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A Comparison of the Written and Oral English Syntax of Mexican American Bilingual and Anglo American Monolingual Fourth and Ninth Grade Students (Las Vegas, New Mexico)

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COMPARISON OF THE WRITTEN AND ORAL ENGLISH SYNTAX

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Title: A COMPARISON OF THE WRITTEN AND ORAL ENGLISH SYNTAX OF MEXICAN AMERICAN BILINGUAL AND ANGLO AMERICAN MONOLINGUAL FOURTH AND NINTH GRADE STUDENTS (LAS VEGAS, NEW MEXICO)

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BY
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DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy in Curriculum and Instruction
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The major problem investigated by this study was whether or not Mexican American bilingual fourth and ninth grade students represent the same language population in their English syntactic usage as do Anglo American fourth and ninth grade students in Las Vegas, New Mexico. The first hypothesis specified that the distributions of the following variables of the bilingual and monolingual groups were not significantly different in the oral and written modes: average number of words per clause; average number of clauses per T-unit; average number of words per T-unit; total "sentence-embedding" transformations and "sentence-embedding" transformations in headed nominal, non-headed nominal, adverbial, and coordinated structures; and syntactic and morphological rule variations per 100 words. The second hypothesis specified that there would be an increase in the syntactic maturity measures from grade four to grade nine and that there would be no difference between bilingual and monolingual groups in the amount of increase. The third hypothesis specified that there would be no significant difference between the oral and written samples of each study group in the variables specified in the first hypothesis.

Twenty-one fourth grade bilingual, sixteen fourth grade monolingual, nineteen ninth grade bilingual, and nineteen ninth grade monolingual subjects were taped in individual interviews, and their written in-class free-writings were collected to provide the basic data. The written and oral productions were divided into T-units as the basis for analysis. The data were subjected to the Kolmogorov-Smirnov two-sample test to test for significant differences in the variables according to distribution, skewness, and central tendency.

Only two significant differences were found. First, the average clause length of ninth grade bilingual subjects was shorter than that of ninth grade monolingual subjects in the written mode. Second, the average T-unit length of fourth grade monolingual subjects was longer in the oral mode than in the written mode. Also, the syntactic maturity measures tended to increase in size from fourth to ninth grade slightly more for monolinguals than for bilinguals.

It was concluded that the bilingual subjects represent the same language population as the monolingual subjects in their English syntactic usage, except in average clause length in the written mode in ninth grade. Since the bilingual subjects can produce the same structures as the monolingual subjects, it was suggested that differences between groups can be diminished by providing appropriate language experiences in class.

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INTRODUCTION

Background of the Problem

General Concerns

Education in the second half of the Twentieth Century in the United States is experiencing a number of changes which are the result of the civil and human rights movements. Among these changes is the increased emphasis upon multicultural education. The proponents of multicultural education have argued that the United States is not a "melting pot," but a pluralistic society in which numerous separate groups have maintained their cultural identity and wish to continue that status.

One of the most important entities of any culture is its language. In the United States, not only are there groups each speaking its own language, but also groups speaking numerous dialects of the English language. Teachers must be aware of the dialects they encounter in their classrooms if they are to successfully work with their students' languages. Failure to consider the implications of different dialects for education may result in diminished student learnings and increased school failures.

In New Mexico the effects of school curricula based solely upon the culture and language of the dominant middle-class English-speaking Anglo American society are apparent.

Mexican American, or Spanish-surnamed, individuals comprise almost 40 percent of the population of New Mexico. The U. S. Commission on Civil Rights (1971, pp. 17-24) reported that while 93 percent of the Mexican American student population in the United States was still attending school by grade eight, by grade twelve only 71 percent was still in school. The odds were 1.4 times greater that a Mexican American student would drop out of school than that an Anglo American child would. In the entire Southwest, 64 percent of the Mexican American students was reading below grade level in the eighth grade, and 40 percent was classified as possessing severe reading retardment by the twelfth grade. In New Mexico alone, the Commission (1971, p. 31) reported 58 percent of the Mexican American student population was reading below grade level in the eighth grade.

New Mexico State Department of Education (1973, pp. 17-34) statistics reveal that the Mexican American student is behind the Anglo American student in measured test results and that the Mexican American student is further behind in the eighth grade than he is in the fifth grade. For the 1972-1973 school year, in grade five, Anglo American student mean achievement was a grade equivalent score of 5.3. For the Spanish-surnamed student, it was 4.3. In grade eight, mean achievement of Anglo American students was 8.2. For the Spanish-surnamed student, it was 6.4. Since such results are based upon tests which utilize ability to function in English, a major question which must be asked is whether the

bilingual student who speaks both English and Spanish is at a disadvantage when compared with the monolingual student who speaks only English. One way of answering such a question is to compare the English language development of the bilingual Spanish-speaking student with the English language development of the monolingual English-speaking student. One aspect of such a language development study is the analysis of the syntax of both bilinguals and monolinguals in English. The Spanish-speaking bilingual student of northern New Mexico does possess an English dialect. Rarely does the Spanish-speaking child enter school understanding no English at all. Once educators are aware of the status of the bilingual's syntax, they can begin to build that knowledge into their curricula.

The study of language development goes back many years, but only recently have linguists begun to develop systematic approaches to understanding developmental syntax. Carroll (1960, p. 744) specified the reasons for examining the language of school children:

> First, students of the science of language, such as Hockett and Jespersen, have wondered whether the gradual changes in languages over generations are to any extent caused by the variations observed in children's speach as compared with their elders . . . . Second, many psychologists feel that the study of the process whereby children learn to speak and understand language holds the key to many fundamental problems of behavior. Third, educators, parents, and others concerned with the welfare of children need information to help them decide whether the language development of a child is proceeding in a normal fashion, as well as information to guide the development of the curriculum in schools or to form the basis for special education programs for handicapped children.

The teacher of English can no longer safely rely upon the assumption that all his students possess identical linguistic skills, aptitudes, and backgrounds when the teacher attempts to develop a rationale for and structure underlying his curriculum. Nor can his approach be entirely intuitive. He must proceed upon information collected by specialists in language development which often contradicts traditional conceptions about the nature of language and language learning. The task of the linguist is to

> . . . attempt to organize the constant and variable factors in the speech of the community, or any subsection of the community, into a structural description. . . . A structural description of this type serves three chief purposes: (a) It enables the linguist to locate other variables in the system which have not been noticed before. . . . (b) The structural analysis frequently explains one form of linguistic behavior as a structural consequence of other forms. . . . (c) The structural description may show that forms which are superficially identical with Standard English (or with other forms within the same system) are actually different in syntactic or semantic value (Labov, 1964, p. 100).

Such analysis, for instance, has shown that Black English is not poorly formed English, but that its structure is systematic and coherent, based upon definite syntactic and phonological rules.

Thought and Language

Sapir (1921, p. 8) defined language as ". . . a purely human and non-instinctive method of communicating ideas, emotions, and desires by means of a system of voluntarily produced symbols." That language does communicate "ideas, emotions, and desires" is a central concept which has led

to the division among theoretical linguists in their attempts to explain the relationship between thought and language. As Smith and Miller (1966, p. 1) noted,

> Anyone who, in the spirit of this century, tries to cope with the intricacies of human thought finds it necessary first to cope with the intricacies of the symbolic system through which thought makes itself manifest.

In that respect, a child who attempts to process stimuli, to order them and relate them to his previous experience, and to communicate his awareness about, knowledge of, and reactions toward those stimuli must depend upon the essentiality of words (John, 1967, p. 120).

The exact relationship between thought and language remains unexplained. Lawton (1968, pp. 44-48) reported that the research of Luria and Yudovich focused upon the concept that the child develops intellectually by reacting to problems in his environment and that the key to the child's mental growth is his language. Luria and Yudovich asserted that the key to the child's systematization of experience is his ability to verbally abstract and generalize.

Piaget (1954) maintained that thought precedes language. Without language, the child can order given items logically and systematically, which, Piaget argued, indicates symbolic thought. Language itself results from the imitation of adult speech patterns and provides a means for expanding thought. Piaget called the internal system of thought "egocentric speech" which, in time, the child abandons for socialized

communication, or speech and writing as adults know it.

Vygotsky (1962) divided speech and thought into four phases. First, he postulated a primitive stage of pre-intellectual speech and pre-verbal thought. Second, he maintained that the mastery of speech syntax occurs before the mastery of thought syntax. Third, he asserted, the stage of external signs and operations takes place. His fourth stage is that of logical memory and inner soundless speech.

> Schematically, we may imagine thought and speech as two intersecting circles. In their overlapping parts, thought and speech coincide to produce what is called verbal thought. Verbal thought, however, does not by any means include all forms of thought or all forms of speech. There is a vast area of thought that has no direct relationship to speech (Vygotsky, 1962, p. 47).

Thus, Vygotsky viewed thought and speech as distinct processes with different origins. The conclusion of Lawton (1968, p. 157) emphasized a particular relation between thought and language:

> Whether it can be said that language is a <u>determiner</u> of perception, cognition, and thought might be disputed, but there is little doubt that it exerts a channelling influence on thought processes.

Language Acquisition

Two basic approaches encompass the controversy over language acquisition: that of the empiricist and that of the rationalist (Allen and Van Buren, 1971, pp. 134-139). The empiricist holds that language acquisition is basically "adventitious," i.e., that language is acquired by "conditioning," drill, or some form of "data processing." The

rationalist view postulates an innate capacity for language learning.

The empiricist Skinner (1957) argued that language is acquired through environmental conditioning and reinforcement. He believed that the internal characteristics of the individual contribute little to language acquisition, that there is no internal syntactic system. Luria (1966) on the other hand, argued that language is a function of cortical processes. At the third level of cortical organization, he maintained, the development of language occurs, but this development is not specific to any location in the brain. Lenneberg (1967) believed that inherent cognitive processes exist which are biologically transmitted from generation to generation. N. Chomsky (1965, p. 37) asserted that an "innate human faculté de langage" explains an individual's ability to learn any human language as his first language. For the purpose of this study, the language or languages of the subjects have already been acquired, though perhaps not fully developed, and the nature of the subjects' competences does not fall within its scope, while their performances do.

Language Theory Underlying This Study

This study is concerned with the production of English syntactic structures by Spanish and English-speaking bilingual and English-speaking monolingual students, the structures analyzed according to the transformational-generative theory of grammar.

The transformational-generative theory of grammar (N. Chomsky, 1965) is "rule-based," i.e., the rules "generate" the sentences of a language. "Generate" means that all and only the sentences of a language may be predicted, or specified, by the rules of the grammar. The transformational-generative grammar is not specifically concerned with the actual set of sentences of a language, but the possible set of sentences of that language. Thus, the theory is concerned with the competence of a native speaker of a language, not his performance, i.e., the internalized set of rules the native speaker possesses, not the actual sentences he utters. A strongly adequate grammar is one which not only specifies rules which can generate the sentences of a language, but also assigns the correct structural description to that language.

The syntactic component of a transformational-generative grammar assigns a deep structure and a surface structure to the sentences of a language and relates deep to surface structure systematically. The deep structure, or base structure, consists of a phrase structure, segment structure rules, and a lexicon. Phrase structure rules are context free: they apply without exception and generate the deep structure of a language. The segment structure rules define the system of grammatical relations by specifying sets of syntactic features which serve to sub-categorize elements. Unlike phrase structure rules, the lexicon is an unordered set of lexical entries. The lexicon is idiosyncratic, and thus

it might be considered "semantic," i.e., meaning-bearing and composed of features not specified by the phrase structure or segment structure rules.

Transformational rules operate upon the phrase markers created by the base structure and lead to surface structures. Each transformation is context-oriented, non-semantic, and obligatory. A transformation consists of a structural description and specifies a structural change. There are four types of transformations: (1) adjunction, (2) deletion, (3) substitution, and (4) permutation. The syntactic rules expressed by the productions of individuals are the concern of this study.

Competence vs. Performance

Although transformational-generative grammars are specifically concerned with the competence of native speakers, this study analyzes the performance of speakers and writers for its data. Competence ". . . represents the knowledge a native speaker of a language must have in order to understand or produce any of the infinitely many grammatical sentences of his language . . ."; while performance is ". . . the expression of competence in taling or listening" (McNeill, 1965, p. 3). When a researcher wishes to determine the competence of a native speaker to understand an utterance, that researcher can control the input, but to determine the actual input in the case of performance is extremely difficult, if not impossible (McNeill, 1965, p. 77).

Palmer (1971, pp. 157-158) noted two major difficulties in distinguishing competence from performance. First, how does a linguist establish what a speaker knows? At best, he can inductively derive and describe the grammar of a speaker based upon the data from the speaker and the speaker's "intuition" about what is grammatical. Second, it is not always possible to distinguish competence from performance. If a speaker produces a sentence, is it correct or aberrant?

> There is really no way to determine which of the child's utterances are grammatically non-deviant in terms of his own grammar. And even if the grammatically non-deviant utterances could be reliably determined, they could only give hints as to the total grammatical capacity of the child, which includes not only what has been produced (or understood) but also what could be produced (or understood). (Klima and Bellugi, 1966, p. 183).

Nevertheless, this study, like teachers whose task it is to provide optimum conditions for developing the language of their students, must rely upon the production of its subjects in order to derive an adequate description of their performances. Based upon that production, this study describes their syntactic performance in an attempt to add to a theory of linguistic performance,

> . . . a theory of how, given a certain linguistic competence, we actually put it to use--realize it, express it. It is also a theory of the limitations of the mechanisms, which enable us to express our linguistic competence. It is not merely the theory of competence with the idealization removed, as has been suggested by Chomsky. For we want to be able to explain NORMAL performance--when the translation from competence to performance is proceeding smoothly--just as much as we want to explain errors and deviations (Wales and Marshall, 1966, p. 30).

In describing the performance of an individual, one must make some decision concerning what constitutes consistency of performance and what degrees of variation from that consistency are allowable.

The rules of English syntax change as an individual develops. At some point the child possesses all of the syntactic structures which an adult possesses. There is no concensus concerning the point at which the child's acquisition of syntactic rules is complete and whether the same patterns of syntactic rule acquisition apply to members of all cultural and socioeconomic groups of speakers of English.

Statement of the Problem

Among the objectives listed by the New Mexico State Board of Education is the following: "The primary objective of school programs for children whose mother tongue is not English shall be achievement of proficiency in the English Language" (1972, p. 1). In this objective, "achievement of proficiency in the English language" leaves many questions unanswered. Should the student be proficient in the English language alone? Is proficiency in speaking Spanish detrimental to English language proficiency? Is bilingual education to be a means of achieving English language proficiency? Should bilingual education be a means only to transfer the student to English language production alone, or should bilingual education maintain the mother tongue of the non-native English speaker? What is "proficiency in the English

language"? Does such proficiency include lexical, phonological, and syntactic "proficiency"? How is such "proficiency" to be measured, and how are the standards, if any, to be determined? Clearly, the statewide testing program of New Mexico indicates that proficiency in language is not the same for Spanish-surnamed students as it is for non-Spanish-surnamed students. For that reason, this study attempts to describe the syntactic proficiency of one community of Spanish and English-speaking bilingual students as it compares with the syntactic proficiency of monolingual English-speaking students in the same geographical area.

While research has been conducted in such areas as Spanish-English code switching, New Mexican Spanish syntax, Southwest Spanish lexicography, Southwest Spanish phonology, and language dominance of Mexican Americans, study of the English syntax of Mexican Americans, or "Chicano English," has been limited. Most related work has been conducted in the area of vocabulary comprehension (e.g., Johnson, 1938; Tireman and Woods, 1939; Tireman, 1945) and phonology (e.g., Ferguson, 1972). The general evidence of such research is that vocabulary studies are inadequate for judging language development. Semantic structure (e.g., Young, 1971) and grammatical knowledge must be tested to achieve a theory of Mexican American language development (Riegel, Ramsey, and Riegel, 1967, p. 544).

Metcalf (1973) argued that many Mexican Americans are fluent in English and only English, so techniques for teaching

English to speakers of other languages do not apply to them. Most Mexican American students enter school in New Mexico already speaking English, although in varying degrees. Teaching techniques for these students should not be the same as the techniques employed when students do not speak any English. Metcalf (1973) claimed that what has often been called a language problem is not really a language problem, but a social one. Metcalf noted research conducted in California which indicated that accent does not bother prospective employers as much as fluency weaknesses. Employers who perceive a Mexican American speaker as fluent in English do not perceive his accent. Metcalf argued that study of "Chicano English" may show that it is more than English spoken with a Spanish accent. Most important of all, if teachers are to respect the language which a child brings with him to school and make pedagogical use of that language, then research must specify what that language is. This study attempts to determine whether there is indeed a basis for speaking of a "Chicano English" syntax.

Significance of the Problem

If Mexican American bilingual students do represent the same speech population as the Anglo American monolingual students in their English syntactic use in the domain of the school, then teachers may employ the same techniques of instruction for both groups--when working with their syntactic use of English.

If, however, the two groups represent different populations in their production of English syntax, then several implications may follow:

(1) Teachers should use different techniques in teaching English to each group, or

(2) Teachers should teach to correct whatever deficiencies in English language usage exist in each group and not assume similar deficiencies, or

(3) Teachers should employ the syntactic strengths of each group in order to improve the English syntactic usage of both groups.

Purpose of the Study

The primary purpose of this study is to describe the oral and written syntax of samples of English obtained from Mexican American bilingual and Anglo American monolingual fourth and ninth grade students of Las Vegas, New Mexico, a community of approximately 15,000 population. The Las Vegas City School District draws from a student population of approximately 75 percent Spanish-surnamed students and 25 percent non-Spanish-surnamed. As numerous researchers have noted (e.g., Spolsky, 1970; Timmins, 1971; and Hollomon, 1973), assuming a one-to-one correlation between surname and language is fallacious. One may not classify students into linguistic and cultural categories based solely upon surname. The surname data are included here to add to the description of the geographical community. The students who attend the

Las Vegas City School District live on ranches, in small outlying communities, and in Las Vegas itself.

The English syntax that is studied here is that which is employed in a school setting. As Fishman (1968) demonstrated, a bilingual community is not one in which the members employ either language equally in all settings. A person's speech production varies according to the context in which it is used. Thus, since teachers work with students within the confines of the school and since the English spoken by those students in school is that which they would normally employ in a school setting, the domain for this study is the school itself.

The fourth grade students in the Las Vegas City School District have completed three years of bilingual education. The ninth grade students have not had bilingual education other than in a Spanish language course in the middle school.

The central question to be asked by this study is whether or not the Mexican American bilingual and Anglo American monolingual students represent the same speech population in English syntactic use.

Hypotheses

The hypotheses of this study are worded to match Pope's (1969) hypotheses in order to achieve a base for comparing his study and this one.

Hypothesis I: Mexican American bilingual and Anglo American monolingual students in the fourth and ninth grades

represent the same population in terms of each subject's performance on each of the following variables:

A.1. the average number of words per clause

2. the average number of clauses per T-unit

3. the average number of words per T-unit

B.1. the total number of "sentence-embedding" transformations per T-unit

2. the number of "sentence-embedding" transformations per T-unit in headed nominal, non-headed nominal, adverbial, and coordinated structures

C.1. the number (per 100 words) of syntactic rule variations from "standard" English

2. the number (per 100 words) of morphological rule variations from "standard" English.

Hypothesis II: from grade four to grade nine there will be:

A. an increase for both Mexican American bilingual and Anglo American monolingual students of the

1. average length of clauses

2. average number of clauses per T-unit

3. average length of T-units

B. no difference in the amount of increase as specified in IIA between the Mexican American bilingual and Anglo American monolingual student groups from the fourth to the ninth grades.

Hypothesis III: there will be no significant difference between the written and spoken samples of both the Mexican

American bilingual and Anglo American monolingual fourth and ninth grade subjects in terms of:

A.1. the average number of words per clause

2. the average number of clauses per T-unit

3. the average number of words per T-unit

B.1. the total number of "sentence-embedding" transformations per T-unit

2. the total number of "sentence-embedding" transformations per T-unit in headed nominal, non-headed nominal, adverbial, and coordinated structures

C.1. the number (per 100 words) of syntactic rule variations from "standard" English

2. the number (per 100 words) of morphological rule variations from "standard" English.

Synopsis of Research Plan and Procedures

Two samples, one written, the other oral, of each subject were studied to analyze the syntax of each. Mexican American bilingual and Anglo American monolingual fourth and ninth grade students were randomly selected to provide four study groups: (1) Mexican American bilingual fourth grade, (2) Anglo American monolingual fourth grade, (3) Mexican American bilingual ninth grade, and (4) Anglo American monolingual ninth grade. The syntactic description of the samples includes for each subject:

(1) computation of the average number of words per

clause, the ratio of clauses per T-unit, and the average number of words per T-unit;

(2) identification and computation of the number of "sentence-embedding" transformations per T-unit;

(3) identification of and computation of the frequency of syntactic and morphological rule variations from "standard" English in the United States.

Definition of Terms

Bilingual: One who speaks both Spanish and English with relative ease, although not necessarily with equal degrees of fluency.

Clause: A group of words containing a subject or coordinated subjects and a finite verb or coordinated verbs.

Finite Verb: One that is limited in person (first, second, or third) and in number (singular or plural).

Headed Nominal Structure: A nominal structure that can be modified by an adjunctive transformation. The word which is modified is the "head" (Hunt, 1964, p. 98). Examples of headed nominals are noun adjuncts (e.g., railroad station), noun plus adjective (e.g., happy man), and noun plus adjective clause (e.g., The man who was happy. . . .).

Non-finite Verb: One that is not limited in person or in number. Thus gerunds, participles, and infinitives

are non-finite verb forms. In a verb phrase, the first verb is finite. For example, in the verb phrase has been running, has is the finite verb; been and running are the non-finite forms.

Non-headed Nominal Structure: A structure which is incapable of being modified (Hunt, 1964, p. 98). Examples of non-headed nominals are infinitive phrases (e.g., tried to sing), gerund phrases (e.g., tried singing that song), and noun clauses (e.g., that he sang).

Sentence: Because of the difficulties in identifying a sentence, this study does not attempt to do so.

"Standard" English: A particular dialect employed for commercial and academic purposes in the United States and approved generally by the dominant middle class (Perrin, 1972, p. 12).

T-unit: "Terminable Unit": one main clause and all of the subordinate clauses which are attached to it (Hunt, 1964, pp. 34-35). The use of the T-unit as a device for studying the syntax of students in the United States has been reported by several researchers (e.g., Hunt, 1965; O'Donnell, 1967; Pope, 1969).

Summary of the Remainder of the Study

Chapter 2 reviews the literature related to this study. The chapter is composed of three main sections: (1) developmental syntax studies, (2) the relationship of syntax to reading, and (3) syntax studies of differing cultural and

social groups in the United States.

Chapter 3 discusses the method of the study: (1) the setting, target population, and method of sampling; (2) the research design and limitations; (3) the materials and data collection methods; and (4) the data analysis procedures.

Chapter 4 presents the results of the research, and Chapter 5 is a discussion of the results and conclusions.

Chapter 2

REVIEW OF THE LITERATURE

This study examines the oral and written syntax of bilingual Mexican American and monolingual Anglo American students in the fourth and ninth grades. The related research reviewed here is presented in three parts: (1) developmental syntax studies, (2) the relationship of syntax to reading, and (3) syntax studies of differing cultural and social groups in the United States.

Developmental Syntax Studies

Early studies (pre-N. Chomsky, 1957) of the syntax of children often consisted of observational case studies followed by the development of language learning theories. According to Inhelder and Piaget (1958, pp. xii-xiii), for instance, four stages of intellectual development occur from infancy to adolescence, each succeeding stage incorporating the former stages: (1) the sensorimotor stage (age 0-2 years) in which elementary forms of symbolic behavior develop; (2) the pre-operational stage (age 2-7 years) in which the ability to symbolize begins, but is limited by the experience of the child; (3) the concrete operations stage (age 7-11 years) in which the child begins to assimilate past and present experience; and (4) the formal operations stage (age 12-15) in which hypothetical reasoning and controlled experimentation take place.

> It is permissable to conclude that thought precedes language and that language confines itself to profoundly transforming thought by helping it attain its forms of equilibrium by means of a more advanced schematization and a more mobile abstraction (Piaget, 1967, pp. 91-92).

The language of a child does not develop into adult forms from absolutely no forms. Miller (1969, pp. 32-40) summarized the child's language development. From birth to six months, the child is in the cooing stage; from six months to one year, the child is in the babbling stage, during which period he uses all the sounds of the human languages, but gradually eliminates those he does not need and practices those sounds of the adults he does hear around him. At the end of one year, the child begins to develop the phonology of his parents' language, practicing sound contrasts such as front vs. back sounds and voiced vs. voiceless sounds. At this stage, the first words enter his vocabulary. Around one and one-half years, the child begins to operate with multi-word patterns, not matching adult syntactic patterns. Typically, his utterances consist of a pivot word followed by the remaining words of the pattern. From age two and one-half to four years, the child acquires the remainder of his grammatical system. He applies rules to his speech in a regular fashion, testing them against adult usage, and gradually he acquires full adult patterns. Bruner (1964, pp. 1-15), however, maintained that it is inaccurate to speak of stages of growth. In Bruner's model, child thought development consists of successive, overlapping modes of representation. Specifically, these are the "enactive" mode, in which the child "knows" the

world by the actions he employs; the "ikonic" mode, in which the representation through imagery begins; and the symbolic mode, during which the child translates action and image into language.

Watts (1944, pp. 121-122), who first began to see the value of using the main clause with attached subordinators as a measure of syntactic maturity, characterized the child as essentially an intuitive grammarian. The child gradually improves his simple sentences through several techniques: by using (1) words more precisely and with greater discrimination; (2) prepositional phrases as nouns, adjectives, or adverbs; (3) infinitive phrases as nouns, adjectives, or adverbs; (4) participials; and (5) noun, adjective, and adverbial clauses. Watts found increasing subordination more closely related to mental age than to chronological age. Davis (1941, pp. 333-338) correlated the position in which the subordinate clause occurs in the sentence with I.Q. and correlated the frequency of clauses with chronological age. More recently, transformational-generative theorists have viewed such changes in child language as support for transformational-generative theory.

> A child seems to operate like a professional grammarian who takes advantage of the fact that transformations are intrinsically more powerful than base-structure rules and so can express grammatical relations more economically. The pressure--or, if you prefer, the motivation--to devise transformational rules may come from the cognitive clutter that results from not having them (McNeill, 1966, p. 61).

That the researcher finds categorization of child

language an involved task is indicated by Harrell (1957, p. 24).

> If the writer, i.e., the child, is an experienced writer and indicates clearly the dependent and independent clauses, the problem of identification, and thus, of reliability, would be slight. However, in children's writings the identification of clauses, especially subordinate clauses, is sometimes quite difficulty, because children, particularly children in the lower grades, do not express themselves well, nor do they indicate all of their subordinate clauses with the proper subordinate conjunction or with proper punctuation.

Without doubt, many of the results of early child language development studies are questionable. Ad hoc decisions about proper punctuation and comparable adult structure have often varied from researcher to researcher, a fact which is evident from the reports which do detail their methodology. Exactly what is a well-formed utterance? Carroll (1969, p. 5) explained "well-formed utterance" in this manner: (1) it conforms to general rules which can be formulated, and (2) it has to be acceptable as meaningful and grammatical by native speakers of the language.

The research clearly reveals a vast number of syntactic structures which develop while the child is quite young. As Mellon (1970, p. 12) stated,

> I think this is a crucial point, we must recognize that the competencies we are speaking of here develop for the most part prior to puberty. During this first period of human life, up through grade nine or ten in school, let us say, the brain performs most of its vast feat of language learning. After puberty, lateralization of hemispheric functions and a certain fixedness of structure occurs.

Therefore the importance of studying this early period of

syntactic growth is manifest.

Several researchers have provided thorough reviews of investigations of the syntax of children. McCarthy (1954), Harrell (1957), Carroll (1960), Ervin-Tripp (1966), Lawton (1968), and MacGinitie (1969) have all summarized the findings of earlier researchers and noted the values of those investigations.

MacGinitie (1969) classified three general methods which have been employed to study language development: observation, testing, and teaching. Most developmental syntax studies have been of the observational variety, but MacGinitie described some limitations of this approach. His argument was that a subject's performance may not reveal his competence. "Careful testing is usually necessary to determine the nature of his understanding and on which aspects of the speech signal or other cues this understanding is based" (MacGinitie, 1969, p. 689). Despite that limitation, overall observations of trends of language usage have provided developmental sequences which, in turn, have established the bases for study of specific aspects of language by other researchers (e.g., Leopold, 1939-1949; Loban, 1961-1967; Strickland, 1962; Hunt, 1965; O'Donnell, 1967).

Testing has received increased emphasis by linguists in order to establish empirically-based descriptive data of specific phenomena (e.g., C. Chomsky, 1969; Brown, Cazden, and Bellugi, 1969).

Researchers have employed widely divergent techniques

in order to elicit specific responses from children or to determine if children are capable of comprehending specific syntactic patterns, from asking the child directly if he understands a syntactic production to indirect "nonsense" word games.

The technique of teaching combined with observation of language development has enabled researchers to manipulate specific, limited variables and to arrive at comparative evaluations of the effect of the variables upon syntax, phonology, or morphology development (e.g., Bateman and Zidonis, 1966; Brengleman and Manning, 1966; Mellon, 1967).

> The difficulties of conducting definitive language-teaching experiments are similar to those that confront educational research in general: the period of learning is long, the number and frequency of influences are enormous, and if conditions are sufficiently controlled to provide definitive results, the relevance to real life becomes questionable. In particular, language stimuli are so numerous and so ubiquitous that it is most difficult to evaluate the subject's previous learning or to control exposure during the study (MacGinitie, 1969, p. 689).

McCarthy's summary (1954) of early language development research revealed numerous approaches with variant analytic methodologies. Studies conducted before 1948 indicated that sentences were longer when students were talking before their peers in a classroom setting than when they were talking to adults. But when they talked with adults, the students produced longer sentences than they did when they played with their peers (McCarthy, 1954, p. 544). Such findings have not been replicated in relatively recent cross-cultural studies, which will be discussed in detail later.

In general, very early age child development studies reveal the following data (McCarthy, 1954, p. 550): by eighteen months, the child is at the one-word stage; between one and one-half and three and one-half years, the child progresses from two or three-word sentences to complete sentences of approximately four words; at age six and one-half, he is capable of about five-word utterances; and in the early elementary school years, the child can produce sentences of around seven words in length.

Three of the early analyses which relate directly to the present study are those of Stormzand and O'Shea (1924), LaBrant (1933), and Heider and Heider (1940), summarized by McCarthy (1954, pp. 550-551). Stormzand and O'Shea analyzed 10,000 written sentences of subjects from grade four through college, as well as sentences from adult fiction, letters, and newspaper articles. They found an increase of 100 percent in the use of complex sentences from grade four through college and also found that the adverb clause was used at all levels.

LaBrant's (1933) contribution to language development analysis is the "subordination ratio," the number of dependent clauses per total clauses. In studying 986 subjects from grades four through twelve and the writings of twenty-one psychologists, LaBrant concluded that the use of complex sentences is highly correlated with chronological age, experience, and maturity. However, LaBrant's technique involved counting clauses by noting the predicating expressions. As

a result, she determined no variation in the number of words per clause. McCarthy (1954, p. 551) attributed these findings--no increase in clause length while writing more complex sentences--to the increase in the ratio of subordinate to coordinate clauses. McCarthy also considered counting predicates to be an easy, sound, and objective technique. The more recent research by Hunt (1965) contradicted McCarthy's evaluation. Hunt noted (1965, p. 13), for instance, that LaBrant counted coordinate verbs as two predicates, for which Hunt can find no validity.

McCarthy (1954, p. 551) reported that Heider and Heider (1940) asked each child in their study to write an account of a film he had viewed. The data were then analyzed by employing the subordination ratio. Their results indicated that, with age, a slight increase in compound and complex sentences occurs. McCarthy compared Heider and Heider's study with Stormzand and O'Shea's and noted the similarities of results, namely, fewer simple sentences and more complex sentences with increasing age.

Carroll (1960, p. 748) agreed with McCarthy "that mean sentence length is the most 'reliable, easily determined, objective, quantitative, and easily understood measure of linguistic maturity.'" However, determining precisely what a sentence consists of, other than all the words which fall between a capital letter and a mark of terminal punctuation, is extremely difficult. Carroll (1960, p. 748) realized this when he suggested some more "objective criteria," such

as "intonation patterns, pausal phenomena, sentence-structure types." With varying techniques of linguistic analysis, the results of early research appear inadequate, being weakly comparable.

Harrell (1957) compared the oral and written language of children from age nine to age fifteen. Harrell found (1957, p. 17) that "every form of sentence, simple, compound, and complex, has been used by the end of the first year in school." His procedure, like that of Heider and Heider (1940), was to show a short film to his subjects and collect oral and written samples stimulated by that film (Harrell, 1957, pp. 17-18). The data were then analyzed for proportion, frequency, position, and average length of clauses. He classified the clause as any group of words with a separate predicate. These categories were related to chronological and mental age, I.Q., occupational status of parents, and sex of subject (Harrell, 1957, p. 13).

Unlike LaBrant (1933), Harrell (1957, p. 65) determined that the average length of clause increases with age and is longer in written samples than in oral samples. Harrell (1957, p. 71) concluded that

> . . . (a) children used more subordinate clauses in writing than in speaking, and that this difference increased with advance in age; (b) children used more adverb and adjective clauses in their writing, but used a greater percentage of noun clauses in speaking; (c) children used a greater percentage of all types of adverbial clauses, with the exception of clauses of time and cause, in their speech; (d) there was a correlation between the subordination index in written stories and CA, MA, IQ, and occupational status; and (e) there was no indication that for any of the measures

> used a mature level has been reached in either written or oral stories.

