The relationship between the oral language proficiency and reading achievement of first grade Crow Indian children  
by Bernadine Rebich Featherly

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education in Elementary Education Curriculum and Instruction
Montana State University
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Abstract:
An extensive review of the literature was used to support the thesis that the crux of the problem of educating minority language children from homes of low socioeconomic status lies in the relationship between language and reading. It was argued that the reason why the language of these children does not develop to a sufficient level to learn to read with comprehension is because there is something lacking in their preschool, experiential background and that the resulting language deficiency can either be overcome or confounded depending on the way reading is taught. It was the purpose of this dissertation to identify what is lacking in the social environment of these children and thus determine the cause of their language deficiency.

To provide additional empirical evidence in support of the thesis, an investigation was made to determine the magnitude of the correlation between the level of English oral language proficiency at the onset of reading instruction and reading achievement near the end of the first grade of American Indian children who attended school on the Crow Indian Reservation during the 1982-1983 school year. The results of stepwise canonical correlation analysis between six predictor variables of oral language proficiency and three criterion variables of reading achievement showed that $R_c = .833$ and $R_c^2 = .693$, $p < .0002$. Phonology was deleted at Step 1 of the analysis anS fluency was deleted at Step 2.

It was concluded that for American Indian children attending school on the Crow Indian Reservation there is a statistically and educationally significant positive correlation between level of oral language proficiency at the onset of reading instruction and reading achievement at the end of the first grade. It was also concluded that for these children, level of oral language proficiency is a good predictor of reading achievement. Beyond this, it was claimed that language competency is an important prerequisite for learning to read.

The philosophical argument in defense of the thesis was formulated as a result of an extensive literature review. The fifteen conclusions on which the argument is based were drawn from theoretical constructs and supported by empirical evidence.
THE RELATIONSHIP BETWEEN THE ORAL LANGUAGE PROFICIENCY AND READING ACHIEVEMENT OF FIRST GRADE CROW INDIAN CHILDREN

by

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This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

June 4, 1985

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ABSTRACT

An extensive review of the literature was used to support the thesis that the crux of the problem of educating minority language children from homes of low socioeconomic status lies in the relationship between language and reading. It was argued that the reason why the language of these children does not develop to a sufficient level to learn to read with comprehension is because there is something lacking in their preschool, experiential background and that the resulting language deficiency can either be overcome or confounded depending on the way reading is taught. It was the purpose of this dissertation to identify what is lacking in the social environment of these children and thus determine the cause of their language deficiency.

To provide additional empirical evidence in support of the thesis, an investigation was made to determine the magnitude of the correlation between the level of English oral language proficiency at the onset of reading instruction and reading achievement near the end of the first grade of American Indian children who attended school on the Crow Indian Reservation during the 1982-1983 school year. The results of stepwise canonical correlation analysis between six predictor variables of oral language proficiency and three criterion variables of reading achievement showed that $R = .833$ and $R^2 = .693$, $p < .0002$. Phonology was deleted at Step 1 of the analysis and fluency was deleted at Step 2.

It was concluded that for American Indian children attending school on the Crow Indian Reservation there is a statistically and educationally significant positive correlation between level of oral language proficiency at the onset of reading instruction and reading achievement at the end of the first grade. It was also concluded that for these children, level of oral language proficiency is a good predictor of reading achievement. Beyond this, it was claimed that language competency is an important prerequisite for learning to read.

The philosophical argument in defense of the thesis was formulated as a result of an extensive literature review. The fifteen conclusions on which the argument is based were drawn from theoretical constructs and supported by empirical evidence.
CHAPTER 1

THE PROBLEM

Educating children who speak a language other than English and come from homes of low socioeconomic status (low-SES) has been and continues to be a serious, complex, and perplexing problem which defies an answer. In the Newsom Report (1968), issued by the Ministry in Education in England in 1963, it was stated: "The evidence of research increasingly suggests that linguistic inadequacy, disadvantages in social and physical background, and poor attainments in school are closely associated" (p. 151). Accepting this statement as a premise, the problem is to determine a causal relationship between the above mentioned variables and then to alter the primary cause to achieve the desired effect. In this dissertation a proposition for a solution to the problem is advanced which is defended in philosophical argument. The thesis is supported by empirical evidence to include the results of the empirical research which was conducted for this paper.

Although the problem is complex, the solution is not. In fact, as Holdaway (1979) stated, "The simple and obvious preventive solution to the problem has been by-passed and obscured by the hubris of the education profession" (p. 2).

The problem is identified and discussed and the thesis is stated in the first part of this chapter. The literature review which was
made to defend the thesis is presented in Chapter Two. The empirical study which is a part of this dissertation and augments the thesis is described in the latter part of this chapter and in Chapter Three. The findings of the empirical study are reported in Chapter Four.

Need for a Viable Solution to the Problem

Jerome Bruner (1983) recently stated, "In some way, our life as a nation depends both on cultivating high intelligence to keep our complex social order running, and preventing the formation of a permanently alienated, undereducated, unemployable 'under class'" (p. 196). His concern is echoed by the National Commission on Excellence in Education in their report, A Nation at Risk: The Imperative for Educational Reform (1983). The Commission made the following statement:

Part of what is at risk is the promise first made on this continent: All, regardless of race or class or economic status, are entitled to a fair chance and to the tools for developing their individual powers of mind and spirit to the utmost (p. 8). . . .

The twin goals of equity and high-quality schooling have profound and practical meaning for our economy and society, and we cannot permit one to yield to the other either in principle or in practice (p. 13).

Overview of the Problem

In examining the magnitude of the problem it can be seen that the problem affects the lives of millions of children. Counting minority language children alone, it was estimated from the 1980 Census that there were about 10.7 million who either spoke a language other than English as their first and primary language or were living in a house-
hold where a non-English language was spoken as the dominant language. Waggoner (1984) reported that "above five (5) million of these children are estimated to need special educational programs because of their language backgrounds and proficiency in school-related English skills" (p. 4). The number of language minority children increased by nearly 60 percent between the spring of 1976 and the time of the census in 1980. She also noted that this group is growing much faster than school-age children in the general population. The number of school-age children in general actually decreased between 1976 and 1980. According to the calculations of Stein (1984), language minority youngsters currently comprise about fourteen (14) percent of the 39 million U.S. public school children, or one in seven. The seven largest school systems are composed of 10-55 percent language minority children. For instance, the Los Angeles public school population is 50 percent language minority. There is also a large proportion of the school population who come from homes of low socioeconomic status who are affected by the problem. According to the Sustaining Effects Study (Hinckley, 1979) it was estimated that about 4.2 million students were classified as being of low-SES. After two decades and the expenditure of billions of dollars, an effective means of educating minority language, low-SES children has not been found.

Historical Solution: Compensatory Education

The Federal government's commitment to provide all children with an equal opportunity to an education began in 1965 with the enactment of the Elementary and Secondary Education Act (ESEA). The purpose of
ESEA was to strengthen and improve educational opportunities in the nation's elementary and secondary schools. Through ESEA a long, expensive, and thus far unsuccessful campaign of compensatory education was launched. Each of the three principal programs of compensatory education were directed at a different target population. Title I (now known as Chapter I) was initiated to provide special assistance to low-SES children who are underachievers in reading and math. Head Start was originated to provide low-SES, pre-school children with a "head start" through special preschool programs of education. Title VII (commonly referred to as Bilingual Education) was organized to provide minority language children with instruction in the children's two languages.

These compensatory education programs were instigated as a result of an assumption commonly held prior to the Coleman report. Before the publication of James Coleman's *Equality of Educational Opportunity* (1966), it was thought that socioeconomic and racial inequalities in academic achievement were mainly the result of inequalities in school facilities and expenditures. "But the conclusions of the Coleman report were in fact quite the contrary; it was a monumental example of empirical research shattering a popular myth" (Jensen, 1973:3). This survey showed that indeed most children still attended segregated schools and that there were differences in educational resources available to different children but that these factors were not the cause of the differences in academic achievement. Thus, instead of providing the impetus for remedying inequalities, the
survey had the opposite effect which was due mainly to its most extensively published conclusion. In Coleman's words,

The evidence revealed that within broad geographic regions, for each racial and ethnic group, the physical and economic resources going into a school had very little relationship to the achievements coming out of it... if it were otherwise we could give simple prescriptions: increase teacher's salaries, lower class size, enlarge libraries, and so on. But the evidence does not allow such simple answers (1966:34).

Other major research studies supported Coleman's finding. Jencks (1972), Bowles and Gintis (1976) also found that the type of education does not make a difference. Meanwhile, the large-scale federally funded programs of compensatory education were under way.

Just a year after the Coleman report, a nationwide survey and evaluation of the large compensatory education programs was conducted by the U.S. Commission on Civil Rights. The Commission's conclusions were negative: "The fact remains...that none of the programs appear [sic] to have raised significantly the achievement of participating pupils, as a group, within the period evaluated by the Commission."

The negative findings of the Commission were backed by the testimony of school superintendents around the country. New York City's school superintendent voiced his frustration:

We have been spending a great deal of money on solutions which have little relation to the causes. Nobody knows why certain children are not profiting from the educational program... Money is being spent on new gimmicks but nobody knows the cause and effect relationship... We have offered all kinds of solutions but they are not producing results and nobody knows why (New York Times, December 4, 1969).

Dr. Neil Sullivan, then superintendent of schools in Berkeley, California, testified before a U.S. Senate committee (May 21, 1970):
"Berkeley . . . put its first money into compensatory education. . . . The results after two and a half or three years clearly indicated that not only did the child in the inner city not improve, he had retrogressed."

The status of findings from compensatory programs in 1970 was summarized by President Nixon in his Education Message:

We must stop letting wishes color our judgments about the educational effectiveness of many special compensatory programs, when - despite some dramatic and encouraging exceptions - there is growing evidence that most of them are not yet measurably improving the success of poor children in school. . . . The best available evidence indicates that most of the compensatory education programs have not measurably helped poor children catch up.

He commented further.

Recent findings on the two largest such programs are particularly disturbing. We now spend more than $1 billion a year for educational programs run under Title I of the Elementary and Secondary Education Act. Most of these have stressed the teaching of reading, but before-and-after tests suggest that only 19 percent of the children in such programs improve their reading significantly; 13 percent appear to fall behind more than expected; and more than two-thirds of the children remain unaffected - that is, they continue to fall behind. In our Headstart program, where so much hope is invested, we find that youngsters enrolled only for the summer achieve almost no gains, and the gains of those in the program for a full year are soon matched by their non-Headstart classmates from similarly poor backgrounds (in Jensen, 1973:5).

Following is a more detailed review of the major compensatory education programs.

**Title I.** A large-scale evaluation of Title I was conducted in 1977-1979. It was the largest evaluation effort of a federal education program up to that time. The purpose of the study was to evaluate the effectiveness of compensatory-education services provided by local
schools under Title I. According to the Sustaining Effects Study (SES) Participant File (Baker and deKanter, 1983:17), in the spring of 1977 eighty-one (81) percent of the children from homes where English was not regularly spoken scored below the 40th percentile in reading achievement. The following additional statistics from the Study of the Sustaining Effects of Compensatory Education on Basic Skills, Report #4 (Hinckley, 1979) further identified those children who are having the most difficulty in school. It was found that more than 50 percent of the students who come from single-adult minority families and lived in a multiple-dwelling unit scored in the lowest quadrant in both reading and math achievement distributions. First graders whose mothers had not completed high school scored almost six-tenths (.6) of a standard deviation below the mean for all first graders tested. A finding which provides a clue to the solution of the problem was that the magnitude of the relationship between maternal education and achievement was found to be greater than the relationship between poverty and achievement. Although race appeared to be related to achievement, the relationship only reduced the gap attributed to maternal education by about one-fourth. The gap attributable to economic status remained the greatest for whites.

In an analysis of the cost effectiveness of compensatory education, Report #7 from the Study of Sustaining Effects of Compensatory Education (Sumner et al., 1979), it was concluded that where program costs were held constant, funding source did not appear to have an independent effect on educational outcome. Though small, the raw regression coefficients that served as indices of cost-effectiveness
frequently exceeded two and three times their standard errors and were often disturbingly negative. Title I students learned about as much during each school year as non-Title I students did, but the differences between them in achievement status that existed at the beginning of the year persisted despite the growth exhibited during the school year. It is evident that Title I assistance was not able to close the gap in academic achievement between low-SES and middle-class children despite the expenditure of billions of dollars.

According to the Congressional Record (October 20, 1983), Chapter I, educational aid to disadvantaged children, was set at $3.48 billion for fiscal year 1984, an increase of $280 million over 1983.

Head Start. Since its inception in the summer of 1965, Head Start has served over 7.5 million low income children and their families at a cost of $6.5 billion. The Head Start budget for 1980 was $735 million. The Administration's budget request for 1982 was $950 million (Calhoun, 1982). The first large-scale evaluation of Head Start was also discouraging. Two pertinent findings of the Westinghouse-Ohio National Evaluation of Head Start (Cirirelli, et al., 1969) were: (1) Head Start programs do not produce cognitive or affective gains that persist into the early elementary grades; (2) Head Start children were below national norms on the Stanford Achievement Test and the Illinois Test of Psycholinguistic Abilities.

The report was immediately controversial. The findings were interpreted by many as supporting Arthur Jensen's (1969) much publicized argument that lower-class, and particularly black children are
of below normal intelligence and thus genetically incapable of learn- 
ing. Eysenck (1971) and Cronback (1975) both asserted that Head Start 
was a failure. In most recent attack on the Head Start program Clarke 
and Clarke (1977) stated that Americans had wasted 10 billion dollars. 
On the other side of the argument, Zigler (1978), an eminent child 
development scholar, said that Head Start children definitely mani-
bled greater gains on cognitive and personality measures than did 
comparison children. According to Smith and Bissell (1970), "Children 
who participated in pre-school intervention programs scored signifi-
cantly better than control children on cognitive measures through the 
end of the third grade, although the participating children as well as 
the non-participants fell progressively farther behind national norms." 
Reviews of research studies (Grotberg, 1969; Stearns, 1971) found a 
pattern of similar results. Although the experimental group in most 
of the studies showed significant differences in academic achievement 
in favor of the children who attended Head Start over those who did 
not, their achievement average was still far below the national norm.

Bilingual Education. Title VII of the Elementary and Secondary 
Education Act (1967), commonly referred to as Bilingual Education, 
provides for assistance to educational agencies to develop and carry 
out new and imaginative programs to meet the special educational needs 
of children of limited English speaking ability. Although not as 
costly as Chapter I, $139.3 million were appropriated for minority 
language student programs for the fiscal year 1984 which was an
increase of $1.2 million over 1983 (Congressional Record, October 20, 1983).

