopold, Werner, F. **Speech Development of a Bilingual Child: A Linguist's Record, Vol. I. Vocabulary Growth in the First Two Years.** Evanston, Illinois: Northwestern University Press, 1939.

_____. **Speech Development of a Bilingual Child: A Linguist's Record, Vol. II, Sound Learning in the First Two Years.** Evanston, Illinois: Northwestern University Press, 1947.

_____. **Speech Development of a Bilingual Child: A Linguist's Record, Vol. III. Grammar and General Problems in the First Two Years.** Evanston, Illinois: Northwestern University Press, 1949a.

_____. **Speech Development of a Bilingual Child: A Linguist's Record, Vol. IV. Diary From Age 2.** Evanston, Illinois: Northwestern University Press, 1949b.

Menyuk, P. **The Acquisition and Development** of Language. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1971.

Padilla, Amado M., and Liebman, Ellen. Language Acquisition in the Bilingual Child. **The Bilingual Review/La Revista Bilingüe**, 1975, 2, 34-55.

Pavlovitch, M. **Le langage enfantin: Acquisition de serve et de français par un enfant serve.** Paris: Champion, 1920.

Ronjat, J. **Le developpement de langage observe chez un enfant bilingue.** Paris: Champion, 1913.

Skrabanek, R. L. Language Maintenance Among Mexican-Americans. **International Journal of Comparative Sociology**, 1970, 11, 272-282.

Slobin, D. I. Developmental Psycholinguists. In W. O. Dingwall (Ed.), **A Survey of Linguistic Science.** College Park, Maryland: University of Maryland Linguistics Program, 1971.

Smith, M. E. A Study of the Speech of Eight Bilingual Children of the Same Family. **Child Development**, 1935, 6, 19-25.

Snow, C. E. Mother's Speech to Children Learning Language. **Child Development**, 1972, 43, 549-565.

Sorenson, A. P. Multilingualism in the Northwest Amazon. **Mexican Anthropologist**, 1967, 69, 678-684.

Stockwell, R. P., Bowen, J. D., and Martin, J. W. **The Grammatical Structures of English and Spanish.** Chicago: University of Chicago Press, 1965.

Eugene Garcia is Director of the Bilingual/Bicultural Education Center and Professor of Education at Arizona State University, Tempe, Arizona. He completed baccalaureate, doctoral, and post-doctoral education at the University of Utah, University of Kansas, and Harvard University, respectively.

Dr. Garcia served as a professor in Child Development at the University of Utah (1972-1976) and the University of California, Santa Barbara (1976-1980) prior to joining the faculty at Arizona State University. He has published extensively in the area of language training, language development, and bilingual development. Dr. Garcia's new books are **The Mexican American Child: Language Cognition and Social Development** and **Bilingualism in Early Childhood.**