He further concluded that unrelated words, referred to in other studies as garbles or mazes, decrease in percentage with age and are not related to sex differences; adjective clauses in both written and oral samples do not occur before the words they modify; generally more subordinate clauses are used before the word or clause they modify in the written rather than oral samples; and a greater increase in the use of subordination occurs with age in the written samples than in the oral samples. However, Harrell noted (1957, p. 69) some question about his findings when he revealed a "considerable disagreement among scorers" in their tabulations of clauses and types of clauses.

Strickland (1962) studied the oral language patterns of children from grade one through grade six and found that the number of syntactic patterns ranged from 658 in grade one to 1,041 in grade six. She employed a two-level analysis of syntactic structures and did not count mazes or incomplete responses. At the first level of analysis, she tabulated (1) "fixed slots" and the items which filled them, such as question words, verbal auxiliaries, grammatical subjects, main verbs, and complements, which include indirect objects, direct objects, and subjective complements; (2) "movables," their types and positions, such as adverbials; and (3) "sentence connectors," such as conjunctions (Strickland, 1962, p. 21). At the second level, she tabulated fifteen kinds of subordinate

elements which were employed in the "fixed" and "movable" slot positions.

Strickland concluded that (1) the most frequent patterns are composed of "immovable elements," (2) I.Q. matters very little, (3) "movables" increase with age, (4) greater flexibility occurs with increase in age, and (5) the correlation of the use of "movables" with I.Q., parent's education, and the student's mental age is significant. In regard to the use of subordinate elements, Strickland (1962, p. 44) observed "no outstanding difference in the use of these elements from one grade level to another . . . ." Nevertheless, in examining the use of subordination patterns of children in grades one, four, and six, Strickland did perceive a positive relationship with age. Strickland (1962, p. 60) remarked, also, that "length of phonological unit appeared in this study to be unsatisfactory as a measure of the maturity of language."

Menyuk (1963) analyzed the syntactic structures of children in nursery school and first grade using Chomsky's 1957 model of syntactic structures. Her subjects' mean I.Q. was 130.3 for the nursery school children and 132.0 for the first graders. Three stimulus situations were employed to collect the oral data on a single day: (1) spontaneous responses to a projective device, (2) conversation with the experimenter, and (3) conversation with peers through role playing. As a cross-check, the children were observed in class and their speech recorded. A grammar was then written

to display all the grammatical rules operating in the children's speech. Menyuk concluded (1963, p. 418) that

> All the basic structures by adults to generate their sentences can be found in the grammar of the nursery school children. . . . total sentence output increases significantly with age, and that as the child matures, syntactic structures are added to syntactic structures leading to increased length but without adding to the basic structures used.

She found little significant difference based upon sex or I.Q. Menyuk did not, however, indicate how the investigators determined individual sentences of the subjects.

In a later study, Menyuk (1964, pp. 429-439) analyzed the language of 159 children from age thirty-four months to age eighty-five months. By examining the surface structure and inferring transformations, she arrived at the following conclusions: fewer than two-thirds of the children used the <u>if</u>, <u>so</u>, participial complement, iteration, pronominalization, and nominalization transformations. She observed a general decrease with age of poorly-formed structures and more appropriate differentiations with age rather than over-generalizations (e.g., "he standed").

Loban (1961, 1964, 1967) conducted a longitudinal study of the language of 338 children from kindergarten through grade twelve, interviewing the subjects annually. His study was concerned with three primary questions: (1) could a definite sequence of language development be identified, (2) could stages of growth in language be predicted, and (3) what factors contribute to the varying ability of children in language and varying growth of proficiency in using

language (Loban, 1961, p. 1)? Loban (1961, p. 15) originally chose 338 primary school children and divided them into three language ability sub-groups: High, low, and all the rest. At the end of the study, 263 of the original subjects remained (1967, p. 232). The subjects represented low, middle, and high socioeconomic groups and approximated the population distribution of Oakland, California. The data were analyzed by segmenting speech samples according to intonation pattern, by identifying the independent predications (in a manner similar to Hunt's [1965] T-unit technique), and by noting "mazes": "tangles of language which did not make semantic sense and were impossible to classify phonologically" (Loban, 1961, pp. 19-22). The results were compared by group on the basis of oral interviews, written compositions, reading tests, I.Q. scores, listening tests, tests on the use of subordinating conjunctions, teachers' ratings, reading lists, and autobiographical data.

Loban (1967, pp. 237-239) concluded that all groups, based on language ability, had the same proportion of structural patterns present in their writing, and had approximately identical proportions of noun, adjective, and adverb clauses. However, the high group had the highest number of words per communication unit in both written and oral samples, the highest number of dependent clauses per communication unit, and generally more clauses of any type. The high language proficiency group and high socioeconomic group used subordinate connectives more correctly. The high Caucasian group

used obligatory transformations more accurately and were more proficient in their use of optional transformations. Loban found the high socioeconomic group exhibited language proficiency earlier than the low socioeconomic group and that the low group tended to employ more non-standard usage. Employing a "Weighted Index of Subordination," he found that the amount of subordination a child employs is related to socioeconomic group and that the low group tended to employ more non-standard usage. Employing a "Weighted Index of Subordination," he found that the amount of subordination a child employs is related to socioeconomic level; higher socioeconomic level students are better in reading and writing; the gap between socioeconomic levels increases with age; and the average length of communication units (typically independent clauses) increases with age. Perhaps the most important revelation of Loban's study is the following

> . . . structural pattern reveals less remarkable differences than does dexterity of substitution <u>within</u> the patterns. The important differences show up in the substitution of word groups for single words, in the choice and arrangement of movable syntactic elements, in variety of nominals, and in strategies with predications (Loban, 1964, p. 105).

Riling (1965) analyzed the oral and written language of 200 grade four and 100 grade six students from southeastern Oklahoma, half of whom were black and half white. Following Strickland's techniques, Riling counted the number of syntactic patterns of her subjects. Among the black fourth graders, she found 585 patterns in the oral samples

and 344 in the written samples. Among the white fourth graders, she found 713 patterns in the oral samples and 371 in the written samples. A composite total for the sixth graders revealed 845 patterns in the oral samples and 527 in the written samples. In addition, she found that the black students employed fewer mazes and fewer structurally incomplete utterances. The sixth graders employed more adverbial phrases of manner and time and more clauses related to the verb, and they employed longer sentences than the fourth graders. In commenting on the differences based upon sex, Riling stated (1965, p. 87), "When boys do well, they do better than the girls; when they do poorly, they are at the bottom of the heap."

Sam and Stine (1965) studied the written language of children in grades four, five, and six. Their subjects' writings were categorized into five basic sentence patterns as specified by Paul Roberts. To check sentence modifiers, Sam and Stine began with the second sentence of each composition and chose every fifth sentence thereafter as the sample. Unfortunately, the researchers supplied punctuation for run-on sentences, but do not specify their criteria for doing so. In the case of sentences containing multiple verbs, they arbitrarily categorized them according to the most complex pattern (Sam and Stine, 1965, pp. 21-24).

Sam and Stine concluded (1965, pp. 81-85) that girls employ more patterns with inverted word order; more clauses with the patterns subject-intransitive verb, verb-object,

and linking verb-adjective complement; and that the incidence of these patterns increases with age. They reported that subordinate constructions did not indicate such a difference between the sexes. In general, they concluded that grade is a significant factor in the development of three sentence patterns, while age is significant in only one pattern: the number of years a student has spent in school is more significant than the chronological age of the student.

The studies specified so far have not revealed a consistency of method in analyzing the syntactic maturity of students and their language development. Definitions of sentence were vague, clauses were described in widely variant ways, and, as at least one researcher revealed (Harrell, 1957), even the analysts could not always agree upon what constitutes a clause. Specific definitions of the clause had not promoted exact comparisons of results, for the results and analytic techniques varied as the definitions did.

The early studies of syntactic development revealed one major difficulty which later research techniques have had to overcome: i.e., the use of "sentence" as a measure of syntax is highly inadequate. As Fries (1952, p. 9) noted,

> More than two hundred different definitions of the sentence confront the worker who undertakes to deal with the structure of English utterances. The common school grammars continue to repeat the familiar definition, "A sentence is a group of words expressing a complete thought." although this ancient definition (which antedates Prician

> c. 500 A.D.) quite evidently does not furnish a workable set of criteria by which to recognize sentences. In actual practice we often ignore the definition with its "complete thought" as a criterion. If, for example, a reader attempts to count the number of sentences that occur on this or any other page of print, he usually does not stop to decide whether each group expresses a "complete thought." In fact he may not read a single word of the material nor even attempt to discover what the discourse is about. He simply gives attention to the marks of end punctuation and to capital letters with which, in our conventions of writing, we begin sentences.

What the early studies did reveal was the following: older children tend to write longer sentences and "stories" than younger children; with age, quantity of subordination increases; and the types of subordination become more "complex" with age. It was not until researchers began to employ a more definable analytic device, the "T-unit" (Hunt, 1965), that consistent results became available. At that point, for instance, Loban adjusted his analytic procedures to accomodate the T-unit.

Hunt (1965, pp. 2-5) analyzed the writing of students with average I.Q.'s (90-110) in grades four, eight, and twelve, as well as those of "superior adults," writers for Atlantic and Harpers magazines. He began with the fourth graders because they were considered ready to write with relative ease, and he finished with the twelfth grade to give his sample the widest possible range. The eighth grade was checked as a mid-point. His writing samples were not specified by subject and were terminated at the end of the T-unit closest to 1,000 words. His conclusions were stated

in percentages with the twelfth grade always being 100 percent.

Hunt found that sentence length was a poor predictor of grade level, that clause length was a better predictor, but that the T-unit length was the best predictor. Hunt (1965, p. 21) defined the T-unit, or minimal terminable unit, as one main clause and all subordinate clauses which are attached to it. He defined a clause as "a structure containing a subject (or coordinated subjects) and a finite verb (or coordinated verbs or phrases)" and a sentence as "the words written between a capital letter and a period or other terminal punctuation" (1965, p. 49). Hunt (1965, p. 15) rejected the "subordination ratio" (the number of subordinate clauses per total clauses), used by LaBrant and others, because of the difficulty previous researchers had encountered in determining the exact length of a clause. (For example, using the sentence "He said he was going," Hunt asked whether the main clause is two or five words in length. Such a decision would be arbitrary, and therefore the results of any analysis would be inconclusive.) Instead, Hunt employed a ratio of clauses to T-units (the total number of clauses per main clauses, or T-units). Thus average clause length times the number of clauses per T-unit equals T-unit length. Hunt (1965, pp. 33-35) stated that this ratio indicates the frequency of the subordinate clause added to the main clause, provides an arithmetical bridge between clause length and T-unit length, and is a significant index of at least one

kind of grammatical development. Hunt determined that the following factors were significant at the .01 level for grade: the mean clause length, the ratio of clauses per T-unit, the average length of T-units, and the ratio of T-units per sentence. The average length of sentences was significant for grade at the .05 level. The fourth grade had the shortest length of clause, the lowest ratio of clauses per T-unit, the shortest average length of T-units, and the shortest average sentence length. Conversely, the twelfth grade ranked highest in those categories (see Table 1).

An important result of these computations is the ratio of T-units per sentence. The fourth grade had the highest and the twelfth grade the lowest ratio. Evidently, the lower number of T-units per sentence indicates that older students are employing fewer coordinations per sentence, and/or are punctuating their sentences more accurately, resulting in fewer run-on sentences. At the same time, the higher ratio of clauses per T-unit of the twelfth grade students would indicate that the older students are employing more subordinations.

Hunt (1965, pp. 96-108) calculated mean clause length by finding the total number of words per total number of clauses, but he did not attempt to count the number of words in each clause. Since the mean clause length of twelfth graders has also increased, this may be an indication that clause length has been increased by more embeddings per clause. Hunt described several factors contributing to increased

TABLE 1

SYNOPSIS OF CLAUSE TO SENTENCE FACTORS
(HUNT, 1965)

Grade	Mean Clause Length (Words)	X	Ratio of Clauses per T-unit	=	Average Length of T-units (Words)	X	Ratio of T-units per Sentence	=	Average Sentence Length (Words)
4	6.6 (77%)		1.30 (77%)		8.6 (60%)		1.60 (137%)		13.5 (80%)
8	8.1 (94%)		1.42 (85%)		11.5 (80%)		1.37 (117%)		15.9 (94%)
12	8.6 (100%)		1.68 (100%)		14.4 (100%)		1.17 (100%)		16.9 (100%)

clause length. Although twelfth graders used fewer coordinations than eighth graders, they used more than fourth graders, both between and within T-units. Twelfth graders used fewer unmodified nouns and pronouns, more adjectives, more genitives, more prepositional phrases as modifiers of nouns (other than those beginning with of), and more verb forms as modifiers of nouns, resulting generally in a higher total of all non-clause modifiers. Hunt (1965, p. 142) concluded, "the major lengthening of the clause occurs as an expansion of the nominals used as subjects, objects of verbs, objects of prepositions, etc." Hunt (1965, p. 143) explained that clause lengthening is a sign of syntactic maturity because converting a clause to a non-clause nominal is characteristic of older writers (e.g., infinitival nominals and gerunds increase in quantity). Although Hunt (1965, pp. 122-132) found that twelfth graders expanded the verb auxiliary by using twice as many modals as fourth graders, almost three times as many perfect forms, and almost four times as many passive forms, as well as more linking verbs, his conclusion was that the expansions of the verb do not influence clause length. Thus, Hunt's contribution has been to clarify what earlier researchers have vaguely described as increase in clause length.

A basic conception of syntactic growth is now accepted:

> It is easy to see that the development of a regular marker system will increase sentence length. In addition, as slot grammars give way to phrase structure in certain obligatory constituents (such as verb phrases), the average sentence length increases.

> Evidently even with the same basic grammar, older children can include more of the forms which are optional or elaborated, such as adjectives. On the other hand, some transformations have the effect of shortening sentences . . . so that sentence length measures may actually conceal some developmental changes (Ervin-Tripp, 1966, p. 78).

The increase in the ratio of clauses per T-unit as grade increased was explained by Hunt (1965, pp. 77-89): twelfth graders used twice as many adjective clauses as fourth graders, twice as many noun clauses in non-direct discourse, and more movable adverbial clauses. In general, the percentage of subordinate clauses increased from 71 in the fourth grade to 100 in the twelfth grade.

Everts (1967, pp. 6-14) adopted Hunt's T-unit as a means of categorizing what she called "sentence," "syntactic unit," and "communication unit." She then based her analysis upon Strickland's methodology, developing four levels of analysis of syntactic structure. Level I consisted of fixed slots and movable elements: subjects, verbs, objects, and complements; Level II consisted of items that are fillers in sentence-level slots whenever a slot of Level I was comprised of more than a single element; Levels III and IV were employed whenever clauses and phrases were found within one another. Her subjects were 400 students from the second through the sixth grades, all groups having mean I.Q.'s above 100. The data consisted of randomly selected sentences from 1,000 compositions. She concluded that students wrote shorter sentences in the primary than in the intermediate grades and more complex sentences in the intermediate grades. In addition,

the older students used more inverted forms of the basic patterns. Everts felt that the more complex structures might result from older students' performing at a higher conceptual level than younger students. However, she noted that the twelve basic patterns employed in the study seemed too simplified, and she was not confident about her sampling methodology.

In an experiment designed to evaluate the Nebraska curricular materials, Sebesta (1967, pp. 2-11) also adopted Hunt's T-unit and Strickland's pattern analysis to study 200 compositions of students in grades two through six and selections of professional writings. By analyzing the first five sentences of each composition, Sebesta (1967, pp. 50-65) found sixth grade patterns to be closer to professional writers' patterns than to the patterns of second graders, sentences beginning with expletives decrease after the third grade, and professionals use adverbials more frequently than any of the students.

O'Donnell (1969, pp. 26-33) analyzed the language of 180 students, studying the oral language of students in kindergarten and grades one and two, and the oral and written language of students in grades three, five, and seven. The subjects were characterized by sex, age range, and mean age in years and months, Lorge-Thorndike I.Q., and Metropolitan Achievement Tests: Word Knowledge and Reading. The parents of the students were uniformly middle class. His technique was to show two silent films to three subjects at a time and ask each to tell the story of the film privately, answer

pre-planned questions, and then write his version of the film stories. The data were divided into T-units and the syntactically irrelevant elements (e.g., mazes) marked for special treatment.

O'Donnell (1969, pp. 77-80) determined that, as students advanced in grade, (1) garbles or mazes tended to decrease, (2) the overall length of responses increased, and (3) the length of T-units increased. His findings indicated numerous reasons for the increase in T-unit length, but indicated that all may be encompassed by the reason of greater use of sentence-embedding transformations. Nominals, adverbials, and coordinations within T-units increased significantly across grades in both speech and writing. Nominal subtypes included nouns modified by nouns, adjectives, prepositional phrases, participles, and genitive forms. Of the adverbial constructions, the number of adverb clauses doubled in speech from kindergarten through grade seven, and the adverbial infinitive multiplied in number eight times in oral use from kindergarten through grade seven. The frequency of coordinate nominals and coordinate predicates within T-units increased significantly in speech and writing from kindergarten through grade seven. O'Donnell noted that all clausal patterns were employed by at least some of the students at all grade levels.

O'Donnell (1969, pp. 88-99) revealed that across all grade levels there is a steady significant reduction of grammatically incomplete patterns. Transformationally-produced nominals increased significantly, and specific constructions,

such as adverbial infinitives, sentence adverbials, coordinations within T-units, and modifications of nouns by adjectives, participles, and prepositional phrases (resulting from the application of the deletion rules), increased markedly. Some items used in kindergarten more than in the other grades included the relative clause, noun modified by infinitive phrase, and main clause + linking verb + nominal complement pattern. Some items which were found sporatically in kindergarten occur three to ten times more often in the seventh grade, such as noun modification by participle or participial phrase, gerund phrase, and coordinate predication. O'Donnell's study showed that (1) there were some periods when syntactic progress was rapid, (2) the control of written syntax in grades five and seven far exceeded that of oral syntax, (3) no significant difference by sex existed in any grade, and (4) the T-unit was a better indicator of syntactic creativity than sentence length of clause length. The importance of O'Donnell's study is that it verified and catalogued the increased use of sentence-embeddings by older students.

Endicott (1973, p. 6) proposed a psycholinguistic definition of the T-unit: "the extent to which a child combines units of complexity in language involving suspension of thought and mental manipulation of syntactic structures before he breaks off and begins again." Endicott (1973, pp. 7-12) developed a model to define units of syntactic complexity in psycholoinguistic terms. His basic unit (1973, p. 7) is the "co-meme: a unit of complexity in language

consisting of four sub-categories: the base co-meme, the syntactic co-meme, the compression co-meme, and the morphemic co-meme." The base co-meme applies to morphemes at a language level which has a one-morpheme per word ratio. His syntactic co-meme (1973, p. 8) is "a theoretical syntactic operation by which sentences are combined or altered to achieve efficiency or variation of purpose beyond that achieved at a minimal level of language." Endicott's compression co-meme (1973, p. 9) is "the theoretical morphemic burden of deep structure which is compressed into surface structure through combination or deletion transformations." The morphemic co-meme consists of all morphemes other than base co-memes, or bound morphemes. Endicott argued that the co-meme reveals complexities which the T-unit does not, but conceded that the value established for each co-meme must still be ascertained by research.

In an attempt to relate syntax to thought, Hanf (1973, pp. 16-20) devised an instrument containing six distinctive features of verbal thinking: (1) completeness of discourse; (2) cognitive unit--any word or words containing a finite verb; (3) communicative function--the "syntax of meaning"; (4) cognitive function--literal and interpretive; (5) related groups of thought; and (6) the design of discourse--a graphic representation of the syntax of meaning. After testing these indices on forty primary grade children, Hanf (1973, pp. 27-29) decided that, except for the completeness of discourse index, the features presented great difficulties

of application and determination, and that the cognitive functions and related groupings were not needed.

The Relationship of Syntax to Reading

To maintain that reading skills are more important than listening, writing, or speaking skills is to adopt a profitless stance, if not a functionless one. Yet reading remains at the core of all educational programs. Therefore, the purpose of this section is to discuss the influence of syntactic structures upon reading comprehension.

First, is there a need for the theoretical models of language acquisition when considering reading? Aulls answered (1970, p. 3),

> The importance of theoretical models of grammar lies in the fact that they provide a frame of reference, within which hypotheses and the results of empirical tests can be linked together to formulate theoretical constructs directed toward new areas of reading research.

The lack of a frame of reference led Wardhaugh (1971, p. 171) to criticise McCarthy's (1954) summary of linguistic studies. McCarthy, according to Wardhaugh, ignored basic questions of why one linguistic skill is acquired before another or what significance there is to a child's linguistic ability at any level.

One example of research which follows a theoretical model in developing empirical tests is that of Fry, Johnson, and Muehl, reported by Weintraub (1972, pp. 262-263). The researchers examined fifty-seven subjects with I.Q. scores ranging from 90-100. These subjects were classified as below

average, average, and above average readers independent of their socioeconomic class. The oral language samples were gathered from responses to twenty picture stimuli. After eliminating mazes and partials, the phonological units were subdivided into communication units. The syntactic analysis of the communication units was based upon Strickland's procedures. The researchers found that only fourteen variables distinguished the below average from the above average readers. The above average readers tended to use a wider lexicon, more clauses in predicate position, and fewer movables expressing cause and condition. Classifying the data according to Chomsky's model, the researchers concluded that the above average readers produced more total transformations and more transformations per communication unit. The below average readers used more contractions, violated subject-verb agreement more, used more nominal compounds, and used more expletives than the above average readers.

Wardhaugh (1971, pp. 191-192), however, questioned the value of language acquisition theories to reading instruction and reading process models on the basis that language acquisition theories are irrelevant to the reading process. He maintained that one cannot relate reading failure to language acquisition deficiencies, for most beginning readers are still in the process of developing their language.

Researchers cannot avoid, nevertheless, noting the correlations between reading and syntactic use. Loban (1967, p. 243) pointed out that his high language ability group

scored higher on reading achievement tests than the low language ability group and that the students from the high socioeconomic levels scored higher on the reading tests. But Torrey (1969, p. 556) cautioned that neither high verbal ability nor "high cultural privilege" are needed to stimulate reading. To this, Wanat (1961, pp. 146-147) added that reading materials ought to be in the language of the child, especially if he be a non-standard dialect speaker. Wanat maintained that reading research has tended to ignore the capacities and strategies for processing information and the differences in thinking style among different cultural groups, all of which affect the ability to learn to read.

The major thrust of reading research in the area of syntax has been to determine how syntactic structures influence reading comprehension. Although researchers have approached this task from various directions, one general conclusion encompasses their findings--if the learner does not possess the decoding skill to process a specific syntactic structure, his comprehension is greatly inhibited.

Smith (1970, p. 2) attempted to determine

> . . . whether syntactically more complex structures increase reading difficulty, or whether all students, regardless of grade level, have the same syntactic skills and thus read with equal facility material written at different levels of syntactic maturity, providing the vocabulary and content are held constant.

Smith constructed his instrument from passages which Hunt (1970) had asked students in grades four, six, eight, ten,

and twelve, and adults to write on the subject of aluminum. Smith used the fourth, eighth, twelfth, and adult passages for his instrument. He held his sentence length constant by coordinating the T-units, which did not affect the reading difficulty. Every fifth word in the passages was deleted, and the passages were given to the subjects to read. Smith (1970, pp. 9-10) determined that subjects in grades four, five, and six found the fourth grade syntactic material easiest to read. For the older students in grades eight, nine, ten, eleven, and twelve, the fourth grade syntactic material was not the easiest to read. For them, the eighth grade level material was easier to read than the fourth, twelfth, or skilled adult level material. Smith noted that this Cloze technique measured redundancy. Since the fourth grade material was the most redundant, fourth graders may depend upon redundancy more than older students in interpreting written material. Generally, Smith concluded, the production level may be the best receptive level.

Ramanauskas (1972) examined Cloze readability measures in an attempt to determine the influences of linguistic variables through segments of a text longer than a sentence. She found that the Cloze technique is evidently sensitive to linguistic constraints which extend beyond the sentence. Thus, an individual's ability to comprehend a passage may depend upon previous semantic data, not merely the syntactic and semantic information of any one sentence. Frase and Washington (1970) determined that reading errors increased if

children had to manage relationships extending beyond one sentence and that ability to note such relationships increased with age.

Fagan (1971, pp. 170-172) studied fourth, fifth, and sixth grade pupils to determine whether their reading comprehension was affected by the number and/or types of transformations in the passages which they had to read. Fagan concluded that transformations do influence the difficulty in reading a passage. Embedding and deletion transformations make reading difficult for the students at those three grade levels. Among the most difficult transformations for the child to comprehend were the appositive, -ing nominalization, genitive pronoun, negative, and common elements deletion ("The room was cold and damp"). Fagan stated that sentence difficulty is the result more of the difficulty of the transformations present in the sentence than of the number of transformations per sentence. He felt that reading comprehension is clearly dependent upon the syntactic structures the reader encounters.

Fodor and Garrett (1967) found that sentences with the embedded relative clause marker <u>that</u> were easier to process than those without <u>that</u>. Later Fodor (1969, p. 194) explained that

> The complexity of a sentence increases with decrease in the explicitness with which its surface structure configurations represent its underlying deep structure.

For example, the only difference in surface structure between

"John felt the girl tremble" and "John felt the girl trembled" is one grapheme, or one morpheme. Yet the deep structures are different, and a weak reader might not be able to process the sentence correctly without appropriate redundancy cues. By increasing the redundancy of the second sentence to "John felt that the girl trembled," the reader is given an easier comprehension task. More easy still would be to employ the pronominal transformations "John felt her tremble" and "John felt she trembled." It may be that it is not the surface complexity of a sentence which determines its difficulty, but, rather, the distance of the surface structure representation from its underlying deep structure. Fodor (1969, pp. 197-200) found that deletion transformations increase reading difficulty. This finding corresponds to Fagan's (1971) findings that the appositive, -ing nominalization, genitive pronoun, and common elements deletions increased comprehension difficulties. Fodor also found syntactic difficulties in reading which result from employing verbs which take many complements. For example, the verb <u>believe</u> can take many more types of complements than can the verb <u>hit</u>. Therefore the element of syntactic predictability is decreased when such verbs as <u>believe</u> are encountered in a student's reading. Fodor theorized that the learner may develop a "sentence producer/recognizer" device which enables him to manipulate the structure of his language in both production and reception. The less syntactic knowledge a learner possesses, the less able he is to comprehend variable structures.

Rystrom (1972, pp. 150-151), who is particularly concerned with Black English dialects, argued that elementary teachers should avoid using structures which their students are not familiar with. Among the specific problems which Rystrom noted that Black English speakers have are: some function words (our, neither, hardly), intensifiers, subordinating conjunctions, and whose used as a prenominal ("Whose hat is this?"). Rystrom detected a particular problem of Black English-speaking students with subordinating clauses, especially if the clauses occur initially in the sentence. He found that they had difficulty processing a sentence with syntactic elements which refer to a previous sentence. Like Fodor and Fagan, Rystrom also noted that deletions cause problems. He particularly noted embeddings into the noun phrase position ("Running and swimming are fun") and reversal of normal word order after the embedding ("It was easy to pick up the pencils") as sources of reading comprehension difficulty. Edwards (1969) reported similar results. Her high school subjects comprehended sentences more easily when the relative clause followed the main clause, when the main clause was active rather than passive, and when the agent of the relative clause was mentioned first.

In a more narrow approach, Stoodt (1970, pp. 120-122) discovered a "significant relationship between reading comprehension and understanding conjunctions." Stoodt isolated nine significantly difficult conjunctions (when, so, but, or, where, while, how, that, and if) and four significantly easy

conjunctions (and, how, for, and as) for her fourth grade subjects to work with. Stoodt reported a high positive correlation between socioeconomic level and I.Q. with the comprehension of conjunctions. The fourth graders had particular difficulty handling passages containing numerous conjunctions. Stoodt concluded that the disadvantaged students in the study had difficulty comprehending relationships signalled by the conjunctions. Stoodt did not discuss the particular types of transformations that occurred with the particular conjunctions. Perhaps the transformations which accompany the conjunctions are the true sources of the comprehension difficulties and not the conjunctions themselves.

Some evidence exists that, although a child may be able to produce a particular syntactic structure, he may not comprehend it exactly as an adult does. Hatch (1969) warned that the child between five and seven years old may know his language, but not an adult's language. Wardhaugh (1971) noted that evidence shows that six year old children have not mastered the phonological discriminations that adults can make. He stated that, in this one area, language acquisition may depend upon the ability to read. Menyuk's (1963) study showed that in simple-active-declarative sentences, all children could produce and comprehend linguistically correct utterances. Particular transformations then caused difficulties in comprehension. If a child does possess a rule-processing mechanism, then the early stages of such a mechanism would be characterized by hypothesis testing with the ensuing

rejection of non-grammatical and acceptance of grammatical syntactic structures. In such a case, it is entirely possible that the child might produce syntactic structures which he has yet to fully comprehend.

In employing yet another technique which relates syntax to reading, investigators are studying "eye-voice span" (EVS). Subjects are shown syntactically sound utterances on a device such as a tachistoscope. At given points, the machine is turned off as the reader begins reading a segment. He is then asked to state as much of the segment as possible. Levin and Kaplan (1969, pp. 13-16), employing this technique, found that older students had a longer EVS than younger ones, that there was a tendency for the EVS to be longest on three-word phrase sentences, and that faster readers had longer EVS's than the slower ones. The researchers found that their subjects read in phrase units. "I.e., they utilize the within phrase constraints to pickup (sic) semantic-syntactic units larger than the word." The older, better readers tended to use inter-word constraints within phrases to aid comprehension. The slower readers tended to treat each word as an entity. Levin and Kaplan explained that sentences provide constraints between and within phrases. These constraints are clues to the reader which aid language processing. The better readers are more aware of the redundancies and structure of language. By being aware of constraints, the reader can anticipate, predict, and formulate hypotheses about what is to be expected in the remainder of the sentence. If his prediction is wrong,

he can go back and re-read. Every reader needs strategies for processing written data. As he reads, he will make tentative interpretations of the material to come. As his language competence grows, his interpretations will become increasingly more correct and his reading comprehension will improve.

Brown (1971) questioned whether there is such a phenomenon as "speed reading." He maintained that there is no way to prove that reading has actually taken place at high speeds, for our understanding may only proceed at the speed of our thinking. It may be, though, that a "speed reader" is capable of making extremely rapid predictions about the content of a particular passage. In such a case, though his reading may be "telegraphic," it is reading with comprehension.

While the reader may read the surface structure of a sentence, he comprehends it at the level of its deep structure. Goodman (1972) noted that the actual written word makes accurately determining the deep structure of the writer difficult for the reader. As a result, miscues often occur. Goodman specified (1972, pp. 148-150) several situations leading to miscues. Misperception occurs when the reader thinks he sees something other than what is actually on the page. Inability to process results from material which is physically difficult to read. Inference of different deep structures may result from ambiguities or missing pertinent cues. Lack of, or variation in meaning input may result when the reader has a limited experiential or conceptual background. Other miscues may occur in oral reading when the reader subconsciously shifts

from the grammatical structure of the writer to the rules of his own grammar or when his own phonology is superimposed upon the written symbols. Of all these miscues, the inference of different deep structures most clearly relates the influence of syntax upon reading in Goodman's miscue analysis.

In general, reading comprehension is dependent upon the syntax of the written word and the syntactic comprehension skills of the reader. Research has indicated numerous transformations which are difficult for poorer readers to comprehend. Transformations appear to give difficulty not simply when they are numerous, but rather when they cause the surface structure of a written segment to be far removed from its deep structure. The more syntactic structures a reader has as part of his skill repertoire and the more flexible he is in his syntactic usage, the more easy it will be for him to comprehend a written passage.

Syntax Studies of Differing Cultural and Social Groups

Most studies in this area have been concerned with "non-standard" usage: morphological variations such as inflectional endings and agreement differences. The conclusions reached by researchers have varied from the "verbal deprivation" theorists (e.g., Deutsch, Katz, and Jensen, 1968) to the theorists who argue that there is a system to "non-standard" English and therefore there is nothing "deprived" about the "non-standard" English (e.g., Labov, 1969). Fries (1940, p. 13) described acceptable "standard" English as

follows:

> . . . a set of language habits in which the major matters of the political, social, economic, educational, religious life of this country are carried on. To these language habits is attached a certain prestige, for the use of them suggests constant relations with those responsible for the important affairs of our communities. . . . this set of language habits . . . is the "standard" not because it is any more correct or more beautiful or more capable than other varieties of English; it is "standard" solely because it is the particular type of English used in the conduct of the important affairs of our people.

Since 1940, the United States has become increasingly aware that English is not the only language in which "major matters of . . . life" are conducted. For example, the U.S. Bureau of the Census (1971, pp. 136-169) reported that, in 1969, 100,212 firms were owned by Spanish-speaking citizens, of which 66,930 were sole proprietorships and 937 were corporations. In New York alone, 5,468 businesses were owned by Spanish-speaking individuals and 1,108 in Albuquerque. In another tabulation, Calvert (1972, pp. 103-117) reported thirty-two regularly printed Spanish language newspapers in the United States and ninety radio stations broadcasting in Spanish at least ten hours per week. Furthermore, the State of New Mexico has guaranteed in Article VII, Section 3, of its Constitution that speaking only Spanish shall not prohibit a resident of New Mexico from voting. Nevertheless, a United States resident must be able to employ "standard" English when the occasion demands.