Keith Baker and Adriana de Kanter (1981) explored the effectiveness of bilingual education based on a study of the literature. Their conclusion was summarized in the abstract of their report: "The case for the effectiveness of transitional bilingual education is so weak that exclusive reliance on this instruction method is clearly not justified. Too little is known about the problems of educating language minorities to prescribe a specific remedy at the Federal level."

The American Institutes for Research (AIR) conducted a nationwide evaluation of the impact of Title VII Spanish/English bilingual education programs (Danoff, 1978). The results from the full impact study (1975-1976) of Hispanic students who were in the second through the sixth grade showed that in English reading, the Title VII students in the study performed worse than comparable students who were not in Title VII education programs. It also showed that in general, across grades, the Hispanic students performed at about the twentieth percentile in English reading.

Right to Read. The problem of educating the educationally disadvantaged was also attacked by another federally funded education program. James E. Allen, former U.S. Commissioner of Education, launched an effort to eradicate illiteracy that would grow in time into a legislated program with an annual budget of over $26 million. Right to Read programs were in operation by 1971, having as their goal the elimination of illiteracy throughout the nation by 1980 (Isaacs,
They obviously were not successful in reaching their goal. When Right to Read was initiated it was estimated that twenty-five (25) percent of all American adults was functionally illiterate. The National Commission on Excellence in Education (1983) reported that twenty-three (23) million American adults were functionally illiterate. The Commission estimated that about thirteen (13) percent of all 17-year-olds was functionally illiterate and that as many as 40 percent of minority language youth could be considered functionally illiterate.

It is little wonder that, as Rexford Brown (1980) said, "The trend in recent years has been either to try to show these researchers 'wrong' by discovering significant school factors or to further clarify the nonschool, structural factors that contribute to inequity" (p. 36).

It is tragic that the conclusions Edmund Gordon (1978) made in the mid-70's should still hold true in the mid-1980's:

In the early 1960's we did not know what needed to be done to make school achievement independent of social class and social caste. Most of us thought that more money, extra effort, improved technology would solve the problems of educating the minority poor. Here in the mid-1970's most of us agree that to the extent that these things have been tried, they have not solved the problems. . . . We still don't know how to make school achievement and developmental opportunity independent of social position. Our best general predictor of success in school is successful birth into a middle- or upper-class Caucasian family (p. 101).

Follow Through and Head Start Planned Variation. Since there was little doubt that compensatory education had been of little or no help in educating minority language, low-SES children, there was a call from concerned educators and social scientists for innovative programs. The following statements are indicative of a general concern:
Our starting point, then, is that the current situation is unacceptable. It is obvious that drastic reforms must be effected. But what these should entail is not at all clear (Ginsburg, 1972:11).

It appears that considerably more bold and daring educational innovations are called for if we are to improve the outcomes of schooling for the majority of children called disadvantaged. The present large-scale programs of compensatory education, which so far have failed to yield appreciable scholastic gains among the disadvantaged, are psychologically and educationally probably still much too conservative (Jensen, 1973:130).

So far, after several years, nothing has been produced by those who are trying that would arouse great hope. All too often it is found that whatever new instructional technique aids learning for the 'slow learners' usually turns out to do even more for the 'fast learners', thereby increasing the achievement gap (Jensen, 1973:12).

The meager gains in intelligence and scholastic performance made by general enrichment pre-school programs suggests that something more and something different than providing the usual accouterments of middle-class nursery education, even in intensified form, is necessary (Jensen, 1973:155).

Our goal in improving the education of disadvantaged children has been to bring their schools up to the standards of the schools attended by their economic and social 'betters.' We strive to create middle-class schools in the slums. But the middle-class school is not the best of all possible educational worlds. It is in fact, a fortress built mainly of inherited, fixed concepts and practices (Fantini and Weinstein, 1970:222).

The target of programs to improve the education of the disadvantaged has been the learner himself; the educational process itself is off limits. Teachers and school officials attribute the child's lack of response to the inadequacies in the child's background. The prescription, then, is more concentrated doses of the prevailing technology (Fantini and Weinstein, 1970:223).

Most of the large-scale programs have been more intensive versions of standard curriculum and teaching methods (p. 109). . . . Much of what is being done for and to the disadvantaged seems to be guided by the conviction that what is needed is more of those things we feel we know how to do. Despite the fact that much of our knowledge and techniques
of behavioral change have proved to be of dubious value in our work with more disadvantaged populations, these same procedures and services now are being poured into the new programs. If real progress is to be made, we must recognize that it is our role to better understand these problems and to design techniques and measures more appropriate to their solution (Gordan, 1978:102).

This is the problem we cannot avoid facing: if we can gain any general impression of the field, it is that not one program of demonstrated effectiveness has yet been successfully implemented on a large scale. . . . We have found very little that is substantially different from traditional approaches to education. . . . Obviously, then, we are not putting high creative conceptions or the necessary national resources into this task (Gordan, 1978:113).

The call for innovative programs was responded to by a specifically designed program to implement new and different instructional approaches in compensatory education. The result was Follow Through and Head Start Planned Variation. Under these programs local communities were invited to design, carry out, and appraise various approaches to improve the education of economically poor children in the preschool years and in the early elementary grades. Since much less was learned from planned variation than was hoped, the Brookings Panel on Social Experimentation sponsored a conference of experts in April, 1973, to try and find out what went wrong. The general consensus of the panel of experts was summarized by Rivlin and Timpane (1975) as follows: "The fact remains that definitive answers to questions about how best to improve the education of young children from deprived homes have not emerged from these programs, nor do they seem likely to do so" (p. 11). Mosteller (1975) suggested that carefully planned and highly organized field trials of the more promising innovative educational programs would probably bring some answers (pp. 169-72).
Thus, the frustration of not knowing what caused the problem and therefore not knowing what to do became widespread. There was a desperate call for more research, for research based on a closer analysis of the problem and/or a theoretical framework. There were suggestions for improving research and concern for the problems associated with educational research. There was criticism of past research and evaluation reports. The problem of educating children from low-SES homes is not just a problem in the United States and so from all parts of the world educators are trying to understand the problem in their search for a solution.

Discussion of the Problem

At this point, it is necessary to gather together the comments and ideas from educators and researchers in the various fields of endeavor to help analyze the problem and point to the direction of a solution. Input from authorities in the fields of language and literacy, bilingual education, and educational research is included in this discussion of the problem.

Educational Leaders in the Fields of Language and Literacy

The following comments which have been made by authorities in relevant fields were gleaned from the literature and thus ideas from around the world have been brought together in a discussion of the problem. From the areas of language and literacy, educational leaders have made the following comments:
Kenneth Goodman (1980) starts the discussion with the following statement. "The legal barriers are gone. Now we must actualize the promise: We must truly equalize educational opportunity. That's the challenge of the 80's" (p. 3).

A note of encouragement was given by the National Commission on Excellence in Education in their otherwise discouraging report. "On the positive side is the significant movement by political and educational leaders to search for solutions. . . . We believe this movement must be broadened and directed toward reform and excellence throughout education" (p. 12). It is imperative that "we dedicate ourselves to the reform of our educational system for the benefit of all - old and young alike, affluent and poor, majority and minority" (p. 7).

From Australia we hear from Don Holdaway (1979) who would ask for open-mindedness in the search for a solution of the problem.

What is called for is an extremely open-minded inquiry which takes nothing for granted from the vast accumulation of habits, assumptions, experience and research which surround the subject like an impenetrable jungle. If we continue to make literacy a criterion for basic human dignity in our society, we cannot tolerate the failure with its poignantly modern forms of misery and maladjustment. Instead of setting up expensive and wasteful remedial programmes with a whole new establishment to support them in their inescapable effects of grinding the indignity deeper, we should either find a preventive solution or excuse a large proportion of children from school attendance. The present status of the problem, as already endlessly researched and largely unsolved, suggests that no assumption should be sacrosanct in our attempt to understand the matter (p. 12).

Holdaway (1979) emphasized the fact that we are dealing with a complex problem. "The processes of literacy are complex; the acquisition of literacy skills entails the most complex forms of learning." He realized that underlying the surface problem is where the heart of
the problem lies. "The institution of schooling presents complex impediments to learning and the cultural determinants of literacy in school and community are complex" (p. 18).

Frank Smith (1983) stated, "I . . . think there is a greater need at the moment to understand the factors that get in the way of children becoming literate than to expect some great theoretical break through to make a difference in the way children should be taught" (p. 140).

Jerome Bruner (1984) expresses his feelings as follows: "The problem of reading seems more and more to be a function not of the difficulty of reading per se but of the difficulties created by the way in which we teach reading. Education is the problem, not the solution" (p. 200).

Jeanne Chall (1983a) in her recommendations for research and practice stated, "It would seem that investigation is needed into why some people's reading lags behind while the general educational and reading level of the population improves. In all probability, this is a source of despair and hopelessness, particularly because reading gaps are found more often among the less privileged - among minorities, among ethnic Americans, and among those of lower socio-economic status" (p. 170).

Rexford Brown (1980) expressed a need to "address fundamental questions about how literacy is acquired or how it should be taught." He commented on the perplexity of the problem. "Research into the acquisition of reading and writing skills has served to generate as many questions as answers." He emphasized the importance of understanding the interaction with the surrounding variables. "Clearly,
the family, the society and the schools play important roles in the acquisition of literacy skills. But exactly what those roles are and how they interact for different individuals or groups we do not yet know" (p. 30).

MacGinitie (1976) identified, organized and discussed research suggestions for the improvement of reading. He hit on the crux of the problem with the following conclusion: "The similarities, differences, and relationships between expressive competence and receptive competence and between oral and written language are research problems of fundamental importance but are seldom even acknowledged." Noting the necessity for understanding the nature of reading first, he commented further, "The potential contribution of most studies of language development to our understanding of reading can scarcely be realized until these questions are recognized and studied" (p. 17).

Entwisle (1971) recognizes that the relationship between oral language development and reading becomes very pronounced when the wide variance in these skills between different groups of children is considered. She emphasizes the importance of oral language as a prerequisite for learning to read and the foundation for later growth and development in reading. She noted, "Almost no work exists on the relationship between oral language and reading achievement, although it is known that there is considerable variability in oral language across social or ethnic groups or both" (p. 132).

Similar concern is heard from England. Denis Lawton (1968) commented,
The main drawback of Project Head Start from a British point of view would be its lack of theoretical orientation; the impression is given in these reports that a great deal of time, money and energy is being expended without a clear analysis on the problem having been made and without clear objectives being defined (p. 150).

Recognition of a similar problem in England was made official when the following recommendation was made in the Newsom Report:

"There is an urgent need for research into the problems of environmental and linguistic handicaps, and the experiment in teaching techniques for overcoming the learning difficulties they create" (in Lawton, 1968:151.).

**Educational Leaders in the Field of Bilingual Education**

From educational leaders who are concerned with bilingual education the following comments are reported.

Muriel Saville-Troike (1979) stated: "Those concerned with improving equal educational opportunity for minority-group students" must find "an analytic device for guiding research on one of the major unresolved problems in their education, the lack of consonance between the culture of lower socio-economic groups and that of the school or that which is taught in the school, no matter what the language of instruction." She expresses the need to identify the specific cultural impediments to learning because as she said,

Whether students are from a lower-class Spanish-speaking background, from the inner city, or from the "hollers" of Appalachia, it is well known that they are likely to have greater difficulty in school than if they are from a middle class urban background. This complex factor, frequently labeled "low SES background" currently lacks explanatory power and needs to be explored more fully in order to identify the specific cultural variables that lead to inequality in educational achievement (Saville-Troike, 1979).
Dubois (1982) contended that analytic questions in the areas of language assessment, language and cognitive development, and bilingual education "have presented serious intellectual challenges to researchers and educators.... There are many unanswered basic research questions in the three areas mentioned above."

Merrill Swain (1979), a leading figure in the Canadian French Immersion programs, commented that the results of large national studies are of little or no value in setting educational policy because the research results are averaged across communities and across the many different kinds of bilingual programs, thus making it impossible to make similar situation comparisons. Swain added, "To determine what kinds of programs work best with what kinds of children, under what circumstances, one needs to look at the effects of individual programs and community variables as they interact with initial student characteristics over a long enough period that cumulative effects of the program can be observed."

In an executive summary of Research Evidence for the Effectiveness of Bilingual Education, Rudolph Troike (1978) called attention to the fact that not only was instructional approach of bilingual education not based on research, but also that in its first ten years of operation there had been little research.

Bilingual education is in critical need of research, both basic and operational, and unless it receives this support, this great experiment could become just another passing effort in the history of American education which failed to achieve its goals -- to the detriment of millions of school children and of our whole society. . . . Although over half a billion dollars has [sic] been spent on bilingual education since 1968, less than one-half of one percent has been spent for research. . . . Such a situation would not be conceivable
in the military or medical fields, and should not be tolerated in education (p. 2).

In conclusion, Troike stated, "The success of bilingual education in providing equal educational opportunity for subordinated minorities may rest on matters far deeper and more fundamental than providing a 'warm, accepting environment' or attempting to enhance the student's self-concept" (p. 15). Troike reviewed and observed many programs which did both but which still did not show any improvement in the children's academic achievement which is the problem of national concern. In his final plea, he stated "The whole issue, as with many others, is one which can be resolved only by much more basic - not just operational - research than we have at present" (p. 15)

James Cummins (1979), a leading theorist in the field of bilingual education who resides in Canada, pointed out the central problem in bilingual education. "The lack of concern for the developmental interrelationships between language and thought in the bilingual child is one of the major reasons why evaluations and research have provided so little data on the dynamics of the bilingual child's interaction with (his or her) educational environment."

George Miller (1973) made a statement that is well worth considering. "In science, as least half the battle is won when we start to ask the right questions" (p. 160).

Tucker (1979) of the Center for Applied Linguistics seems to have asked the right question: "Does there exist some necessary (measurable) threshold of target language proficiency which must be attained before one is able to profit from instruction in that language?"
Educational Leaders Concerned With Research

The following comments have been made by educational leaders concerned with the special problems of research and with a way of improving research:

Compensatory education for minority language, low-SES children, because it is federally funded, has become a very political issue. Thus, as Rexford Brown (1980) has said, "Unlike pure research driven by the curiosity of the researcher, equity research has been driven primarily by institutional policy needs and major social policy questions" (p.36).

It is the belief of this author that it is the responsibility of the researcher to at least tentatively identify cause, because if the researcher does not the practitioner will. This is one of the reasons why Ellett and Ericson (1982) stated, "There are compelling arguments for holding that scientific analysis and policy formation must be concerned with causation."