> All children need to acquire standard usage--not because it is correct, but because society will exact penalties on those who do not. The schools are not interested in perpetuating false or snobbish

> dogmas about language. Teachers realize that human worth cannot be measured by the speech a man uses. However, in the world to which their pupils go, language is a mark of social and educational status. Because of language, many people are denied access to economic opportunities or entrance to social groups (Loban, 1964, p. 206).

And Shuy (1972, p. 154) has warned, "Speech reveals a great deal about a person, but practically nothing about his intelligence or use of logic."

Class distinctions, rather than cultural distinctions, have characterized much of the research concerning "standard" and "non-standard" usage. John (1963, p. 821) stated that

> The middle-class child has an advantage over the lower-class child in tasks requiring precise and somewhat abstract language. The acquisition of more abstract and integrative language seems to be hampered by the living conditions in the homes of lower-class children.

In another article, John and Goldstein (1967, pp. 163-175) explained the limited ability of children to acquire "abstract and integrative" language in terms of limited active dialogue between adults and children. Deutsch, Levenson, Brown, and Peisach (1967) reported that the higher the social class of a student, the greater his oral verbal output regardless of his I.Q.; and that lower-class first graders tend to employ shorter sentences than first graders of a higher class.

The influence of Bernstein's (1962) findings upon social class-related language theories is extensive. After studying various social classes in England, Bernstein postulated two language codes: Restricted and Elaborated.

Erwin-Tripp (1966, p. 93) summarized them:

> Restricted codes tend to be syntactically redundant, elliptical, narrative, concrete, with richer use of expressive vocal features. Elaborated codes tend to use more complex and varied forms of subordination, to be less redundant, and to have richer optional qualifications. The first type emphasizes social relations ("isn't it?"), the second information and opinion exchange ("I think"). The Bernstein group has found these class differences among children as young as five, with fewer and shorter dependent clauses, and fewer optional adverbial and nominal qualifiers and fewer negatives in working-class speech. Between ages twelve and fifteen English social-class differences in speech increase considerably in number and amount . . . .

Thus, Loban (1964, p. 241) wrote,

> If children reared in families at the least favored socio-economic positions receive a restricted language experience, if their early linguistic environment stresses only limited features of language potential, such children may indeed be at a disadvantage in school and in the world beyond school.

Researchers have derived a "verbal deprivation" theory which asserts that lower socioeconomic class children do not have the opportunities for broad linguistic development in the limited verbal environment of their homes.

Riling's research (1965) with black and white fourth and sixth grade students indicated that the black students generally used fewer syntactic patterns, fewer mazes, and fewer structurally incomplete sentences. Whether these differences are the result of socioeconomic class differences or of racial or cultural differences is not clear, but conclusions of researchers such as Bernstein and Loban point to the socioeconomic factor as primary.

Deutsch, Maliver, Brown, and Cherry (1964) studied the

language of three socioeconomic groups of children in grades one and five. They concluded that there was no difference in quantity of expression, but there was a difference in quality of expression. Furthermore, the qualitative gap in language usage between the socioeconomic groups increased from first to fifth grade. Deutsch referred to this as the "cumulative deficit phenomenon." This phenomenon has been reported by other researchers (e.g., Labov, 1963). The conclusions of some of the researchers are much like those of Maher and Mosby (1971, p. 168):

> Therefore, teachers must realize that their role is no longer that of imparting facts; it is rather the more important task of developing habits of critical thinking and problem-solving techniques.

Researchers have had to ask whether critical thinking and problem-solving techniques might not be culture-bound. One study which related cultural factors to language behavior was carried out by Hertzig, Birch, Thomas, and Olga (1968). They contrasted the behavioral style in response to cognitive demands of Puerto Rican lower socioeconomic class children with those of native-born middle class children. The study was longitudinal, the children were matched intellectually, and background factors such as family disorganization were minimized. They found that the native-born middle class children engaged in task-oriented behavior more readily, responded more by verbalization than action to cognitive demands, gave more spontaneous verbalizations, and, when failing to complete a task, gave ability-related

rationalizations ("I'm too little") rather than substitution rationalizations ("I want my mommy") as the Puerto Rican children did. The study revealed that child-rearing practices and life styles differ in ways that may foster the development of dissimilar behavioral patterns and thus influence verbal responses.

Weener (1965, pp. 1-9) examined the verbal behavior of pre-school children of lower and middle class backgrounds, and found that the middle class subjects used longer, more complex sentences, fewer nouns, and greater type-token ratios (a type-token ratio is the ratio of total words--type--to total different words--token). He concluded that the middle class speech was more elaborated.

Lawton (1968, pp. 105-130) studied the speech and writing of middle and working class boys in England. He collected his data by three methods: essay, group discussion, and interview schedule. In the essay data, Lawton found that middle class boys wrote more words, but showed no difference in the ratio of subordinate clauses to finite verbs. Using Loban's Weighted Index of Subordination, Lawton found a higher score among the middle class writers. The middle class writers used more passive verbs, fewer personal pronouns, and a wider range of adjectives, adverbs, and vocabulary in general. When length was eliminated as a variable, the middle class used more subordination. In the group discussions, the middle class used more complex verbs,

more passive verbs, fewer personal pronouns, more adjectives and adverbs, and more abstract and categorizing vocabulary. As a result of the interview schedule, Lawton learned that the middle class employed more "mazing" and was able to switch codes more readily, although, in context, the working class subjects were capable of employing elaborated forms. Lawton concluded that the results of linguistic investigations will vary according to the particular methodology employed by the researcher.

Loban (1967, pp. 172-228), in his longitudinal study of the language development of children from kindergarten through grade twelve, distinguished four sub-groups: Caucasian Low Language Proficiency, Negro Low Language Proficiency, Caucasian High Language Proficiency, and random. His findings showed that the Negro Low Language Proficiency Group and the Caucasian Low Language Proficiency Group were closely related to each other in syntactic use, and both differed consistently from the Caucasian High Language Proficiency Group by approximately the same amount. The High group used more total words in their communication units and more average words per communication unit. Noteworthy is the fact that those students who were rated in the High Language Proficiency Group were predominately of high socioeconomic rank, and those rated in the Low Language Proficiency Group were from low socioeconomic class homes, <u>regardless of ethnic background</u>. The Negro Low Language Proficiency Group data were characterized by omission of auxiliary verbs--particularly

the verb be, "non-standard" use of verb forms, inconsistent use of tense, "non-standard" use of pronouns, omission of obligatory words, "non-standard" modification using a and an, "non-standard" adverbial modification, "non-standard" use of noun forms, and double negatives. (Note, however, that linguists, such as Fasold and Wolfram (1970) have determined that what is often considered syntactic variation in Black English is actually phonologically-based.) In general, both Low Language Proficiency Groups showed an increase in the number of deviations following grade five. Loban explained that this is due, not to increasing ineptitude, but to increasing volume and complexity of language which becomes more difficult for the Low Language Proficiency Group to handle.

While Loban (1967, pp. 229-230) found that the Negro Low Language Proficiency Group had to expend more effort to acquire the "prestige dialect," he found that the Caucasian groups manifested the greatest number of deviations relative to clarity of expression: inconsistent use of tense, careless omission of words, lack of syntactic clarity (ambiguity, awkwardness, and incoherence), confusing use of pronouns, and lack of subject-verb agreement when employing there expletives. In general, the members of the Caucasian High Language Proficiency Group (the high socioeconomic status group) were able to maintain fewer deviations from "standard" English while increasing their volume and complexity of language.

Strickland (1962) determined that the high socioeconomic

status children used more movables (adverbials) than those of low socioeconomic status. In addition, her high socioeconomic children had a wider range of patterns available to them, particularly noticeable in subordination patterns.

That low socioeconomic class children possess limited syntactic skills and vocabulary range has been challenged. Labov (1969) argued that the "verbal deprivation" theory has developed out of the research of well-intentioned investigators because the investigators have placed their lower socioeconomic class subjects in non-natural situations for purposes of the research thus making the subjects uncomfortable and limiting their linguistic productions. The fault, Labov maintained, lies not in the subjects, but in the methodology. He found, for instance, that when subjects were comfortable in their surroundings and with the investigator, the speech of "non-standard" English speakers was quite flexible and revealed highly structured systems, not deprived language abilities.

Pope (1969) sought to determine whether black and white fourth grade students from Tallahassee, Florida, were members of the same population in their use of syntax. He employed analytic techniques based upon those of Hunt and O'Donnell in studying the oral production of thirty black and thirty white subjects. In addition, he analyzed his subjects' syntactic rule variations from "regional standard," basing his methodology on Menyuk's (1963) technique. Pope (1969, pp. 45-46) concluded that no significant difference

existed between the two groups in average clause length, average ratio of clauses per T-unit, average T-unit length, and four categories of "sentence-embedding" transformations: headed nominals, non-headed nominals, adverbials, and coordinated structures. No significant difference was revealed by the total syntactic rule variations, but there was a significant difference in the total of the variations in phrase structure rules. Pope (1969, p. 61) determined that only the speech of the black subjects contained major categorial rule variations and extraneous auxiliary structures. Variations unique to the white subjects consisted of the omitted object of the preposition and the extraneous possessive. His investigation also revealed significant morphological rule variation differences between the two groups (Pope, 1969, p. 66). When Pope's two groups were compared on the basis of syntactic rule variations per T-unit, the black subjects' speech contained no syntactic rule variations in 79.6 percent of the total number of T-units, and the white subjects' speech contained no syntactic rule variations in 85.5 percent of the total number of T-units (Pope, 1969, p. 77). Pope's study showed that the T-unit is a valid measure for analysis of the syntax of different racial and dialectical groups.

The study of the syntax of bilingual Mexican American Spanish-speakers has received limited treatment, perhaps because creators of curricula assume that the Spanish-speaking child learns all of his English in school and therefore learns "correct" English or perhaps because phonological variations

from "standard" English are more noticeable than syntactic variations. Two major areas of interest emerge from the literature. One is the question of whether there is a "Chicano English" syntax. The other is whether bilingualism in Spanish and English is a detriment or an advantage.

Metcalf (1972, pp. 13-15) insisted that linguists must investigate the English of Mexican Americans because baseless assumptions serve little purpose:

> Perhaps linguists . . . have neglected Mexican-American English because they see it as simply another case of native-language (Spanish) interference with second-language (English) learning--which it is not. . . . and the notion that some Mexican-Americans speak a hybrid (or lowbrid) Spanish-English mixture . . . is, I suspect, absolutely false. . . . Mexican-American English . . . is a fully developed variety of English, and serves as the only means of communication in the many Mexican-American communities where Spanish is no longer spoken.

Metcalf (1972, p. 17) suggested that Mexican American English syntax does not differ from other local dialects of English, although there are "many nonstandard markers such as the double negative." He argued against the idea of Spanish interference ("I can to speak," "He has thirst," "He is teacher," "I want that he eat") except in the case of Spanish monolinguals learning English as a second language.

Yet teacher-training programs for Spanish-English bilingual education often assume that there is interference from Spanish and "infer" such interference by comparing Spanish syntax with English syntax (e.g., Politzer and Bartley, 1969). Contrastive analysis techniques are employed in anticipating problems which Spanish-speaking bilinguals

will encounter in school (Ulibarri, 1969, p. 9). Contrastive analysis techniques, however, which are based upon logical inferences and not upon established research can result in wasted effort and perhaps curricula which are detrimental to the student. Thus, a syntactic study is required to establish what "Chicano English" is.

Proponents of bilingual education have noted many of the misconceptions which people have about speakers of languages other than theirs. Interpretations of the linguistic abilities of bilinguals are often based upon pre-judgments of the social or ethnic group to which the bilingual belongs. Lambert (1960, pp. 44-51) noted that generalizations about the social or ethnic group are in turn applied to the language the group speaks. And McDavid (1967, p. 8) cautioned that we should not

> . . . be so naive as to expect the speakers of any community to cease regarding the speech of outsiders as ipso facto inferior because it is different--even though these outsiders may be superior in education and social standing.

Standardized test results often give the impression that bilingual Mexican Americans are retarded. Ortego (1969, p. 9) noted that, while 5 percent of all American students fall below 75 on I.Q. tests, 13 percent of the Mexican American students fall below 75. While the total percentage for the United States reveals that 25 percent of the students fall between 75 and 90 I.Q., only 50 percent of the Mexican American students fall within that range. I.Q. test results are being challenged on the basis of their being in English and,

therefore, culturally biased. Certain non-verbal intelligence tests can replace verbal tests for Mexican Americans, such as the Goodenough-Harris Intelligence Test and the Leiter International Scale (Palomares, 1970, p. 159). Yet, non-verbal intelligence tests do not solve the problem of the linguistic barriers which are placed before the bilingual Mexican American child. The Spanish-speaking child is not, it is important to realize, linguistically impoverished. He is handicapped when the educational setting is designed solely to foster the dominant national language, English (Ortego, 1970, p. 81).

Gerry's report (1971, pp. 12-14) noted a performance gap between Mexican American and Anglo American students of 17 percentile points in vocabulary and 9 percentiles in language skills at the third grade level. At the sixth grade level, the gap increases to 28 percentiles in vocabulary and 10 percentiles in language skills. Since a diachronic study of the students revealed that their performance had declined, the report concluded that the initial language skills of the Mexican American students were not being utilized.

Research conclusions regarding the advantages of bilingualism are mixed. McCarthy (1954, pp. 591-593) summarized several early bilingual studies. In 1930, McCarthy found bilinguals more advanced in mean length of responses on the basis of age, sex, and occupation. Yet, in 1937, Seidl reported that bilingual Italian children tested an

average of five or six points below average in verbal intelligence and ten to twelve points higher in performance tests. In 1939, Smith concluded that bilingual Hawaiians used shorter sentences and fewer compound and complex sentences than monolinguals did.

More current research tends to contradict the negative findings of the older research noted above. Leopold (1971, p. 141) maintained that bilingualism may promote more flexible language usage. He reported that the bilingual child makes vocabulary substitutions more freely in memorized rhymes and songs then the monolingual child and does not insist upon stereotyped wording in stories.

M. Carrow (1957, pp. 370-380) matched bilingual and monolingual students according to age, socioeconomic status, and I.Q. (based on the Otis Quick-Scoring Mental Ability Test, Alpha, Non-Verbal, Form A). She found that the bilingual subjects were lower in total language achievement test scores than the monolingual subjects except for those with an I.Q. score above 121. The high I.Q. bilinguals showed higher language achievement in all areas than the monolinguals did except for hearing vocabulary. For those students below 121 I.Q., Carrow found a significant difference in oral reading accuracy, oral reading comprehension, hearing vocabulary, speaking vocabulary, and arithmetic reasoning. She found no significant difference in silent reading comprehension, silent reading vocabulary, oral reading rate, spelling, verbal output, length of clause, and degree of subordination.

Linn (1965) matched bilingual Spanish and English speakers with monolingual English speakers whose parents spoke Spanish, matched by chronological age, grade, sex, and socioeconomic status. Linn (1965, pp. 109-111) found no significant difference in silent reading vocabulary, total silent reading, spelling, and phonemic discrimination; but there was a significant difference in silent reading comprehension, mechanics of English, oral reading accuracy, oral reading comprehension, and general language development (total reading scores plus spelling scores plus mechanics of English scores). Linn (1965, p. 115) concluded that

> The language handicap of Mexican children who learn two languages before starting school does not diminish as the child matures and progresses in school.

Linn's bilingual students did not have bilingual education.

Peña (1967, pp. 41-49) examined the syntactic structures in the oral language of educationally disadvantaged first grade Spanish-speaking children in both Spanish and English by analyzing six basic types of sentence patterns and five fundamental transformations. Each subject was given an object and asked to tell all that he knew about it; then each was given a picture and asked to make up a story about it. Peña (1967, p. 111) concluded that a more complicated linguistic analysis was needed to reveal the oral language status of Spanish-speaking subjects.

Spector (1972, pp. 10-16) studied bilingual Spanish and English speakers in the first and second grades. The

subjects were given the Grammatical Closure Subtest of the Illinois Test of Psycholinguistic Abilities and the Michigan Oral Language Productive Test. Spector found that the language age of the monolinguals varied more than the language age of the bilinguals. The only significant difference occurred in the category of comparisons, where the bilinguals made more errors. Spector reported that both groups had difficulty with the double negative, past participle, past tense, irregular plurals, reflexive pronouns, and prepositional phrases. Since the monolinguals exhibited use of bilingual "non-standard" forms, Spector felt that the reason might be due to lower socioeconomic class factors, not ethnic group or bilingualism. In this respect, Politzer and Bartley (1969, p. 2) have cautioned that the Mexican American child often acquires his English from monolingual speakers of "non-standard" English dialects. Therefore it might be fallacious to attribute bilingual "non-standard" English forms to interference from Spanish.

Peal and Lambert (1962) indicated that when bilingual training was balanced in both languages, bilingual ten-year-olds in Montreal achieved superior scores on both verbal and non-verbal intelligence tests as compared to monolinguals. Peal and Lambert attributed this finding to greater mental flexibility and content formation among the bilinguals.

E. Carrow (1971, pp. 300-303) administered her Auditory Test for Language Comprehension to ninty-nine children, with Mexican American surnames, ranging in age from three years

ten months to six years nine months and correlated the findings with degree of language dominance. She found specific problem areas in the use of pronouns, negatives, adjectives, prepositions, plurals, and tense markers, with the exception of the present progressive. Worth noting is her conclusion that Mexican American children represent a linguistically heterogeneous group, thus precluding stereotyping. Stolz and Bills (1968, p. 6), in their study of Central Texas monolingual English speakers, also cautioned that "non-standard" speakers are not a homogeneous group, but represent a range from "standard" to the most "non-standard."

Many proponents of bilingualism feel that bilingualism may result in a more well-rounded human being. Valencia (1972, p. 19), for example, argued that a multi-cultural climate enhances affective learning, and such a multi-cultural climate is nurtured by bilingual education.

In general, one can conclude that bilingualism itself may be neither an advantage nor a disadvantage to the normal child's development, but that it "implies the presence in the same nervous system of two parallel but distinct patterns of verbal behavior" (Brooks, 1964, p. 42). To argue the linguistic superiority or inferiority of bilinguals is perhaps to miss basic conclusions of developmental language studies:

> If a child uses one language at home and another in school, he is likely to have the separate development of functions and vocabulary and syntax we have described as common to the setting contrast of home and school. This gulf is less likely if the home has "information exchanging habits" and a scholastic bent or if the school teaches the child

to read in his home language, using the standardized literary form of the home language and making him familiar with its written traditions. Eventually, in such situations, the child may have discernible intellectual advantages from his mastery of two languages and his greater conceptual flexibility (Erwin-Tripp, 1966, p. 90).

Chapter 3

METHODS AND PROCEDURES

This chapter is divided into four main sections: (1) setting, target population, and method of sampling; (2) design and limitations; (3) materials and data collection methods; and (4) analysis of the data.

Setting, Target Populations, and Method of Sampling Setting

Las Vegas, New Mexico, is located in San Miguel County, approximately sixty-five miles east of Santa Fe. Its history reveals both Spanish and English being employed in at least commercial activities virtually since the town's beginnings. On February 18, 1820, a petition for land was granted to Luís María Cabeza de Baca and eight others. C. de Baca was the only petitioner to actually occupy the land, and the land grant was confirmed in May, 1821, by the Provincial Deputation of Durango, of which New Mexico was a part. By 1822, the Santa Fe Trail had become established, and traders, both New Mexican and American, were moving in both directions along the trail. In fact, most of the trade was with the United States and not Mexico, for distances and geography made the north-south trade less lucrative than the east-west trade. As a result of the Santa Fe Trail traffic, a small community grew along the banks of the Gallinas River. C. de Baca had been driven off his land by Indians and was later killed.

A group of the settlers petitioned for a new grant, and this was given in 1835, the town being named "Nuestra Señora de los Dolores de las Vegas." At this time, there were apparently no United States citizens living in Las Vegas.

Texas had claimed all of New Mexico west to the Rio Grande as part of its territory, and, in 1841, an expeditionary force of Texans attempted to reach and apparently occupy Santa Fe. Governor Manuel Armijo and his army, with the support of the people of New Mexico, captured the entire force. This event gave firebrands in the United States one more reason to press for war with Mexico.

On August 14, 1846, the United States army force under Colonel Stephen W. Kearney, after invading New Mexico, occupied Las Vegas. At the plaza, Kearney proclaimed the land part of and subject to the laws of the United States, compelled all public officials to swear allegiance to the United States, and then rode west with his army. From this time on, the governors of the territory and later the state were English-speaking, although local political leaders in most of northern New Mexico were primarily Spanish-speaking.

In 1870, the first newspaper began publication in Las Vegas, the New Mexico Advertiser. Many of the early newspapers were printed in both Spanish and English. The businesses were increasingly becoming Anglo American owned. The Santa Fe Railroad reached Las Vegas in 1879, and began to bring in many new settlers from the East, thereby

establishing English as the language of the economically dominant class.

For most of the latter half of the Nineteenth Century, Las Vegas was the largest town in New Mexico, but the community segregated into two sections. The Town of Las Vegas grew on the west side of the Gallinas River and was populated primarily by Mexican Americans, as it is today. The City of Las Vegas, on the east bank of the Gallinas, was originally settled by Anglo Americans coming from the East, but today is a mixture of Mexican Americans and Anglo Americans. For many years each community had separate governments and facilities. Only recently have the two joined their governments, but each still maintains its own school district.

Education in Las Vegas historically has been oriented toward the desires of the economically dominant Anglo American. The Mexican government, for the brief time that Las Vegas was part of Mexico, did not address itself to education in New Mexico. The first Anglo Americans in the area usually sent their sons and daughters to schools out of the territory, and the upper class Mexican Americans often sent their children to Europe or Mexico for their education. For the lower class Mexican American, educational opportunities were limited, if not non-existent.

Stanley (1951, pp. 241-252) reported many different schools opening and closing in Nineteenth Century Las Vegas. The first private school opened in 1879 in the City of Las

Vegas. In the same year, a Jesuit College began operations in the Town of Las Vegas. In 1880, the Academy of the Immaculate Conception was founded to provide "all the advantages of a thorough English education" (Stanley, 1951, p. 246). By 1889, Las Vegas possessed numerous private schools, a Catholic college, a Catholic academy, and several schools of various denominations. Lists of graduates from these schools reveal that they were almost uniformly non-Spanish-surnamed. In 1884, the City of Las Vegas charged tuition for a public school and paid bilingual teachers $45 per month and monolingual Spanish teachers $30 per month. In 1889, the citizens of the City of Las Vegas voted to finance their own public schools.

In 1970, the Las Vegas City School District began bilingual education for most of its students in the first grade. It has continued to move bilingual education up one grade each succeeding year. In recent years, prior to 1970, education was conducted entirely in English, although there is evidence (e.g., Mrs. Fabiola C. de Baca Gilbert in Myers, 1969) that early in this century teachers taught in both Spanish and English because doing so made practical sense.

There remain many individuals in Las Vegas who are opposed to bilingual education, although in a survey of parents of children enrolled in the Title VII Bilingual Program in the 1972-1973 school year, the responses were overwhelmingly in favor of the program. One hundred eighty

five respondents felt that their children had benefitted more in their learning experiences as a result of bilingual education. Only ten responded that their children had not benefitted. The most common overt reasons given for opposing bilingual education seem to be (1) that this is the United States, and in the United States one speaks English; and (2) that it is much more difficult to learn two languages than to learn one. Of the Anglo American population which is highly in favor of bilingual education, most are relatively recent arrivals in the community. The greatest opposition to bilingual education from the Anglo American population appears to exist mainly among those families whose residence in Las Vegas extends beyond one generation.

In a survey conducted among the high school teachers in the Las Vegas City School District, 100 percent of the Mexican American educators replied (1) that their bilingual students would do better academic work if they had had bilingual education in elementary school, (2) that the bilingual student should have bilingual education in high school, and (3) that all students should have bilingual education throughout their public school education. Among the Anglo American teachers, 67 percent felt that bilingual education in elementary school would have improved the academic work of their students, 25 percent felt that bilingual education should be continued for bilingual students in high school, and 25 percent favored bilingual education for all students throughout their public school education. In

discussion, individual conceptions of what constitutes bilingual education vary widely among those who favor and those who oppose bilingual education.

Las Vegas is an economically depressed area, with a large percentage of the population on welfare and many empty buildings which formerly housed businesses. In the past twenty years, conservative bankers in the community have been unwilling to invest in small businesses, and the community has been unable to attract large businesses.

In recent years, Las Vegas has been the scene of strife primarily between militant Chicano groups and the more conservative elements in the community, both Mexican American and Anglo American. In 1970, the Anglo American president-designate of Highlands University was threatened and never did take office. In 1971, militant Chicanos led a number of students in a protest against the Las Vegas City School District policies. In 1973, the new Superintendent of Schools, an Anglo American from Arizona, was forced out of the community after one month in his position by threats of violence. Both Highlands University and the Catholic Church have been central targets for militant protests. Although the militant element is clearly in the minority among the Mexican American population, there is little question that the reasons for the disquietude are often quite valid. Although the politicians of the community, ostensibly the leaders, are primarily Mexican Americans, the economic interests of the community have been controlled mostly by

conservative Anglo Americans.

Intermarriage between Mexican Americans and Anglo Americans has been common, but is not the rule. There remains in the community a large number of lower socioeconomic class Spanish-speaking individuals. Whether bilingual education will benefit the community in the long run or not, education to date has not been effective for all students. The New Mexico State Department of Education (1973, pp. 108-109) reported the median family income for the area to be about $4,500 per year. The median number of school years completed was 9.1, the lowest in New Mexico. The percentage of unemployment was 8.8.

The languages employed in any geographic community are influenced by both synchronic and diachronic factors. The Mexican American bilingual population of Las Vegas is not and has not been linguistically isolated. The historic influence of English is established and continues today. Television, teachers, and increased means of mobility have maintained an influx of English from outside the community.

Population and Method of Sampling

The subjects were Mexican American bilingual and Anglo American monolingual fourth and ninth grade students enrolled in the Las Vegas City School District, Las Vegas, New Mexico. The number of subjects included twenty-one Mexican American bilingual fourth grade students, sixteen Anglo American monolingual fourth grade students, nineteen Mexican American

bilingual ninth grade students, and nineteen Anglo American monolingual ninth grade students. The ninth grade students all attended Robertson High School. The fourth grade students attended the five elementary schools in East Las Vegas. Table 2 specifies the characteristics of the subjects.

Initially, twenty-one subjects in each group were randomly selected from the total population of each group. The attrition rate does not affect the results of the study in terms of generalizations about the total population. Three fourth grade monolingual students moved from the school district before written samples could be acquired from them. Two fourth grade monolingual subjects were dropped from the study because their teacher did not provide any occasion for them to produce any free writing. One ninth grade monolingual student refused to produce any writing at all in class. Two ninth grade bilingual students and one ninth grade monolingual student were transferred from their English classes to a reading class before the study could be completed.

The initial step in selecting the subjects was to identify the bilingual and monolingual students in both the fourth and ninth grades. A bilingual was defined as one who feels comfortable speaking both Spanish and English, although he might not be equally fluent in both, and who considers himself a bilingual. The bilinguals were selected on the basis of bilingual teacher/administrator evaluations and self-reports. Fishman (1969) considered self-reports of bilingual proficiency acceptable and believed that

TABLE 2

CHARACTERISTICS OF MEXICAN AMERICAN BILINGUAL (MAB) AND ANGLO AMERICAN MONOLINGUAL (AAM) GROUPS

Fourth Grade Group	Number			Average Age (years-months)	Age Range (years-months)	Stanford Achievement Test, II, Form W (4/73)			
	Total	Boys	Girls			Paragraph Mean	Paragraph Range	Total Battery Mean	Total Battery Range
MAB	21	11	10	8-8	8-2--9-10	3.59	2.3-5.7	3.99	2.6-6.1
AAM	16	9	7	8-9	8-1--10-3	4.78	2.9-7.5	5.15	3.4-6.9

Ninth Grade Group	Number			Average Age (years-months)	Age Range (years-months)	Comprehensive Tests of Basic Skills (10/72)			
	Total	Boys	Girls			Total Reading Mean	Total Reading Range	Total Language Mean	Total Language Range
MAB	19	9	10	14-9	13-10--16-2	6.05	2.07-7.5	6.52	3.8-8.7
AAM	19	9	10	14-3	13-8--15-10	9.07	7.0-12.2	9.09	5.9-12.9

> The validity of their responses probably depends as much on their desire to accurately describe their self-image as bilinguals as upon their self-monitoring insight (1969, pp. 255-256).

Hollomon's study (1973) attempted to determine degree of bilingualism by employing seventeen bilingual ratings, including self-report. The determination of bilingualism was not consistent for each rating.

All ninth grade students were given a "language interest survey" at the beginning of the school year which combined questions about their language usage with a reading interest inventory. The students were asked to state which language, Spanish or English, was their first language, if they knew; which language they employed in varying social contexts; and which language they felt more comfortable using (see Appendix B). Of 209 ninth grade students surveyed, fifty-one (24 percent) were monolingual English speakers, seventy-three (35 percent) were bilinguals with Spanish as their first language, and eighty-five (41 percent) indicated some degree of bilingualism, although Spanish was not their first language. The following categories of students were then dropped from the population to be sampled: (1) all Spanish-surnamed monolinguals, (2) all non-Spanish-surnamed bilinguals, (3) all bilinguals whose first language was English, (4) all students who indicated uncertainty in identifying their language usage, and (5) all students who had attended school outside of Las Vegas. Only thirteen ninth grade Anglo American monolinguals had always attended

school in Las Vegas, and therefore Anglo American monolingual students who had attended school in Northern New Mexico were added to the sample size initially to equate both groups in number. To further verify the degree of bilingualism of the self-reported bilinguals, the eighth grade bilingual Spanish teachers who had worked with them the previous year checked the total list of self-reported bilinguals and eliminated those students whom they did not consider bilinguals. Bilingual and monolingual ninth grade subjects were then chosen by random sampling.

To identify the fourth grade monolingual and bilingual students, the director of the bilingual program for the Las Vegas City School District, the bilingual fourth grade teachers, and two bilingual principals identified those students whom they considered to be bilinguals. An initial random sampling of bilingual and monolingual fourth grade students was the made. All subjects were then interviewed to acquire the oral language sample. During the course of the interview, the students were asked about their language usage. Two "bilingual" subjects indicated that English was their first and primary language and were therefore replaced with two other randomly selected bilingual subjects.

Design and Limitations

Four groups were selected for study: (1) Mexican American bilingual fourth grade, (2) Anglo American monolingual fourth grade, (3) Mexican American bilingual ninth

grade, and (4) Anglo American monolingual ninth grade. Subjects were randomly selected from the total population for each group. Each subject was taped in an interview to acquire a sample of his oral language production, and his free writings in class were taken for his written language production. Both oral and written samples were divided into T-units. Twenty T-units of oral language production and twenty T-units of written language production were randomly sampled for each student. The analysis of the syntax for each student included:

(1) computation of the average number of words per clause, the average number of clauses per T-unit, and the average number of words per T-unit;

(2) identification and computation of the number of "sentence-embedding" transformations per T-unit;

(3) identification of syntactic and morphological rules which vary from those used by speakers of "standard" English in the United States and the computation of their frequency of use.

The data were then compared for all groups to determine whether there were any significant differences in syntactic usage between the groups.

Of the threats to validity, selection posed the most acute problem. The process of identifying a true bilingual is a complex one, compounded by spoken and written context

and assumed needs of the communication situation. For that reason, the criterion of self-assessment was employed to identify the bilingual with verification by bilingual educators who knew the subject.

After identification of bilinguals and monolinguals, selection of subjects for the two main groups, bilingual and monolingual, was accomplished through random selection from the entire school population. The selection did not attempt to control such factors as I.Q., reading test scores, other standardized test results, or socioeconomic level. In this manner, random selection should have provided a relatively accurate cross-section of the school population as it exists. If standardized test results were to be employed in the selection of subjects, the causative relationship between the bilingual/monolingual factor and the test results would not be clear. For example, does a low or high I.Q. affect the measured syntactic factors of the bilingual, or does the factor of bilingualism affect the I.Q. score? Since both causalities may be operating, I.Q. has been eliminated as a factor. Because of the culture-bound possibility and the rather casual attitude of these students toward them, standardized test results also are considered invalid as a factor.

Contamination was kept to a minimum by not informing the subjects that they were a part of a language study. All written assignments were given in the context of the normal classroom to all students, and only the teacher was aware

that specific students were part of this study. The subjects wrote under the supervision of the normal classroom teacher who did not attempt to correct or influence the syntactic structures of the subjects during the writing.

No attempt was made to determine whether the differences in measured scores between fourth and ninth grade bilingual and fourth and ninth grade monolingual students were statistically significant. Too many external factors prohibit a valid comparison of the fourth and ninth grade groups satistically. E.g., the fourth grade students had been in a bilingual education program; the ninth grade students were never in such a program. Therefore the differences in scores between fourth and ninth grade subjects are noted, but not subjected to statistical analysis beyond determination of differences in the means.

The argument that the language which this study focused upon was the language of the school is a valid one. The study in no way pretends that it has identified all of the syntactic structures which all of its subjects are capable of employing (their competence). The context of the language collection was the school. Quite obviously, the syntactic structures employed when in the comfortable presence of peers at a football game or sitting on the window ledge of a local bank may be different from those structures observed in the course of this study. However, since teachers deal with students in the context of the school and since this study analyzes the English syntax of students in a

school setting, it is assumed that the results of this study will be particularly appropriate to the school and curriculum development.

Note that this study is based upon a sampling of subjects in Las Vegas, New Mexico, and is a status study. As such, it is limited in terms of time and space. Its findings in no way should be construed as being applicable to all bilingual Mexican American students throughout New Mexico, much less the entire United States. However, this study may provide a basis for comparison with other Mexican American bilingual groups, a beginning in understanding the English syntax of Mexican American bilinguals, and one aid in planning curricula for the Mexican American bilingual student. The findings are not intended to indicate correctness or lack of correctness of syntactic usage, but the syntactic structures which were observed.

Materials and Data Collection Methods

Oral and written samples were acquired from all subjects.

The oral productions of the ninth grade subjects were recorded in a taped interview with each subject. The interviewer and subject were alone during the interview which occurred in the high school during regular school hours. Each subject was informed by the interviewer that the interviewer wanted to acquire more information about the interests of the subject, information for which there was not enough room on the "language interest survey" which the subject had

completed earlier. The subject was shown the tape recorder and was told that it was being used so that the interviewer did not have to stop the student to write down his responses. The interviewer then asked questions of the subject based upon the "language interest survey." The primary goal was to obtain an extended free speech sample. A wide range of response types was sought: narrative ("Tell me what that movie/book/television show was about."), description ("If you had to describe Las Vegas to a friend, what would you say?"), explanation ("How do you fix your motorcycle/make a dress/ride a horse?"), comparison ("How are the two schools/ television shows/movies alike or different?"), evaluation ("How could this school be improved?").

The oral productions of the fourth grade subjects were recorded in a taped interview alone with each subject in the elementary schools. Each subject was shown the tape recorder, asked if he had ever heard his voice before and if he would like to, and told that the interviewer wanted to find out more about the subject's interests. To begin, each subject was shown three to five objects (screwdriver, map, keys, matchbook, and pencil) and asked to tell all he could about each. Then he was shown five pictures and asked to make up a story about each or tell all he could about each ("Holding a Pet," "Keeping Out of Refrigerators," "Handling Tools," "Handling Sharp Objects," and "Climbing," by Gilleo and Thorn, 1965). Each subject was then shown two photographs, one of soldiers pointing bayonets at a crowd and the other

of a polluted river, and asked what he thought the purpose of each picture was. At each step, the subject was complimented for his responses ("That was fine," "Very good," "Well done."). If the subject did not respond to each stimulus after approximately thirty seconds, the interviewer moved on to another stimulus device ("O.k., how about this one?" "Now let's try this one."). The subject was then shown a series of pictures of a young boy learning to bat (Gladstone and Gladstone, 1970) and was asked to make up a story about the pictures. At this point, the subjects were relaxed, and the interviewer moved on to a series of relatively informal questions to elicit a variety of free responses ("Do you have any favorite games?" "How do you play it?" "What do you usually do after school each day?" "Tell me about your favorite television show." "What are your pets like?" "What do you like to do most of all in school?").

The written productions of both fourth and ninth grade subjects were acquired from the free-writing assignments which normally occurred in the classroom or were made to appear normal by the teachers. The subjects did not know that their writing was anything more than a typical classroom assignment. The teachers were requested not to correct any syntactic structures while the students were writing and to have all the writing done in the classroom itself. Initially, a goal of 1,000 words for each ninth grade subject and 500 words for each fourth grade subject was sought. After three months, some students still had not produced that much writing,

and so each subject's total production was used regardless of total number of words. The assignments of the teachers (three high school teachers and eleven elementary teachers) were varied, but tended mainly to be autobiographical in nature.

Twenty T-units of each oral sample of each subject and twenty T-units of each total written sample of each subject were randomly selected for analysis.

Analysis of the Data

The independent samples consist of the following groups:

(1) Mexican American bilingual fourth grade written,

(2) Mexican American bilingual fourth grade oral,

(3) Anglo American monolingual fourth grade written,

(4) Anglo American monolingual fourth grade oral,

(5) Mexican American bilingual ninth grade written,

(6) Mexican American bilingual ninth grade oral,

(7) Anglo American monolingual ninth grade written,

(8) Anglo American monolingual ninth grade oral.

In order to test Hypotheses I and III that the within grade independent samples have been drawn from the same population, the Kolmogorov-Smirnov two-sample test was used (Siegel, 1956, pp. 127-136). The measures subjected to this two-tailed test were the average number of words per clause; the average number of clauses per T-unit; the average number of words per T-unit; the total number of "sentence-embedding"

transformations per T-unit; the number of "sentence-embedding" transformations per T-unit in headed nominal, non-headed nominal, and coordinated structures; and the number (per 100 words) of syntactic and morphological variations from "standard" English.

As a non-parametric test, the Kolmogorov-Smirnov two-sample test is particularly powerful for small samples and sensitive to differences in central tendency, skewness, and dispersion. Siegel (1956, p. 136) reported that, for small samples, this test is more efficient than the Mann-Whitney test; and, in all cases, it is more powerful than either X^2 or median tests.

Because the number of subjects in the fourth grade groups were not equal (Mexican American bilingual n = 21, Anglo American monolingual n = 16), five Mexican American bilingual subjects were randomly selected out of the group in order to apply the Kolmogorov-Smirnov two-sample test.

No test of significance was applied to Hypothesis II because it is impossible to specify that these ninth grade and fourth grade students represent the same populations. In a longitudinal study in which the same subjects are used for both fourth and ninth grade scores, this would be possible. Since it is not valid to do so in this study, no statistical test was applied to the data of Hypothesis II.

In order to analyze the syntactic and morphological variations, a scheme based upon those of Menyuk (1963) and Pope (1969) was employed.

Chapter 4

RESULTS

The results are presented in relation to the hypotheses specified in Chapter 1. For the purposes of the Kolmogorov-Smirnov two-sample test, the fourth grade Mexican American bilingual and Anglo American monolingual groups have identical numbers of subjects (n = 16). The tables which detail raw scores of the fourth grade groups are based upon the Mexican American bilingual group of twenty-one subjects and the Anglo American monolingual group of sixteen subjects. The two ninth grade groups are identical in size for all measures (n = 19). All results are based upon a random sample of twenty T-units for each student in each mode, oral and written.

Hypothesis I

The first hypothesis stated that the Mexican American bilingual and Anglo American monolingual students in the fourth and ninth grades represent the same population in terms of three sets of variables. The first set of variables is concerned with three syntactic maturity measures: the average number of words per clause, the average number of clauses per T-unit, and the average number of words per T-unit. The second set of variables includes the total number of "sentence-embedding" transformations per twenty T-units (total sample for each subject) which are in turn classified according to headed nominal, non-headed nominal, adverbial, and coordinated

structures. The third set of variables concerns the number of syntactic and morphological rule variations from "standard" English. Hypothesis I treats the oral samples and the written samples separately and the ninth grade and fourth grade groups separately.

T-unit Length, Average Number of Clauses, and Average Clause Length

In the oral sample, the two fourth grade groups are not significantly different in the measures of T-unit length, average number of clauses per T-unit, and average clause length as determined by Kolmogorov-Smirnov two-sample test at the .05 level. The specific data on these variables are presented in Table 3.

In the written sample, the two fourth grade groups are not significantly different in the measures of T-unit length, average number of clauses per T-unit, and average clause length as determined by the Kolmogorov-Smirnov two-sample test at the .05 level. The specific data on these variables are presented in Table 4, page 97.

In the oral sample, the two ninth grade groups are not significantly different in the measures of T-unit length, average number of clauses, and average clause length as determined by the Kolmogorov-Smirnov two-sample test at the .05 level. The specific data on the variables are presented in Table 5, page 98.

In the written sample, the two ninth grade groups are

structures. The data use of variables comparing the number of connectives and morphemic rule variations from Standard English. Hypothesis I tests the oral samples and the written samples separately and the ninth grade and fourth grade groups separately.

Length, Length, Number Number of Clauses, and Average Clause Length

In the oral sample, the two fourth grade groups are not significantly different in the measures of T-unit length, average number of clauses per T-unit, and average clause length as determined by Kolmogorov-Smirnov two-sample test at the .05 level. The specific data on these variables are presented in Table 1.

In the written sample, the two fourth grade groups are not significantly different in the measures of T-unit length, average number of clauses per T-unit, and average clause length as determined by the Kolmogorov-Smirnov two-sample test at the .05 level. The specific data on these variables are presented in Table 4, page 97.

In the oral sample, the two ninth grade groups are not significantly different in the measures of T-unit length, average number of clauses, and average clause length as determined by the Kolmogorov-Smirnov two-sample test at the .05 level. The specific data on the variables are presented in Table 5, page 98.

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TABLE 3

FOURTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) ORAL SYNTACTIC MATURITY MEASURES: T-UNIT LENGTH, AVERAGE NUMBER OF CLAUSES, AND AVERAGE CLAUSE LENGTH

Measure		Total fourth grade oral	MAB oral (n = 16)	AAM oral (n = 16)	K-S test[a]
T-unit length:	mean	9.030	8.695	9.469	NSD
	median	9.050	8.825	9.500	
	range	6.000-13.500	6.000-11.500	7.100-13.500	
	SD	1.618	1.515	1.691	
Average number of clauses:	mean	1.385	1.340	1.444	NSD
	median	1.356	1.342	1.400	
	range	1.000- 1.900	1.000- 1.600	1.200- 1.900	
	SD	.207	1.197	.210	
Average clause length:	mean	6.503	6.476	6.537	NSD
	median	6.500	6.462	6.550	
	range	5.100- 8.000	5.100- 8.000	5.600- 7.900	
	SD	.687	.713	.671	

[a]Kolmogorov-Smirnov two-sample test (.05 level).

TABLE 4

FOURTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) WRITTEN SYNTACTIC MATURITY MEASURES: T-UNIT LENGTH, AVERAGE NUMBER OF CLAUSES, AND AVERAGE CLAUSE LENGTH

Measure		Total fourth grade written	MAB written (n = 16)	AAM written (n = 16)	K-S test[a]
T-unit length:	mean	7.743	7.629	7.894	NSD
	median	7.550	7.367	8.050	
	range	6.000-10.700	6.000-10.700	6.000- 9.200	
	SD	.985	1.048	.905	
Average number of clauses:	mean	1.267	1.309	1.212	NSD
	median	1.250	1.282	1.235	
	range	1.000- 1.750	1.000- 1.750	1.000- 1.350	
	SD	.184	.219	.110	
Average clause length:	mean	6.254	6.067	6.500	NSD
	median	6.225	6.012	6.450	
	range	4.300- 8.700	4.300- 7.500	5.500- 8.700	
	SD	.813	.808	.776	

[a]Kolmogorov-Smirnov two-sample test (.05 level).

TABLE 5

NINTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) ORAL SYNTACTIC MATURITY MEASURES: T-UNIT LENGTH, AVERAGE NUMBER OF CLAUSES, AND AVERAGE CLAUSE LENGTH

Measure		Total ninth grade oral	MAB oral (n = 19)	AAM oral (n = 19)	K-S test[a]
T-unit length:	mean	10.032	9.463	10.600	NSD
	median	9.950	9.600	10.200	
	range	6.800-15.200	6.800-12.300	8.200-15.200	
	SD	1.769	1.498	1.873	
Average number of clauses:	mean	1.467	1.395	1.539	NSD
	median	1.475	1.387	1.517	
	range	1.050- 2.050	1.050- 1.750	1.200- 2.050	
	SD	.213	.195	.210	
Average clause length:	mean	6.816	6.742	6.889	NSD
	median	6.717	6.750	6.725	
	range	5.600- 9.100	5.600- 7.900	5.600- 9.100	
	SD	.778	.737	.830	

[a]Kolmogorov-Smirnov two-sample test (.05 level).

not significantly different in the measures of T-unit length and average number of clauses as determined by the Kolmogorov-Smirnov two-sample test at the .05 level. The measure of average clause length was significantly different for the two groups, bilingual and monolingual. The obtained value of K_D in the Kolmogorov-Smirnov two-sample test was .4737, which is significant beyond the .05 level. The data are presented in Table 6.

Analysis of the factors which may contribute to the significant difference in the two ninth grade groups' written average clause lengths indicates three major differences. Those differences are in total number of "sentence-embedding" transformations, total nominals, and total coordinated structures. They will be discussed as part of the second set of variables.

"Sentence-embedding" Transformations

In both the oral and the written samples, the two fourth grade groups are not significantly different in their use of total "sentence-embedding" transformations as determined by the Kolmogorov-Smirnov two-sample test at the .05 level. The specific data are presented in Tables 7 and 8, pages 101 and 102.

In both the oral and written samples, the two ninth grade groups are not significantly different in their use of total "sentence-embedding" transformations as determined by the Kolmogorov-Smirnov two-sample test at the .05 level.

TABLE 6

NINTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) WRITTEN SYNTACTIC MATURITY MEASURES: T-UNIT LENGTH, AVERAGE NUMBER OF CLAUSES, AND AVERAGE CLAUSE LENGTH

Measure		Total ninth grade written	MAB written (n = 19)	AAM written (n = 19)	K-S test[a]
T-unit length:	mean	10.053	9.437	10.668	NSD
	median	9.700	9.350	10.300	
	range	6.500-16.200	6.500-15.700	8.200-16.200	
	SD	2.227	2.110	2.224	
Average number of clauses:	mean	1.421	1.418	1.424	NSD
	median	1.431	1.433	1.430	
	range	1.000- 2.050	1.000- 2.000	1.150- 2.050	
	SD	.225	.228	.228	
Average clause length:	mean	7.053	6.621	7.748	Sig. Dif.
	median	7.050	6.575	7.325	
	range	5.500- 9.200	5.500- 8.300	6.200- 9.200	
	SD	.919	.781	.855	

[a]Kolmogorov-Smirnov two-sample test (.05 level).

TABLE 7

FOURTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) ORAL USE OF "SENTENCE-EMBEDDING" TRANSFORMATIONS (PER T-UNIT)

Measure	Total fourth grade oral	MAB oral (n = 16)	AAM oral (n = 16)	K-S test[a]
Total "sentence-embedding" transformations:				
mean	1.618	1.536	1.725	NSD
median	1.633	1.550	1.650	
range	.850-2.85	.850-2.85	1.200-2.550	
SD	.473	.524	.386	
Headed nominal structures:				
mean	.896	.857	.934	NSD
median	.860	.819	.900	
range	.100-1.650	.100-1.350	.400-1.650	
SD	.314	.335	.292	
Non-headed nominal structures:				
mean	.191	.162	.219	NSD
median	.182	.140	.225	
range	.000- .500	.000- .500	.050- .450	
SD	.131	.137	.125	
Coordinated structures:				
mean	.169	.167	.184	NSD
median	.166	.160	.175	
range	.000- .500	.050- .500	.000- .450	
SD	.106	.102	.114	
Adverbial structures:				
mean	.275	.238	.313	NSD
median	.253	.233	.309	
range	.000- .560	.000- .560	.000- .560	
SD	.149	.144	.154	

[a]Kolmogorov-Smirnov two-sample test (.05 level).

TABLE 8

FOURTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) WRITTEN USE OF "SENTENCE-EMBEDDING" TRANSFORMATIONS (PER T-UNIT)

Measure	Total fourth grade written	MAB written (n = 16)	AAM written (n = 16)	K-S test[a]
Total "sentence-embedding" transformations:				
mean	1.460	1.410	1.506	NSD
median	1.400	1.300	1.625	
range	.800-3.500	.800-3.500	.950-2.000	
SD	.480	.557	.346	
Headed nominal structures:				
mean	.951	.831	1.047	NSD
median	.935	.812	1.050	
range	.350-1.650	.350-1.650	.600-1.400	
SD	.276	.300	.252	
Non-headed nominal structures:				
mean	.173	.202	.134	NSD
median	.150	.180	.100	
range	.000- .600	.000- .600	.000- .300	
SD	.117	.130	.103	
Coordinated structures:				
mean	.174	.193	.166	NSD
median	.150	.169	.125	
range	.050- .500	.050- .500	.050- .400	
SD	.111	.116	.103	
Adverbial structures:				
mean	.148	.149	.133	NSD
median	.109	.128	.102	
range	.000- .375	.000- .375	.000- .250	
SD	.074	.089	.062	

[a]Kolmogorov-Smirnov two-sample test (.05 level).

The specific data are presented in Tables 9 and 10, pages 104 and 105.

The "sentence-embedding" transformations are divided into four categories: headed nominal structures, non-headed nominal structures, coordinated structures, and adverbial structures. The distributions of the bilingual and monolingual groups in both the fourth and ninth grades in the oral mode and the written mode are not significantly different.

The headed nominal structures consist of the noun adjunct, the adjective, the genitive pronoun, the genitive noun, of followed by a nominal, the prepositional phrase, the adjective clause, total transformed predicates, the infinitive modifying a nominal, the present participle modifying a nominal, the past participle modifying a nominal, single word expressions of place, and appositives, punctuated and non-punctuated. In the oral mode, all appositives are classified as non-punctuated. Monolinguals employed more headed nominal structures than bilinguals did in both the oral and written modes in both fourth and ninth grades. In the oral mode, monolingual fourth grade students employed more noun adjuncts, adjectives, adjective clauses, total transformed predicates (including infinitives and present participles), and appositives than the bilingual fourth graders did. In the oral mode, bilingual fourth graders employed more genitive pronouns, genitive nouns, of followed by nominal embeddings, prepositional phrases, past participles modifying

TABLE 9

NINTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) ORAL USE OF "SENTENCE-EMBEDDING" TRANSFORMATIONS (PER T-UNIT)

Measure	Total ninth grade oral	MAB oral (n = 19)	AAM oral (n = 19)	K-S test[a]
Total "sentence-embedding" transformations:				
mean	1.984	1.747	2.118	NSD
median	1.900	1.737	2.050	
range	.250-3.450	.250-2.650	1.500-3.450	
SD	.519	.578	.494	
Headed nominal structures:				
mean	1.198	.924	1.316	NSD
median	1.050	.887	1.306	
range	.300-2.400	.300-1.500	.600-2.400	
SD	.398	.336	.487	
Non-headed nominal structures:				
mean	.260	.253	.289	NSD
median	.301	.281	.312	
range	.050- .600	.100- .400	.050- .600	
SD	.152	.103	.180	
Coordinated structures:				
mean	.222	.237	.226	NSD
median	.217	.237	.206	
range	.000- .500	.000- .450	.000- .500	
SD	.136	.115	.146	
Adverbial structures:				
mean	.192	.163	.194	NSD
median	.150	.145	.158	
range	.000- .420	.000- .420	.000- .370	
SD	.092	.120	.075	

[a]Kolmogorov-Smirnov two-sample test (.05 level).

TABLE 10

NINTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) WRITTEN USE OF "SENTENCE-EMBEDDING" TRANSFORMATIONS (PER T-UNIT)

Measure	Total ninth grade written	MAB written (n = 19)	AAM written (n = 19)	K-S test[a]
Total "sentence-embedding" transformations:				
mean	2.096	1.897	2.287	NSD
median	2.025	1.775	2.187	
range	.900-3.850	.900-3.200	1.300-3.850	
SD	.698	.678	.726	
Headed nominal structures:				
mean	1.320	1.205	1.450	NSD
median	1.152	1.087	1.350	
range	.450-2.950	.450-2.950	.650-2.850	
SD	.632	.649	.614	
Non-headed nominal structures:				
mean	.261	.242	.289	NSD
median	.250	.250	.250	
range	.000- .600	.000- .450	.150- .600	
SD	.143	.132	.154	
Coordinated structures:				
mean	.279	.229	.316	NSD
median	.266	.212	.306	
range	.050- .550	.050- .450	.100- .550	
SD	.126	.135	.120	
Adverbial structures:				
mean	.200	.205	.175	NSD
median	.158	.165	.141	
range	.000- .470	.000- .470	.000- .370	
SD	.108	.125	.092	

[a]Kolmogorov-Smirnov two-sample test (.05 level).

nouns, and single word expressions of place. In the written mode, monolingual fourth graders employed more noun adjuncts, more adjectives, more genitive nouns, more prepositional phrases, more total transformed predicates modifying nouns (including present participles and past participles), more single word expressions of place, and more appositives, both punctuated and non-punctuated, than bilingual fourth grade students did. In the written mode, bilingual fourth grade students employed more genitive pronouns, more of followed by nominal embeddings, more adjective clauses, and more infinitives modifying nouns. Table 11 presents the fourth grade data.

Ninth grade students, in both oral and written modes, employed more headed nominal structures than fourth grade students. In the oral mode, compared to bilingual ninth grade students, monolingual ninth grade students employed more adjectives, genitive pronouns, of followed by nominal embeddings, prepositional phrases, adjective clauses, past participles modifying nouns, single word expressions of place, and appositives. In the oral mode, compared to monolingual ninth grade students, bilingual ninth grade students employed more noun adjuncts, more total transformed predicates, and more infinitives modifying nouns. In the written mode, bilingual ninth grade students only exceeded the monolingual ninth grade students in their use of prepositional phrases and single word expressions of place. Table 12, pages 110-112, presents the specific data.

TABLE 11

"SENTENCE-EMBEDDING" TRANSFORMATIONS IN HEADED NOMINAL STRUCTURES: FOURTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) (PER 20 T-UNITS)

Structures		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
noun adjunct:	mean	.216	.048	.438	1.189	1.095	1.313
	median	.000	.000	.000	.923	.938	.900
	range	.000- 3.0	.000- 1.0	.000- 3.0	.000- 5.0	.000- 4.0	.000- 5.0
	SD	.584	.218	.814	1.266	1.091	1.493
adjective:	mean	8.270	7.476	9.313	7.324	5.810	9.313
	median	7.625	7.667	7.500	6.969	5.750	8.750
	range	1.000-19.0	1.000-16.0	5.000-19.0	.000-15.0	.000-15.0	4.000-15.0
	SD	4.107	3.919	4.238	4.076	3.459	4.062
genitive pronoun:	mean	3.378	3.667	3.000	4.162	4.425	3.813
	median	3.111	3.286	2.500	4.143	4.375	3.833
	range	.000- 8.0	.000- 8.0	.000- 6.0	1.000- 8.0	2.000- 7.0	1.000- 8.0
	SD	1.846	1.853	1.826	1.834	1.720	1.974
genitive noun:	mean	.189	.286	.063	.595	.524	.688
	median	.000	.000	.000	.000	.000	.000
	range	.000- 2.0	.000- 2.0	.000- 1.0	.000- 4.0	.000- 3.0	.000- 4.0
	SD	.462	.561	.250	.956	.750	1.195
of followed by nominal:	mean	1.189	1.333	1.000	1.514	1.714	1.250
	median	.969	1.000	.944	1.208	1.429	.900
	range	.000- 5.0	.000- 5.0	.000- 3.0	.000- 5.0	.000- 5.0	.000- 4.0
	SD	1.198	1.426	.816	1.387	1.384	1.390

TABLE 11 (Continued)

Structures		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
preposi-	mean	1.148	1.524	1.438	1.622	1.190	2.188
tional	median	1.091	1.063	1.167	1.321	1.111	1.750
phrase:	range	.000-5.0	.000-5.0	.000-4.0	.000-9.0	.000-3.0	.000-9.0
	SD	1.502	1.537	1.504	1.622	.928	2.136
adjective	mean	1.432	1.333	1.563	1.000	1.048	.938
clause:	median	1.313	1.125	1.500	.688	.750	.000
	range	.000-5.0	.000-5.0	.000-4.0	.000-5.0	.000-5.0	.000-3.0
	SD	1.345	1.390	1.315	1.179	1.284	1.063
trans-	mean	1.703	1.476	2.000	.784	.619	1.000
formed	median	1.636	1.222	2.000	.625	.000	.900
predicate:	range	.000-4.0	.000-4.0	.000-4.0	.000-3.0	.000-2.0	.000-3.0
	SD	1.102	1.167	.966	.854	.740	.966
infini-	mean	1.243	.857	1.750	.514	.524	.500
tive:	median	1.188	.583	1.875	.000	.000	.000
	range	.000-4.0	.000-4.0	.000-4.0	.000-2.0	.000-2.0	.000-2.0
	SD	1.164	1.062	1.125	.692	.680	.730
present	mean	.243	.238	.250	.162	.048	.313
parti-	median	.000	.000	.000	.000	.000	.000
ciple:	range	.000-2.0	.000-2.0	.000-1.0	.000-1.0	.000-1.0	.000-1.0
	SD	.495	.539	.447	.374	.218	.479
past	mean	.135	.238	.000	.162	.048	.313
parti-	median	.000	.000	.000	.000	.000	.000
ciple:	range	.000-1.0	.000-1.0	.000	.000-2.0	.000-1.0	.000-2.0
	SD	.347	.436	.000	.442	.218	.602

TABLE 11 (Continued)

Structures		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
single word expression of place:	mean	.351	.429	.250	.108	.048	.188
	median	.000	.000	.000	.000	.000	.000
	range	.000-2.0	.000-2.0	.000-2.0	.000-1.0	.000-1.0	.000-1.0
	SD	.676	.676	.683	.315	.218	.403
appositive punctuated:	mean	n/a	n/a	n/a	.135	.048	.250
	median				.000	.000	.000
	range				.000-1.0	.000-1.0	.000-1.0
	SD				.347	.218	.447
appositive non-punctuated:	mean	.432	.286	.625	.243	.143	.375
	median	.000	.000	.000	.000	.000	.000
	range	.000-4.0	.000-4.0	.000-2.0	.000-2.0	.000-1.0	.000-2.0
	SD	.835	.902	.719	.548	.359	.719

TABLE 12

"SENTENCE-EMBEDDING" TRANSFORMATIONS IN HEADED NOMINAL STRUCTURES: NINTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) (PER 20 T-UNITS)

Structures		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
noun adjunct:	mean	.553	.737	.368	.947	.579	1.316
	median	.000	.000	.000	.000	.000	.875
	range	.000- 3.0	.000- 3.0	.000- 3.0	.000- 4.0	.000- 2.0	.000- 4.0
	SD	1.032	1.147	.895	1.184	.769	1.416
adjective:	mean	10.763	8.684	12.842	11.342	9.842	12.842
	median	11.500	7.917	13.250	10.250	9.000	11.000
	range	2.000-19.0	3.000-18.0	2.000-19.0	3.000-25.0	3.000-21.0	5.000-25.0
	SD	4.629	4.110	4.246	5.639	4.729	6.185
genitive pronoun:	mean	2.605	2.316	2.895	3.947	3.842	4.053
	median	2.731	2.571	2.917	3.167	3.750	2.875
	range	.000- 8.0	.000- 8.0	.000- 7.0	.000-14.0	.000-10.0	.000-14.0
	SD	1.853	1.916	1.792	3.179	2.609	3.734
genitive noun:	mean	.211	.211	.211	.395	.263	.526
	median	.000	.000	.000	.000	.000	.000
	range	.000- 2.0	.000- 2.0	.000- 1.0	.000- 2.0	.000- 2.0	.000- 2.0
	SD	.474	.535	.419	.595	.562	.612
of followed by nominal:	mean	2.158	1.684	2.632	2.500	2.263	2.737
	median	1.962	1.714	2.250	2.333	2.200	2.429
	range	.000- 6.0	.000- 5.0	.000- 6.0	.000- 6.0	.000- 6.0	.000- 5.0
	SD	1.620	1.293	1.802	1.502	1.593	1.408

TABLE 12 (Continued)

Structures		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
preposi-	mean	3.079	2.632	3.526	2.447	2.684	2.211
tional	median	2.500	2.333	2.667	2.071	2.600	1.800
phrase:	range	.000-12.0	.000- 6.0	.000-12.0	.000- 7.0	.000- 7.0	.000- 7.0
	SD	2.450	1.802	3.098	1.982	2.029	1.960
adjective	mean	2.184	1.526	2.842	1.789	1.526	2.053
clause:	median	2.136	1.714	2.750	1.500	1.125	2.000
	range	.000- 8.0	.000- 4.0	.000- 8.0	.000- 7.0	.000- 7.0	.000- 5.0
	SD	1.738	1.264	1.922	1.679	1.954	1.353
trans-	mean	1.526	1.684	1.368	2.053	1.105	3.000
formed	median	1.500	1.583	1.417	1.667	.938	2.800
predicate:	range	.000- 4.0	.000- 4.0	.000- 4.0	.000- 7.0	.000- 3.0	.000- 7.0
	SD	1.179	1.336	1.012	1.785	1.049	1.886
infini-	mean	1.000	1.158	.842	1.289	.789	1.789
tive:	median	.900	1.000	.850	.773	.000	1.083
	range	.000- 3.0	.000- 3.0	.000- 2.0	.000- 9.0	.000- 3.0	.000- 9.0
	SD	.930	1.119	.688	1.784	1.032	2.226
present	mean	.263	.263	.263	.737	.263	1.211
parti-	median	.000	.000	.000	.000	.000	1.050
ciple:	range	.000- 3.0	.000- 1.0	.000- 3.0	.000- 3.0	.000- 2.0	.000- 3.0
	SD	.601	.452	.733	.921	.562	.976
past	mean	.237	.211	.263	.237	.105	.368
parti-	median	.000	.000	.000	.000	.000	.000
ciple:	range	.000- 1.0	.000- 1.0	.000- 1.0	.000- 2.0	.000- 1.0	.000- 2.0
	SD	.431	.419	.452	.490	.315	.597

TABLE 12 (Continued)

Structures		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
single word expression of place:	mean	.263	.158	.368	.368	.421	.316
	median	.000	.000	.000	.000	.000	.000
	range	.000-3.0	.000-2.0	.000-3.0	.000-2.0	.000-2.0	.000-2.0
	SD	.685	.501	.831	.589	.607	.582
appositive punctuated:	mean	n/a	n/a	n/a	.395	.105	.684
	median				.000	.000	.000
	range				.000-4.0	.000-1.0	.000-4.0
	SD				.974	.315	1.293
appositive non-punctuated:	mean	.632	.316	.947	.474	.474	.474
	median	.000	.000	.000	.000	.000	.000
	range	.000-3.0	.000-3.0	.000-3.0	.000-4.0	.000-4.0	.000-3.0
	SD	.942	.749	1.026	.922	1.020	.841

The non-headed nominal structures are comprised of noun clauses, infinitival nominals, and gerundive nominals. In the oral mode, monolingual fourth grade students used more of all three types of structures than the bilinguals did. In the written mode, bilingual fourth grade students employed more of all three types of structures than the monolinguals did. Table 13 presents the specific data. In the ninth grade, monolinguals employed more noun clauses and infinitival nominals than the bilinguals did in the oral mode. In the written mode, ninth grade monolinguals employed more of all three non-headed nominal structures than the bilinguals did. Bilingual ninth grade students exceeded monolingual ninth grade students in only the use of gerundive nominals in the oral mode. The specific data are presented in Table 14, page 115. Ninth grade students used more noun clauses and gerundive nominal structures than fourth grade students did. Monolingual fourth graders employed more infinitival nominals than both ninth grade groups, and, as a result, fourth graders used more total infinitival nominals than ninth grade students did.

The coordinated structures analyzed by this study do not include within-nominal and between-T-unit coordinated structures. All coordinated structures occur within T-units. Earlier research (e.g., Hunt, 1964, p. 81) has shown that fourth graders tend to coordinate T-units more than older students do. Observation of that practice in this study tends to verify the earlier findings. Generally, no great

TABLE 13

"SENTENCE-EMBEDDING" TRANSFORMATIONS IN NON-HEADED NOMINAL STRUCTURES: FOURTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) (PER 20 T-UNITS)

Structures		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
noun clause:	mean	1.838	1.571	2.188	1.811	2.286	1.188
	median	1.615	1.417	1.786	1.679	1.889	.000
	range	.000-7.0	.000-5.0	.000-7.0	.000-9.0	.000-9.0	.000-5.0
	SD	1.590	1.363	1.834	1.998	2.239	1.471
infini-tival nominal:	mean	1.622	1.429	1.875	1.108	1.190	1.000
	median	1.125	.938	1.500	.778	.917	.000
	range	.000-6.0	.000-6.0	.000-6.0	.000-4.0	.000-4.0	.000-4.0
	SD	1.705	1.660	1.784	1.242	1.250	1.265
gerundive nominal:	mean	.378	.333	.438	.541	.571	.500
	median	.000	.000	.000	.000	.000	.000
	range	.000-3.0	.000-3.0	.000-2.0	.000-2.0	.000-2.0	.000-2.0
	SD	.681	.730	.629	.691	.746	.632

TABLE 14

"SENTENCE-EMBEDDING" TRANSFORMATIONS IN NON-HEADED NOMINAL STRUCTURES: NINTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) (PER 20 T-UNITS)

Structures		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
noun clause:	mean	3.211	2.684	3.737	2.500	2.421	2.579
	median	2.750	2.667	3.000	2.167	2.063	2.375
	range	.000-9.0	.000-5.0	.000-9.0	.000-7.0	.000-7.0	.000-5.0
	SD	2.195	1.600	2.600	1.720	1.895	1.575
infinitival nominal:	mean	1.579	1.526	1.632	1.921	1.632	2.211
	median	1.500	1.438	1.583	1.333	1.125	2.000
	range	.000-4.0	.000-3.0	.000-4.0	.000-7.0	.000-5.0	.000-7.0
	SD	1.154	.905	1.383	2.005	1.739	2.250
gerundive nominal:	mean	.868	1.000	.737	1.026	1.000	1.053
	median	.000	.600	.000	.682	.600	.750
	range	.000-4.0	.000-4.0	.000-3.0	.000-6.0	.000-4.0	.000-6.0
	SD	1.166	1.291	1.046	1.345	1.291	1.433

difference between fourth and ninth grade students exists in their total use of coordinated structures (see Tables 7 and 8, pages 101 and 102). The range of use and the means are approximately the same for both fourth and ninth grades. In the fourth grade, monolinguals used more coordinated structures than the bilinguals did. The reverse occurred in ninth grade. In fact, both fourth grade groups employed coordinated structures more than the ninth grade monolingual group did. Although total numbers of coordinations do not appear to indicate great differences in syntactic maturity, computation of total different types of coordinations does indicate a difference. Ninth graders employed more total different types of coordinations than fourth graders did, and, except in the written mode in ninth grade, bilinguals used slightly more total different types than monolinguals did. Table 15 lists the number and patterns of coordinations used by bilingual and monolingual fourth and ninth grade subjects in the oral and written modes.