Cooley (1981) noted that researchers have realized that the necessary conditions for experimental design are just not possible in school settings and have thus turned to quasi-experimental design. However, according to Cooley (1981) they do not seem to realize that "it is essential to substitute good theory and adequately specified causal models for the abandoned experimental controls." He pointed out that "the other major problem with the quasi-experimenters is that they have tended to consider a federal dollar as an educational treatment. Schools do lots of different things with Title I dollars. Some of them facilitate learning and some of them do not." He contended
that we know far too little about "the major factors that determine student achievement or successful implementation of a program, and one would expect a federal program that serves 90 percent of the school districts to have that as its primary focus" (p. 300). He also explained why compensatory education programs have not tended to improve over the years.

An unfortunate aspect of the evaluations of Title I is the focus on justifying the federal funding program by seeking an overall Title I effect, instead of focusing on ways in which Title I practices might be improved. . . . Unfortunately, the evaluators did not help. Instead of looking for ways to improve the education of children who were somehow disadvantaged, they tended to look for evidence to support the continuation (or discontinuation) of a federally funded program. . . . Fortunately, the futility of that type of effort is now becoming more widely recognized. By turning to improvement-oriented evaluation reports we can surely find the processes necessary to ensure that every child learns the fundamentals which are so clearly essential in American society. It won't be easy, but it is possible (p. 301).

As an example of how lax evaluation of compensatory education programs has been, in an overall review of 426 ERIC citations on Right to Read programs, O'Connor (1978) did not find one program report that assessed itself in a strict sense and thus was able to claim scientific proof of merit.

Coleman (1975) pointed to implementation as the crux of the problem. "It is necessary to measure implementation to determine effectiveness. To answer the question, 'Does this program, as conceived, have an impact of a certain kind upon children?' it is important to ask as well, 'Is this program, as conceived, implemented in the field?'" (p. 175).
Levin (1976) contended that "because of the inherent inadequacy of our present tools, there is no social science consensus on the appropriate educational strategies for improving the life chances of children from low-income and minority backgrounds" (p. 76). Is the reason really because of an inadequacy of our present tools?

Calhoun (1981) urged, "This is the time to invest public funds strategically so that future generations will have an even more secure knowledge base on which to formulate social policy for children. Possible research themes could include... studies that emphasize the influence of family ecology on children's learning and development" (p. 140).

David Cohen (1975) in reviewing applied researchers' criticism of nonexperimental policy research found several persistent criticisms: "Social interventions are vaguely conceived and weakly specified. It is hard to tell whether, or how well they are implemented. Criterion measures are generally of dubious relevance or solidity. Evidence about the effects of such interventions is typically so uncertain that its value for policy is nil" (p. 169). He added that experimental research has similar problems with roughly the same results. Cohen (1975) seems to have found the key to an explanation of why an answer to the problem of educating minority language, low-SES children has to date not been found and accepted by the educational community. He argues, "The nature of social services tends to defeat experimental learning. The character of knowledge in education makes it difficult to devise solid measures of success or failure." But most importantly, "Learning about social policy generally seems to involve a movement
from practice to theory - a backward progression from what appears to be self-evident ideas about social problems and remedies." Thus, the progression of starting with the practice, evaluating the practice through experimental research, and then trying to devise theoretical constructs to fit questionable empirical evidence "tended to increase complexity rather than clarifying action alternatives" and so "the experiments multiplied questions instead of producing answers" (p. 169). In scientific pursuit of answers to social problems, it is necessary to go from theory to practice and then research the practice to see if it confirms the theory. It should also be remembered that observing educational practice, all of which is in a sense experimental, is not the same as observing natural phenomena.

Descriptive research is valuable, however, if it includes the following criterion: "Not only should research be clearly descriptive of what actually happens under real world circumstances but it should also cohere with a strong body of related insights" (Holdaway, 1984 p. 6).

Lack of Awareness of Existing Knowledge

The following question is posed: Is the reason that a solution to the problem has not been found because this knowledge does not exist or is it that the knowledge exists but far too many practitioners are not aware of or are willing to accept it? An extensive review of the literature reveals that it is the latter. The following educators seem to corroborate this contention as well. (Note, one of the
purposes of this dissertation was to bring together that which is presently known concerning the language reading relationship.

Holdaway (1979) stated: "Modern knowledge about the nature of language and language acquisition has much to offer in clarifying the reasons for instructional failure" (p. 12). However, as Yetta Goodman (1981) pointed out, "Knowledge is of no use if it is not applied. And there is much new knowledge to apply to the teaching and learning of oral and written language" (p. 11).

Stacy E. Palmer (1984) reported on a research project concerning the dissemination of research information: "Although the federal government has spent about $560-million over the past 20 years on research designed to improve the quality of the nation's schools, few of the results are actually reaching teachers or policymakers.... It was found that educational research was being carried out, but that most of its results appear in educational journals read mainly by other scholars." Palmer quoted the president of the company who conducted the study in saying, "We found that most of the material in these reports has never been disseminated to the people who have the power to change the schools - teachers, parents, and legislators. If more of the research were applied in the classroom, the nation's elementary and secondary schools would be doing a much better job" (p. 17).

Adams et al (1978) realized that there was still much more to learn. It is encouraging to know that much more is known now than at the time they wrote. "Anyone who knows the literature on beginning reading is forced to conclude that much still needs to be learned
about what it is and how it should be taught. Even descriptions of
the very nature of the reading process continue to be characterized by
diversity rather than agreement. What is known with certainty is
meager." His statement could be questioned. However, there is little
doubt that practice backed behind what was known. "Those who know the
literature and are also aware of what goes on in classrooms must face
up to another inevitable conclusion; namely, the failure of classroom
practices to reflect what is known" (p. 19).

Gordan (1978) also commented on the situation. "Having recently
reviewed much of the research and most of the current programs con­
cerned with the disadvantaged, I am impressed by the pitifully small
though growing body of knowledge available as a guide to work in this
area. The paucity of serious research attention to these problems has
left us with little hard data, many impressions and a few firm leads." He
then reiterates what Adams et al said above. "What is distressing,
however, is the slight representation of even this research in the
rapidly proliferating programs" (p. 102).

Kenneth Goodman, (1978) who wrote in the same year, presented a
more optimistic view regarding existing knowledge.

There is an irony about the current state of knowledge
in reading and reading instruction which may yet prove to be
tragic. Theory and research have broken through in a number
of fronts. Developments in language theory, in perception
and cognition, in understanding language development, in
relating language and learning, in building productive
theories of reading, in relating oral and written language,
in developing theories of teaching and learning and reading
are all happening at an accelerating pace. Finally we begin
to see research and theory building on each other. It's all
beginning to come together and make sense. Most important
we're breaking through the barrier between theory and practice. We know enough to know why things work and why they don't (p. 919).

He also noted that even though a solution to the problem of educating language minority, low-SES children is found, the larger educational community may forever remain ignorant of it.

Logically, we should be gearing our schools and preparing our teachers for grand innovations. . . . But, in fact, in our very zeal to make literacy universal, in many school systems we are locking out knowledge. The battle cry is 'Back to the Basics': truth is to be found by closing our minds to new knowledge, facing to the rear and glorifying ignorance. This know-nothing movement is institutionalized by state law, board policy, federal guidelines, even court order. It is set in the concrete of minimal competencies, management by objectives, arbitrary skill hierarchies, mandated testing. Schools are ordered to teach all children to read quickly and well, but they are then cut off from new knowledge and the possibility of using it in creative innovations (p. 919).

Kenneth Goodman is supported in his observation of the back-to-basics movement by Margaret Smith/Burke (1982) in her testimony at the public hearing of the National Commission on Excellence in Education on Language and Literacy: Skills for Academic Learning. In discussing the problems associated with the implementation of the back-to-basics movement, she stated: "The first problem, during the early phase of the back-to-basics movement, was that few reading programs were conceptually grounded in theory and research on the total reading process. The focus of instruction generally tended to be on word recognition skills, only part of reading" (p. 58).

The strongest assertion comes from Holdaway's following statement: "Only our prejudices, our precendents, and our false assumptions about
the nature of language processes stand in the way of general amelioration of the literacy scandal" (p. 31)?

**Suggested Solutions to the Problem**

There are many people who seem to have a real understanding of the problem of educating minority language, low-SES children, who have insightful ideas on how to deal with the problem, or who have clues to an answer. Following are just a few of the comments from some of these people.

Margaret Donaldson (1978) posed the question: "What can be done to give all children a good start in the kind of learning that takes place in school?" (p. 98). She noted further, "It is universally recognized that when children come to school there is a wide gap between those who are best prepared and those who are least prepared for school learning. The question then is how to close the gap early, for if it is not soon closed it will widen" (p. 98). Jerome Bruner (1984) specifies the prerequisite to reading in which there is such a wide variance among children. "Children at the time they are required to learn to read are unequal in their habitual competence with the spoken language, at least in respect to their ability to operate at the textual level of metapragmatics" (p. 195).

Irving Lazar (1981) attributed any success that Head Start has had to a change in parent's values and anticipations for their children's education. He wondered, "when the professionalization of education drove parents out of their children's learning [if] an essential condition for learning may have been severely damaged."
Cecelia Genishi (1981) made a critical realization. "We have learned that we need a working knowledge of contexts outside the school in order to be effective teachers and researchers. ... We have realized that the home experience can have a greater cumulative impact than the few hours spent in a classroom" (p. 112).

Gauthier (1984) builds on this point. "Learning begins at a very early age within the family. The children of non-English-speaking mothers miss out on the vocabulary, stories, nursery rhymes and other common frames of reference that English-speaking kindergarten children already know. Consequently, the children from non-English speaking homes begin school at a disadvantage" (p. 5).

And from the past there is a reminder from Huey (1918). "The reading of real literature should begin in the home and in the very first days of school, and should continue uninterruptedly" (p. 345).

Holdaway (1984) expressed the following important consideration. "It is unquestionable that the most efficient learning environments we know are those controlled on the conditions of the healthy home, and recent research has been reminding us of that fact with an almost cruel clarity" (p. 9).

**Thesis Statement**

It could hardly be questioned that on a large-scale basis our society has been unable to effectively educate minority language, low-SES children in a formal in-school setting. It is argued by this researcher that there must be something in these children's out-of-school experience that prevents them from receiving full benefit from.
their in-school experience. It is helpful in analyzing the problem to first look at the argument for Head Start as stated in the Westinghouse-Ohio Report: "The rationale for Head Start follows this line of reasoning: The poor are educationally disadvantaged; their disadvantage status is caused by experiential handicaps imposed by poverty; therefore, compensatory intervention ought to effect a cure" (Cicirelli et al, 1969:18). Special intervention in the form of compensatory education has not effected a cure. The primary reason why it has not is because what it is in these children's preschool experience that causes the handicap has not been precisely identified. The handicap itself has not even been identified. Before a cure can be effected, it is necessary to have an idea what is to be treated and at least a vague notion of the cause. Hence, it is the purpose of this paper to identify the handicap and attempt to determine the cause. Thence, to determine what can be done to prevent or overcome the handicap. The author proposes that the handicap is that children from homes of low-SES have not reached the level of oral language proficiency which is necessary to learn to read with comprehension.

It is the thesis of this dissertation that the crux of the problem of educating minority language, low-SES children lies in the relationship between language and reading. Many minority language children from homes of low-SES have not reached the level of oral language proficiency in English to be able to learn to read with comprehension. Underlying this surface problem are two factors which directly affect the language/reading relationship. (1) The oral language of low-SES children does not develop to a sufficient level of proficiency to
learn to read with comprehension because there is something lacking in their preschool, experiential background. (2) The language deficiency can either be overcome or confounded depending on the way reading is taught.

In order to identify precisely what the language deficiency is and what in the home environment causes the language deficiency an extensive review of the literature was made and is presented in Chapter Two. To gain additional evidence in support of the language/reading relationship, the following empirical study was conducted.

The Empirical Study

An investigation of the language/reading relationship among American Indian children on the Crow Indian Reservation was made. In this section of Chapter One, the setting for the study is established and pertinent environmental factors are identified. This is followed by a statement of the problem for the empirical study, the research questions, the general procedure for conducting the study, and the limitations and delimitations of the study. This section is concluded with a list of defined terms. The entire Chapter is then briefly summarized.

Setting of the Study

American Indian children who attended the first grade at one of the elementary schools on the Crow Indian Reservation were the subjects of this study. The following cultural, educational, and linguistic
data form background information about the children and establish the setting for the study.

The Crow Indian Reservation, which was the site for this study, is located in southeastern Montana approximately sixty miles south of Billings. It is a relatively large reservation of 2,282,000 acres which extends from a few miles south of Billings, Montana, to the Wyoming border. It is primarily an agricultural region, a rural area, but not particularly geographically isolated. A large portion of the land is owned or leased by non-Indians who thus control most of the land and virtually all of the economy. The Bureau of Indian Affairs' records at Crow Agency show that as of August, 1981, there were 6,702 enrolled members of the Crow Indian tribe, of which about 4,700 lived on the reservation. The 1980 census shows that there were 1,915 non-Indians living on the reservation in 1980. The Socio-Economic Impact Study of Energy Development on the Crow Reservation (1977) shows that only 6.1 percent of Crow adults were farmers or farm workers at that time. The same study also showed 16.7 percent of the Crow adults employed in professional, technical, or managerial positions. Typical for the reservation schools, 90 percent of the Lodge Grass elementary school students qualified for free or reduced lunch in 1981 and so were identified as students from low-income families.

The Crow Indians' retention of their language and traditional cultural patterns has been greater than any of the other Northern Plains tribes (Matthews, 1976). G. H. Matthews added that about the only factor which has fostered language loss has been intermarriage. Family life has been quite stable for a low income area. This has
been primarily due to the extended family situation. The clan system, although not as strong as it once was, at the time of the present study was still an integral and important part of the Crow culture. Joe Medicine Crow (1977) stated, "There has always been and still is today mutual concern, helpfulness, and sharing of responsibilities within the matrilineal clan."

At the time of this study (1982-1983) there were 996 children attending elementary schools on the reservation. The percent of Indian students ranged from 15 percent at Fort Smith to 100 percent at Pretty Eagle. Children who live on the reservation attend the public elementary schools at Hardin, Lodge Grass, Crow Agency, Wyola, and Pryor, the Indian controlled school at St. Xavier, and the parochial school at Pryor. High school students attend school at Lodge Grass High School, Plenty Coups High School, and off reservation schools at Labre, Hardin, and at boarding schools.