Adverbial structures include adverbial clauses, clauses of comparison, comparative phrases, adjective complements, and adverbial infinitives. There was no significant difference in the use of adverbial structures between the bilingual and monolingual groups in the fourth and ninth grades. Only the adverbial clauses were used to any extent. Adverbial clause use was not significantly different between monolinguals and bilinguals in both the fourth and ninth grades (see Tables 7 and 8). In the oral mode, fourth grade students

TABLE 15

NUMBER OF COORDINATORS INSIDE T-UNITS
AND THE PATTERNS USED

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
x and x	59	33	38	28	44	72	50	46
x and x and x	7	5	9	7	5	4	9	10
x and x and x and x	2	1	1	-	1	-	1	-
x and x and x and x and x	-	-	-	-	-	-	1	2
xx and x	6	3	1	-	6	8	1	2
xxx and x	2	-	-	-	2	3	-	-
xxxx and x	-	3	-	-	-	-	-	-
x and xx	-	-	-	1	-	-	-	1
x and xxx	-	-	-	1	-	-	-	-
xx and x and x	-	1	-	-	-	-	-	1
xxx and x and x	-	1	-	-	-	-	-	-
xxxx and x and x	-	-	-	-	-	1	-	-
x and x plus x	-	-	-	-	-	1	-	-
x and x but not x	-	-	-	-	-	-	1	-
x and xx and x	1	-	-	-	1	-	1	-
x and xx and xx and x	-	-	1	-	-	-	-	-
xx and xx and x and x	-	-	1	-	-	-	-	-
x and x or x	-	-	-	-	-	-	1	-
x then x and x	-	-	-	-	1	-	-	-
x or x	1	2	11	9	11	8	14	12
x or x or x	-	-	3	3	-	-	2	1
x or x or x or x	-	-	-	-	-	-	-	1
x or x or x or x or x	-	-	1	-	-	-	-	-
xx or x	-	-	-	-	-	1	1	-
xxx or x	-	-	-	-	-	1	-	-
either x or x	-	-	-	-	-	1	-	1
either xx or x	-	-	-	-	-	1	-	-
neither x nor x	-	-	-	-	-	1	-	-

TABLE 15 (Continued)

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
x or xx	-	-	2	-	-	-	-	-
x or x then x and x	-	-	-	1	-	-	-	-
x or x and x	-	-	-	-	-	1	-	-
xx	2	-	3	9	2	4	5	4
xxx	-	-	-	-	1	-	-	-
xxxx	-	-	1	-	1	1	1	-
xxxxx	1	-	-	-	-	1	-	-
xxxxxx	-	1	-	-	-	-	-	-
xx etc.	-	-	-	-	1	-	-	-
xxxxxxxxxxxx etc.	1	-	-	-	-	-	-	-
x but x	1	-	-	-	4	3	-	2
x instead of x	-	1	-	-	-	-	-	-
x except x	-	-	-	-	1	-	-	-
x rather than x	-	-	-	-	-	1	-	-
x not x but x	-	-	-	-	-	1	-	-
x then xxx	-	-	-	-	-	-	1	-
x better than x	-	-	-	-	-	-	1	-
x more than x	-	-	-	-	-	-	-	1
x that x	-	-	-	-	1	-	-	-
more x than x	-	-	-	-	1	-	-	-
the more x the more x	-	-	-	-	1	-	-	-
no x just x	-	-	-	-	1	-	-	-
as x as x	-	-	-	-	-	1	-	-
total different types of coordinations	11	10	12	8	19	19	15	13

used more adverbial clauses than in the written mode and more adverbial clauses than both ninth grade groups did in both modes. Bilinguals used more adverbial clauses in their writing than monolinguals did, and monolinguals used more adverbial clauses in their speech than bilinguals did. Tables 16 and 17 present the specific data.

The adverbial clauses were categorized by position relative to the main clause: initial, medial, or final. Fourth and ninth grade monolinguals employed the initial position more than the final position in the written mode. Bilingual fourth and ninth grade students utilized the final position more than the initial position in both the oral and written modes. Monolinguals employed the final position more than the initial position in the oral mode in both the fourth and ninth grades. Generally, the medial position was seldom used by both groups in both grades.

Tabulation of the positions of movable adverbial clauses and the subordinators which introduce them provides another way of examining adverbial clause usage. Bilinguals employed slightly more total different adverbial clauses in different positions based upon the introductory subordinator (see Table 18, pages 122-123). Fourth graders used more total different adverbial clauses in different positions in the oral mode than in the written mode. Ninth graders used more total different adverbial clauses in different positions in the written mode than in the oral mode, the reverse of fourth graders. Generally, all groups show more variations

TABLE 16

FOURTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) USE OF ADVERBIAL CLAUSES (PER 20 T-UNITS)

Position		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
Initial:	mean	1.730	1.524	2.000	1.027	.952	1.125
	median	1.639	1.400	1.900	.941	.850	1.071
	range	.000-5.0	.000-5.0	.000-5.0	.000-4.0	.000-4.0	.000-3.0
	SD	1.387	1.401	1.366	.928	.973	.885
Medial:	mean	.622	.429	.875	.243	.190	.313
	median	.000	.000	.000	.000	.000	.000
	range	.000-3.0	.000-2.0	.000-3.0	.000-3.0	.000-3.0	.000-2.0
	SD	.861	.676	1.025	.641	.680	.602
Final:	mean	1.838	1.619	2.125	.865	1.190	.438
	median	1.867	1.688	2.071	.791	1.000	.000
	range	.000-6.0	.000-6.0	.000-5.0	.000-4.0	.000-4.0	.000-2.0
	SD	1.405	1.465	1.310	.976	1.078	.629
Total adverb clauses:	mean	4.216	3.667	4.938	2.135	2.333	1.875
	median	4.200	3.667	4.875	1.906	2.000	1.786
	range	.000-9.0	.000-9.0	1.000-9.0	.000-6.0	.000-6.0	.000-4.0
	SD	2.562	2.415	2.645	1.357	1.528	1.088

TABLE 17

NINTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) USE OF ADVERBIAL CLAUSES (PER 20 T-UNITS)

Position		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
Initial:	mean	.947	1.000	.895	1.526	1.474	1.579
	median	.000	.571	.000	.955	1.250	.875
	range	.000-6.0	.000-6.0	.000-4.0	.000-9.0	.000-5.0	.000-9.0
	SD	1.413	1.563	1.286	1.885	1.541	2.219
Medial:	mean	.711	.684	.737	.421	.579	.263
	median	.000	.000	.000	.000	.000	.000
	range	.000-4.0	.000-2.0	.000-4.0	.000-3.0	.000-3.0	.000-1.0
	SD	.956	.820	1.098	.722	.902	1.076
Final:	mean	1.632	1.263	2.000	1.605	1.789	1.421
	median	1.300	.625	1.800	1.300	1.625	1.143
	range	.000-5.0	.000-5.0	.000-5.0	.000-6.0	.000-5.0	.000-6.0
	SD	1.514	1.593	1.374	1.552	1.653	1.465
Total adverb clauses:	mean	3.237	3.000	3.474	3.289	3.632	2.947
	median	2.862	2.750	3.143	3.056	3.375	2.800
	range	.000-8.0	.000-8.0	1.000-7.0	.000-9.0	.000-9.0	.000-7.0
	SD	2.111	2.380	1.837	2.277	2.587	1.929

TABLE 18

POSITIONS OF MOVABLE ADVERBIAL CLAUSES AND SUBORDINATORS WHICH INTRODUCE THEM

I = Initial
M = Medial
F = Final

		fourth grade				ninth grade			
		written		oral		written		oral	
		b	m	b	m	b	m	b	m
if	I	-	1	15	19	4	3	7	9
	M	2	2	3	3	1	1	-	8
	F	1	2	1	5	-	1	1	5
when	I	12	15	13	9	17	12	6	4
	M	-	-	4	5	2	2	9	5
	F	1	1	4	5	9	8	4	4
because	I	-	-	-	-	2	-	-	-
	M	2	1	2	3	1	1	2	2
	F	15	3	19	17	12	5	14	26
after	I	4	1	-	-	3	2	-	-
	M	-	1	-	-	2	-	-	-
	F	-	-	1	-	1	1	-	-
before	I	-	1	1	-	-	-	-	-
	M	-	-	1	2	-	-	-	-
	F	-	-	2	1	-	1	-	1
while	I	1	-	-	-	-	-	-	-
	M	-	-	-	-	1	-	-	-
	F	-	-	-	2	1	-	-	-
since	I	-	-	-	-	-	1	-	-
	F	-	-	1	-	1	-	-	-
as	I	-	-	-	-	-	3	-	-
	F	-	-	-	-	2	4	-	-
as if	I	1	-	-	-	-	-	-	-
	F	-	-	-	-	-	1	-	-
so	M	-	-	-	-	1	-	1	-
	F	3	-	-	-	2	-	1	-
so that	M	-	-	-	-	1	-	-	1
	F	-	-	-	-	-	-	-	2

TABLE 18 (Continued)

		fourth grade				ninth grade			
		written		oral		written		oral	
		b	m	b	m	b	m	b	m
(so) that	F	-	-	1	-	-	-	-	-
until	M	-	-	-	-	-	-	1	-
	F	3	-	2	2	1	2	1	-
till	M	-	-	-	-	2	1	-	-
	F	2	-	-	-	4	-	-	-
the way	M	-	-	-	-	-	-	-	1
	F	-	-	-	-	-	-	-	1
where	M	-	1	-	-	-	-	-	-
	F	-	-	2	1	-	-	-	-
unless	I	-	-	-	1	-	-	-	-
	F	-	-	-	1	-	-	-	-
once	I	-	-	-	-	-	-	1	-
as soon as	I	-	-	-	-	-	-	1	-
the time	I	-	-	-	-	-	1	-	-
by the time	I	1	-	-	-	2	-	-	-
everytime	I	-	-	1	-	2	-	2	-
the last time	I	-	-	1	-	-	-	-	-
because if	I	-	-	-	1	-	-	-	-
Ø	I	-	-	-	2	-	-	-	1
whenever	M	-	-	-	1	-	-	-	-
wherever	F	-	-	1	-	-	-	-	-
as far as	F	-	-	1	-	-	-	-	-
as long as	F	-	-	-	-	-	1	1	-
although	F	-	-	-	-	-	1	-	-
though	F	-	-	-	-	-	1	-	-
even though	F	-	1	-	-	-	-	-	-
total different adverbial clauses in different positions		13	12	21	18	23	21	15	14
initial		5	4	6	5	6	6	5	3
medial		2	4	4	5	8	4	4	5
final		6	4	11	8	9	11	6	6

in the final position than in the initial position.

Syntactic and Morphological Variations

Hypothesis I.C.1. stated that Mexican American bilingual and Anglo American monolingual students in the fourth and ninth grades represent the same population in terms of the number (per 100 words) of syntactic rule variations from "standard" English in the written mode and in the oral mode. There was no significant difference in the distribution of the number (per 100 words) of syntactic rule variations from "standard" English between the two fourth grade groups (Mexican American bilingual and Anglo American monolingual) in the oral mode and in the written mode and between the two ninth grade groups in the oral mode and in the written mode as measured by the Kolmogorov-Smirnov two-sample test at the .05 level. The specific data are presented in Table 19.

The raw score total of syntactic variations was not large enough to warrant a determination of level of significance for any one factor. Table 20, page 126, presents the percentage of syntactic variations per T-unit in each grade, group, and mode. The most evident fact of the data is that all groups had many more T-units with no syntactic variations than T-units with syntactic variations.

The compilation of syntactic variations is presented in Table 21, pages 127-130. In the phrase structure rule variations, only two bilingual subjects exhibited any major

TABLE 19

SYNTACTIC AND MORPHOLOGICAL VARIATIONS (PER 100 WORDS) OF MEXICAN AMERICAN BILINGUAL (MAB) AND ANGLO AMERICAN MONOLINGUAL (AAM) FOURTH AND NINTH GRADE STUDENTS IN THE ORAL AND WRITTEN MODES

Type of variation	Grade and measure	MAB oral	AAM oral	K-S[a] test	MAB written	AAM written	K-S[a] test
syntactic	four						
	mean	.429	.438	NSD	.762	.375	NSD
	median	.000	.000		.792	.000	
	range	.000-2.0	.000-1.0		.000-2.0	.000-2.0	
	SD	.598	.512		.625	.619	
syntactic	nine						
	mean	.632	.421	NSD	.789	.368	NSD
	median	.563	.000		.583	.000	
	range	.000-2.0	.000-1.0		.000-3.0	.000-2.0	
	SD	.684	.507		.918	.597	
morphological	four						
	mean	.000	.250	NSD	.476	.188	NSD
	median	.000	.000		.000	.000	
	range	.000-0.0	.000-1.0		.000-2.0	.000-1.0	
	SD	.000	.447		.602	.403	
morphological	nine						
	mean	.211	.316	NSD	.526	.316	NSD
	median	.000	.000		.000	.000	
	range	.000-1.0	.000-1.0		.000-2.0	.000-1.0	
	SD	.419	.478		.697	.478	

[a]Kolmogorov-Smirnov two-sample test (.05 level).

TABLE 20

PERCENTAGES OF T-UNITS WITH AND WITHOUT SYNTACTIC AND MORPHOLOGICAL VARIATIONS BY GROUP

Group	Syntactic variations		Morphological variations	
	% with	% without	% with	% without
fourth grade:				
bilingual written	5	95	3	97
monolingual written	3	97	1	99
bilingual oral	2	98	1	99
monolingual oral	3	97	2	98
ninth grade:				
bilingual written	7	92	4	96
monolingual written	2	98	3	97
bilingual oral	5	95	2	98
monolingual oral	2	98	3	97

TABLE 21

VARIATIONS FROM "STANDARD" ENGLISH
(SYNTACTIC RULES)

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
I. Phrase Structure Rules								
Major Categorial								
that (rel. pronoun)→ like			1					
sometimes→ some					1			
Minor Categorial								
Determiners								
Omissions								
Art→ Ø					1			1
Substitutions								
a 100 birds		1						
Extraneous or Redundant Structures								
extraneous article the	3							
she is in the five feet	1							
Auxiliaries								
Omissions								
it has } → Ø					1			
there is }								
aux. be → Ø	1							
aux. have → Ø	1							
Extraneous structures								
do + used to + V							1	
he's is					1			
Strict Subcategorial								
Omissions								
Noun Phrases--Subject								
subject → Ø	2		1					
Noun Phrases--Direct Object								
do as verb (no object)							1	
to go and wreck X → to go and wreck ____					1			

TABLE 21 (Continued)

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
Noun Phrases--Obj. of Prepos.								
toward _____							1	
Linking Verb								
be → Ø	1	1			1	1		
Prepositions or Particle								
in 6th (7th) → Ø 6th (7th)					2			
open + up → open + Ø					1			
put + prep. → put + Ø	1	2	1				2	
shut + prep. → shut + Ø					1			
bring + prep. → bring + Ø			1					
knock + prep. → knock + Ø					1			
going + on → going + Ø							1	
go + at + obj. → go + Ø + obj.								1
went _____ a long pass		1						
caught _____ fire						1		
Redundant or Extraneous Structures								
Prepositions or Particles								
go out → go on out					1			
help → help up							1	
come on → come out in	1							
where we live by			1					
expect for					1			
Other Rules								
Word Substitutions								
Prepositions								
try to → try and								1
into → to							1	
over → of		1						
from → a	1							

TABLE 21 (Continued)

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
in order to → in order for					1			
to → a					1			
in → on	1				1			
on → in	3				1			
off → out of			1					
turn off → close					1			
Content Words								
to grab → to grab holt of						1		
almost → liked to		1						
they → that						1		
these → this	1							
Double Negative								
double negative	1			1			1	1
don't hardly								1
Negative Omissions								
no → Ø					1			
II. Transformational Rules--Sentence-Embedding Variations								
Headed Noun Phrases								
Adjectives								
adj + adj + n → adj + n + adj					1			
adj + n + prep	1					1		
some → some most								1
Relative Clause								
where → that					1			
that → what					1			
who → which				1				
relative pronoun - Ø	1							
Infinitive Phrase								
to race → to take races	2							
how _____ get there						1	1	
don't need + inf → need not + inf							1	

TABLE 21 (Continued)

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
Non-Headed Noun Phrases								
Noun Clause								
like what they might do something about schools								1
Adverbial Structures								
Clause								
subordinator → Ø				2				1
so that → Ø that			1					
if → because if				1	1			
as though → like if					1			
Coordinated Structures								
be + adj + and + _____ + n							1	
will + V + and + be + going to + V					1			
NP + V + Z_3 + V + ing				1				
have + en + V + than + did + V							1	
x and x → x that x					1			
III. Transformational Rules--other than Sentence-Embedding Variations								
"There" Expletive Permutation								
agreement	1		3	2			5	1
Total syntactic variations from "standard" English	21	8	9	8	25	9	19	8

categorial substitutions, and those occurred only once for each subject. With the exception of three bilingual fourth grade subjects using the extraneous article the, all minor categorial variations are single instances. Of the strict subcategorial variations, the omission of the preposition or particle comprises the largest occurrence of variations. One bilingual fourth grade student, three monolingual fourth grade students, five bilingual ninth grade students, and one monolingual ninth grade student omitted a preposition where required in their written samples. Two bilingual fourth grade students, no monolingual fourth grade students, three bilingual ninth grade students, and one monolingual ninth grade student omitted a required preposition in their oral samples. Among the "other rule" variations, word substitutions of prepositions forms the largest number of variations. In the written mode, five bilingual fourth grade students, one monolingual fourth grade student, five bilingual ninth grade students, and one monolingual ninth grade student used variant forms for prepositions. One of the fourth grade bilingual students used the Spanish preposition a in place of the English preposition from. One bilingual ninth grade student substituted the Spanish preposition a for the English preposition to. In the oral mode, one fourth grade bilingual student, no fourth grade monolingual students, one bilingual ninth grade student, and one monolingual ninth grade student used variant forms for prepositions. Bilingual students used the preposition in in place of on

four times more than any other prepositional variation.

With two exceptions, "sentence-embedding" transformational rule variations all occur as single instances. The infinitive phrase "to take races" was employed twice by the same bilingual fourth grade student in writing. The adverbial clause subordinator was omitted twice, once each by two monolingual fourth grade students in their oral productions. The transformational rule variation which occurred most often was the verb agreement when the there expletive permutation was employed. With the exception of the written sample of one bilingual fourth grader, all there expletive permutation variations occurred in the oral mode of three bilingual fourth grade students, two monolingual fourth grade students, five bilingual ninth grade students, and one monolingual ninth grade student.

The total syntactic variations from "standard" English were twenty-one in the written mode of bilingual and eight in the written mode of monolingual fourth graders, nine bilingual and eight monolingual instances in the fourth grade oral mode, twenty-five bilingual and nine monolingual instances in the ninth grade written mode, and nineteen bilingual and eight monolingual instances in the ninth grade oral mode.

A large percentage of subjects had no syntactic variations from "standard" English at all. In the oral samples, 67 percent of the bilingual fourth graders, 50 percent of the monolingual fourth graders, 47 percent of the bilingual ninth graders, and 63 percent of the monolingual ninth graders had

no syntactic variations. In the written samples, 29 percent of the bilingual fourth graders, 69 percent of the monolingual fourth graders, 34 percent of the bilingual ninth graders, and 63 percent of the monolingual ninth graders had no syntactic variations. All groups generally employed more syntactic variations in their writing than in their speaking.

Hypothesis I.C.2. stated that Mexican American bilingual and Anglo American monolingual students in the fourth and ninth grades represent the same population in terms of the number (per 100 words) of morphological rule variations from "standard" English in the written mode and in the oral mode. There was no significant difference in the number (per 100 words) of morphological rule variations from "standard" English between the two fourth grade groups in the oral mode and in the written mode and between the two ninth grade groups in the oral mode and in the written mode as measured by the Kolmogorov-Smirnov two-sample test at the .05 level. The specific morphological variations encountered in the study are listed in Table 22. The variations are divided into five categories: noun, verb, adverb, pronoun, and other.

Five bilingual and two monolingual ninth grade students omitted the plural noun marker in their writing. Three subjects omitted the possessive marker: two bilingual fourth grade students in the written mode and two ninth grade monolingual students in the oral mode.

The largest number of verb morphological rule variations

TABLE 22

VARIATIONS FROM "STANDARD" ENGLISH
(MORPHOLOGICAL RULES)

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
I. Nouns								
$Z_1 \rightarrow \emptyset$					7	2		
$Z_2 \rightarrow \emptyset$	2					2		
II. Verbs								
$D_1 \rightarrow \emptyset$	1				2			
$D_2 \rightarrow \emptyset$	1							
$D_2 \rightarrow D_1$	1							1
$Z_3 \rightarrow \emptyset$	3				1	2		2
V + ing → V + Ø	1				1			
be + ing + V → be + Ø + V					1			
other cost → costed						1		
brought → bran	1							
have + en → heatd	1							
shook → shaked					1			
III. Adverbs								
$ly_1 \rightarrow \emptyset$	1	2	1	5	4	4	4	6
IV. Pronouns								
case		1	1	1		1	1	1
number		1						

TABLE 22 (Continued)

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
V. Other								
an → a							1	
adj + Ø → adj + ly_1						1		
Total morphological variations	12	4	2	6	17	13	6	10
noun variations	2				7	4		
verb variations	9				6	3		3
adverb variations	1	2	1	5	4	4	4	6
pronoun variations		2	1	1		1	1	1

occurred in the omission of the third person singular present tense marker. In the written mode, three bilingual fourth grade, one bilingual ninth grade, and two monolingual ninth grade students omitted the third person singular present tense marker. In the oral mode, two monolingual ninth grade students omitted that marker. In all, nine bilingual fourth grade students in the written mode, three monolingual ninth grade students in the written mode, and three monolingual ninth grade students in the oral mode had morphological variations of the verb.

Of the pronoun morphological variations in case, no bilingual students had any variations in the written mode. All other pronoun case variations were single instances. One pronoun variation in number occurred in the writing of a fourth grade monolingual.

By far, the largest number of morphological variations occurred in the ommission of the obligatory adverb marker. Monolinguals tended to omit the adverb marker more than bilinguals. The largest difference occurred in the fourth grade oral mode: five monolingual omissions and one bilingual omission. One ninth grade monolingual student added the adverb marker to an adjective in his writing.

In general, more bilingual subjects employed morphological variations in the written mode than monolingual subjects did, and more monolingual subjects employed morphological variations in the oral mode than bilingual subjects did. The raw score total for each variation is not large.

Table 20, page 126, presents the percentage of morphological variations by grade, group, and mode. All groups had more T-units without morphological variations than T-units with morphological variations.

In addition, many students in both modes exhibited no morphological variations at all. In the oral mode, 85 percent of the fourth grade bilinguals, 75 percent of the fourth grade monolinguals, 68 percent of the ninth grade bilinguals, and 58 percent of the ninth grade monolinguals had no morphological variations. In the written mode, 57 percent of the fourth grade bilinguals, 81 percent of the fourth grade monolinguals, 34 percent of the ninth grade bilinguals, and 53 percent of the ninth grade monolinguals had no morphological variations.

Only nine students employed no syntactic or morphological variations in both the written and oral modes: three monolingual fourth grade, three bilingual fourth grade, and three monolingual ninth grade.

Pronominal appositions ("Johnny, he won the game." "My dog, the man poisoned him.") were not computed among the syntactic variations from "standard" English. The use of the pronominal apposition is essentially the same for both monolinguals and bilinguals and is basically an oral form which is almost never employed in the written mode (see Table 23). It is used equally by both fourth and ninth grade subjects. Only one fourth grade bilingual used the pronominal apposition construction in her writing. No ninth grade bilinguals used it.

TABLE 23

PRONOMINAL APPOSITIONS USED BY MEXICAN AMERICAN BILINGUAL (MAB) AND ANGLO AMERICAN MONOLINGUAL (AAM) FOURTH AND NINTH GRADE SUBJECTS IN THE ORAL AND WRITTEN MODES (PER 20 T-UNITS)

Grade and measure	MAB oral	AAM oral	Total oral	MAB written	AAM written	Total written
four						
mean	.476	.438	.459	.048	.000	.027
median	.000	.000	.000	.000	.000	.000
range	.000-2.0	.000-3.0	.000-3.0	.000-1.0	.000-0.0	.000-1.0
SD	.602	.814	.691	.218	.000	.164
nine						
mean	.474	.526	.500	.000	.000	.000
median	.000	.000	.000	.000	.000	.000
range	.000-2.0	.000-3.0	.000-3.0	.000-0.0	.000-0.0	.000-0.0
SD	.612	1.020	.830	.000	.000	.000

Hypothesis II

The second hypothesis is composed of two sets of variables. The first set states that from grade four to grade nine there will be an increase for both Mexican American bilingual and Anglo American monolingual students of the average length of clauses, average number of clauses per T-unit, and average length of T-units. The second set states that there will be no difference in the amount of increase of the three syntactic maturity measures specified in the first set (average length of clauses, average number of clauses per T-unit, and average length of T-units) between the Mexican American bilingual and Anglo American monolingual student groups from the fourth to the ninth grades.

Increase of the Three Syntactic Maturity Measures

Figures 1, 2, and 3 display the amounts of increase of bilingual and monolingual groups in the oral and written modes from grade four to grade nine. All three syntactic maturity measures show an increase from grade four to grade nine for both bilingual and monolingual subjects in both the written and the oral modes.

Difference in Amount of Increase of Syntactic Maturity Measures

Although all three syntactic maturity measures, average length of clauses, average number of clauses per T-unit, and average length of T-units, show arithmetical increases, the

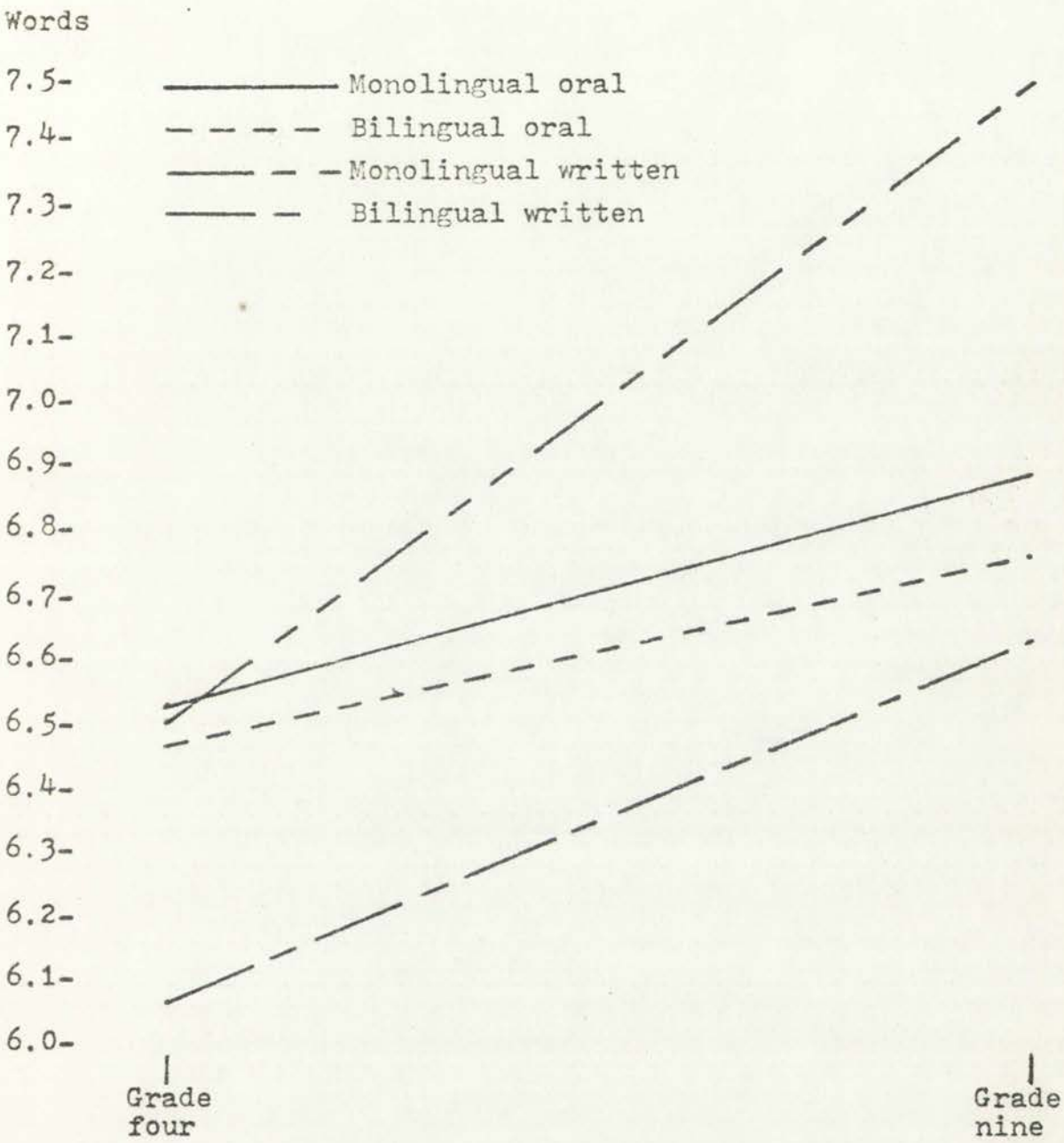

FIGURE 1

MEAN CLAUSE LENGTH OF MEXICAN AMERICAN BILINGUAL AND ANGLO AMERICAN MONOLINGUAL FOURTH AND NINTH GRADE STUDENTS IN THE ORAL AND WRITTEN MODES

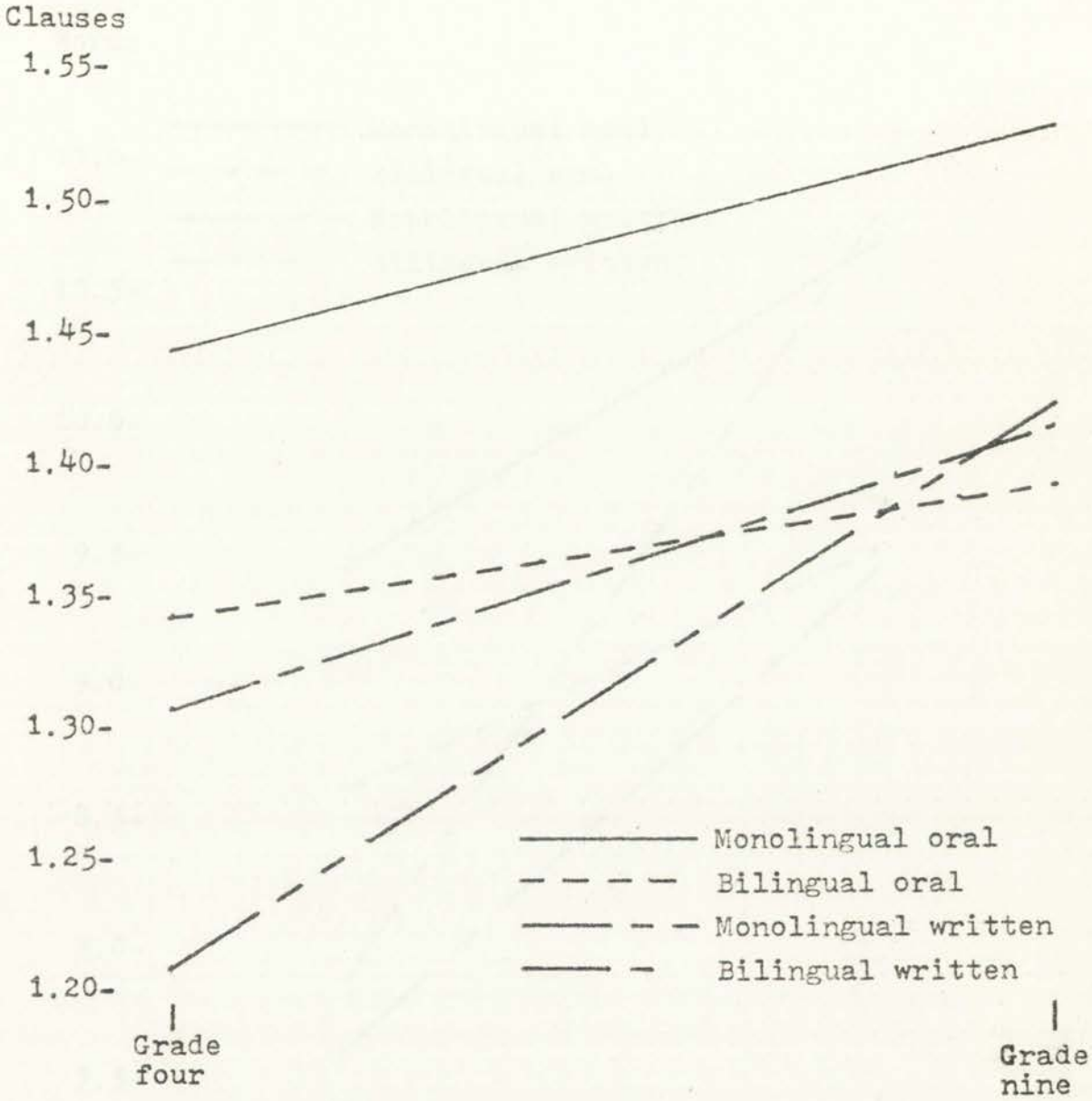

FIGURE 2

AVERAGE NUMBER OF CLAUSES PER T-UNIT OF MEXICAN AMERICAN BILINGUAL AND ANGLO AMERICAN MONOLINGUAL FOURTH AND NINTH GRADE STUDENTS IN THE ORAL AND WRITTEN MODES