The spring of 1980 academic achievement scores for the Lodge Grass elementary students in the language arts area, as measured by the Iowa Tests of Basic Skills, showed the following percent of students to be below grade level: 58 percent of the kindergarten, 89 percent of the first grade, 87 percent of the second grade, 48 percent of the third grade (sic), 64 percent of the fourth grade, 56 percent of the fifth grade, 26 percent of the sixth grade (sic), 61 percent of the seventh grade, and 58 percent of the eighth grade. This is typical for the reservation schools. During the 1983-1984 school year 43 percent of the children in the elementary schools, excluding Fort Smith were in Chapter I.
The study by Chesarek (1981) provides some evidence that these children are deficient in oral language ability. On a battery of tests (Peabody Picture Vocabulary Test and subtests of the Illinois test of Psycholinguistic Abilities, which included Auditory Discrimination, Auditory Association, Grammatic Closure, and Verbal Expression) given to the first and second grade students at the Crow Agency School in 1971, the bilingual (Crow/English) children scored significantly lower (p.001) on all oral English tests than their English-only speaking classmates. However, no significant difference was found between the Crow/English bilingual children and the monolingual English-speaking children on the Ravens Coloured Progressive Matrices Test and the Visual Association subtest of the Illinois Test of Psycholinguistic Abilities, which are non-verbal tests (Chesarek, 1980).

The first bilingual education program on the reservation was initiated at Crow Agency in 1970. Wyola and Lodge Grass first had a bilingual program in 1975. After two years the bilingual program at Lodge Grass was discontinued. Pretty Eagle School at St. Xavier began a bilingual program in 1976. Pryor had a partial bilingual program until 1978 when they received funding for a full bilingual program. At the time of this study there were four programs of bilingual education on the Crow Reservation. Lodge Grass, whose proposal was ranked first in the nation, received funding in 1981 for a three year bilingual program. Pryor received funding in 1982 for a fourth through sixth grade bilingual program. Crow-Agency and Wyola also received funding in 1982 to resume their bilingual programs. During the 1982-1983 school year Crow was not used as the language of instruction at
any of the bilingual programs except Lodge Grass where it was used minimally. English was not formally taught as a second language except at Lodge Grass where there were ESL teachers. Initial reading was in English except at Lodge Grass where the first grade students (1982-1983) in the bilingual program were taught to read Crow and English concurrently.

In 1970, Dracon reported that 82 percent of Crow school age children were primary speakers of the Crow language while another eight percent demonstrated some linguistic competence in the language. In a language survey, John Read (1976) found that 73 percent of the Crow Indian students, kindergarten through the twelfth grade, spoke Crow as their primary language. Read used two rating systems to determine language usage and competence in both English and Crow. In the community rating every Crow student received a rating. In the interview ratings a random sample of 20 percent of the Crow students were interviewed. Both ratings were in agreement on the 73 percent figure. However, since it is difficult to define "limited speaking ability" and because usage and competence in a language often vary, there was a discrepancy between the two rating systems in regard to limited speaking ability in Crow. The community rating found that an additional five percent of the children spoke some Crow while being dominant in English. The interview ratings found that an additional 13 percent of the children showed some oral competence in Crow while being dominant in English. According to Read (1979) there is a stable intergenerational pattern of bilingual proficiency and usage in the Crow language even though in his study Read (1976, 1978) showed that a
nine percent decline in language maintenance had occurred from the
time of the Dracon survey in 1969. Read based this conclusion on the
fact that no significant difference was found between the upper and
lower grades in the Crow children's language usage in either survey.
At the time of this study, as at the time of the Dracon study (1970)
and the Read study (1976), there was great diversity in English
speaking ability among the Crow Indian children which varied from
non-English-speaking to very fluent English.

Statement of the Problem of the Empirical Study

With respect to the possibility of the existence of an important
correlational relationship between oral language proficiency and
reading achievement the following questions might be asked: Is it
possible that Crow Indian children and other children with limited
English oral language proficiency do not enter the first grade with
the necessary prerequisite for success in learning to read? Could it
be that oral language proficiency is the best indicator of reading
readiness? Is level of oral language proficiency an accurate predictor
of reading achievement? This study was conducted to help answer these
questions.

The problem of this study was to determine the degree of correla­
tion between the English oral language proficiency of first grade
American Indian students prior to formal reading instruction and their
reading achievement at the end of the first grade. The children who
were the subjects of this study attended the first grade at one of the
seven elementary schools on the Crow Indian Reservation during the
1982-83 school year. A battery of standardized tests of oral language proficiency was used to measure the children's oral language proficiency in English in the fall and a battery of standardized reading tests was used to measure their reading achievement in the spring.

Additional Questions Which Were Asked

The following questions were also asked. To form these questions language proficiency was broken into the following factors: (1) language fluency, (2) language complexity, and the linguistic competence and performance of the (3) morphological, (4) syntactical, (5) semantic, and (6) phonological aspects of oral language. Reading achievement was broken into the following factors: (1) word recognition, (2) reading comprehension, and (3) oral reading. The combination of each of these factors yielded the following eighteen (18) subquestions:

Is there a significant correlation between each of the following:

1. Oral language fluency and word recognition?
2. Oral language fluency and reading comprehension?
3. Oral language fluency and oral reading?
4. Oral language complexity and word recognition?
5. Oral language complexity and reading comprehension?
6. Oral language complexity and oral reading?
7. Linguistic competence and performance of the morphological aspect of language and word recognition?
8. Linguistic competence and performance of the morphological aspect of language and reading comprehension?
9. Linguistic competence and performance of the morphological aspect of language and oral reading?
10. Linguistic competence and performance of the syntactical aspect of language and word recognition?

11. Linguistic competence and performance of the syntactical aspect of language and reading comprehension?

12. Linguistic competence and performance of the syntactical aspect of language and oral reading?

13. Linguistic competence and performance of the semantic aspect of oral language and word recognition?

14. Linguistic competence and performance of the semantic aspect of language and reading comprehension?

15. Linguistic competence and performance of the semantic aspect of language and oral reading?

16. Linguistic competence of the phonological aspect of language and word recognition?

17. Linguistic competence of the phonological aspect of language and reading comprehension?

18. Linguistic competence of the phonological aspect of language and oral reading?

Answers to the following additional research questions resulted in a deeper understanding of the problem and gave an added perspective to the analysis of the solution.

1. At what level of oral language proficiency should a child be in order to be successful in learning to read?

2. How do the subjects at the various levels of reading achievement compare in regard to the following characteristics: level of oral language proficiency, pre-reading activity, linguistic make-up, socioeconomic status, sex, and family make-up?

3. How did the subjects of this study compare with first grade Caucasian children who attended the same schools?

4. What single measure (test) of oral language proficiency is the best indicator of reading achievement? Why?

5. What are some of the personality characteristics and home environmental conditions of the children in this study who scored in the three highest positions and the three lowest positions in reading achievement?
General Procedure

The general procedure which was followed in this study was as follows:

1. A random sample of 29 first grade Indian students, stratified by classroom and school, was taken.

2. These students were given a battery of tests to measure their proficiency in oral English in September of 1982.

3. Each of the students' parents or guardians was personally interviewed.

4. The students were given a battery of standardized tests of reading achievement in April of 1983.

5. A raw data matrix was made of the oral language and reading test scores for each child and analyzed to determine the degree of correlation between the two sets of scores.

6. Three factors of reading were combined with six factors of oral language for a total of 18 sub-correlations which were analyzed to determine the degree of relationship between each combination.

Limitations and Delimitations

The population for this study was limited to Indian children who attended school on the Crow Indian Reservation during the 1982-1983 school year. However, the population was not limited to bilingual (Crow/English) children, for it was important to include as wide a range of English oral language proficiency among the children as possible while at the same time maintaining comparability. Since it was imperative to this study that the level of oral language proficiency be measured prior to the time the children started to read, the population was limited to first grade students who were entering the first grade for the first time.
Statistical analysis was limited to language skills, namely the speaking and reading of English. Some additional analyses were made using the demographic data on the students.

The duration of this study was limited to one school year. Because of this limitation it was recommended that a follow-up study be conducted. Another limitation of the study was the size of the sample. There were only twenty-nine subjects in this study; however, this was about thirty percent of the population.

Definition of Terms

The following terms are pertinent to the study.

**English as a Second Language (ESL).** A structured language acquisition program designed to teach English to students whose native language is not English (Office of Civil Rights Guidelines, 1975).

**Bilingual/Bicultural Program.** A program which utilizes the student's native language (e.g. Crow) and cultural factors in instruction, maintaining and further developing all the necessary skills in the student's native language and culture while introducing, maintaining, and developing all the necessary skills in the second language and culture (e.g. English). The end result is a student who can function totally in both languages and cultures (Office of Civil Rights Guidelines, 1975).

**Transitional Bilingual Education.** Subject matter is taught in the home language (L1) until the students second language (L2) (English) is good enough for them to participate successfully in a regular classroom. ESL is often used to help minimize the time needed to master English. Home language (L1) instruction is gradually phased out, and regular English instruction is gradually phased in (Baker and deKanter, 1981:2).

**Compensatory Education.** Educational programs for disadvantaged students whose educational and economic backgrounds are considered markedly inferior to those of regular students (Williams, 1968).
Language Proficiency. The degree to which an individual exhibits control over the use of the rules of a language for one, some, or all of its aspects. These aspects include the phonological, syntactic, lexical and semantic systems, and discourse and stylistic rules for oral and written communication for different varieties of a given language in various domains and social circumstances (Burt and Dulay, 1978).

Morphology. The study of the internal structure of words and of the rules by which words are formed (Fromkin & Rodman, 1978).

Phonology. The study of the sound system of language or the way in which speech sounds form systems and patterns in human language. Also the study of the rules which determine the relationship between the phonemic representation of words or utterances and the phonetic representation (the pronunciation) of these utterances (Fromkin & Rodman, 1978).

Syntax. The study of the principles and processes by which sentences are constructed in particular languages (Chomsky, 1965).

Semantics. The study of the linguistic meaning of words, phrases, and sentences as well as the study of rules for combining meanings (Fromkin & Rodman, 1978).

Inflection. Change in the form of bound morphemes which are purely grammatical markers and represent such concepts as tense, number, gender, and case (Fromkin & Rodman, 1978).

Linguistic Competence. The unconscious knowledge of the grammar of the language. This includes knowledge of the basic sound, words, and rules for the formation, pronunciation, and interpretation of sentences (Fromkin & Rodman, 1978).

Linguistic Performance. The production or use of linguistic competence in actual behavior (Fromkin & Rodman, 1978).

Summary

The historical background of the problem of educating minority language, low-SES children included factual information regarding the
magnitude and duration of the problem. A brief overview of compensatory education programs which were instigated to overcome the problem showed them to be ineffective on a large-scale basis. A discussion of the problem resembled a brainstorming session in which pertinent comments, opinions, and ideas of educational leaders were quoted. It was stated that the thesis of this dissertation is that many children from homes of low-SES have not reached a sufficient level of language proficiency to be able to learn to read with comprehension, that this language deficiency is caused by something which is lacking in the experiential background of these children, and that the language deficiency can either be overcome or confounded by the way reading is taught.

The study which was conducted to lend empirical evidence in support of the correlational relationship between language and reading was described to include the setting, questions asked, general procedure, and limitations of the study. It was stated that the problem of the study was to determine the magnitude of the correlation between the English oral language proficiency of first grade American Indian students prior to formal reading instruction and their reading achievement at the end of the first grade. Twelve terms were defined.
CHAPTER 2

REVIEW OF THE LITERATURE

The solution to the problem of educating minority language children from homes of low socioeconomic status (low-SES) lies within existing knowledge. In order to pull the threads of this knowledge together, an extensive review of the literature has been made. The literature has been gleaned for that knowledge which relates to the language/reading relationship and the effects of the intervening variables - educational intervention, socioeconomic status, and bilingualism - on that relationship. Not only has what is known from theory and research regarding the interrelationships among the above variables been brought together but it has also been interwoven to establish causal links and consequently to recommend viable solutions to the problem. An attempt has also been made to show how this knowledge can be applied in educational practice and thus respond to Kenneth Goodman's prognosis: "We will find the strength in knowledge to build the literacy programs we need" (1979:13). The knowledge gained by reviewing the literature also provided the insight and understanding to interpret the results from the study conducted for this dissertation and draw warranted conclusions. Through logical reasoning an argument was formulated to defend the thesis of this dissertation. This argument is supported by the knowledge which was drawn from the literature review.
In this chapter the key variables, language and reading, are first examined independently and then in relationship to each other under the headings: (1) language, (2) reading, and (3) the language/reading relationship. The interaction with, and subsequent effects of two intervening variables on the language/reading relationship are then treated under the following headings: (4) the language/reading relationship and socioeconomic status, and (5) the language/reading relationship and bilingualism. An interlocking theoretical framework based primarily on the theoretical work of Noam Chomsky (language), Frank Smith (reading), Basil Bernstein (sociolinguistics), and James Cummins (bilingualism) forms the basic structure of this investigation.

**Language**

In order to gain some understanding of and insight into the nature of language and language learning and ultimately the relationship of language to reading; it is necessary to approach our inquiry from a theoretical framework. First, Noam Chomsky's explanatory theory of language is examined. Input from Jerome Bruner and Frank Smith is added to the section on language and learning. Stephen Krashen's model for teaching English as a second language is then presented. Finally, language proficiency is defined in detail.

**Theory of Language**

"The theory of language is simply that part of human psychology that is concerned with one particular 'mental organ,' human language" (Chomsky, 1980:36). Central to Chomsky's theory of language is the
assumption that, "The language faculty . . . develops in the individual along an intrinsically determined course under a triggering effect of appropriate social interaction and partially shaped by the environment" (p. 44). Chomsky finds it useful to view the language faculty as a "mental organ" analogous to the heart or visual system. From his truly rationalist stance Chomsky (1975:10) poses the question, "Why not study the acquisition of cognitive structure such as language more or less as we study some complex bodily organ?" In other words he wonders why not apply "the canons of rationality that have been taken for granted for centuries in the natural sciences to a theory of the mind" (1983:60).

Chomsky argues (1980:34) that the language faculty must be innate to permit individuals to "transcend experience" and uniformly develop highly specific and intricate structures which do not reflect the "impoverished and unstructured environment." To Chomsky, "it is clear that the language each person acquires is a rich and complex construction hopelessly underdetermined by the fragmentary evidence available" (1975:10). In other words, the infant forms the rules of his language from the poor data which surrounds him, for, as Chomsky (1968) said, "Normal speech consists, in large part, of fragments, false starts, blends, and other distortions of the underlying idealized forms" (p. 66). Chomsky asserts, "It is a dogmatic assumption, and not a particularly plausible one, that the principles in question must have been developed in a few years of experience rather than through tens of thousands of years of evolution or perhaps by the operation of
physical laws yet unknown" (p.92). Chomsky refers to this innate language faculty as "universal grammar."

**Universal grammar.** Chomsky (1980) regards universal grammar "as a theory of innate mechanisms, an underlying biological matrix that provides a framework within which the growth of language proceeds" (p. 187). It is a highly restrictive system that narrowly limits the number of possible grammars, but with open parameters which are defined by experience. A small change in parameters could thus lead to a radical change in the resulting language. The system of universal grammar, at the same time, must be sufficiently rich to provide all the necessary rules for each unique and complete grammar. "Endowed with this system and exposed to limited experience, the mind develops a grammar that consists of a rich and highly articulated system of rules (p. 66). . . . This biological endowment permits a vast potential for development, roughly uniform for the species" (p. 34). Chomsky reasons that, "the properties of universal grammar are biologically not logically necessary" (p. 28).

Universal grammar is a genetically determined set of conditions that constitute the "initial state" of the language learner. It is its function to map a person's linguistic experience into a particular grammar which constitutes that person's mature knowledge of the language, a relatively steady state. This "steady state" is reached at a fairly fixed age rather early in life. From this point on, the state does not change in any significant way (1980:187-189).
Chomsky strives to clarify the concept of universal grammar. "Universal grammar is not itself a grammar but rather a system of conditions on the range of possible human grammars" (p.189). Chomsky argues that the abstract concept of a universal grammar does not necessarily imply that there must be specific elements or rules common to all languages nor does it infer that humans are designed to learn one human language rather than another.

Universal grammar defines the initial state while the grammar of a child's particular language describes his final state. The system of universal grammar provides the basis from which the generative grammar develops.

**Generative grammar.** "The language faculty creates a grammar that generates sentences with formal and semantic properties. . . . We say that a person knows the language generated by this grammar" (1975:36). Chomsky asserts: "The grammar of the language determines the intrinsic physical and semantic properties of every sentence" (1980:124).

Chomsky cautions, "We must be careful to distinguish the grammar, regarded as a structure postulated in the mind, from the linguist's grammar, which is an explicit articulated theory that attempts to express precisely the rules and principles of the grammar in the mind of the ideal speaker-hearer" (1980:220).

There are two components of the generative grammar, the "base component" and the "transformational component." The two subcomponents of the base - a "categorial component" and a lexicon - interact to generate abstract "phrase-markers." The transformational component
converts an initial phrase-marker, step by step into a phonologically represented sentence called the "surface structure." Thus, the grammar generates mental representations of the form and meaning of sentences. The representations are the "phonetic form" and the "logical form." In other words, transformational generative grammar is a system of rules in which the "surface structures" (phonetic representations) are formed through the interaction of at least two distinct types of rules: base rules, which generate abstract-phrase structure representations; and transformational rules, which move elements and otherwise rearrange structure to give the surface structures (1980:144). The surface structures are in turn "converted to logical forms by certain rules of semantic interpretation" (1975:105). And here, according to Chomsky, is the point of juncture with other cognitive structures. "They also interact with other cognitive structures to give full representations of meaning" (1975:105).

The concept of "initial phrase markers" was originally referred to as "deep structure" by Chomsky. In his more recent writing he no longer uses the term. He explains why in Reflections on Language (1975:81). However, the term "deep structure" persists in the literature and will also occasionally be used in this paper. Also, in his recent writing, Chomsky is much more likely to use "grammar" than "syntax." Syntax, in its strict definition, constitutes only one part of the grammar which excludes morphology. In the literature and in computer terminology "syntax" through misinterpretation has come to have a much broader definition which includes morphology. Chomsky, as does this author, adheres to the strict definition of "syntax."
Thus, Chomsky theorizes there to be "on one hand a system of general principles of universal grammar, and on the other, particular grammars that are formed and interpreted in accordance with these principles" (1968, p. 52). In turn, each particular grammar has the capacity to generate an infinite number of surface structures. "The study of grammar raises problems that we have some hope of solving; the creative use of language is a mystery that eludes our intellectual grasp" (1980:222).

Creative aspect of language. "Although the language generated is infinite, the grammar itself is finite, represented in a finite brain. Thus, the rules of grammar must iterate in some manner to generate an infinite number of sentences, each with its specific sound, structure, and meaning. We make use of this 'recursive' property of grammar constantly in ordinary life" (1980:221-222). Chomsky (1983) explains that this most elementary property of language involves a discrete infinity, "That is, there is an infinite range of possible constructions - there is no longest sentence" (p. 83). Neither is there variance along some continuous dimension as, for example, in the communication of bees. "Rather there is a discrete infinity of possible expressions, each with its form and its meaning" (p. 38).

Chomsky explains (1965:142),

The infinite generative capacity of the grammar arises from a particular formal property of categorial rules, namely that they may introduce the initial sentence into a line of a derivation. In this way, the rewriting rules can, in effect, insert base phrase-markers into other base phrase-markers, this process being iterable without limit.
Miller (1962) uses the following sentence to illustrate the recursive rule. "This is the dog that worried the cat that killed the rat that ate the malt, etc."

The principle of using a finite set of rules to generate an inconceivable number of sentences is illustrated by Frank Smith (1975). His "miniature grammar" consists of three rules and a lexicon of fifteen words with which it is possible to generate 1280 grammatical sentences! Also to illustrate the complexity of language, Ohmann (1969:31) uses an example of a situation in which twenty-five (25) people were asked to describe a scene. A computer analysis of the descriptions showed that they contained enough linguistic data for 19.8 billion sentences. He goes on to say, "When one reflects that the number of seconds in a century is only 3.2 billion, it is clear that no speaker has heard, read, or spoken more than a tiny fraction of the sentences he could speak or understand, and that no one learns English by learning any particular sentences in English."

One asks how is it possible for all normal children to accomplish the amazing feat of learning a language in such a short span of time at such a young age? In rhetorical response to that question, Chomsky would say: "The language faculty, which somehow evolved in human prehistory, makes possible the amazing feat of language learning, while inevitably setting limits on the kinds of language that can be acquired in the normal way. Interacting with other faculties of mind, it makes possible the coherent and creative use of language in ways that we can sometimes describe, but hardly even begin to understand" (1975, p. 123).
Indeed, any theory of language learning faces the problem of explaining how a child can accomplish the monumental task of learning all of the grammatical and phonological rules of a language with an extensive lexicon in such a short amount of time. The behaviorist learning theory which was widely accepted until the 1960's was just not capable of accounting for the learning of such an intricate and complex system. To the behaviorists, verbal behavior was considered to be no different from any other behavior and was thus subject to the general laws of conditioning to include imitation, generalization, contingency, and reinforcement. To illustrate the incredibility of their theory, George Miller (1963) calculated that, "if the conditioning of stimulus-response connections were the means of language acquisition, a childhood 100 years long with no interruptions for sleeping, eating, or anything else, and a perfect retention of every string of twenty words after one presentation would be necessary to account for language skill" (p. 146). A shattering blow to the behaviorist language learning theory was made by Noam Chomsky (1959) in his critical review of Skinner's (1957) *Verbal Behavior*. Jerome Bruner said he almost cheered when he read the review. He wrote (1983): "The reductionism of learning theory explanations of language was 'exposed' as a kind of anti-intellectual sham, almost as a conspiracy to denigrate human rationality" (1983:159).

Thus, since the behaviorist language learning theory has been discredited and since it seems that some combination of cognitivist
and rationalist thought is capable of explaining language acquisition, views which represent those disciplines are presented here.

The rationalist view. "I would like to suggest that in certain fundamental respects we do not really learn language; rather, grammar grows in the mind" (Chomsky, 1980:134). Chomsky identifies the critical question: "Every 'theory of learning' that is even worth considering incorporates an innateness hypothesis. . . . The question is not whether learning presupposes innate structure - of course it does; that has never been in doubt - but rather what these innate structures are in particular domains" (1975:13). It follows then, that "learning is primarily a matter of filling in detail within a structure that is innate" (1975:39). Chomsky argues that since "the mechanisms appear to function in the absence of relevant experience and quite uniformly for individuals of vastly differing experience" we can conclude that "they are not learned, but are part of the system that makes learning possible" (1975:91). Chomsky explains:

The structural properties and functions of this system and its interactions with other cognitive structures must be largely intrinsically determined, if in fact systems of remarkable complexity and intricacy develop in an essentially uniform way in an environment that is plainly not articulated and differentiated in sufficient detail to fix these specific properties. . . . There is no other way to account for the high degree of intricate, specific structure and uniformity of growth of the system (1983:55).

In other words, "there's such a qualitative gap between the degree of specificity and uniformity on the one hand and the environmental stimulation on the other that it's inconceivable that these developments are reflecting some property of the environment" (p. 56).
However, Chomsky does not discount the fact that the environment plays a critical role in the growth and development of the language system. He contends that environmental factors have both "a triggering effect and a shaping effect on the growth of this intrinsically determined mental organ" (1983:49). Chomsky distinguishes between triggering and shaping. Certain conditions must be present in the environment to "trigger" the functioning and development of a system; whereas, other conditions "shape" its development. In Chomsky's words:

The triggering conditions must be fulfilled for the system to develop or function in a certain way and the shaping conditions play a role in specifying and articulating that growth and function. In the case of language, it may be that certain types of social interaction play a triggering role and there is no doubt that environmental factors play a shaping role. . . . So there is an intrinsic, genetically determined factor in language growth. . . . And there are environmental factors of several sorts that trigger and shape language growth, as the biologically-given capacity grows and matures in the early years of life. The problem is, then, to tease out these distinct contributions (1983:50).

Not only does the environment affect the development of the basic system but it plays a critical role in the refinement of that system. Once the basic system has been developed, then, this basic system can be refined and expanded indefinitely. Chomsky states,

Once the steady state is attained, knowledge of language and skill in using language may still be refined, as in the case of learning to see. Wilhelm von Humboldt argued that the resources of a language can be enriched by a great thinker or writer, without any change in the grammar. An individual can expand his facility or the subtlety of his comprehension of the devices of language through his own creative activities or immersion in the cultural wealth of his society (1980:234).

And, as was shown by his wife, Carol Chomsky (1972), reading is one of the most effective ways of refining language.
The cognitivist view. In regard to language acquisition, Jerome Bruner seems to start where Chomsky left off. He has concentrated on the very aspect of language learning which Chomsky left open. Chomsky stated that our problem now is to "tease out" the distinct contributions of the various environmental factors which trigger and shape language development. Bruner has done just that. Through his work he has shown how "dependent language acquisition is upon the nature of the interaction that takes place between child and mother" (1978:64). In other words, he is concerned with the triggering and shaping of language. It is only natural that his observations would start with prelinguistic communication. In his observation of children between three months and two years of age, he concentrated on two uses of communication, referring and carrying out joint action. Bruner contends that "the progressive changes that occur prelinguistically seem to provide precursors . . . for mastering lexico-grammatical speech" (p. 65). Bruner noticed that the children, through well defined interaction with their mothers, by the end of their first year had developed "the deep hypothesis that how one vocalizes affects how another's attention can be altered, that sounds and sound patterns have semanticity" (p. 66).

At Oxford when observing mothers and their infants in natural settings, Bruner (1983) noticed that the mothers were in a way "tutoring" their children. They were not teaching in the sense we know it, but used a kind of "scaffolding" which depended on the establishment of "formats." Bruner defines format as "a task in which mother and child share an intention to get something done with words." At first,
whatever the child cannot say, she says for him. Once he can say it; however, she requires that he do so thereafter. In the format, presuppositions are stored and shared by the two partners. He describes a format for "book reading" as follows:

The mother remained the constant throughout. Thereby she was his scaffold - calling his attention, making a query, providing an answering label if he lacked one, and confirming his offer of one, whatever it might be. As he gained competence, she would raise her criterion. Almost any vocalization the child might offer at the start would be accepted. But each time the child came closer to the standard form, she would hold out for it. What was changing was, of course, what the mother expected in response—and that, of course, was "fine-tuned" by her "theory" of the child's capacities (p. 171-172).

Bruner (1978) contends that "book reading" establishes a dialogue pattern between mother and child that is "crucial to the development of labelling." The picture book offers a means of focusing the joint attention of mother and child, and eliminates distractors. It also provides readily accessible things to label. Bruner noted that the number of book readings which were initiated by the child increased from zero to forty percent during the year. Bruner also observed that the question "What's that?" produced four times as many labelling responses by the child as mere imitation of the mother's labelling.

Bruner (1978) makes three important points concerning joint action: (1) Course of action fits well into the structure of language. (2) It takes a great deal of prelinguistic learning to master the intricacies of joint actions such as role shifting, turn-taking, and coordination of signalling and acting. (3) Knowledge of joint action provides some powerful hints to the learner about the structure of the linguistic code." Bruner contends that "the development of early
communication as means of regulating joint action does not grow solely from its own roots but is dependent upon interaction and particularly the interaction of intentions held by two consenting parties, one of them initially willing and able to give the other the benefit of the doubt" (p. 82). In a very fitting closing statement Bruner says: "There may indeed be something innate about the child's ability to so swiftly crack the linguistic code. But there is almost certainly something innate about the mother's ability to help him to do so" (p. 83). One wonders about the mothers who because they are working and because of TV do not have the time and/or inclination to use this innate ability. Bruner contends that to a great extent this is dependent on the educational level of the parents. "The educational level of parents deeply affects how well, richly and abstractly their children will talk (and listen). It is not just the grammar of sentences that is at issue, but discourse, dialogue, the capacity to interpret spoken and written language" (p. 173).

Bruner expresses a need to extend Chomsky's theory of language acquisition to include semantics and pragmatics. He contends that the Language Acquisition Device (LAD) "must obviously be primed by some knowledge of the world and by some push to communicate" (p.173). He postulates the need for a LASS, a Language Acquisition Support System, "which arranges encounters with the world and with language in a way to make it all recognizable to an infant LAD." Some of the functions of Bruner's LASS are: formatting, fine-tuned responsiveness, and developing modes of embedding language in action and interaction. Thus, he concluded,
The need to use language fully as an instrument for participating in a complex culture (just as the infant uses it to enter the simple culture of his surround) is what provides the engine for language acquisition. The genetic 'program' for language is only half the story. The support system is the other half. Or as Peter Modawar once put it about nature and nurture, each contributes one hundred percent of the variance! (p. 173).

Chomsky, in his earlier writing (1968), described the acquisition of language as a type of theory construction. "The child discovers the theory of his language with only small amounts of data from that language" (p. 66). Further, he contended that children formulate the underlying ideal theory of language under diverse experiential backgrounds, without explicit instruction, and at an age when they are not capable of comparable intellectual achievements in other domains. To facilitate the explanation and comprehension of this abstract construct, Chomsky (1965) devised a hypothetical language acquisition device (LAD) which represented the child's innate capacity for the acquisition of rule-governed language.