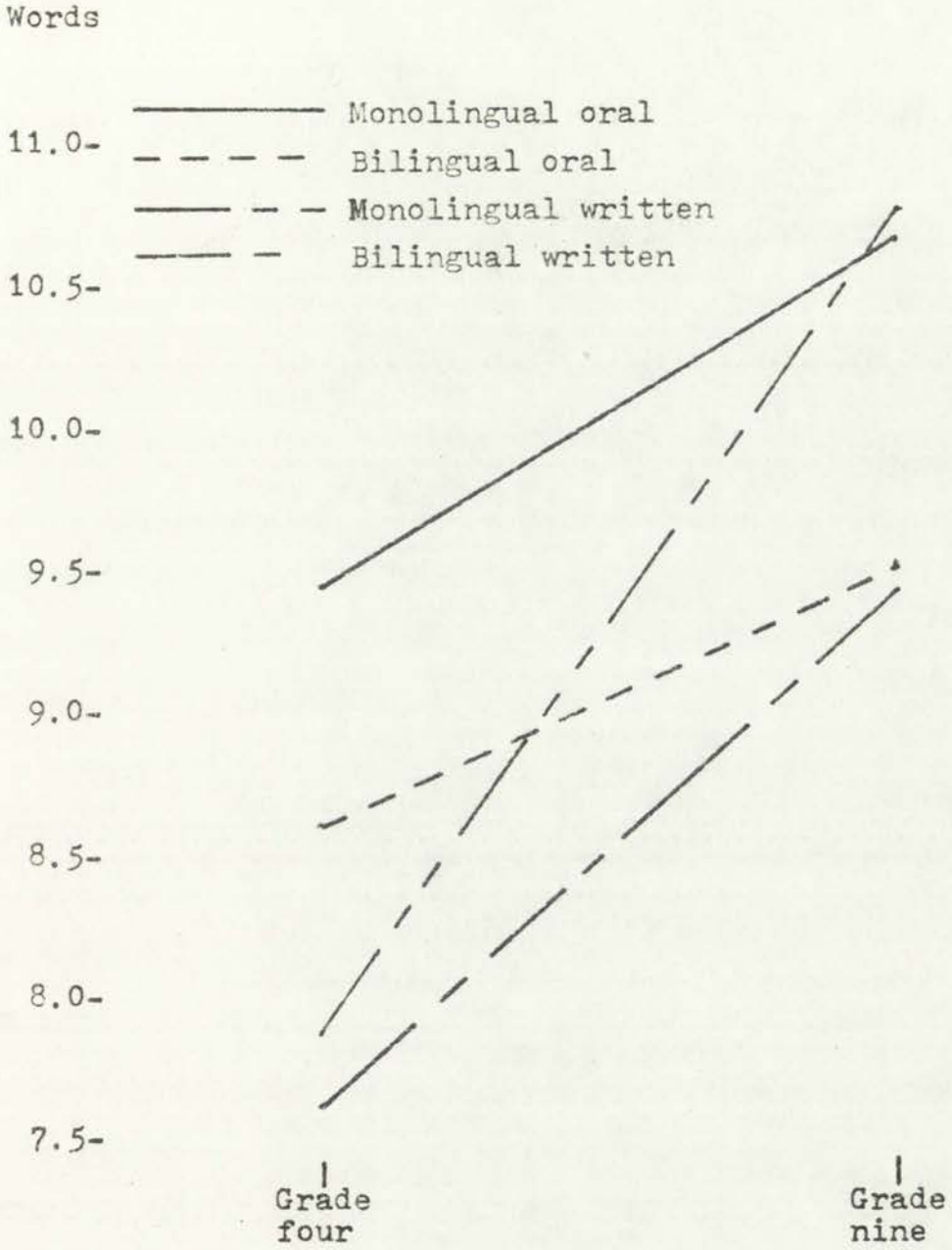

FIGURE 3

AVERAGE LENGTH OF T-UNITS OF MEXICAN AMERICAN BILINGUAL AND ANGLO AMERICAN MONOLINGUAL FOURTH AND NINTH GRADE STUDENTS IN THE ORAL AND WRITTEN MODES

amounts of increase are not the same. In the average length of clause for the oral mode, monolinguals increased .086 words more than bilinguals did. In the average length of clause in the written mode, monolinguals increased .431 words more than bilinguals did. In the average number of clauses per T-unit in the oral mode, monolinguals increased .031 clauses more than bilinguals did. In the average number of clauses per T-unit in the written mode, monolinguals increased .103 clauses more than bilinguals did. Monolinguals increased the average length of T-units in the oral mode from fourth grade to ninth grade .363 more words than the bilinguals did. Monolinguals increased the average length of T-units in the written mode .966 more words than the bilinguals did.

Generally, from fourth grade to ninth grade, monolinguals increased in the three syntactic maturity measures arithmetically more than the bilinguals did. The written mode exhibited greater differences than the oral mode. The data were not subjected to tests of significance because the fourth and ninth grade groups were not validly comparable due to potentially different historical factors. Table 24 summarizes the group differences in the three syntactic maturity measures.

Hypothesis III

The third hypothesis states that there will be no significant difference between the written and spoken samples of both the Mexican American bilingual and the Anglo American

TABLE 24

BILINGUAL AND MONOLINGUAL GROUP INCREASES FROM GRADE FOUR TO GRADE NINE IN AVERAGE LENGTH OF CLAUSES, AVERAGE NUMBER OF CLAUSES PER T-UNIT, AND AVERAGE LENGTH OF T-UNITS

Measure	Bilingual oral	Monolingual oral	Bilingual written	Monolingual written
average length of clauses	.266	.352	.554	.984
average number of clauses per T-unit	.055	.086	.109	.212
average length of T-units	.768	1.131	1.808	2.774

monolingual fourth and ninth grade subjects in terms of three sets of variables. The first set of variables is concerned with three syntactic maturity measures: the average number of words per clause, the average number of clauses per T-unit, and the average number of words per T-unit. The second set of variables includes the total number of "sentence-embedding" transformations per twenty T-units (total sample for each subject) which are, in turn, classified according to headed nominal, non-headed nominal, adverbial, and coordinated structures. The third set of variables concerns the number of syntactic and morphological rule variations from "standard" English. Hypothesis III treats the four study groups--fourth grade bilingual, fourth grade monolingual, ninth grade bilingual, ninth grade monolingual--separately in examining their oral and written samples.

T-unit Length, Average Number of Clauses, and Average Clause Length

In comparing the oral and written productions of three of the study groups, fourth grade bilingual, ninth grade bilingual, and ninth grade monolingual, no significant difference was determined by the Kolmogorov-Smirnov two-sample test at the .05 level for average number of words per clause, average number of clauses per T-unit, and average number of words per T-unit. Monolingual fourth grade usage showed no significant difference in the average number of words per clause and the average number of clauses per T-unit. However,

the oral and written modes of fourth grade monolinguals were significantly different in average length of T-units. The obtained value of K_D in the Kolmogorov-Smirnov two-sample test was .5000, which is significant beyond the .05 level.

Although the average number of words per clause and the average number of clauses per T-unit of the monolingual fourth graders were not significant in the differences between the oral and written modes, the measure of average number of clauses per T-unit was approaching significance, which, combined with a slight difference in average number of words per clause, would result in the significant difference between oral and written modes of the average number of words per T-unit. Specifically, the average T-unit length of monolingual fourth grade students was 1.575 words longer in the oral mode than in the written mode. Examination of clause usage of fourth grade monolinguals reveals that, in the oral mode, they used .05 times as many noun clauses, .03 times as many adjective clauses, and .15 times as many adverb clauses per T-unit as they did in the written mode. In all, they embedded .219 more transformations per T-unit in the oral mode than in the written mode.

"Sentence-embedding" Transformations

No significant difference was determined between the oral and written modes of the fourth grade bilingual, fourth grade monolingual, ninth grade bilingual, and ninth grade monolingual groups in the distribution of total "sentence-embedding" transformations as measured by the Kolmogorov-Smirnov

two-sample test at the .05 level.

"Sentence-embedding" transformations include headed nominal, non-headed nominal, coordinated, and adverbial structures. The distributions of these structures of the fourth and ninth grade bilingual and monolingual groups were not significantly different between the individual group oral and written modes as measured by the Kolmogorov-Smirnov two-sample test at the .05 level.

Syntactic and Morphological Rule Variations from "Standard" English

The distributions of syntactic and morphological rule variations of the fourth grade bilingual, fourth grade monolingual, ninth grade bilingual, and ninth grade monolingual groups were subjected to the Kolmogorov-Smirnov two-sample test at the .05 level to determine if a significant difference existed between the oral and written modes of each group. The test determined no significant difference for either the syntactic or morphological rule variations for any of the groups.

Additional Findings

In addition to the data directly relating to the hypotheses, this study examined usage of nominals, usage of prepositional phrases, noun clauses and words used to introduce them, adjective clauses and words used to introduce them, and usage of verb auxiliaries and types.

Usage of Nominals

The nominals are divided into the following categories: subject, direct object, object of preposition, predicate nominal, unmodified proper nouns, unmodified common nouns, it, and personal pronouns excluding it. The specific data are presented in Tables 25 and 26. In the fourth grade, monolinguals used more total nominals than bilinguals did in both the oral and written modes. In the oral mode, monolingual fourth graders employed more subjects, direct objects, objects of prepositions, predicate nominals, unmodified proper nouns, personal pronouns excluding it, and its than bilinguals did. Bilingual fourth graders had more unmodified common nouns than the monolinguals had. In the written mode, monolingual fourth graders utilized more predicate nominals, unmodified proper nouns, and its than the bilinguals did. Bilingual fourth graders used more subjects, direct objects, objects of prepositions, unmodified common nouns, and personal pronouns excluding it in the written mode than monolinguals did. Both fourth grade groups employed more nominals in the oral mode than in the written mode.

Ninth grade bilingual and monolingual students used more total nominals than fourth grade students did. Monolingual ninth graders had more total nominals than bilingual ninth graders did in both the oral and written modes. In the oral mode, monolinguals employed more subjects, direct objects, predicate nominals, and unmodified proper nouns than did the bilinguals. Bilingual ninth graders used more objects

TABLE 25

NOMINALS USED BY BILINGUAL (MAB) AND MONOLINGUAL (AAM) FOURTH GRADERS
(PER 20 T-UNITS)

Structure		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
total nominals:	mean	62.351	61.143	63.938	56.919	57.095	56.688
	median	61.000	61.000	61.000	55.000	54.600	56.500
	range	42.000-90.	42.000-83.	46.000-90.	45.000-98.	45.000-98.	45.000-65.
	SD	10.719	10.631	10.969	9.633	11.545	6.700
subject:	mean	28.703	27.952	29.688	25.730	26.190	25.125
	median	28.625	28.563	28.500	25.563	25.800	25.200
	range	22.000-40.	22.000-33.	25.000-40.	20.000-36.	20.000-36.	21.000-28.
	SD	3.894	3.413	4.362	3.469	4.250	2.029
direct object:	mean	21.270	20.952	21.688	17.378	18.000	16.653
	median	20.750	19.750	22.000	17.583	18.125	16.000
	range	6.000-36.	14.000-36.	6.000-32.	9.000-30.	9.000-30.	11.000-30.
	SD	6.063	5.679	6.700	5.074	5.206	4.939
object of preposition:	mean	10.838	10.571	11.188	10.135	10.143	10.125
	median	10.667	10.000	11.000	9.917	10.250	9.750
	range	2.000-22.	4.000-20.	2.000-22.	2.000-20.	2.000-20.	4.000-18.
	SD	4.793	4.632	5.128	3.994	4.293	3.704
predicate nominal:	mean	1.811	1.667	2.000	3.270	2.571	4.188
	median	1.333	1.083	1.750	2.583	1.875	3.833
	range	.000- 7.	.000- 7.	.000- 6.	.000-17.	.000-17.	.000- 9.
	SD	1.823	1.853	1.826	3.421	3.696	2.880

TABLE 25 (Continued)

Structure		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
unmodi-	mean	2.541	2.524	2.563	4.514	4.048	5.125
fied	median	1.800	1.750	1.833	4.000	3.750	4.167
proper	range	.000- 8.	.000- 8.	.000- 8.	.000-12.	.000- 9.	.000-12.
noun:	SD	2.317	2.337	2.366	3.421	3.696	2.880
unmodi-	mean	11.676	11.905	11.375	12.135	12.571	11.563
fied	median	10.438	11.250	10.400	11.583	11.563	11.167
common	range	5.000-20.	5.000-19.	6.000-20.	4.000-25.	4.000-25.	6.000-18.
noun:	SD	4.035	3.833	4.395	4.620	5.381	3.464
personal	mean	25.919	25.714	26.188	21.135	22.619	19.188
pronouns	median	26.125	25.750	26.500	21.200	22.250	19.500
excluding	range	17.000-33.	17.000-33.	20.000-33.	9.000-36.	9.000-36.	13.000-30.
_it_:	SD	4.310	4.573	4.070	5.593	5.878	4.679
_it_:	mean	3.351	3.143	3.625	2.054	1.810	2.375
	median	3.400	3.250	3.500	1.667	1.417	2.167
	range	.000- 7.	.000- 7.	1.000- 6.	.000- 7.	.000- 6.	.000- 7.
	SD	1.889	2.007	1.746	1.885	1.806	1.996

TABLE 26

NOMINALS USED BY BILINGUAL (MAB) AND MONOLINGUAL (AAM) NINTH GRADERS
(PER 20 T-UNITS)

Structure		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
total nominals:	mean	68.526	67.211	69.842	65.895	63.053	68.737
	median	67.500	67.125	69.500	65.500	63.000	66.750
	range	46.000-99.	47.000-85.	46.000-99.	30.000-99.	30.000-98.	52.000-99.
	SD	12.374	9.801	14.664	15.672	16.907	14.212
subject:	mean	30.026	28.947	31.105	28.474	27.474	29.474
	median	30.000	29.000	30.750	28.500	27.750	28.875
	range	21.000-42.	21.000-37.	24.000-42.	7.000-49.	7.000-41.	21.000-49.
	SD	4.511	4.441	4.433	6.970	7.456	6.492
direct object:	mean	21.816	21.421	22.211	17.000	16.632	17.368
	median	21.167	20.750	22.000	16.833	15.000	18.250
	range	8.000-34.	11.000-32.	8.000-34.	7.000-30.	7.000-30.	8.000-25.
	SD	6.159	5.591	6.812	5.521	6.414	4.609
object of preposition:	mean	14.553	14.632	14.474	16.316	14.789	17.842
	median	14.500	15.250	13.000	15.500	14.750	15.875
	range	6.000-39.	7.000-20.	6.000-39.	5.000-41.	7.000-26.	5.000-41.
	SD	5.931	3.760	7.626	7.652	5.564	9.191
predicate nominal:	mean	2.079	1.947	2.211	4.658	4.684	4.632
	median	1.864	1.750	2.000	3.833	3.250	4.250
	range	.000- 6.	.000- 6.	.000- 6.	1.000-14.	1.000-14.	2.000- 8.
	SD	1.667	1.682	1.686	2.802	3.560	1.862

TABLE 26 (Continued)

Structure		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
unmodi-	mean	3.395	3.316	3.474	4.737	4.263	5.211
fied	median	2.786	2.917	2.375	3.500	2.333	4.688
proper	range	.000-12.	.000- 8.	.000-12.	.000-14.	.000-14.	.000-14.
noun:	SD	2.636	1.974	3.221	4.137	4.293	4.036
unmodi-	mean	10.000	11.263	8.737	10.263	9.789	10.737
fied	median	9.700	10.750	8.667	10.500	10.333	10.750
common	range	3.000-22.	7.000-22.	3.000-22.	2.000-19.	2.000-19.	3.000-19.
noun:	SD	3.973	3.380	4.201	4.636	4.404	4.931
personal	mean	25.026	25.158	24.895	22.947	22.579	23.316
pronouns	median	24.500	24.813	25.250	22.000	22.000	22.000
excluding	range	15.000-42.	16.000-42.	15.000-36.	6.000-43.	6.000-41.	12.000-43.
_it_:	SD	5.678	5.398	6.091	8.767	9.149	8.603
_it_:	mean	4.921	4.947	4.895	2.658	2.632	2.684
	median	4.875	4.667	4.750	2.227	1.875	2.429
	range	1.000-13.	1.000-10.	1.000-13.	.000-12.	.000-12.	.000- 5.
	SD	2.675	2.656	2.767	2.430	3.201	1.376

of prepositions, unmodified common nouns, personal pronouns excluding it, and its in the oral mode than monolinguals did. In the written mode, the T-units of the monolingual ninth graders exhibited more subjects, direct objects, objects of prepositions, unmodified proper nouns, unmodified common nouns, personal pronouns excluding it, and its than the bilinguals did. Predicate nominals were used slightly more by ninth grade bilinguals than by monolinguals in the written mode. Both ninth grade groups employed more nominals in the oral mode than in the written mode.

Usage of Prepositional Phrases

The total different prepositions were tabulated for each group (see Table 27). Both ninth grade groups employed more total different prepositions than the fourth grade groups did. The difference between monolingual and bilingual fourth grade groups was very slight. Bilingual ninth graders used more total different prepositions than monolingual ninth graders in the written mode. The reverse was true in the oral mode.

Noun Clauses and Words used to Introduce Them

Very little difference was found between groups in their use of total different noun clause types. Monolingual ninth graders in the oral mode used the most number of different types. Noun clauses were most commonly introduced by that by all groups. The second most common usage was not to use any introductory word. The data are presented in

TABLE 27

PREPOSITIONAL PHRASES USED TO MODIFY NOUNS

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
Place	10	14	15	13	15	24	20	32
Purpose	7	4	6	7	10	8	6	9
Time	-	4	-	1	5	1	3	4
Not place, purpose or time	8	10	9	4	11	8	14	21
in	9	10	4	7	10	15	8	10
for	5	3	5	3	8	6	6	4
with	2	3	1	4	3	1	5	4
on	-	2	6	1	2	4	2	7
to	1	2	1	2	1	-	1	1
about	1	4	2	-	4	-	2	7
like	4	1	7	1	4	1	9	13
as	-	1	-	-	3	1	-	2
at	-	4	1	-	-	5	2	5
from	-	-	1	1	1	-	5	1
by	-	-	1	-	3	1	-	1
except for	-	-	-	1	-	-	-	-
against	-	-	-	1	-	-	-	-
down	-	-	-	-	-	-	-	1
after	-	1	-	-	-	-	-	-
out of	1	-	-	-	1	-	1	1
before	-	-	-	-	1	-	1	-
over	-	-	1	1	1	1	3	-
as to	-	-	-	-	-	-	-	2
as in	-	-	-	-	1	-	-	-
such as	-	-	-	-	1	1	-	-
under	-	-	-	-	1	-	-	-
off	-	-	-	1	1	-	-	-

TABLE 27 (Continued)

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
inside	-	-	-	-	1	-	-	-
than	-	-	1	1	-	1	1	-
towards	-	-	-	-	-	1	-	-
during	-	-	-	1	-	1	-	-
across	-	-	-	-	-	1	-	-
back	-	-	1	-	-	-	-	1
besides	-	-	-	-	-	-	1	-
around	-	-	-	-	-	-	2	2
up	-	-	-	-	-	-	-	1
up in	-	-	-	-	-	-	-	1
next to	-	-	-	-	-	-	-	1
through	-	-	-	-	-	-	-	1
behind	-	-	-	-	-	-	-	1
out	-	-	-	-	-	-	-	1
total different prepositions	8	10	13	13	20	15	15	22

Table 28.

Adjective Clauses and Words used to Introduce Them

All groups exhibited very little difference in their use of total different adjective clause types. The most common relative pronoun used by all groups to introduce adjective clauses was that. The omission of the introductory pronoun was also very common. The most common relative adverb was where. The data are presented in Table 29, page 158.

Usage of Verb Auxiliaries and Verb Types

Verb auxiliary forms were tabulated to determine if there were any differences between groups. All complete verb auxiliary forms are listed in Table 30, pages 159-160. A total of forty-five different auxiliary forms was found. Although each group in each mode did not employ the same auxiliary forms, generally each group employed the same number of different forms. The largest difference occurred in the fourth grade oral mode. Fourth grade bilinguals used twenty different auxiliary forms while fourth grade monolinguals used twenty-eight different auxiliary forms.

The most common auxiliary form was the be + ing progressive form. It was used more by bilinguals than by monolinguals except in the ninth grade written mode. It was used more in the fourth grade than in the ninth grade except for the written mode of monolinguals.

The use of perfect forms increased by a large amount

TABLE 28

NOUN CLAUSES AND WORDS USED TO INTRODUCE THEM

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
Ø	29	11	9	8	16	30	18	20
that	7	2	11	11	10	8	10	18
what	-	1	5	3	5	6	9	15
how	-	-	2	-	2	2	3	12
if	4	-	3	1	6	-	-	2
where	-	1	-	6	5	1	6	1
when	3	2	-	1	-	1	3	-
why	1	-	-	3	2	-	1	1
who	1	2	2	-	-	-	1	1
whatever	-	-	-	-	-	-	1	1
whichever	-	-	-	-	-	-	-	1
whoever	1	-	1	-	1	-	-	-
because	-	-	-	-	-	1	-	1
how come	-	-	-	1	-	-	-	-
the way	-	-	-	-	-	-	-	1
total different noun clause types	7	6	7	8	8	7	9	12

TABLE 29

ADJECTIVE CLAUSES AND WORDS USED TO INTRODUCE THEM

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
Relative pronouns								
Ø	7	5	3	4	3	12	13	14
that	9	8	20	13	7	10	9	26
which	-	1	-	2	2	7	-	2
who	5	1	2	3	8	7	2	7
whose	-	-	-	-	-	1	-	-
what	-	-	-	-	1	1	-	1
Relative adverbs								
Ø	-	-	-	-	-	1	-	-
where	-	-	2	2	8	-	4	4
total different adjective clause types	3	4	4	5	6	7	4	6

TABLE 30

VERB AUXILIARY FORMS

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
be + ing	32	19	48	31	24	30	35	28
be + en	2	4	1	3	10	8	3	3
be + going to	11	1	14	11	4	7	10	3
be + supposed to	2	-	-	1	-	-	1	3
be + about to	-	-	-	-	1	-	-	-
be + going to + have to	-	-	-	1	-	-	-	1
have + en	3	2	5	11	14	15	4	24
have + en + be + ing	1	-	-	-	1	-	-	2
have + en + be + en	-	1	-	-	-	1	-	-
have + en + get to	-	-	1	-	-	-	-	-
have to	2	5	21	9	11	3	17	5
have to + go	-	-	-	1	-	-	-	-
have + got to	-	-	1	1	-	-	2	2
had better	1	-	-	1	-	-	-	-
get + en	-	-	1	3	1	2	2	3
get to	1	3	2	1	-	-	2	-
go	-	-	5	1	-	-	-	-
go + ing	2	1	-	-	-	-	1	-
go to	4	1	2	1	2	1	1	1
go + to go	1	-	1	-	-	-	-	-
come to	1	-	-	-	-	-	-	-
come + ing	-	-	-	1	-	-	-	-
must	-	-	-	-	-	1	-	-
do	18	7	16	15	9	17	19	27
do + have to	-	-	-	1	-	-	2	1
used to	2	-	9	-	1	1	10	1
can	7	1	6	8	10	4	8	18
could	5	-	4	2	5	4	12	15
could + have + en	-	-	-	-	1	-	-	-

TABLE 30 (Continued)

	fourth grade				ninth grade			
	written		oral		written		oral	
	b	m	b	m	b	m	b	m
could + be + en	-	-	-	-	1	-	-	-
may	-	1	-	-	1	-	-	-
may + have + en	-	-	-	-	-	1	-	-
might	-	1	3	3	1	-	2	4
might + get + en	-	-	-	1	-	-	-	-
will	10	9	7	4	8	6	7	6
will + go	-	-	1	-	-	-	-	-
will + be + ing	-	1	-	1	-	1	-	-
would	11	2	3	2	17	7	18	22
would + have + en	-	-	-	-	3	-	-	2
would + have to	-	-	-	-	-	1	-	-
would + go to	-	-	-	-	1	-	-	-
should	-	4	-	2	-	1	-	-
should + have + en	2	-	-	2	-	-	1	-
manage to	-	-	-	1	-	-	-	-
keep + ing	-	1	-	1	2	1	-	3
total different auxiliaries	21	18	20	28	21	21	20	21

from fourth grade to ninth grade except in the oral mode of bilinguals, which was about the same for both grades. In the written mode, the perfect forms increased about four times for the bilinguals and five times for the monolinguals from fourth to ninth grade. In the oral mode, the use of perfect forms was almost the same for bilinguals in fourth and ninth grade, but the number more than doubled for monolinguals from fourth to ninth grade.

Two future forms are worth considering: will and be + going to. Shall was not used by any of the students. The use of will future forms showed a slight decrease from grade four to grade nine, but was essentially the same for all groups except monolingual fourth graders in the oral mode, who used will forms less than any other group. Be + going to was used much more by bilinguals than by monolinguals except in the ninth grade written mode. The use of be + going to decreased from fourth grade to ninth grade except for the monolinguals in the written mode.

The auxiliary do increased in use from fourth grade to ninth grade except among bilinguals in the written mode, among whom it decreased by 50 percent.

The use of the modals can, could, and would generally increased for all groups from the fourth to the ninth grades. In the written mode, bilinguals used these modals much more than monolinguals did in both fourth and ninth grades. In the oral mode, ninth grade monolinguals used these modals more than ninth grade bilinguals did. The use of other modal forms

was relatively infrequent.

The passive form be + en was employed by both bilingual and monolingual ninth graders primarily in the written mode. The number of times the form occurred in the oral mode was very slight.

This study classifies main verbs into four types: transitive, pseudo-transitive, intransitive, and be and other linking verbs. The specific data are in Tables 31 and 32.

In the fourth grade oral mode, monolinguals employed more of all four types of verbs than bilinguals did, which may result from more verb coordinations within the predicate. In the fourth grade written mode, monolinguals used more pseudo-transitive and be and other linking types, but bilinguals used more transitive and intransitive types. Generally, all fourth grade subjects utilized the transitive more than any other type.

In the ninth grade oral mode, monolinguals also employed more of all four types of verbs than bilinguals did. In the ninth grade written mode, monolinguals used more intransitive, pseudo-transitive, and be and other linking verb types; but bilinguals employed more transitive verb types. Like the fourth grade subjects, ninth grade subjects used the transitive type more than any other verb type.

Generally, both ninth grade groups employed the be and other linking verb type more than both fourth grade groups did. Intransitive verbs also increased in frequency from

TABLE 31

VERB TYPES USED BY BILINGUAL (MAB) AND MONOLINGUAL (AAM) FOURTH GRADERS
(PER 20 T-UNITS)

Type		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
transi-	mean	14.568	13.952	15.375	12.811	13.810	11.500
tive:	median	15.000	14.250	16.000	12.625	13.000	11.500
	range	3.000-24.	4.000-20.	3.000-24.	5.000-24.	5.000-24.	5.000-19.
	SD	4.919	4.177	5.795	4.195	4.203	3.933
intran-	mean	5.838	5.714	6.000	5.730	6.048	5.313
sitive:	median	5.625	6.000	5.500	5.938	6.583	5.750
	range	.000-15.	.000-11.	2.000-15	.000-13.	1.000-13.	.000- 9.
	SD	2.892	2.533	3.386	2.735	2.974	2.414
pseudo-	mean	2.000	1.952	2.063	1.865	1.762	2.000
transi-	median	2.042	1.889	2.500	1.273	1.313	1.167
tive:	range	.000- 5.	.000- 5.	.000- 4.	.000- 9.	.000- 5.	.000- 9.
	SD	1.374	1.465	1.289	2.016	1.546	2.556
be and	mean	5.459	5.048	6.000	6.027	5.524	6.688
other	median	5.286	5.000	6.000	6.000	5.875	6.167
linking	range	1.000-12.	1.000- 9.	2.000-12.	1.000-11.	1.000-10.	4.000-11.
verbs:	SD	2.479	2.133	2.852	2.444	2.522	2.243

TABLE 32

VERB TYPES USED BY BILINGUAL (MAB) AND MONOLINGUAL (AAM) NINTH GRADERS
(PER 20 T-UNITS)

Type		Total oral	MAB oral	AAM oral	Total written	MAB written	AAM written
transi-	mean	14.395	13.789	15.000	11.263	11.526	11.000
tive:	median	13.300	13.375	13.300	10.333	10.000	10.754
	range	3.000-29.	7.000-24.	3.000-29.	3.000-21.	3.000-21.	3.000-18.
	SD	5.325	4.541	6.074	4.196	4.754	3.667
intran-	mean	6.526	6.105	6.947	7.553	7.421	7.684
sitive:	median	6.333	6.000	6.667	7.000	6.875	7.188
	range	2.000-12.	2.000-12.	3.000-12.	2.000-17.	3.000-17.	2.000-17.
	SD	2.679	2.664	2.697	3.629	3.553	3.816
pseudo-	mean	2.289	1.947	2.632	1.579	1.421	1.737
transi-	median	2.250	2.000	2.625	1.143	.917	1.313
tive:	range	.000- 6.	.000- 4.	.000- 6.	.000- 6.	.000- 6.	.000- 4.
	SD	1.523	1.393	1.606	1.553	1.742	1.368
be and	mean	7.342	7.211	7.474	9.158	8.579	9.737
other	median	7.167	7.583	6.417	9.000	8.333	9.625
linking	range	1.000-14.	3.000-11.	1.000-14.	2.000-17.	2.000-17.	5.000-16.
verbs:	SD	2.684	2.097	3.221	3.234	3.564	2.845

fourth to ninth grades for both groups. Substantially fewer transitive verbs were employed by ninth grade bilinguals than by fourth grade bilinguals in the written mode. Fourth grade bilinguals used substantially more transitive verbs in the written mode than did fourth grade monolinguals, although monolinguals used more transitive verbs in the oral mode than bilinguals did in both fourth and ninth grades. While the frequency of pseudo-transitive verbs decreased for the other groups in the other modes, monolinguals in the oral mode increased their use of pseudo-transitive verbs from the fourth to the ninth grades.

Summary of the Results

All hypotheses and their subcategories were supported except for three subcategories. In Hypothesis I, the average number of clauses in the written mode was significantly different between ninth grade monolingual and ninth grade bilingual subjects. The monolingual ninth grade group employed more words per clause than did the bilingual ninth grade group in the written mode. In Hypothesis II, the monolingual subjects increased in the syntactic maturity measures from grade four to grade nine arithmetically more than the bilingual subjects did. In Hypothesis III, the monolingual fourth grade group employed significantly longer average numbers of words per T-unit in the oral mode than in the written mode.

Chapter 5

DISCUSSION

This chapter discusses the results in relation to the hypotheses specified in Chapter 1 and additional findings, the relationship to previous research, the implications of the study, the suggestions for future research, and the limitations of the findings.

The Relationship of the Hypotheses to the Results and Additional Findings

Hypothesis I.A.1-3 specified that the Mexican American bilingual and Anglo American monolingual students in the fourth and ninth grades represent the same population in terms of average number of words per clause, average number of clauses per T-unit, and average number of words per T-unit in both the oral and the written modes. There were no significant differences in the average number of clauses per T-unit and the average number of words per T-unit. However, in the written mode, ninth grade bilingual students had significantly fewer average words per clause than ninth grade monolingual students. In the fourth grade, there were no significant differences in average number of words per clause.

Examination of the raw data (see Table 33) shows that the monolingual subjects surpassed the bilingual subjects on all three syntactic maturity measures except one (fourth

TABLE 33

SYNOPSIS OF CLAUSE TO T-UNIT FACTORS OF FOURTH AND NINTH GRADE BILINGUAL (MAB) AND MONOLINGUAL (AAM) GROUPS

Grade and group	Oral or written	Average number of words per clause	X	Average number of clauses per T-unit	=	Average length of T-units
4 MAB	oral	6.476		1.340		8.695
4 AAM	oral	6.537		1.444		9.469
4 total	oral	6.503		1.385		9.030
4 MAB	written	6.067		1.309		7.629
4 AAM	written	6.500		1.212		7.894
4 total	written	6.254		1.267		7.743
9 MAB	oral	6.742		1.395		9.463
9 AAM	oral	6.889		1.530		10.600
9 total	oral	6.816		1.467		10.032
9 MAB	written	6.621[a]		1.418		9.437
9 AAM	written	7.484[a]		1.424		10.668
9 total	written	7.053		1.421		10.053

[a]Significant difference at the .05 level (Kolmogorov-Smirnov two-sample test).

grade average number of clauses per T-unit in the written mode). To conclude that the monolingual subjects are syntactically "more mature" might be misleading, for the differences are arithmetical differences and not differences in distribution and tendency, except ninth grade average number of words per clause.