Frank Smith suggests that not only language, but all knowledge, is acquired by an innate ability to learn, the ability to theorize - to form models of the world. "The ability to construct a theory of the world is innate but the contents is not. . . . From their earliest days infants summarize their past in order to make sense of the present and to predict the future" (1978:87). He proposes that the human mind is particularly adapted to impose organization on the information it receives through its receptor systems. "It organizes this information into categories and relationships that can be expressed in terms of rules. These rules reflect the manner in which events occur in the
world, and can therefore be used to identify, interpret, and predict" (p. 72).

Smith uses the scientific method as an analogy to the learning process. "Children learn in the same way as scientists, testing tentative modification of their theories of the world through experiments" (1978:91). However, scientific endeavor involves conscious effort; whereas, the natural learning process goes on continually and without conscious awareness. "Predicting and hypothesizing, striving to comprehend and striving to learn, are going on all the time. They are as natural and continuous for a child as breathing (p. 97)." Thus Smith concludes:

The human brain is a system, an intricately organized and internally consistent model of the world, built up as a result of experience, not instruction, and integrated into a coherent whole as a result of continual effortless learning and thought. We know far more than we were ever taught. What we have in our heads is a theory, a theory of what the world is like, and this theory is the basis of all our perception and understanding of the world; it is the root of all learning, the source of all hopes and fears, motives and expectancies, reasoning and creativity (p. 79).

Smith relates his concept of the natural learning process to learning language. "Our theory of the world seems ready to make sense of almost everything we are likely to experience in spoken and written language. A powerful theory indeed" (1978:81). In contrast to behaviorist learning theory, he says that children do not learn to talk by imitating adults; rather, adults serve as models by providing an adult surface structure (expansion) for the deep structure of the child's expression. Because the adult is aware of the intrinsic meaning of the child's primitive utterance, the adult is able to take the child's
intent and put it into words. The child thus hears the fully developed grammatical form of his utterance and is thus able to compare and consequently modify his utterance. In this way adult models provide feedback which the child uses to form or test his hypothesis. In other words, "the adult and child are in effect speaking different languages but because they understand each other the child can compare their different ways of saying the same thing" (p. 95). Thus, "children move toward adult language by conducting experiments (p. 95). . . . The situation provides the meaning and the utterance provides the evidence" (p. 96). Comprehension is critical to this interaction because for it to be effective both the child and the adult must be able to make sense of what is going on. Smith stresses the point that meaning is the essential factor in learning in general and in learning language in particular. In vivid language, he writes:

Note here the intimate connection between comprehension and learning. . . . Anything that bewilders a child will be ignored; there is nothing to be learned there. It is not nonsense that stimulates children to learn but the possibility of making sense; that is why children grow up speaking language and not imitating the noise of the air conditioner (1978, p. 96).

Language learning, a subconscious process. Chomsky would say that language is a subconscious process, but that it is not learned. He says that we should not think of language as being learned but rather as "growing in accordance with a fixed, genetically determined program, modified and filled out with specific detail through experience" (1980:238). He compares this with other genetically determined processes. Just as "we do not learn to have arms rather than wings" neither do we learn "that linguistic rules meet the various conditions
of universal grammar" (p. 238). According to Chomsky, it is only the irregularities that are learned or that we even need be concerned with. A child who knows a particular language, "knows the principles and rules of his internalized grammar, both those that might be brought to awareness and those that are forever hidden from consciousness" (1975:165).

Chomsky compares knowledge of grammar, commonsense knowledge, and knowledge of physics as follows:

Knowledge of physics is conscious knowledge, the other two systems are quite unconscious for the most part. . . . Grammar and common sense are acquired by virtually everyone, effortlessly, rapidly, in a uniform manner, merely by living in a community under minimal conditions of interaction, exposure, and care. There need be no explicit teaching or training. Knowledge of physics, on the other hand, is acquired selectively and often painfully, through generations of labor and careful experiment, with the intervention of individual genius and generally through careful instruction. It is not quickly and uniformly attained as a steady state, but is transmitted and modified continually on the basis of controlled inquiry and an explicit record that provides the basis for the next stage of construction (1975:14).

However, a child does not come to know his language without conscious effort because of its simplicity but because it is far too complex to be brought to the conscious mind. Chomsky, who has consciously studied language for well over twenty years, says, "For the conscious mind, not specially designed for the purpose, it remains a distant goal to reconstruct and comprehend what the child has done intuitively and with minimal effort" (1975:4).

Children not only "learn" the grammar of their language subconsciously, but they also increase their vocabulary without conscious effort. Smith (1978) notes that children from about the age of two on
learn at least a thousand new words a year which increases in momentum until at age eight children probably learn as many as thirty new words a day. As Smith said, "Children do not get the credit for such fantastic feats of learning because the learning takes place so effortlessly and inconspicuously" (p. 139).

Everyone will agree that if a child's first language is learned, it is learned subconsciously. However, what about learning a second language, as language minority children must do?

Learning English as a Second Language

Stephen Krashen (1978) has developed a model for second language learning which he refers to as the Monitor Model. He proposes that the second language learner internalizes the rules of a target language via one or both of two separate systems: implicitly, which he calls "subconscious language acquisition"; and explicitly, which he terms "conscious language learning" (p. 1). The subconscious acquisition of a second language is very similar to learning the first language. "It requires meaningful interaction in the target language - natural communication - in which speakers are not concerned with the form of their utterances but with the messages they are conveying and understanding" (p. 1). Krashen contends that the explicit teaching of rules or correcting errors is not necessary or helpful. He notes, "Acquirers need not have a conscious meta-awareness of the 'rules' they possess, and may self-correct only on the basis of a 'feel' for grammaticality" (p. 1).
On the other hand, the proponents of conscious language learning claim that language learning is helped a great deal by error correction and the learning of explicit rules. They presume that the conscious knowledge of the rule precedes "automatic" control of structure. They maintain that error correction helps the learner come to the correct mental representation of the linguistic generalization. Krashen questions whether such feedback has this effect.

Krashen suggests that what has been learned consciously is available to the language learner only as a Monitor. However, the second language, as is the first, is acquired subconsciously through active communication. He explains, "Our 'formal' knowledge of the second language, our conscious learning, may be used to alter the output of the acquired system, sometimes before and sometimes after the utterance is produced" (p. 2). The monitor is there to insure that the utterance is "correct."

Krashen notes two important constraints on the Monitor. One, the person must have time in order to monitor. However, in ordinary conversation the speaker does not usually have time to think about and apply consciously learned grammatical rules. The second constraint is that the speaker must be consciously attending to form and correctness which he is not always willing or able to do. It should be noted Krashen's model also allows for self correction through the naturally acquired subconscious knowledge of the rules. He reiterates, "The point is that conscious learning is only available as a Monitor" (p. 3).
Krashen's Monitor Model helps to clarify the question of first-language interference. He suggests that "the first language may serve as a substitute utterance initiator in cases where early production is required and too little of the second language has been acquired" (p. 14). The speaker is forced to "fall back" on the first language when he is not able to say what he wants to say in the second language. He contends that interference, or what might more accurately be called "first-language influence", is more prevalent in poor language learning environments. It is rare in children's natural, "playground", language learning situations. Krashen notes that "children acquiring second languages generally go through a 'silent period' during which they may be building up acquired competence via active listening. . . . This stage may correspond to the adult use of the first language as a 'filler'" (p. 15).

A word should be said about the translation method of teaching a second language. It is conscious learning once removed. The learner must go through another language to get to meaning. Translating to the first language also fosters interference because it makes the learner consciously aware of the surface structure differences between the two languages. It is, thus, a very confusing and ineffective way to try to learn a second language.

Krashen argues that if his Monitor Model is valid and children do acquire their second language subconsciously, just as they did their first language, and what they learn consciously serves only as a monitor; then, the central task in teaching a second language is to facilitate the subconscious process. Krashen makes a distinction
which is important to consider when "teaching" a second language. He distinguishes between "input" and "intake" as follows: "Intake refers to that input that enables an acquirer to acquire more of a target language. It is a proper subset of input. Input may include a great deal of language that is of no help in the acquisition process" (p. 16). In other words, intake is optimal input for language acquisition. Krashen suggests that by examining caretaker speech, it is possible to see what is necessary for input to be intake. He then makes a statement that is central to teaching language, whether it is the first or the second, or whether it is oral or written. He says, "Perhaps the most outstanding feature of caretaker speech is that its purpose is not to explicitly teach language. Rather, it is used by caretakers to help children understand" (p. 16). He lists the following characteristics of "intake" or caretaker's speech:

(1) Intake is understood by the acquirer;
(2) Intake is at or slightly in advance of the acquirer's current stage of grammatical competence;
(3) Intake is sequenced - it gets progressively more complex;
(4) Intake is natural communication (p. 17).

Krashen suggests how the principles of "intake" may be applied in the classroom. He maintains that meaningful and communicative activities, even if they are contrived, have the potential for satisfying all the characteristics of intake; whereas, free conversation is not likely to have any of the characteristics. Purposeful activities such as role-playing "are designed to be understood, may be put at any level, may be progressive, and may involve real communication or something close to it" (p. 19). On the other hand, free conversation is not an effective technique because it is often not understood, may
or may not be at the acquirer's level or just beyond it and is practically never progressive.

It follows then that Chomsky's theory of language is not limited to learning just the first language; it is just as applicable to learning two or more languages.

Language Proficiency

It is imperative that "language proficiency" be clearly defined in order to correctly interpret the results of not only the study of this dissertation but also all the other empirical research regarding the language/reading relationship. It is also important to have a clear understanding of what language proficiency entails to be able to gain an insightful conception of the language/reading relationship.

Of a more global nature, how language proficiency is defined has a critical effect on policy decisions regarding programs of compensatory education. As Cummins (1980b) said, "The issue of what exactly constitutes proficiency in a language and how to measure it is currently a controversial one in the United States" (p. 175).

Cummins (1980b) considers this issue to be analogous to the debate over the psychometric nature of intellectual ability. He compares Oller's model of language proficiency to the Spearman-Burt general factor ("g") model of intelligence. Oller (1979) claims that "there exists a global language proficiency factor which accounts for the bulk of the reliable variance in a wide variety of language proficiency measures" (p. 413). Oller's contention that the global language factor is strongly related to IQ and academic achievement is
supported by a large body of research. This does not allow for the possibility, however, that there might be specific factors within the large general factor which account for the correlation and that others are irrelevant. It also brings into question Oller's claim that this general language factor can be measured almost equally well through listening, speaking, reading and writing tasks; when in fact, in the majority of the studies, correlations were only found in relationship to reading skills. For example, Strang (1945) reported correlations of .80 to .84 between verbal intelligence measures and reading; while correlations of only .41 to .46 were found between nonverbal abilities and reading. However, Oller (1979) does acknowledge that there may be specific components of language skills in addition to this central core of language proficiency.

Cummins (1980) then compares the Hernandez-Chevez, Burt and Dulay (1978) model of language proficiency with Guilford's (1967) model of the intellect. In Guilford's "structure of the intellect", he distinguishes 120 specific factors of intelligence. In the Hernandez-Chavez et al model of language proficiency, they identify sixty-four (64) separate language proficiencies in a three dimensional matrix. The matrix consists of the three following parameters of language proficiency, each of which include multiple linguistic factors: (1) the linguistic parameter which includes phonology, syntax, semantics and lexicon; (2) the modality component which consists of listening, speaking, reading, and writing; (3) and sociolinguistic performance which involves style, function, variety, and domain. They distinguish
between "natural communication" and "linguistic manipulation" as follows:

A natural communication task is one where the focus of the student is on communicating something to someone else. . . . On the other hand, a linguistic manipulation task is one where the focus of the student is on performing the conscious linguistic manipulation required by the task (1978:154).

As noted above, Krashen (1978) also makes a distinction between two types of language proficiency. One involves a conscious awareness of language and grammar which he refers to as the "monitor." The other is a subconscious knowledge of the language akin to what Chomsky (1965) referred to as "linguistic competence." Halliday (1975) differentiates between the personal and heuristic functions of language. By personal function he is referring to the child's use of language to express identity and individuality while by the heuristic function he means using the language to learn and to explore reality. Ruddell (1970) places oral expression and written language on a functional variety continuum ranging from informal, through formal, to literacy. Bernstein (1970) distinguishes between the restricted linguistic code of the working-class and the elaborated linguistic code of the middle-class. Donaldson (1978) makes a distinction between embedded and disembedded context. Smith (1984) refers to language (oral or written) which is determined by the situation or circumstances as situation-dependent; whereas, language which is not determined by the physical setting he refers to as situation-independent. He contends that the commonly used distinction - contextualized versus decontextualized - is too generalized. Olson (1977) distinguishes between implicit language, in which meaning is extrinsic to language, which he labels
"utterance" and explicit language, in which meaning is intrinsic to language, which he terms "text." Cummins divides language into two levels of proficiency, basic interpersonal communication skills (BICS) and cognitive/academic language proficiency (CALP). Since his distinction is the most felicitous for our present purposes, it is explored further.

Cummins (1980a) contends that "it is clear that not all aspects of language proficiency are related to cognitive and literacy skills" (p. 84). He argues, "with the exception of severely retarded and autistic children, everybody acquires basic interpersonal communicative skills (BICS) in a first language, regardless of IQ or academic aptitude" (p. 84). As Chomsky (1980) emphatically argues, "Language grows in the child through mere exposure to an unorganized linguistic environment, without training or even any particular language-specific care" (p. 24). However, he also states that once a "steady state" is reached, language can be refined and enriched "without any change in the grammar" (p. 234). In other words, the capacity is there but it is not utilized to the same extent and in the same way by every speaker of the language. One can readily see that it is this aspect of language that is intricately related to other cognitive functions, will show a great degree and range of variance among individuals, and is dependent for its development on experiential environment. Cummins (1980b) refers to this aspect of language as "cognitive/academic language proficiency (CALP)."

Cummins (1978b) thus defines CALP as "the ability to make effective use of the cognitive functions of the language, i.e., to use
language effectively as an instrument of thought and to represent cognitive operations by means of language" (p. 47). According to Cummins it involves "the deeper levels of cognitive competence in a language, e.g., understanding of abstract concepts or verbal analogies and carrying out complex cognitive operations through the medium of the language" (p. 86). It would also include "conceptual-linguistic knowledge," such as "vocabulary-concept knowledge, metalinguistic insights, and knowing how to process decontextualized language" (1979:242). And most important in forming a basis for understanding the language/reading relationship is the point that CALP is "the dimension of language proficiency that is strongly related to literacy skills" (1980a:84). Cummins argues that this aspect of language proficiency "appears to be largely independent of the language proficiencies which manifest themselves in everyday interpersonal communicative contexts" (p. 86). He compares CALP to basic interpersonal communication skills (BICS) such as "oral fluency, accent, and sociolinguistic competence" (1980b:177) which are "cognitively undemanding manifestations of language proficiency in interpersonal situations" (1981:23). Cummins (1980a, 1981) adapts Shuy's "iceberg" metaphor to pictorially illustrate the CALP/BICS distinction.

The "visible" language proficiencies of pronunciation, vocabulary, and grammar, which are manifested in everyday interpersonal communicative situations, are above the surface, but the cognitive/academic language proficiency required to manipulate or reflect upon these surface features outside of immediate interpersonal contexts is below the surface (1980a:84). Cummins (1981) points out, "BICS involves processing language within a meaningful interpersonal context in which word meaning is supported by
many situational and paralinguistic cues. CALP, on the other hand, reflects individual differences in processing language which is disembedded from a meaningful interpersonal context" (p. 23).

Central to the thesis of this dissertation, Cummins (1979) makes the following pertinent statement: "The extent to which children have developed facility in processing linguistic information independent of interpersonal cues prior to school will also clearly influence how easily they acquire literacy skills" (p. 239). (In all cases of textual underlining, the underlining is the author's unless otherwise indicated.) He also points out that low-SES, minority language children are less likely to develop CALP. "The child's . . . use of the interpersonal functions of language may be perfectly adequate but he may not have become practiced in using the cognitive or logical functions of language which are required for success in school" (1978:859). Thus, he adds, "Low-SES minority language children may be more dependent on the school to provide the prerequisites for the acquisition of literacy skills" (1979:240). And Olson (1976) explains why it is probable that CALP is more developed in children who come from middle-class homes. "Highly literate parents may be expected to communicate the explicit logical structure of printed texts in at least two ways, through their own abstract language and, probably more importantly, through reading printed stories" (p. 201) (underlining added).

Conclusions

From our examination of the nature of language we reach the following conclusions:
(1) If we accept the premise that virtually all normal children everywhere learn to speak a language effortlessly at a very young age and with no direct instruction, and if we accept the premise that language is a highly complex system; then, we can conclude that language is learned subconsciously through an innate structure or at least through innate abilities.

(2) If we accept the premise that children learn to use the basic language system regardless of experiential background; and if we accept the premise that variance in language ability is possible because of the creative property of language; and if we accept the premise that there is a wide variance in language ability among children; we can conclude that the variance in language ability is likely to be due to experiential background and not innate language ability.

And now we proceed to answer the following questions. Is learning to read similar to learning to speak or does reading involve different processes and require specific skills? How important is language ability in learning to read?

Reading

To gain insight into and a deeper understanding of the reading process, reading is also approached from a theoretical standpoint. Frank Smith's theory of reading is accompanied by Kenneth and Yetta Goodman's model of reading. Frank Smith's theory of reading and the Goodmans' model of the reading process are so completely compatible that it appears as if the Goodmans took Smith's theory and developed a reading model from it. This is definitely not how their model was
developed however, because the Goodmans' reading model is based on research not theory. The reason the theory and model are so compatible, however, is that they both stem from the same source, namely, Chomsky's theory of language. It is only natural then, that even though they approached the investigation of the reading process from different directions, they should meet. Thus, both theory and model give prominence to language in the reading process which provides a firm base and convincing rationale for the relationship of reading to language. Supportive empirical evidence to this theoretical construct is also included in this section.

Theory of Reading

In constructing a theory of the reading process Frank Smith (1971, 1978) brought together and analyzed existing knowledge relevant to reading and synthesized it into a logical, comprehensive, and powerful explanation of reading. The predictive value of his theory lies in the fact that it has and continues to lead to hypotheses (to include the study conducted for this dissertation) which can be tested. Most importantly, it provides a theoretical framework from which to interpret past and present research data. By doing this, Smith's theory helps the researcher answer the all important question. Why? And for this researcher to answer the question: Why do minority language children and/or children from homes of low income generally have difficulty in learning to read?

Central to Frank Smith's theory of reading is the principle that "all information acquisition in reading, from the identification of
individual letters or words to the comprehension of entire passages, can be regarded as the reduction of uncertainty" (Smith 1971:12). A major thesis of his theory is that the child, because of his knowledge of language and his knowledge of the world "contributes more information to reading than the visual symbols on the printed page" (p.3). In other words, redundant information from a variety of sources reduces the need for visual information. It is thus necessary that the reader take advantage of the highly redundant written text to overcome the severe limitations of the visual processing system. The redundancy which is provided by syntactic and semantic information facilitates reading by reducing the amount of discrimination necessary at the featural level. One can readily see that implicit in Smith's theory of reading is the fact that competency in the language is a given prerequisite in learning to read. This basic assumption is either unrecognized or ignored in most theories of reading.

Smith has provided a theoretical analysis of the reading process which enables us to gain insight into and better understand the nature of the knowledge, skills, and learning strategies a fluent reader employs when reading; and thus realize what a beginning reader must be able to do to become a fluent reader. Smith (1971:213) defines a fluent reader as, "A person who is able to make optimal use of all the redundancy available in a passage of text." Smith demonstrates that fluent readers are able to make use of all the different aspects of redundancy because they require less visual information and thus less processing time to identify letters in words than in isolation, and less visual information to identify words in meaningful sequences than
in unrelated lists of words. Through his theory Smith also shows that "immediate word and meaning identification are not possible unless the reader is able to make use of orthographic, syntactic, and semantic redundancy" (p. 220). It is a given that a child must first of all have the capability of making use of syntactic and semantic information supplied by the language.

Visual input. Smith (1971, 1978) relates Bruner's theory of perception to reading both in regard to visual input and the identification process. In essence, Bruner (1957) proposed that perception is a process of categorization in which the person uses the attributes of the percept to infer the category to which it belongs. Smith (1978) first of all notes that "visually, there is nothing in reading that the eyes and brain do not accomplish when we look around a room to locate an object or distinguish one face from another" (p. 1). Smith also points out that "the brain makes the most of minimal information. . . . It holds on to a disappearing image in the most meaningful way possible" (1971:97). He (1971) asserts that perception is a constructive process. "We build our percepts and our recollections out of minimal information, filling in the empty spaces in the direction of what we expect" (p. 70). In other words, what we "see" is the brain's interpretation of the neural messages. The constant search for significant differences is a natural and inevitable perceptual process. Thus, perceiving requires that the brain make decisions. The key point that Smith makes is that, "the amount of time required to make a decision depends on how much information the brain needs,
and the amount of information required depends basically on how many alternatives the brain has to choose among" (1978:17).

Smith relates these ideas to the reading process. First, the limitation on visual perception is not due to the amount of information the eye takes in nor the rate at which it picks up the information but on how long it takes the brain to make its decisions. Thus, both fluent and beginning readers change fixations about four times a second which is no different from the pauses the eyes make in perceiving the world generally. It has been established by Cattell's (1885) research that four or five random letters is the most that can be identified in a second. Thus visual input enters the sensory store four times faster than the mind can process it. This results in an overlapping-fixation strategy in reading. While identifying the four or five units of information the reader has time to make three or four fixations and so has an opportunity to examine information preceding and following the information he is actually processing. He is thus able to relate what he is reading to what he has read and what he will read and be able to make predictions.

Second, the same amount of visual information that permits the identification of four or five unrelated letters is sufficient to identify twice as many letters if they are organized in words. Why is this so? Because of his implicit knowledge of the probability of letter combinations as they appear in words and thus the redundancy of information, a fluent reader never identifies a letter (which is in the context of a word) from among twenty-six alternatives but from among about eight. If the same amount of information is organized in
a meaningful sequence of words, then four or five words can be recognized in the same amount of time it takes to identify four or five letters in isolation or two unrelated words. How can this be when each word must contain enough visual information to be distinguished from over 100,000 alternatives? Because of the syntactic and semantic constraints of the language, the number of alternatives which we choose from to identify a word in meaningful context is reduced to about 250. Thus, Smith (1978) shows that from the same amount of information and in the same amount of time, four times as much can be perceived when the letters form a sequence of words that make sense.

There are critical implications of this in the difficulties a beginning reader often has in learning to read. Remember, that no matter how much information enters the visual system at one time, the reader can get only four or five items per second through the processing bottleneck into short-term memory. It should also be noted that information in sensory store is continually being erased by a new intake of information. Thus if the reader identifies each letter or even each word individually, he will have forgotten the beginning of the sentence before he reaches the end, because, not only is there the visual limitation of not being able to identify more than four or five items a second but there is also the limitation of short-term memory. George Miller (1956) determined the capacity of short-term memory to be seven (plus-or-minus-two) bits of information. "Unless we can get four or five words at a time into short-term memory, we cannot acquire meaning in a form that we can get into long-term memory" (1971:208). Thus, if the reader is reading for meaning and using semantic and
grammatical cues to process the visual information, he can much more easily dispatch the sequence of words into long-term memory because some of the integration required to get the sequence into a single semantic unit of meaning has already been accomplished. If information enters short-term memory at the slow rate of say one word per second, the only hope of being able to comprehend the message would be to keep rehearsing the words in short-term memory until there was a meaningful sequence of four or five words. This is, of course, impossible because the reader is engaged in trying to identify the next word. The limitation of short-term memory is overcome by the fact that bits of information need not be individual letters or even words but can be meaningful phrases or sentences. By using the syntactic and semantic information that is already stored in long-term memory, the reader can chunk (combine into organized, meaningful, and/or familiar units) the visual information into larger bits of information. It is only through this process of chunking information into larger units that the limited capacity of the system can be overcome.

Although Chomsky (1983) refused to try to relate his theory of language to other disciplines, one can readily see that his identification of one of the properties of language is basic to the act of reading. Chomsky (1983) states that an elementary property of language is that grammatical "rules basically operate on phrases; that is, they don't operate on a string of words, a sequence of words, but on words organized into larger units" (p. 38).

Smith (1971:101) distinguishes between good and poor readers in regard to perceptual processes. He contends that the duration of
fixations and the number of regressions are more of an indication of the difficulty of the passage than a distinguishing factor of reading ability. What does distinguish the fluent reader from the less-skilled reader is the number of words that can be identified in a single fixation. "The skilled reader needs no more visual information to identify a string of words than the beginner needs to identify a couple of letters because all the additional information that the skilled reader requires is contributed by his prior knowledge of the language" (1971:102). One can see that unless the reader has that "prior knowledge of the language" at his disposal he has little hope of becoming a skilled reader.

"The beginning reader is afflicted by tunnel vision" (p. 103). Smith explains that tunnel vision is caused by information overload (more alternatives in the visual array than can be identified). The implication is that the less you know about a stimulus situation, the less you can apprehend in a single glance. Tunnel vision is a severe handicap to the beginning reader because since there is little flexibility in the rate of fixations, the information must be processed quickly. When a child plods laboriously over words in tunnel vision, he never has time to tie the words together so that they are meaningful before they decay in memory. It follows that a child can be trapped in tunnel vision if he does not have sufficient knowledge of the language and the author's world to reduce the visual overload by redundancy of information. Smith (1978:33) gives four causes of tunnel vision. They are: (1) reading nonsense, (2) lack of relevant knowledge, (3) reluctance to use nonvisual information, (4) and poor
reading habits. Most pertinent to our concern is number two, "lack of relevant knowledge."

**Identification process.** Smith (1971) points out that "from the same visual information, the distinctive features of written language, a fluent reader can reduce uncertainty in three different ways: by identifying letters, words, or meanings" (p. 214). The kinds of uncertainty reduction are independent. It is thus not necessary that one precede the other; nor is it necessary that all three identifications be made. As was shown above, there is also a hierarchy in efficiency in the three types of identification. Only one of the three can be carried on at a time. They cannot be conducted simultaneously. "The three aspects of identification are mutually disruptive because they all involve using the same visual information for different purposes" (1971:214). The single explanation for the twin phenomena that visual items can be identified with minimal information and that the same visual information may be allocated to different categories on different occasions is that the intake of visual information is supplemented by the additional syntactic and semantic information that the reader has already stored in his long-term memory. Once again it can be seen how critical knowledge of the language is.

Smith (1971) uses the feature detection model to explain the identification process. The concept of distinctive features originated with Jacobsen (1956) in his feature theory of speech perception. The two steps which Smith gives in word identification are: (1) to establish functionally equivalent feature lists with critical sets of
features for each category, and (2) to associate a name with the category. It is the task of the child in developing feature lists to distinguish the word from all other configurations with which it is not functionally equivalent. He must identify the significant differences. The other part of word identification, associating a name with the category, should already have been established through speech. Here, it is an implied given that the child has sufficient knowledge of the world to have formulated the necessary concepts and thus be able to associate the "name" with a category.

Smith points out that the principle is the same for both types of physical representation - acoustic or visual. In both cases a perceptual array is analyzed in terms of feature lists that determine the particular categorization of the elements. A binary "yes-or-no" categorization is used; either the item has a particular feature or it doesn't. In this way it is determined whether two items are functionally equivalent or, if they are different, what the significant differences are. Feature lists are thus established which permit the reduction of alternatives and so the reduction of uncertainty. When, for example, a single distinctive feature is found, then all the letter or word or semantic categories that do not have that feature can be eliminated. While a single discriminate feature is sufficient to eliminate many letter or word alternatives, it must also be accompanied by grammatical and semantic information to reduce uncertainty of meaning. Feature analysis differs from the template model in that rather than the mind being filled with a set of internalized pictures to which a percept is matched for identification, the mind has a set
of rules for distinguishing one percept from another. The number of alternatives is critical in the feature detection model but is of little consequence in the template model. "If letter recognition were a matter of matching a shape with a picture in the head, what would it matter if there were two alternatives or two hundred? Either you would see a letter or you would not, and clues would not help" (1978:112).

The required number of physical features the perceiver must discriminate will vary inversely with other sources of information about the language (redundancy) that is utilized. The same analytic process is used to identify letters and words. The only difference is the nature of the perceiver's uncertainty. Is he looking for distinctive differences in letters or in words? It should be remembered that it is impossible to identify a word and its component letters at the same time because one cannot interpret the same information simultaneously to make two different kinds of identification. Think about the classic picture which illustrates this perceptual phenomena. You can see the faces or the vase but you can not see them both at the same time.

Words can usually be identified easier than letters because words not only involve single categories just as letters do but there is more redundancy in words so that the inability to discriminate one or two features is rarely as critical as it would be in identifying letters. Smith (p. 74) asserts that it is not only not necessary that word identification proceed through letter identification, but that direct word identification is more efficient.
In addition to a set of acoustic and/or visual distinctive features which a phoneme or a letter has, a word also has a semantic feature list. "A word category, for written language, may be regarded as an association of visual, acoustic, and semantic feature lists" (1971:214). One important difference between semantic features and those for spoken or written words is that the "features" of meaning do not have physical attributes. They are literally abstractions. Smith describes the meanings of words as "bundles of semantic features." A characteristic of semantic features is that they permit the establishment of relationships between different word categories and thus form a network of associations.