Hypothesis I.B.1-2 specified that the Mexican American bilingual and Anglo American monolingual students in the fourth and ninth grades represent the same population in terms of the total number of "sentence-embedding" transformations per twenty T-units in headed nominal, non-headed nominal, adverbial, and coordinated structures. There was no significant difference between the bilingual and monolingual groups on any of these measures. Although arithmetical differences existed between the groups in the specific factors contributing to these measures, both bilingual and monolingual groups in both the fourth and ninth grades were able to employ the same syntactic structures.

Hypothesis I.C.1-2 specified that Mexican American bilingual and Anglo American monolingual students in the fourth and ninth grades represent the same population in terms of the number (per 100 words) of syntactic and morphological rule variations from "standard" English. No significant difference was determined for any of the bilingual or monolingual groups on either of these measures, syntactic rule variations or morphological rule variations. The greatest number of syntactic errors of the bilinguals was in the

bilingual use of prepositions and particles. The greatest number of morphological errors of the monolinguals was in the omission of the -ly adverb marker. A large percentage of the T-units of both bilingual and monolingual students contained no syntactic or morphological variations in any T-units. That the monolinguals had more morphological variations in the oral mode may indicate that they felt so confident in their native language that they were not aware of variations from "standard" English in the oral mode. The pronominal apposition construction was not included as a syntactic variation because it might be a form of oral mazing.

Hypothesis II.A.1-3 specified that from grade four to grade nine there will be an increase for both Mexican American bilingual and Anglo American monolingual students of the average length of clauses, average number of clauses per T-unit, and average number of T-units. The hypothesis was verified.

Hypothesis II.B. specified that there will be no difference in the amount of increase between the Mexican American bilingual and Anglo American monolingual student groups from the fourth to the ninth grade in the average length of clauses, average number of clauses per T-unit, and average length of T-units. Monolinguals increased those three syntactic maturity measures more than bilinguals did. However, no attempt was made to determine whether the difference in increase was significant since the ninth and fourth

grade students comprised groups with different histories.

Hypothesis III.A.1-3 specified that there will be no significant difference between the written and spoken samples of each group, bilingual fourth grade, monolingual fourth grade, bilingual ninth grade, and monolingual ninth grade, in terms of the average number of words per clause, the average number of clauses per T-unit, and the average n-mber of words per T-unit. For three of the groups, bilingual fourth grade, bilingual ninth grade, and monolingual ninth grade, there were no significant differences for any of the three syntactic maturity measures. There was no significant differences for the fourth grade monolingual group in the average number of words per clause and the average number of clauses per T-unit. However, the oral and written modes of the fourth grade monolingual group were significantly different in average number of words per T-unit. In their oral productions, the fourth grade monolinguals used more total "sentence-embedding" transformations than in their written productions. Even though the average numbers of clauses per T-unit were not significantly different, the number approached significance because the monolingual fourth graders employed more clauses of all types in their oral productions than in their written productions. It is typical that fourth grade oral productions will be more complex than their written productions and that, by ninth grade, the reverse will be true. Nevertheless, in this study, the divergence between fourth grade monolingual oral and written productions is much greater

than the divergence between fourth grade bilingual oral and written productions.

Hypothesis III.B.1-2 specified that there will be no significant difference between the written and spoken samples of each group, bilingual fourth grade, monolingual fourth grade, bilingual ninth grade, and monolingual ninth grade, in terms of the total number of "sentence-embedding" transformations per T-unit and the total number of "sentence-embedding" transformations per T-unit in headed nominal, non-headed nominal, adverbial, and coordinated structures. No significant differences were determined for any of these factors for any of the groups. Figure 4 displays the number of "sentence-embedding" transformations per T-unit. Both bilinguals and monolinguals use more "sentence-embedding" transformations in the oral mode in the fourth grade than in the written mode. The reverse is true for both bilinguals and monolinguals in the ninth grade.

Hypothesis III.C.1-2 specified that there will be no significant difference between the written and spoken samples of each group, bilingual fourth grade, monolingual fourth grade, bilingual ninth grade, and monolingual ninth grade, in terms of the number (per 100 words) of syntactic rule variations from "standard" English and the number (per 100 words) of morphological rule variations from "standard" English. The distributions of the four groups in the oral and written modes for both syntactic and morphological rule variations are not significantly different.

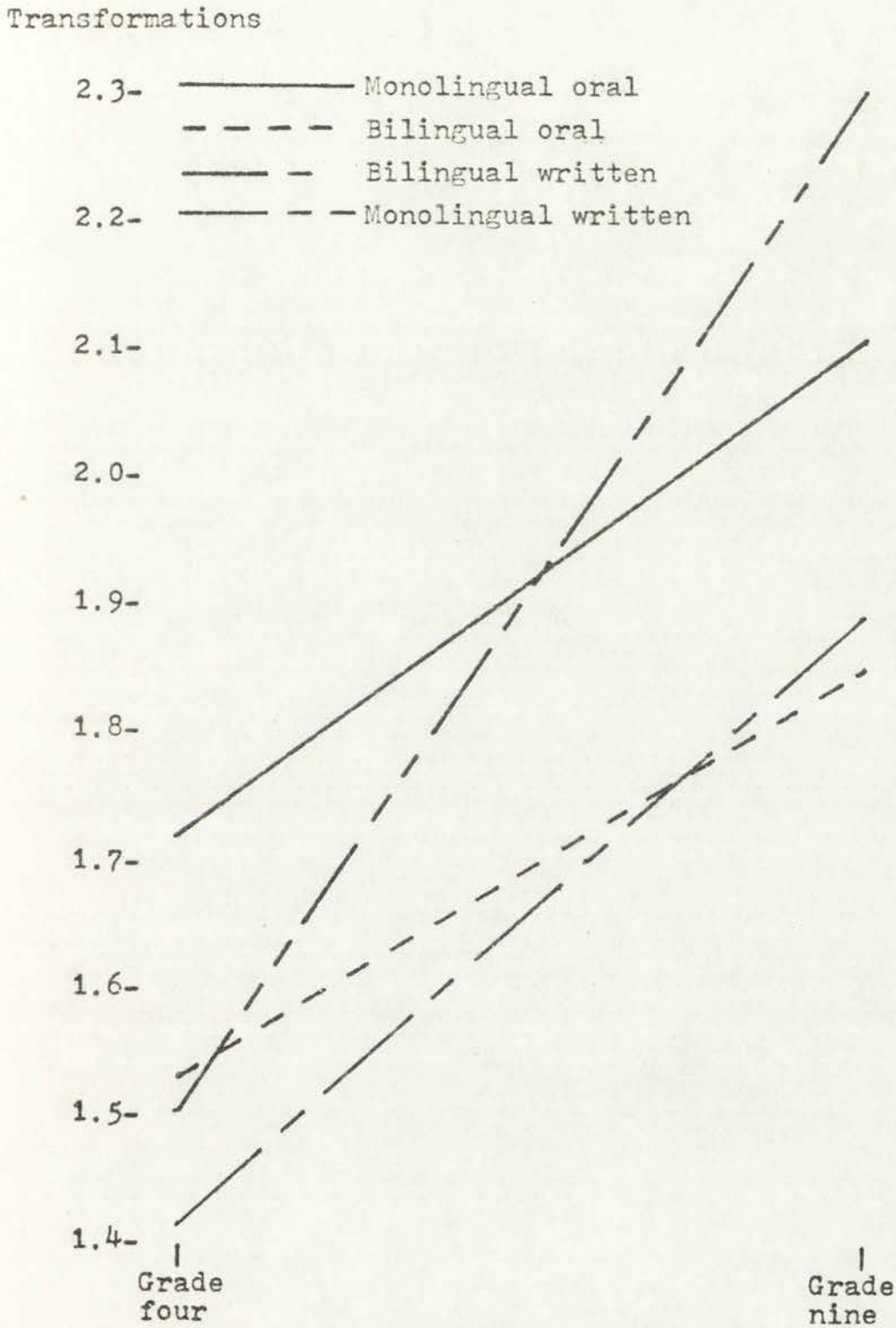

FIGURE 4

MEAN NUMBER OF "SENTENCE-EMBEDDING" TRANSFORMATIONS PER T-UNIT OF MEXICAN AMERICAN BILINGUAL AND ANGLO AMERICAN MONOLINGUAL FOURTH AND NINTH GRADE STUDENTS IN THE ORAL AND WRITTEN MODES

Three of the research hypotheses were not supported by the data. First, in the written mode, the average clause length of bilingual ninth grade students was significantly less than the average clause length of monolingual ninth grade students. Since the average clause lengths in the written mode of bilingual and monolingual fourth grade students were not significantly different, this may indicate that some detrimental factor or factors were operating upon the written productions of the bilingual students in the ninth grade, a factor or factors which were not operating, or operating to a lower degree, upon the monolingual students. Such factors may be sociological and not purely education. The bilingual students tend to come from lower socioeconomic environments where written skills may be either not as highly valued or not as necessary as oral skills. In an effort to maintain the lower socioeconomic student's desire to remain in school, the school may not stress writing skills as much as it might for the college bound, higher socioeconomic level student. Whatever the factors may be, this study does not measure them.

Given the significant difference in average written clause length of the ninth grade students, several questions follow. Is the difference in average clause length detrimental to the bilingual student? The lower rate of increasing clause length of the bilinguals in their writing compared to the rate of increase of the monolinguals in their writing appears to parallel measured test results, particularly in

reading skills. Why is the average clause length in the oral mode not significantly different? Writing may be a more difficult task, in English, for the bilingual ninth grader than for the monolingual ninth grader, but the data indicate that the bilingual possesses syntactic skills similar to those of the monolingual English-speaking ninth grader. The bilingual is not utilizing those skills to the same extent as the monolingual is. If virtually no difference can be found in the syntactic maturity measures of the fourth graders, why does the difference in average clause length in the written mode occur by ninth grade? Further research may provide the answer.

The next unsupported hypothesis was that the difference in increase from the fourth to the ninth grade of the average lengths of clauses, average numbers of clauses per T-unit, and average lengths of T-units would be the same for both the bilingual and the monolingual groups. Generally, the monolingual group measures indicated an increase from fourth to ninth grade that was greater than the increase in bilingual group measures. Since there is not as great a difference between the fourth grade bilingual and monolingual group syntactic maturity measures as there is between the ninth grade bilingual and monolingual group syntactic maturity measures, further research will have to seek reasons beyond the purely syntactic ones to determine the reasons for the difference in growth rates.

The third hypothesis not supported by the evidence

concerned the difference in T-unit lengths between the oral and written modes of the monolingual fourth grade students. The students have significantly greater T-unit lengths in the oral mode than in the written mode. Perhaps, at this stage, the students are more willing to experiment with syntactic structures in their speech than they are in their writing. Perhaps they do not feel the need for formality of structure in their speech that they feel in their writing. For many fourth graders, writing is a school activity which is somehow graded, whereas speech is not. Another possibility is that the motor skills for writing have not been well-developed yet, and so the physical act of writing requires much more effort than the physical act of speaking. Since the subjects were asked to do free-writing for this study, many of them were experiencing a relatively new task. Several of the elementary classrooms were engaged primarily in pattern drill writing practice, but not free-writing. It should be noted, also, that the T-unit length of the monolingual fourth grade students in the oral mode was greater than the T-unit length of the bilingual fourth grade students and that, by the ninth grade, T-unit length of the monolinguals in the written mode had increased more rapidly than monolingual oral T-unit length and bilingual oral and written T-unit lengths.

In addition to discussing the results in relation to the hypotheses, some comment about the additional findings

follows. The tabulation of nominals gives mixed results when comparing monolingual and bilingual productions. Generally, the monolinguals tended to employ more nominals, but this may actually be a function of their employing more coordinations. Tabulation of different prepositions reveals little except that ninth graders tended to use more different prepositions than fourth graders did. Likewise, tabulating total different noun clause types and adjective clause types reveals little about syntactic differences between monolinguals and bilinguals in English since differences in these measures are slight. Verb usage, however, is a much more complex study.

To draw particular inferences from the frequencies of verb types (transitive, intransitive, pseudo-transitive, and be and other linking) may not be worthwhile, since the choice of verb types is dependent upon subject matter and mode of discourse in the written mode and subject matter and context in the oral mode. Generally, one can conclude that both bilinguals and monolinguals used all four types with approximately the same frequencies. Both bilinguals and monolinguals appeared to have mastered all four verb types by the time they were in fourth grade.

The usage of the verb auxiliary forms is less uniform than the usage of verb types. Both bilinguals and monolinguals tended to employ the same most common verb auxiliary forms, but they exhibited more variety in the usage of the less common forms.

In the oral mode, fourth grade monolinguals used more different verb auxiliaries than any other group in any grade and mode. This may indicate that they are more willing to experiment with verb forms than the ninth grade subjects or the fourth grade bilinguals. But in the written mode, the same fourth grade monolinguals used fewer auxiliary forms, indicating that they were uncertain whether all the forms were correct for formal written class work.

Generally, bilinguals used the be + ing progressive form more than the monolinguals did, indicating that it is a relatively easy form for the bilingual to master.

The same conclusion might also be made for the be + going to future auxiliary. Bilingual fourth graders utilized it more than monolingual fourth graders and both ninth grade groups did. Only in the ninth grade written mode was the bilingual use of be + going to replaced more often by will.

The perfect forms were used much more by monolinguals in the oral mode than by bilinguals. In the written mode, both groups used the perfect forms to the same degree in both grades. Although ninth grade students used the perfect form more than the fourth grade students did, the bilingual groups were evidently less sure of its use in the oral mode and perhaps substituted the simple past tense for the perfect form.

That forms of do auxiliaries were used more by bilingual fourth grade students in the written mode than by

bilingual ninth grade students in the written mode, while bilingual oral and monolingual oral and written modes showed greater use of do in the ninth grade than in the fourth grade, is not presently explainable. Perhaps fourth grade bilinguals employed more negative transformations which would require the use of do.

The modals can, could, and would were also employed with relatively high frequency by bilinguals in the written mode. This may indicate that the bilinguals were working with more conditional statements which would require the use of such modals than the monolinguals were. Interestingly, no bilingual used the modals should or must, but both fourth and ninth grade bilingual groups used have to more than the monolingual groups did. Perhaps a correlation might be found with the uses of tener que (+ infinitive) and deber or the subjunctive in Spanish. The obligative have to, a form which appears with greater frequency in the bilingual samples, does not, however, seem to be simply another form of should or must. For should and must, although used exclusively by the monolingual subjects, do not balance out with have to in total number of occurrences. The area of modal use is a semantic one, and evidently some other selective factor (such as world view) is operating in the selection of these auxiliaries.

One other auxiliary form was employed almost exclusively by the bilingual subjects in this study: used to. Of the twenty-four instances of use, only two were by

bilingual ninth grade students in the written mode, while bilingual and monolingual oral and written modes showed greater use of do in the ninth grade than in the fourth grade, to not previously anticipated. Perhaps fourth grade bilinguals employed more negative transformations which would require the use of do.

The modals can, could, and would were also employed with relatively high frequency by bilinguals in the written mode. This may indicate that the bilinguals were working with more conditional statements which would require the use of such modals than the monolinguals were. Interestingly, no bilingual used the modals should or must, but both fourth and ninth grade bilingual groups used have to more than the monolingual groups did. Perhaps a correlation might be found with the uses of rather than (= instead) and better as the substitutive in question. The obligative have to, a form which appears with greater frequency in the bilingual samples, does not, however, seem to be simply another form of should or must. For should and must, although used exclusively by the monolingual subjects, do not balance out with have to in total number of occurrences. The area of modal use is a semantic one, and evidently some other selective factor (such as social view) is operating in the selection of these auxiliaries.

One other auxiliary form was employed almost exclusively by the bilingual subjects in this study: used to. Of the seventy-four instances of use, only two were by

monolinguals. Nineteen instances of use were by bilinguals in the fourth and ninth grades in the oral mode. Since used to expresses habitual aspect, it may be used in place of once, usually, or other adverbs combined with the simple past tense. Between the progressive forms and used to, the bilinguals expressed habitual aspect much more than the monolinguals did and appeared much more sure of such use in fourth grade than monolinguals did.

Generally, the comparison of verb auxiliary forms as used by bilinguals and monolinguals in English may involve consideration of context, mode of discourse, and other sociolinguistic factors which this study did not investigate. The fact that bilinguals or monolinguals did not employ specific forms does not indicate that they did not know them. A major question which should be asked is what forms would be used by which group in similar contexts.

Relationships to Previous Research

Figures 5, 6, 7, and 8 (pages 180-183) display the mean T-unit lengths and mean number of "sentence-embedding" transformations as determined by this study and those of Hunt (1964, 1965), O'Donnell (1967), Loban (1967), and Pope (1969). Hunt examined the written productions of students in Tallahassee, Florida, in grades four, eight, and twelve. O'Donnell studied the written and oral productions of students in grades three, five, and seven in Murfreesboro, Tennessee. Loban's figures report the oral productions of children from

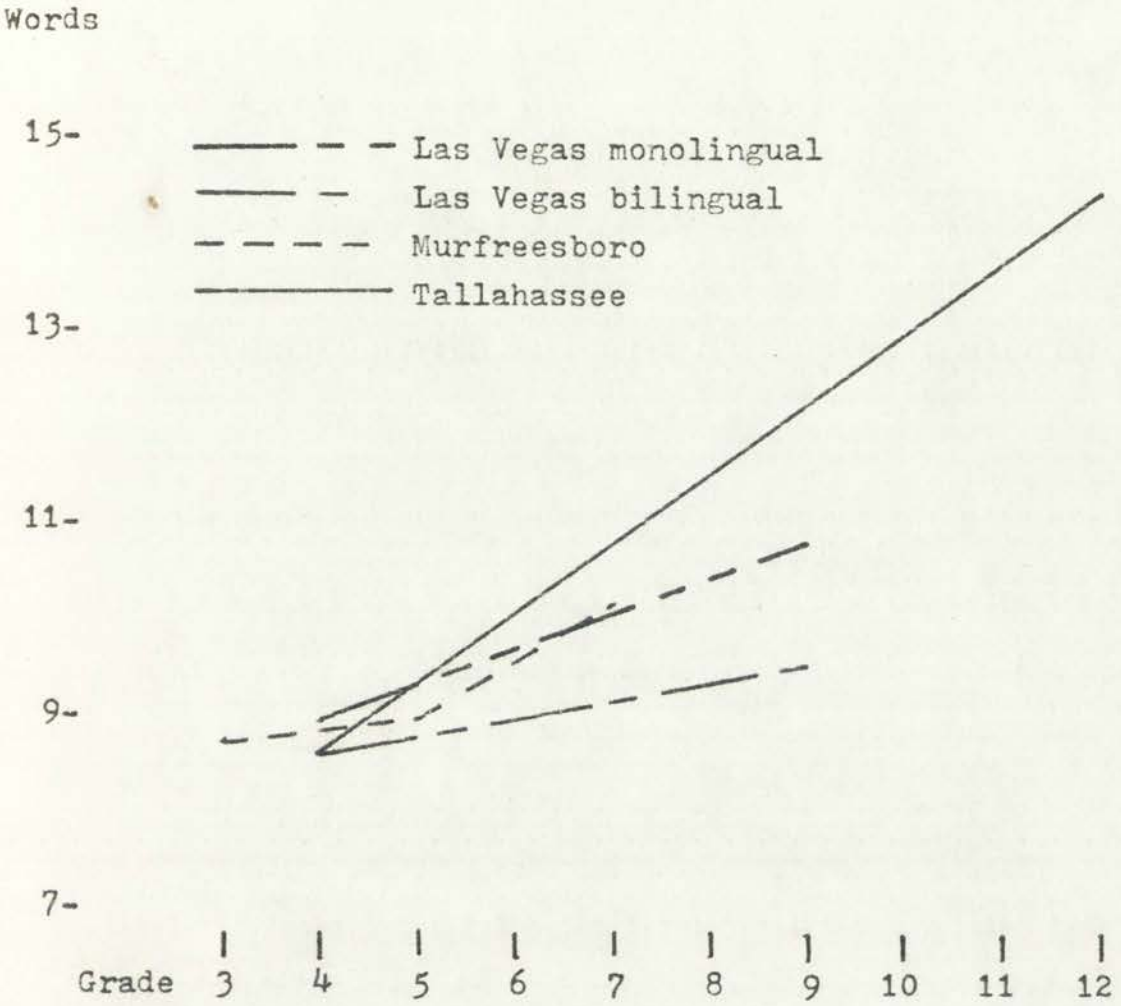

FIGURE 5

MEAN NUMBER OF WORDS PER T-UNIT IN WRITTEN MODE OF STUDENTS IN LAS VEGAS, NEW MEXICO; TALLAHASSEE, FLORIDA (HUNT, 1965, p. 22); AND MURFREESBORO, TENNESSEE (O'DONNELL, 1967, p. 45)

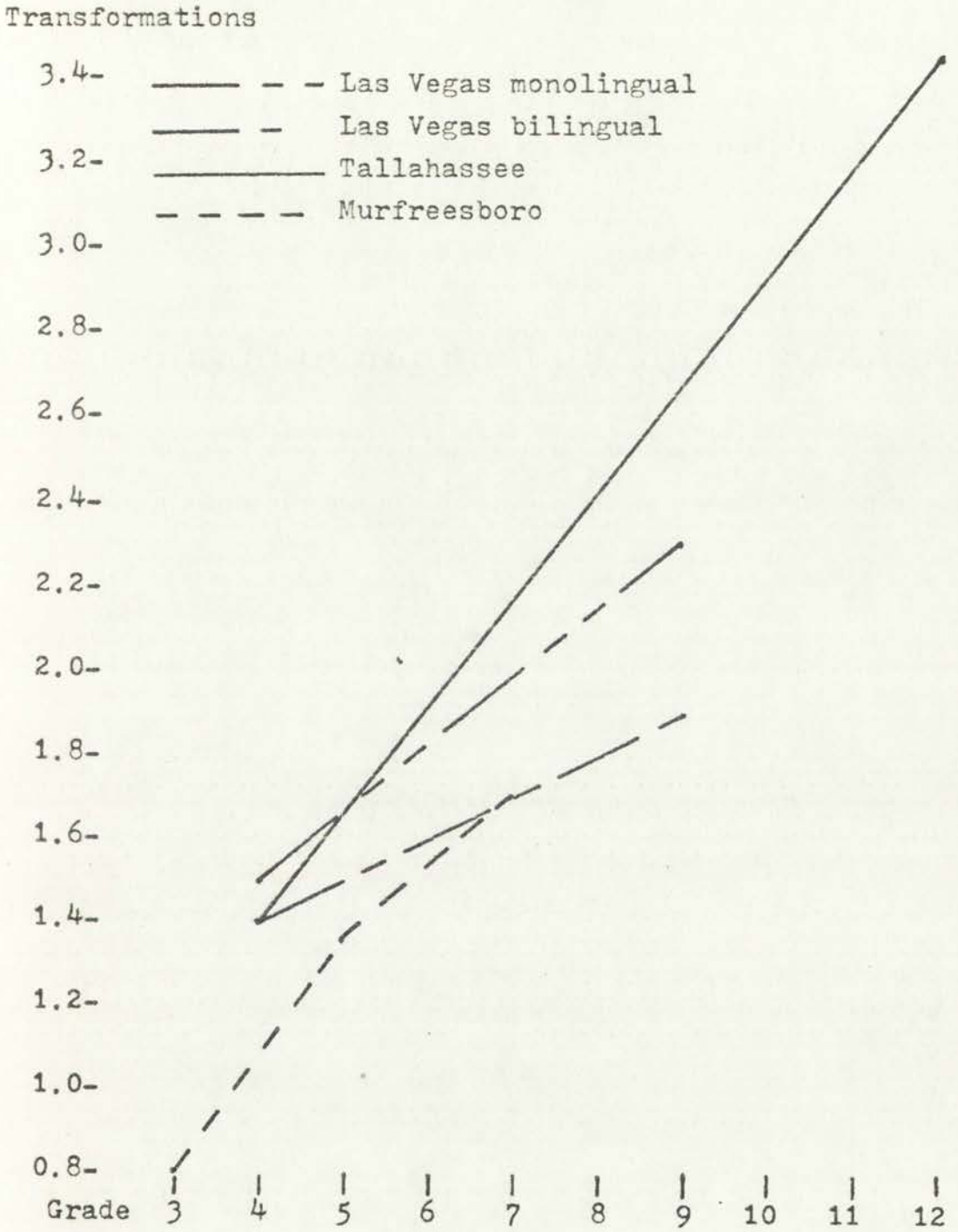

FIGURE 6

MEAN NUMBER OF "SENTENCE-EMBEDDING" TRANSFORMATIONS PER T-UNIT IN WRITTEN MODE OF STUDENTS IN LAS VEGAS, NEW MEXICO; TALLAHASSEE, FLORIDA (HUNT, 1964, p. 140), AND MURFREESBORO, TENNESSEE (O'DONNELL, 1967, p. 51)

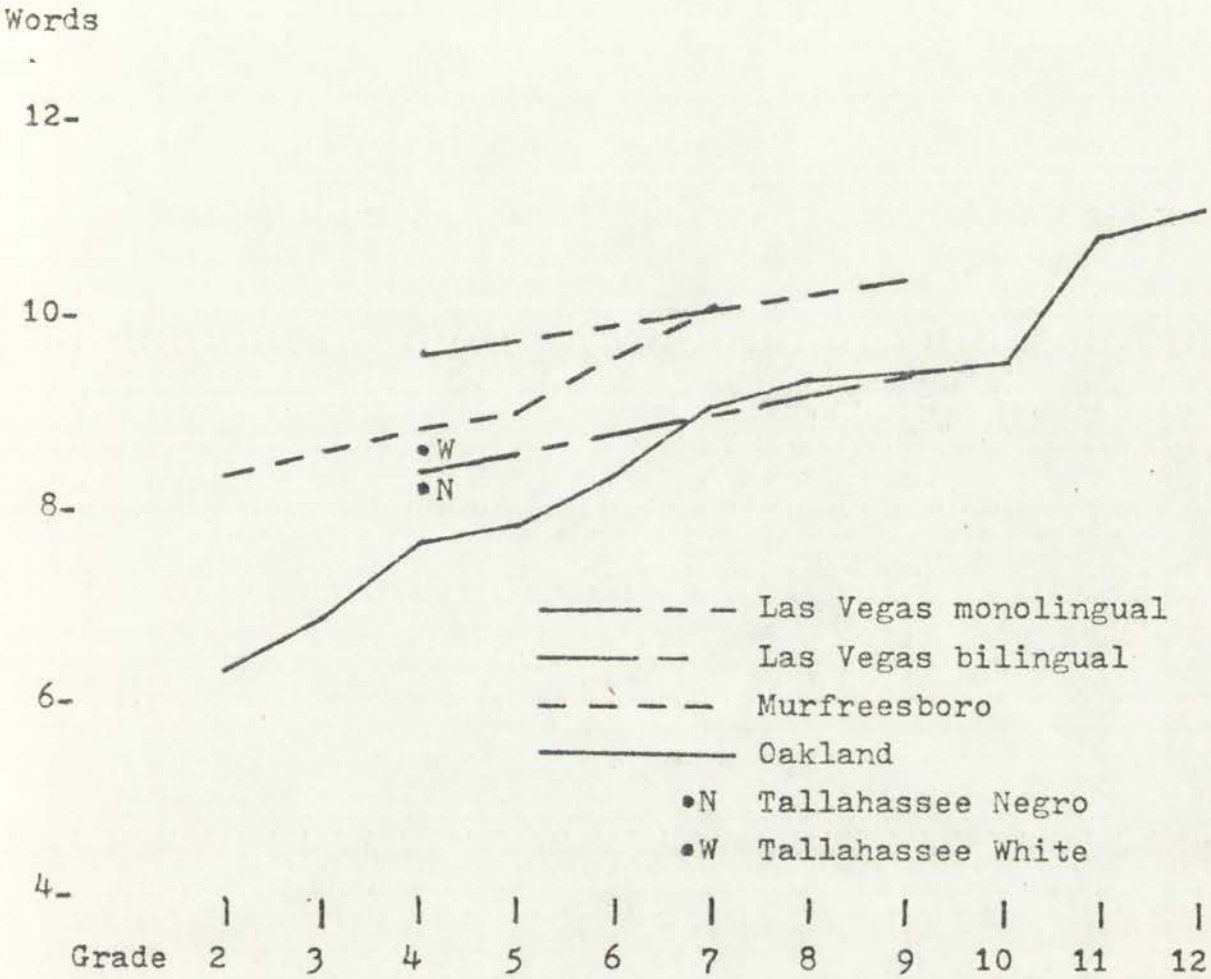

FIGURE 7

MEAN NUMBER OF WORDS PER T-UNIT IN ORAL MODE OF STUDENTS IN LAS VEGAS, NEW MEXICO; MURFREESBORO, TENNESSEE (O'DONNELL, 1967, p. 45); OAKLAND, CALIFORNIA (LOBAN, 1967, p. 63); AND TALLAHASSEE, FLORIDA (POPE, 1969, p. 46)

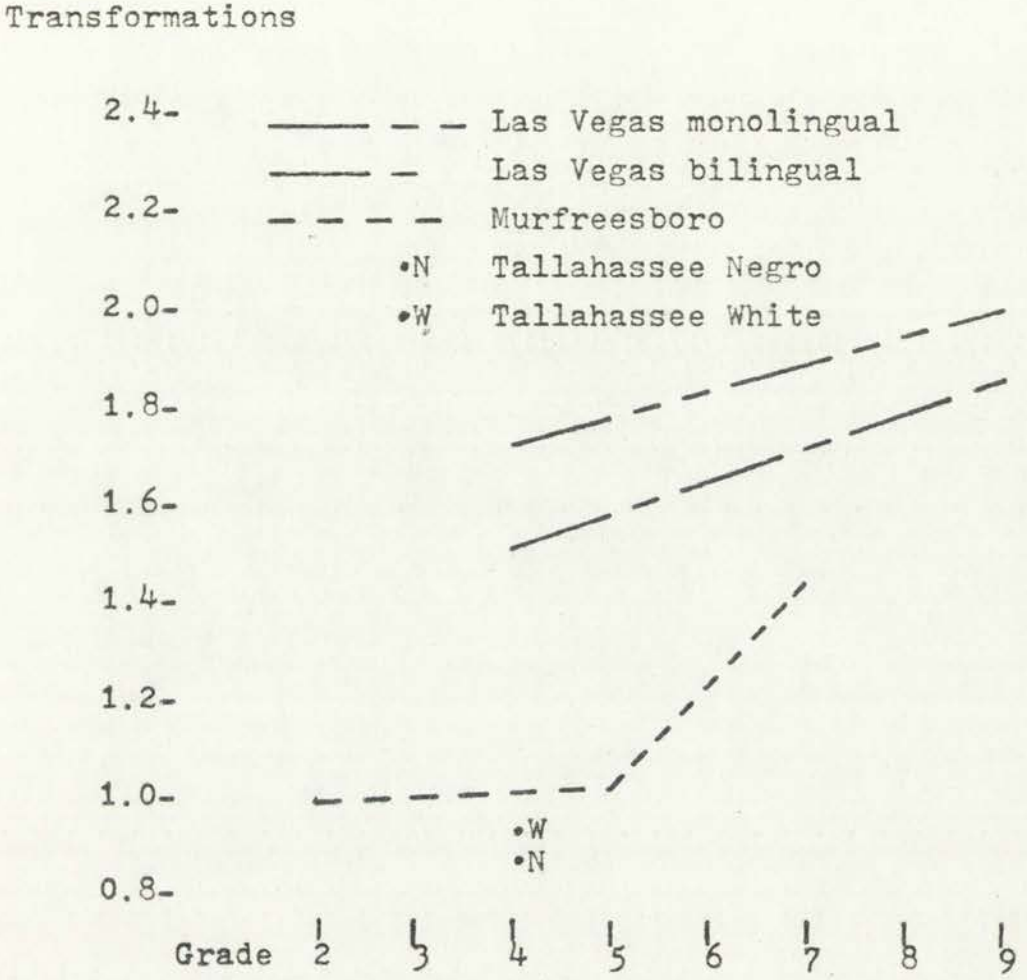

FIGURE 8

MEAN NUMBER OF "SENTENCE-EMBEDDING" TRANSFORMATIONS PER T-UNIT IN ORAL MODE OF STUDENTS IN LAS VEGAS, NEW MEXICO; TALLAHASSEE, FLORIDA (POPE, 1969, p. 47); AND MURFREESBORO, TENNESSEE (O'DONNELL, 1967, p. 51)

kindergarten through grade twelve. Pope reported the oral productions of Negro and white students in Tallahassee, Florida, in grade four. Of all the studies, only Loban's was longitudinal.

In comparing the mean number of words per T-unit in the written mode, Figure 5, page 180, indicates that both fourth grade groups in Las Vegas produce essentially the same T-unit lengths as the subjects of both Hunt (1965) and O'Donnell (1967). All four groups are increasing their mean T-unit length as they move through the grades. However, both the monolingual and bilingual Las Vegas groups are not increasing mean T-unit length at the same rate as the Tallahassee group. Since this Las Vegas study does not examine the writing of students in grade twelve, it is not possible to say what their written T-unit lengths would be in relation to the Tallahassee T-unit lengths by grade twelve.

The comparison of the mean number of "sentence-embedding" transformations per T-unit in the written mode parallels the comparison of mean T-unit lengths in the written mode. Figure 6, page 181, indicates that fourth grade students in Las Vegas produce a mean number of "sentence-embedding" transformations which is equal to or perhaps higher than the Tallahassee and Murfreesboro groups. But the rate of increase from grade four to grade nine is not equal to the rate of increase of the Tallahassee group and perhaps the Murfreesboro group.

Comparison of the mean number of words per T-unit in the oral mode of students in Las Vegas, Murfreesboro, Oakland, and Tallahassee (see Figure 7, page 182) indicates a noteworthy similarity of groups. The greatest difference occurs between the monolingual Las Vegas subjects and those of Oakland. Since the Oakland findings include a number of lower socioeconomic group subjects, a more valid comparison of the Las Vegas and Oakland subjects might be made if the monolingual and bilingual Las Vegas groups were combined, for the bilingual subjects tend to come from lower socioeconomic homes than the monolingual subjects do.

What is conspicuous is the comparison of the mean numbers of "sentence-embedding" transformations in the oral mode of the fourth graders, Figure 8, page 183. Both the Tallahassee and Murfreesboro groups have from .5 to .8 fewer transformations than the two Las Vegas groups. No figures are available for the upper grades of Tallahassee and Murfreesboro, so no clear comparison can be made at that level. However, from fifth to seventh grade, the Murfreesboro group seems to be increasing its use of "sentence-embedding" transformations at a greater rate than the Las Vegas groups.

One possible explanation for the apparent "superiority" of Las Vegas fourth grade students in employing "sentence-embedding" transformations is that both the Murfreesboro and Tallahassee groups were asked to respond orally to films which they had never seen before, while the Las Vegas subjects were responding in free speech to questions about

subjects with which they were familiar. Thus, in a relatively more comfortable situation, the Las Vegas subjects employed "sentence-embeddings" more freely. However, the mean T-unit length of the same groups does not reveal such a difference. The relevant factor causing this result is the average number of clauses per T-unit. Both Las Vegas groups used fewer clauses per T-unit than the other groups, thereby lowering their T-unit length. This may indicate that students find clauses more necessary for oral communication in a more structured situation than they do in relatively unstructured oral communication. As further support for this possible explanation, the written modes do not show such a divergence between the number of "sentence-embedding" transformations and T-unit lengths of the different groups. All groups were writing, and writing is typically more structured than speaking. Therefore, the number of clauses per T-unit was not an important comparative factor in the written mode.

Generally, Las Vegas fourth grade students, both bilingual and monolingual, employed T-unit lengths and "sentence-embedding" transformations in both the written and oral modes in a manner similar to groups from other sectors of the United States. However, the indication is that ninth grade students in Las Vegas are falling behind the groups from other sectors. This may be the result of some factor in their education or environment that this study does not measure. Since both bilingual and monolingual ninth grade groups appear to have fallen behind, bilingualism does not

appear to be a direct factor.

Implications of the Study

The basic question asked by this study is whether or not Mexican American bilingual and Anglo American monolingual fourth and ninth grade students in Las Vegas, New Mexico, represent the same population in their spoken and written syntactic productions in English.

In terms of the three syntactic maturity measures, with the exception of the ninth grade bilingual average number of words per clause in the written mode, this study indicates that the bilingual and monolingual students are members of the same speech population. That is, a teacher with both groups in his class can expect the students to be capable of producing the same syntactic structures in relatively the same degree. Bilingual Spanish-speaking students are not "syntactically deprived" in English. However, the measures do show that the bilingual students tend to employ shorter clauses, fewer clauses per T-unit, and shorter T-unit lengths, even if the distributions of these measures are not significantly different (with the one exception noted above). Therefore, educators should strive to provide language experiences for their bilingual students which will expand their language capabilities, not limit them. The fact that bilingual student language productions are more limited in the ninth grade than in the fourth grade is cause for concern, particularly when one views the

greater similarity between bilingual and monolingual syntactic productions in the fourth grade. Whether the factors contributing to this result are socioeconomic, educational, or some other unknown factor needs to be determined.

The average number of words per clause is a function of number of clauses per T-unit and total T-unit length. These are, in turn, related to "sentence-embedding" transformations. Since there is no significant difference between groups in their total use of "sentence-embedding" transformations, educators must look further. Bilinguals are capable of employing the same English "sentence-embedding" transformations as monolinguals are. Bilinguals appear, however, to use them in a more limited fashion. Therefore, educators should provide more experiences in utilizing such "sentence-embeddings." This does not mean that students should formally study "transformational-generative" grammar. Such an approach would be analytic and not productive. But the students can be given practice in varying their sentences, in realizing that they can employ the syntax skills which they already possess in new and more variant ways. In such a manner, educators can build upon what already exists and not waste time attempting to force students to learn what they already know. A factor which this study does not examine is attitude toward language production of the students. But attitude may be positively influenced if students realize that they do possess the language skills to succeed. Then those skills can be developed further.

The fact that no significant difference was found in syntactic and morphological rule variations between the bilinguals and the monolinguals should save wasted, and perhaps wasteful, effort. Clearly, the bilinguals need more practice in using English prepositions and particles. In this one area, contrastive analysis may be of value. Similarly, the monolinguals need more practice in learning when the -ly adverb marker is to be used if they are to be aware of "standard" English usage. But to employ techniques designed for teaching speakers who know only a non-English language in order to teach these bilinguals is inappropriate and perhaps detrimental to a bilingual's English language growth.

Why the amount of increase in syntactic maturity measures is lower for bilinguals than for monolinguals is not revealed by this study. Both monolinguals and bilinguals in Las Vegas appear to be increasing their syntactic maturity measures at a rate lower than that of students in earlier studies in other parts of the United States. This may indicate the presence of educational factors in Las Vegas that are not present in the other areas. Whatever the reason may be, it influences the productions of bilinguals slightly more than those of monolinguals. Informal observation of classroom procedures indicates that limited creative language experiences may be a reason.

With the exception of the average T-unit length of the monolingual fourth grade students, there was no significant

difference between the oral and written syntax productions of each of the groups studied. Typically, oral productions are more advanced in fourth grade than written productions. By ninth grade, written structures more complex than oral structures occur. But the researcher was struck by the great qualitative difference between the oral and written productions of the fourth grade students. Oral productions were more interesting and more varied. By contrast, the written productions tended to be less varied, both topically and syntactically. This may relate to the types of written assignments which are given in class. If the English language productions of monolingual Anglo American students are limited by assignment topics, what must happen to bilingual Mexican American student productions? Could this explain why bilingual ninth grade students have not developed their English language skills as much as the monolingual students have?

The fourth grade students, with a few exceptions, have had bilingual education. This may explain the relative similarity of the fourth grade groups contrasted with the two ninth grade groups. If bilingual education, with its concern for both languages of the student and emphasis upon individualizing instruction, is aiding syntactic growth, then it needs to be continued into high school. But this study does not measure the effects of bilingual education.

The findings of this study do not explain the apparent retardment of bilingual subjects as measured by standardized

tests.

Suggestions for Further Research

In order to develop our knowledge of the linguistic characteristics of bilinguals and to overcome weaknesses in this study, a longitudinal study needs to be carried out measuring the same variables as this study measures. Further research is needed to determine how bilingual groups with identical histories develop linguistically over an extended period of years.

Developmental syntax factors of bilinguals should be related to sociological factors. What is the influence of peer group, the home, the school? Such research should seek to isolate factors which are measurable and observe them without influencing them. In addition, specific aspects of syntax, such as the use of the verb auxiliary, ought to be studied in relation to various topics in different modes of discourse. It is not enough to discover that specific forms are employed more than others by different groups without determining why.

Classroom practices which influence bilingual syntax in English should be studied to determine which promote and which inhibit development. Further research should seek to determine at which times in a bilingual's development particular classroom practices would be most helpful to him.

A study relating classroom teacher attitudes toward bilingual's English syntax and teacher classroom practices

would indicate how attitude influences a bilingual's learning of syntax or not. Such a study could concentrate upon non-verbal as well as verbal interactions in the classroom.

This study should be replicated in other sections of this country where large numbers of Spanish-speaking bilinguals live. Particularly helpful would be investigations of areas where the majority of the bilinguals enter school speaking little or no English. The studies could attempt to determine whether or not the English syntax of such bilinguals differs from that of bilinguals such as the ones in this study.

The influence of differing bilingual education practices upon the English syntax of bilinguals and monolinguals needs to be studied as well as compared to the influences of no bilingual education. Such studies should be longitudinal and combine features of the studies mentioned above.

Studies of the developmental English syntax of bilinguals should be related to semantic and phonological factors and ought to employ theoretical bases of grammar other than the transformational-generative one. Other theories of grammar may provide a means for detecting significant differences in the syntax of bilinguals and monolinguals which this study does not. The research should determine whether Spanish-speaking bilinguals can comprehend English syntax structures which they would not normally produce.

All research studies of the types suggested should indicate the similarities as well as the differences between

bilingual and monolingual English syntax. Concentrating only upon the differences may indicate to educators that the differences are much greater than they really are. Noting the similarities will provide educators with valuable information about where they can build upon the strengths of bilinguals and enable the educators to diminish excessive stress upon weaknesses of the students.

Limitations of the Findings

This study does not attempt to show how or what to teach the bilingual Spanish-speaking student. It does attempt to show the relationship of the English syntax of the bilingual to the English syntax of the monolingual. It is necessary for further research to provide guides for classroom practices.

The major weakness of this study may be the influence of bilingual education upon the fourth grade subjects. It is impossible to determine if their English syntax would have been different had they not had bilingual education.

Finally, this study cannot explain what has happened to the bilingual ninth grade subjects to cause their syntactic maturity measures to be lower than those of the monolingual subjects. The study cannot show whether or not that is the result of bilingualism, education, or socioeconomic factor.

As might be predicted, this study raises more questions than it answers, and that, in itself, is worthwhile.

REFERENCES

Allen, J. P. B., & Van Buren, P. Chomsky: Selected readings. London: Oxford University Press, 1971.

Aulls, M. W. Toward a systematic approach to how the reader uses context to determine meaning. Paper presented at the National Reading Conference, St. Petersburg, Fla., December 3-5, 1970.

Bateman, D., & Zidonis, F. The effect of a study of transformational grammar on the writing of ninth and tenth graders. National Council of Teachers of English Research Report No. 6. Champaign, Ill.: National Conference of Teachers of English, 1966.

Bernstein, B. Social class, linguistic codes, and grammatical elements. Language and Speech, 1962, 5, 31-46.

Brengleman, F. H., & Manning, J. C. A linguistic approach to the teaching of English as a foreign language to kindergarten pupils whose primary language is Spanish. Fresno, Cal.: Fresno State College, 1966.

Brooks, N. Language and language learning. (2nd ed.) New York: Harcourt, Brace and World, Inc., 1964.

Brown, E. Levels of syntactic realization in oral reading. Paper presented at the National Reading Conference, St. Petersburg, Fla., December 3-5, 1970.

Brown, R., Cazden, C. B., & Bellugi, U. The child's grammar from I to III. In J. P. Hill (Ed.), Minnesota symposium for child psychology. Minneapolis: University of Minnesota Press, 1969.

Bruner, J. S. The course of cognitive growth. American Psychologist, 1964, 19, 1-15.

Calvert, R., Jr. Equal employment opportunity for minority group college graduates: Locating, recruiting, and employing. Garrett Park, Md.: Garrett Park Press, 1972.

Carroll, J. B. Language development. In C. W. Harris (Ed.), Encyclopedia of educational research. New York: Macmillan, 1960.

Carroll, J. B. Psycholinguistics and the elementary language arts. In J. Walden (Ed.), Oral language and reading. Champaign, Ill.: National Council of Teachers of English, 1969.

Carrow, E. Comprehension of English and Spanish by preschool Mexican American children. Modern Language Journal, 1971, 55, 299-306.

Carrow, M. Linguistic functioning of bilingual and monolingual children. Journal of Speech and Hearing and Hearing Disorders, 1957, 22, 370-380.

Chomsky, C. The acquisition of syntax in children from 5 to 10. Cambridge, Mass.: M. I. T. Press, 1969.

Chomsky, N. Syntactic structures. The Hague: Mouton, 1957.

Chomsky, N. Aspects of the theory of syntax. Cambridge, Mass.: M. I. T. Press, 1965.

Davis, E. A. The location of the subordinate clause in oral and written language. Child Development, 1941, 12, 333-338.

Deutsch, M., Katz, I., & Jensen, A. R. (Eds.) Social class, race, and psychological development. New York: Holt, Rinehart, and Winston, 1968.

Deutsch, M., Levinson, A., Brown, B., & Peisach, E. Communication of information in the elementary school. In M. Deutsch (Ed.), The disadvantaged child. New York: Basic Books, Inc., 1967.

Deutsch, M., Maliver, A., Brown, D., & Cherry, E. Communication of information in the elementary school classroom. (Cooperative Reserach Project No. 908) New York: Institute for Developmental Studies, New York Medical College, 1964.

Edwards, A. T. The comprehension of written sentences containing relative clauses. Unpublished doctoral dissertation, Harvard University, 1969.

Endicott, A. L. A proposed scale for syntactic complexity. Research in the Teaching of English, 1973, 7 (1), 5-12.

Ervin-Tripp, S. Language development. In L. W. Hoffman & M. E. Hoffman (Eds.), Review of child development research. Vol. 2. New York: Russell Sage Foundation, 1966.

Everts, E., Thomson, N., Hansen, V., & Nemanich, D. The Nebraska study of the syntax of children's writing, 1964-1965. Vol. 1. Lincoln, Nebr.: The University of Nebraska Curriculum Development Center, 1967.

Fagan, W. T. Transformations and comprehension. The Reading Teacher, 1971, 25 (2), 169-172.

Fasold, R. W., & Wolfram, W. Teaching standard English in the inner city. In R. W. Fasold & R. W. Shuy (Eds.), Teaching standard English in the inner city. Washington, D.C.: Center for Applied Linguistics, 1970.

Ferguson, C. A. Aspects of the acquisition of English and Spanish phonology. Palo Alto, Cal.: Stanford University, 1972.

Fishman, J. A., Cooper, R. L., Ma, R. et al. (Eds.), Bilingualism in the barrio. Final Report. (Contract No. OEC-1-7-062817-0297) Washington, D.C.: Bureau of Research, Office of Education, 1968.

Fishman, J. A. Somethings learned; some things yet to learn. Modern Language Journal, 1969, 53, 255-258.

Fodor, J. A. Current approaches to syntax recognition. In D. L. Horton & J. J. Jenkens (Eds.), Perception of language. Pittsburgh: Learning Research and Development Center, Pittsburgh University, 1969.

Fodor, J., & Garrett, P. Some syntactic determinants of syntactic complexity. Perception and Psychophysics, 1967, 7, 389-396.

Frase, L. T., & Washington, E. D. Children's ability to comprehend text. Murray Hill, N.J.: Bell Telephone Laboratories, 1970.

Fries, C. C. American English grammar. New York: Appleton-Century-Crofts, 1940.

Fries, C. C. The structure of English. New York: Harcourt, Brace, 1952.

Gerry, M. H. Cultural freedom in the schools: The right of Mexican-American children to succeed. Unpublished manuscript, U.S. Department of Health, Education, and Welfare, 1971.

Gilleo, A., & Thorn, B. Teaching pictures. Elgin, Ill.: David C. Cook Publishing Co., 1965.

Gladstone, D., & Gladstone, J. R. Language development program. Ontario: Science Research Associates, 1970.

Goodman, K. S. The reading process: Theory and practice. In R. E. Hodges & E. H. Rudorf (Eds.), Language and learning to read. Boston: Houghton Mifflin Co., 1972.

Hanf, M. B. A Study of children's thinking as expressed through oral language discourse. Research in the teaching of English, 1973, 7 (1), 13-29.

Harrell, L. E., Jr. A comparison of the development of oral and written language in school-age children. Monographs of the Society for Research in Child Development, 1957, 22 (3, Whole No. 66).

Hatch, E. Four experimental studies of syntax in young children. Inglewood, Cal.: Southwestern Regional Laboratory for Research and Development, 1969.

Heider, F. K., & Heider, G. M. A comparison of sentence structure of deaf and hearing children. Psychological Monographs, 1940, 52 (1, Whole No. 232), 42-103.

Hertzig, M. E., Birch, H. G., Thomas, A., & Olga, A. M. Class and ethnic differences in the responsiveness of preschool children to cognitive demands. Monographs of the Society for Research in Child Development, 1968, 33 (1, Whole No. 117).

Hollomon, J. W. Problems of assessing bilingualism in children entering school. Unpublished doctoral dissertation, University of New Mexico, 1973.

Hunt, K. W. Differences in grammatical structures written at three grade levels, the structures to be analyzed by transformational methods. (Cooperative Research Project No. 1998) Tallahassee, Fla.: Florida State University, 1964.

Hunt, K. W. Grammatical structures written at three grade levels. National Council of Teachers of English Research Report No. 3. Champaign, Ill.: National Council of Teachers of English, 1965.

Hunt, K. W. Syntactic maturity in school children and adults. Monographs of the Society for Research in Child Development, 1970, 35 (1, Whole No. 287).

Inhelder, B., & Piaget, J. The growth of logical thinking. Translated by A. Parsons & S. Milgram. London: Routledge and Kegan Paul, Ltd., 1958.

John, V. P. The intellectual development of slum children. Journal of American Orthopsychiatry, 1963, 33, 813-822.

John, V. P. The intellectual development of slum children: Some preliminary findings. In J. P. DeCecco et al. (Eds.), The psychology of language, thought, and instruction. New York: Holt, Rinehart, and Winston, 1967.

John, V. P., & Goldstein, L. S. The social context of language acquisition. In M. Deutsch (Ed.), The disadvantaged child. New York: Basic Books, Inc., 1967.

Johnson, L. W. A comparison of the vocabularies of Anglo-American and Spanish-American high school pupils. Journal of Educational Psychology, 1938, 29, 135-144.

Klima, E. S., & Bellugi, U. Syntactic regularities in the speech of children. In J. Lyons & R. J. Wales (Eds.), Psycholinguistic papers. Edinburgh: Edinburgh University Press, 1966.

Labov, W. The social motivation of a sound change. Word, 1963, 19, 273-309.

Labov, W. Stages in the acquisition of standard English. In R. W. Shuy (Ed.), Social dialects and language learning. Champaign, Ill.: National Council of Teachers of English, 1964.

Labov, W. The logic of nonstandard English. In J. E. Alatis (Ed.), Georgetown monograph series on Languages and Linguistics, 1969, 22, 1-39.

LaBrant, L. L. A study of certain language developments of children in grades 4-12 inclusive. Genetic Psychology Monographs, 1933, 14, 387-491.

Lambert, W. E. Evaluation reactions to spoken languages. Journal of Abnormal and Social Psychology, 1960, 60, 44-51.

Lawton, D. Social class, language and education. London: Routledge and Kegan Paul, 1968.

Lenneberg, E. H. Biological foundations of language. Cambridge, Mass.: M.I.T. Press, 1967.

Leopold, W. F. Speech development of a bilingual child. Chicago: Northwestern University Press, 1939-49. 4 vols.

Leopold, W. F. The study of child language and infant bilingualism. In A. Barradon & W. F. Leopold (Eds.), Child language, a book of readings. Englewood Cliffs, N.J.: Prentice-Hall, 1971.

Levin, H., & Kaplan, E. L. Listening, reading and grammatical structure. In D. L. Horton & J. J. Jenkens (Eds.), Perception of language. Pittsburgh: Learning Research and Development Center, Pittsburgh University, 1969.

Linn, G. B. A study of several linguistic functions of Mexican-American children in a two-language environment. Unpublished doctoral dissertation, University of Southern California, 1965.

Loban, W. Language ability in the middle grades of the elementary school. (Cooperative Research Project No. 324) Berkeley, Cal.: California University, 1961.

Loban, W. Language ability: Grades seven, eight, and nine. (Cooperative Research Project No. 1131) Berkeley, Cal.: California University, 1964.

Loban, W. Language ability: Grades seven, eight, and nine. Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1966.

Loban, W. Language ability--grades ten, eleven, and twelve. Final report. (Cooperative Research Project No. 2387) Berkeley, Cal.: California University, 1967.

Luria, A. R. Higher cortical functions in man. New York: Basic Books, Inc., 1966.

MacGinitie, W. M. Language development. In R. L. Esel (Ed.), Encyclopedia of Educational Research. (4th Ed.) New York: The Macmillan Co., 1969.

Maher, T. P., & Mosby, R. S. Challenge to society: The education of the culturally disadvantaged child. New York: Pageant Press International Corp., 1971.

McCarthy, D. Language development in children. In L. Carmichael (Ed.), Manual of child psychology. (2d ed.) New York: John Wiley and Sons, 1954.

McDavid, R. I., Jr. A checklist of significant features for discriminating social dialects. In E. L. Evertts (Ed.), Dimensions of dialect. Champaign, Ill.: National Council of Teachers of English, 1967.

McNeill, D. Developmental psycholinguistics. In H. Lane et al. (Eds.), Studies in language and language behavior. (Progress Report No. 2) Ann Arbor, Mich.: University of Michigan, 1965.

Mellon, J. Transformational sentence-combining, a method for enhancing the development of syntactic fluency in English composition. (Cooperative Research Project No. 5-8418) Cambridge, Mass.: Harvard University, 1967.

Mellon, J. Linguistics, language development, and the concept of language-rich classroom environments. Paper presented to the National Council of Teachers of English 60th annual meeting, Atlanta, Ga., November, 1970.

Menyuk, P. Syntactic structures in the language of children. Child Development, 1963, 34, 407-422.

Menyuk, P. Alteration of rules in children's grammar. Journal of Verbal Learning and Verbal Behavior, 1964, 2 (5-6), 429-439.

Metcalf, A. A. Mexican-American English in Southern California. Western Review, 1972, 9 (1), 13-21.

Metcalf, A. A. The study of California Chicano English. Paper presented to the Workshop on Research Problems in Southwest Areal Linguistics II, Albuquerque, N.M., April, 1973.

Miller, W. R. Language acquisition and reading. In J. Walden (Ed.), Oral language and reading. Champaign, Ill.: National Council of Teachers of English, 1969.

Myers, J. M. The westerners. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1969.

New Mexico State Department of Education. Statement of policy: Bilingual education. Santa Fe, N.M.: New Mexico State Department of Education, 1972.

New Mexico State Department of Education. Analysis of statewide testing program results 1972-1973. Santa Fe, N.M.: New Mexico State Department of Education, 1973.

New Mexico State Department of Education. New Mexico school district profile 1973. Santa Fe, N.M.: Instructional Services Unit, New Mexico State Department of Education, 1973.

O'Donnell, R. C., Griffin, W. J., & Norris, R. C. Syntax of kindergarten and elementary school children: A transformational analysis. National Council of Teachers of English Research Report No. 8. Champaign, Ill.: National Council of Teachers of English, 1967.

Ortego, P. D. The education of Mexican Americans. The New Mexico Review, 1969, 1 (13), 10-11.

Ortego, P. D. Some cultural implications of a Mexican American border dialect of American English. Studies in Linguistics, 1970, 21, 77-84.

Palmer, F. Grammar. Baltimore, Md.: Penguin Books, Inc., 1971.

Palomares, U. H. Performance of Mexican-American children on selected nonverbal tests of intelligence. In H. S. Johnson & W. J. Hernandez-M. (Eds.), Educating the Mexican American. Valley Forge, Pa.: Judson Press, 1970.

Peal, E., & Lambert, W. E. The relation of bilingualism to intelligence. Psychological monographs, 1962, 76 (546).

Peña, A. A. A comparative study of selected syntactic structures of the oral language status in Spanish and English of disadvantaged first-grade Spanish-speaking children. Unpublished doctoral dissertation, University of Texas at Austin, 1967.

Perrin, P. G. Writers guide and index to English. Revised by W. R. Ebbitt. Glenview, Ill.: Scott, Foresman and Co., 1972.

Piaget, J. The construction of reality in the child. Translated by M. Cook. New York: Basic Books, Inc., 1954.

Politzer, R. L., & Bartley, D. E. Standard English and non-standard dialects: Elements of syntax. Stanford, Cal.: Stanford Center for Research and Development in Teaching, Stanford University, 1969.

Pope, M. The syntax of the speech of urban (Tallahassee) Negro and white fourth graders. Unpublished doctoral dissertation, The Florida State University, 1969.

Ramanauskas, S. The responsiveness of close readability measures to linguistic variables operating over segments of text longer than a sentence. Reading Research Quarterly, 1972, 8 (1), 72-91.

Riegel, K. F., Ramsey, R. A., & Riegel, R. M. A comparison of the first and second languages of American and Spanish students. Journal of Verbal Learning and Verbal Behavior, 1967, 6, 536-544.

Riling, M. E. Oral and written language of children in grades 4 and 6 compared with the language of their textbooks. Report to the U.S. Office of Education (Cooperative Research Project No. 2410) Durant, Okla.: Southeastern State College, 1965.

Rystrom, R. Language patterns and the primary child. The Reading Teacher, 1972, 26 (2), 149-152.

Sam, N. H., & Stine, E. S. Structural analysis of the written composition of intermediate grade children. Report to the U.S. Office of Education (Cooperative Research Project No. S-057) Bethlehem, Pa.: Lehigh University, 1965.

Sapir, E. Language. New York: Harcourt, Brace, 1921.

Sebesta, S., Thompson, N., & Nemanich, D. The Nebraska study of the syntax of children's writing, 1965-66. Vol. 2. Lincoln, Nebr.: Curriculum Development Center, Nebraska University, 1967.

Shuy, R. W. Social dialect and employability: Some pitfalls of good intentions. In L. M. Davis (Ed.), Studies in linguistics in honor of Raven I. McDavid, Jr. University, Ala.: The University of Alabama Press, 1972.

Siegel, S. Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill Book Co., 1956.

Skinner, B. F. Verbal behavior. New York: Appleton-Century-Crofts, Inc., 1957.

Smith, F., & Miller, G. The genesis of language. Cambridge, Mass.: M.I.T. Press, 1966.

Smith, W. L. The effect of transformed syntactic structures on reading. Paper presented at the conference of the International Reading Association, Anaheim, Cal., May, 1970.

Spector, S. Patterns of difficulty in English in bilingual Mexican-American children. Unpublished master's thesis, Sacramento State College, 1972.

Spolsky, B. TESOL and bilingual education urged. TESOL Newsletter, 1970, 4 (1), 17-18.

Stanley, F. The Las Vegas Story. Pecos, N.M.: Author, 1951

Stolz, W., & Bills, G. An investigation of the standard-nonstandard dimension of Central Texan English. (OEO Report No. OEO 4115) Austin, Tex.: Child Development Evaluation and Research Center, Texas University, 1968.

Stoodt, B. The relationship between understanding grammatical conjunctions and reading comprehension. Final Report. Columbus, O.: Columbus Research Foundation, Ohio State University, 1970.

Stormzand, M. J., & O'Shea, M. V. How much English grammar? Baltimore: Warwick and York, 1924.

Strickland, R. G. The language of elementary school children: its relationship to the language of reading textbooks and the quality of reading of selected children. Bulletin of the School of Education, Indiana University, Bloomington, Ind.: Indiana University, 1962.

Timmins, K. M. An investigation of the relative bilingualism of Spanish surnamed children in an elementary school in Albuquerque. Unpublished doctoral dissertation, The University of New Mexico, 1971.

Tireman, L. S. A study of fourth grade reading vocabulary of native Spanish speaking children. Elementary School Journal, 1945, 46, 223-237.

Torrey, J. W. Learning to read without a teacher: A case study. Elementary English, 1969, 46 (5), 550-556.

Ulibarri, M. Pensamientos sobre teaching English as a second language. Albuquerque, N.M.: Minority Group Cultural Awareness Center, The University of New Mexico, 1969.

University of New Mexico. New Mexico statistical abstract 1972. Albuquerque, N.M.: Bureau of Business Research, The University of New Mexico, 1972.

U.S. Commission on Civil Rights. The unfinished education outcomes for minorities in the five southwestern states. Report II, 1971, U.S. Department of Health, Education, and Welfare.

U.S. Department of Commerce. Minority-owned businesses 1969. Washington, D.C.: Bureau of Census, U.S. Department of Commerce, 1971.

Valencia, A. A. Bilingual-bicultural education for the Spanish-English bilingual. Las Vegas, N.M.: New Mexico Highlands University Press, 1972.

Vygotsky, L. Thought and language. Cambridge, Mass.: M.I.T. Press, 1962.

Wales, R. J., & Marshall, J. C. The organization of linguistic performance. In J. Lyons & R. J. Wales (Eds.), Psycholinguistic papers. Edinburgh: Edinburgh University Press, 1966.

Wanat, S. F. Language acquisition: Basic issues. The Reading Teacher, 1971, 25 (2), 142-147.

Wardhaugh, R. Theories of language acquisition in relation to beginning reading instruction. Reading Research Quarterly, 1971, 7 (1), 168-194.

Watts, A. F. The language and mental development of children: An essay in educational psychology. London: George C. Harrap, 1944.

Weener, P. Some differences in verbal behavior of preschool children from contrasting social environments. In H. Lane et al. (Eds.), Studies in Language and Language Behavior. Progress Report No. 1. Ann Arbor, Mich.: The University of Michigan, 1965.

Weintraub, S., Robinson, H. M., Smith, H. K., & Plessas, G. P. Summary of investigations relating to reading. July 1, 1970 to June 30, 1971. Reading Research Quarterly, 7 (2), 1-393.

Young, R. W. The development of semantic categories in Spanish-English and Navaho-English bilingual children. Preprints of papers presented at the Conference on Child English, Chicago, November, 1971.

APPENDIX A. T-UNIT ANALYSIS SHEET

SUBJECT: T-UNIT # oral_____
written_____

T-UNIT: _____

_____

T-unit length_____ # clauses_____

_____# noun clauses
_____# adjective clauses
_____# adverb clauses
_____# clauses of comparison
_____# adjective complement clauses
_____# word order subjunctive

words introducing noun clauses_____

functions of interrogative pronouns_____

position of noun clauses in main clause_____

words used to introduce adjective clauses:

relative pronouns_____

relative adverbs _____

function of relative pronouns in adjective clauses_____

positions of movable adverbial clauses:

initial_____ medial_____ final_____

_____ _____ _____ subordinators

structures of comparative clauses_____

_____# coordinators inside T-units

patterns of coordination_____

_____# total nominals nominals used as: subject_____
direct object_____
obj. prep._____
pred. nom._____

_____# unmodified common nouns

_____# unmodified proper nouns

_____# personal pronouns excluding IT

_____# IT as personal pronoun

_____# genitive personal pronoun

_____# OF followed by nominal

_____# prepositional phrases modifying nouns--place_____
intro word_____ purpose_____
time_____
other_____

_____# transformed predicates modifying noun--infinitive_____
pres. part._____
past part._____

_____# contractions
_____# pronominal appositions

modifiers of nouns:
_____adjectives
_____genitives
_____prepositional phrases
_____adjective clauses
_____noun adjuncts
_____non-finite verbs
_____single-word expressions of place
_____punctuated appositives
_____non-punctuated appositives

non-headed nominals:
_____infinitival nominal
_____gerundive nominal
_____interrogative nominal

noun clause usage:
_____THAT or Ø, etc.
_____indirect question
_____direct discourse

_____# sentence-embedding transformations

transitive verbs_____ intransitive verbs_____
pseudo-tran. v. _____ BE and other linking verbs_____

verb auxiliary forms_____

adverbials:
_____comparative phrases
_____adjective complements
_____adverbial infinitives
_____total adverbials (inc. adv. cl., etc.)

_____simple predicate adjective
_____simple predicate complement

complements to adjectives: clause complement_____
infinitival complement_____
prep. phrase complement_____

SYNTACTIC AND MORPHOLOGICAL rule variations from "standard".

APPENDIX B. LANGUAGE USAGE QUESTIONNAIRE

NAME_____ grade 9

English teacher_____ period___

The purpose of this questionnaire is to learn about the ways you use your languages. Take your time, and answer as honestly as you can.

1. In what town and state were you born?

2. If you have not always gone to school in Las Vegas, in what other town and state did you attend school?

3. What language did you learn to speak first, Spanish or English?

4. If you learned Spanish first, how did you learn English? (Examples: taught in school, my parents taught me, learned it from my friends, etc.)

5. Have you ever attended a school where both Spanish and English were used in most of the classes? If so, where?

6. Using the following list, write the letter which matches the <u>most correct</u> answer next to each of the statements below:

   A. Spanish only
   B. Mostly Spanish
   C. Spanish and English equally
   D. Mostly English
   E. English only

   I. At home I speak _____

   II. To my parents I speak _____

   III. To my grandparents I speak _____

   IV. To my brothers and sisters I speak _____

   V. When I am with my friends outside of school, I speak _____

   VI. When I am with my friends in school, I speak _____

7. What language do you feel most comfortable speaking, Spanish or English?

CURRICULUM VITA

The author was born in Somerville, N.J., May 2, 1938. He received his A.B. in English from Rutgers University in 1960 and his Ed.M. in Secondary English from Rutgers University in 1965. He has also completed graduate course work at Stanford University and The University of Nevada, Las Vegas. From 1960-1962, he served as a commissioned officer in the United States Army. The author taught high school English from 1965-1970 in Las Vegas, Nevada, and from 1970-71 in Las Vegas, New Mexico. In 1968, he was elected President of the Southern Nevada Teachers of English. In 1969, he was a chairman of the Western Interstate Convention of Teachers of English, and, in 1971, he served as a director of the National Council of Teachers of English national convention in Las Vegas, Nevada. He has been a discussant at the 1969 NCTE convention in Milwaukee and a judge for the Nevada NCTE Achievement Awards. In 1974, he addressed sections of the national convention of TESOL and the University of Colorado Conference on World Affairs. His publications include co-editing Exploring Life through Literature (Scott-Foresman, 1972) and the high school sophomore level Man in Literature textbooks. Among his articles is "A Few Directions in Chicano Literature," English Journal, 1973. He received his Ph.D. in English Education from the University of New Mexico in May, 1974.