A category is nothing more than the intersection of two or more feature lists. Categories are part of a model of cognitive organization. They are theoretical constructs which do not refer to an actual physical organization of the brain. Through these constructs it is possible to offer an explanation of the identification of meaning. A partition in a cognitive category divides the set of instances in a category into two subsets. Each partition reduces uncertainty within the category that it subdivides. Thus, "the more partitions there are, the less uncertainty there is in the organization of one's knowledge of the world" (p. 189). Partitioned categories must carry all the features of the higher-level categories. Sometimes the partitioned categories have names, such as when they specify a category that forms a distinctive perceptual set such as "man", "bilingual", or letters of the alphabet. Sometimes the partitioned categories are not named, such as the distinctive features for sounds, letters, or words.
Categories which have names must always have associated semantic feature lists. Semantic features differ from visual or acoustic features in that they do not have immediate physical referents. The stimulus configurations which are allocated to cognitive categories consist of visual, acoustic, and other sensory feature lists. Smith (1971) explains,

"The presence or absence (or irrelevance) of particular semantic features in the multitude of cognitive categories determines how the categories are related. . . . The partitions do more than establish relations within a small group of subcategories; they relate any instance within a particular subset of partitions with all the other categories in the perceiver's cognitive structure (p. 190)."

Thus, meaning does not simply refer to the "semantic feature list" but rather to the way in which specification of semantic features in a particular category relates that category to all other categories in the cognitive system. Smith maintains, "Identifying a person, or a letter, or a word, does far more than just pin a label on a stimulus event; the identification locates the event in the entire structure of knowledge of the perceiver" (p. 191). It follows that all perception can be regarded as the reduction of uncertainty for we do not perceive anything unless we can allocate it to one or another of our cognitive categories. And as soon as we place a perceptual event in a particular category we have reduced our uncertainty because we have eliminated all those categories (alternatives) that fall outside the partitions of the category into which the event is allocated.

Just as the establishment of categories for letters (acquisition of information about letters) reduces uncertainty about letters, and the establishment of categories for words (acquisition of information
about words) reduces uncertainty about words, the establishment of categories for meaning (acquisition of information about meaning) or comprehension reduces uncertainty about meaning. The reduction of uncertainty about meaning occurs when the reader is able to eliminate some or all of the alternative meanings that a string of words conveys. However, there are not individual categories of meaning, rather "a meaning" may be regarded as a reorganization (partitioning) of two or more sets of semantic features (categories). "A sentence meaning is not a category, it is a state; it is a relation among several categories" (1971:205). Thus, Smith explains, "The comprehension of communicative language by the listener or reader means that his structure of knowledge about the world is in some way reorganized; partitions are moved" (p. 192). Comprehension simply means that the feature lists have been modified. Thus, Smith defines comprehension as "the reduction of uncertainty through the elimination of alternatives by the allocation of a statement to a particular cognitive structure" (p. 192). Once again it must be emphasized that while a single distinctive visual feature may be sufficient to eliminate many letter or word alternatives, the reduction of uncertainty for meaning must also involve the use of the rules of syntax (knowledge of the grammar of the language).

Smith differentiates between immediate and mediated identification. He calls the "direct" reduction of uncertainty immediate word or meaning identification, in contrast to various indirect ways of reducing uncertainty which he calls mediated identification. He explains,
Immediate word identification can occur when there is a category with visual and semantic features "back-to-back" with a set of acoustic features that will associate the word with a name. . . . When there is no visual feature list for a particular category - when there is only an acoustic-semantic category - visual word identification must be mediated (p. 175).

How this can be efficiently and effectively accomplished is a major controversy in the teaching of reading. Jeanne Chall addresses this issue in her book, *Learning to Read: The Great Debate* (1983a).

**Mediated identification.** Even though the teaching of phonics (decoding skills) is traditionally interpreted as a strategy for mediated word identification, Smith (1971) contends that in actuality "phonics is fundamentally a teaching technique . . . concerned with providing clues to the sound of written words" (p. 160). The claimed objective of phonics training is to establish in the child "the visual-acoustic categories that will enable him to mediate the identification of words that he cannot identify on sight" (1971:226). Smith states that "to a large extent the child has to learn these phonic rules for himself, and he will only acquire them through experience in reading" (p. 226). The teaching of phonics, he argues, is the least efficient and effective method of mediated word identification. Further, the emphasis on teaching phonics rules is unnecessary. He writes,

To expect any readers, and especially beginners, to learn and rely upon phonics is to distract them with involved and unreliable procedures which are in fact largely unnecessary. Not only does the development of fluency in reading demand very little in the way of prior knowledge of spelling-to-sound correspondences, but the practice of reading itself provides the implicit understanding of those correspondences that readers require. . . . Rather than phonics making reading possible, it is reading that makes phonics seem to work (1978:51).
Smith adds that to try to teach phonics presents a twofold problem: (1) The spelling-to-sound correspondences are not one-to-one, and (2) they are not reliable. Since it is the aim of the phonics approach to provide rules that will predict how a word will sound from the way it is spelled, to be effective, phonics rules would have to be reliable. However, there is no consistent way of knowing when a rule does or does not apply. Smith (1971) argues that "the probability of being wrong if you do not know the word at all is very high. Even if individual rules were likely to be right three times out of four, there would be nearly one chance in three of making a mistake somewhere in a word of four phonemes" (p. 168). Not only are the spelling-to-sound rules unreliable, but they are also unruly in terms of number and complexity because there is not a consistent one-to-one correspondence, especially in the English language. In an effort to establish correspondence rules for 6092 words which were the most common one and two syllable words in the vocabularies of six- to nine-year-old children, Berdiansky et al (1969) identified 69 grapheme units (clusters of letters that function as a single letter in terms of sound). The researchers discovered 211 distinct spelling-sound correspondences, of which 45 had to be classified as exceptions. (A rule was counted as an exception if it did not occur in at least ten different words.) Smith maintains that for phonics rules to be effective at all, words would have to be read from right to left because how a letter (or letter combination) is pronounced depends on what comes after it. For example, which of the eleven different pronunciations of "ho" one uses depends on what follows the letter combination. Smith (1978:55)
concludes, "Not only is the system massive and complex, it is also unreliable, because it contains no way of predicting when a particular correspondence applies . . . . What is the point of remembering a lot of rules if you have to recognize a word before you can tell whether it follows the rules or not?" Phonics works if you know what a word is likely to be in the first place. In fact, since you are not likely to consider all the different ways a word could be pronounced if you already know how it is pronounced; phonics seems obvious to people who can read.

Even if the beginning reader knew all the rules and when to apply them, he would still be very unlikely to pronounce isolated words correctly. Smith (1971) contends that "there is little likelihood that 'phonic rules' will generate sound patterns sufficiently accurately for auditory recognition" (p. 179). It is often not even possible to know how a word is pronounced unless it is in its syntactic context. Words such as "read" and "permit" are examples of this. Spelling does not really attempt to represent sounds at all, but rather phonemes. Smith defines phonemes as, "classes of sounds, many of them quite different physically, that are functionally equivalent in the language." Smith elaborates: "So letters, if they can be said to represent sounds at all, represent the sounds we hear rather than the sounds we produce" (p. 165). To clarify that statement, it should be remembered that the sounds we "think" we hear, the phonemes, are not the same as the sounds we actually produce which are the sounds of our idiolect. The reason our perception of the sounds differs from the produced sounds is that our minds construct the sounds according
to what those sounds mean. "It is not that the listener interprets the sound to get meaning, but that he needs to know the meaning before he can hear the sound" (1971:34). We often fail to realize that just as sounds which form words represent meaning, so do letters which form words represent meaning.

"Since," Smith (1978) reiterates, "it is not basically the function of spelling to represent sound, but to represent meaning. . . . If the relationship between appearance and meaning is explained then the spelling of words becomes a help rather than a hindrance, not just in the recognition of words but in their comprehension as well" (pp. 64, 65). The meaning relationship between "sign" and "significant" might never be realized if we spelled "sign" as "sine" so that it would follow the rules of phonics. "There is a corollary to the principle that words that look alike tend to mean alike; it is that words with different meanings tend to look different, for example 'their' and 'there'" (p. 65). Smith (1978) continues the argument:

The spelling of words is never a direct and unvarying representation of their sounds. . . . Written language is much more consistent with respect to dialect than speech. . . . The spelling of words is a convention that crosses hundreds of dialect boundaries; attempts to reproduce dialect in written form does not make reading easier, even when the dialect reproduced is supposed to be our own (p. 63).

One of the beauties of written language is that it does not represent any particular pronunciation; therefore, there cannot be a one-to-one spelling-sound correspondence, there does not need to be, and there should not be. The concern and controversy over whether or not dialectical differences interfere with learning to read is based on the notion that written language represents a particular spoken
dialect. Smith attests that "printed materials are rarely anyone's spoken language written down" (1973:193). It is only when the teacher believes that print does represent spoken language and tries to force the pronunciation of words into a system that obviously doesn't fit that any dialect that is different from this imaginary "standard" dialect interferes with learning to read.

The strong advocates of the phonics approach argue that it is impossible and unreasonable to expect the beginning reader to recognize and distinguish thousands of different words without a decoding tool. Smith (1978) responds, "Most people who can read have a 'sight vocabulary' of at least 50,000 words; they can recognize 50,000 words on sight, in the same way that they can recognize cars and trees and familiar faces, without any sounding out. How did they learn those 50,000 words?" (1978:69). Smith does not suggest that they were all learned as sight words any more than they were learned by being sounded out. He does suggest that the easiest way to learn words is through meaningful reading. In other words, learning words in isolation, either by sounding them out through phonics rules or memorizing them as sight words, is a fruitless endeavor. However, Smith contends, "Once a child discovers what a word is in a meaningful context, learning to recognize it on another occasion is as simple as learning to recognize a face on a second occasion, and does not need phonics" (1978:139). Smith does not suggest that we completely abandon the teaching of phonics, but rather that we use it in conjunction with contextual clues. If a child is reading meaningful text, then he can use a combination of the cues from his knowledge of language, his
knowledge of the world, and his knowledge of phonics rules to decipher unfamiliar words; however, if what he is reading is primarily nonsense then neither the rules of phonics nor the text can provide sufficient information for him to identify the word. Readers acquire a "working knowledge" of phonics, which means rather than using this knowledge to sound out unfamiliar words in isolation, they use this knowledge as an additional clue when identifying unfamiliar words. In summary, Smith states, "Reading directly for meaning, then, becomes the best strategy for reading; not a consequence of reading words and letters but an alternative" (p. 123).

Smith incorporates his argument into his theory of reading. He points out that just because a child has had instruction in phonics does not necessarily mean that he is making direct use of the rules of phonics, but more likely that the instruction in phonics has given him enough information to establish his own categories and rules at the featural level. Smith concurs that training in phonics can be helpful for mediated word identification if such training provides necessary information when the reader needs it. On the other hand, he holds:

The most that can be said for a phonic rule - or any other kind of precept - is that it shows where a significant difference or similarity or association lies. From that point the learner has to assimilate the information into his own structure of knowledge. Given the right learning environment he will test his new knowledge by putting it to use and seeking feedback. That, in a few words, is how a child learns any skill - by example, use, and feedback. Mediated reading skills are no exception (p. 182).

Smith (1978) adds, "It should not surprise us that children who perform the best in phonics are the best readers. They have to be" (p.57).
Smith (1978) discusses the strategies children use when they encounter an unfamiliar word. In natural circumstances, children who are learning to read behave similarly to fluent readers. "Their tendency is first to skip, second to guess, third to sound out. If phonics is the first or only choice it is because children are reflecting what they have been taught, not what helps them to read" (1978:67). To these strategies, Smith adds the simplest one of all which is to ask someone what the word is. (Incidentally, the ask-someone strategy is used extensively by early readers who learn to read before they start to school.) Smith reiterates,

The two best clues to any word are its total context - the meaning in which it is embedded - and its similarity to words that are already known.... Children look for relationships among words, not just between letters and sounds, and with good reason. As we have seen similarities in the appearance of words give the best clues to their meaning, and thus for their identification. And in the process of predicting the identity of unfamiliar words, clues based on similarities to known words combine with clues from context to permit every reader to go even further and learn the meaning of words never encountered before, in writing or in speech (1978:67-70).

Thus, Smith extends his argument to contend that mediated meaning identification is not necessary. He attests that meanings can be extracted from the visual configuration without prior identification of individual words, just as words may be identified without the prior identification of letters. The distinctive features that are available to distinguish one visual configuration from another can just as readily eliminate meaning alternatives as word alternatives. Smith believes (1971) that "the ability to identify words is relatively unimportant when one reads for meaning" (p. 9). The function of a
word in a sentence determines its meaning. Thus, Smith (1978) con-
cludes, "Rather than the words giving meaning to sentences, it looks
as if the sentences are giving meaning to the words" (1978:73).

Smith's (1978) argument has important implications for teaching
children who are low achievers in reading. He makes the following
pertinent statement: "Phonics is a cumbersome and unreliable system
for any child, but especially for children finding it hard to make
sense of reading" (p. 158) (underlining added). It is critical that
teachers realize that "children who find it hard to make sense of
reading need more meaningful reading, not less" (p. 158). Most often
this is not the case, and "paradoxically, children who do not learn to
read easily are often expected to learn in the most difficult way
possible" (p. 158). He contends that children who believe that they
should be able to read unfamiliar words just by 'blending' or 'sound-
ing' them out are likely to develop into disabled readers. Smith sums
up this point in a curt statement: "Children do not need nonsense in
order to learn to read; they need to read" (p. 128.)

Reading for meaning. Smith (1978) views reading as a matter of
going from meaning to words, rather than the traditional view of going
from words to meaning. "Readers must bring meaning to print rather
than expect to receive meaning from it" (p. 50). Also, the meaning of
a sentence is not merely the sum total of the meanings of the individ-
ual words in that sentence. The following statement is of special
significance to this study. It is central to understanding why comprehension is a problem for language deficient children. Smith (1971) states:

There is no information in the words that comprise a sentence unless we also have the information about the way they are put together... Whatever the meaning of a particular piece of language may be - whatever the deep-level interpretation of a statement - it is related to the surface physical representation - the sound or the sight of the statement - by the rules of grammar... For the listener or the reader, grammar is the key to comprehending language" (p.38).

Critical to the understanding of the reading process is the fact that, "There is no simple correspondence between the surface structure (either spoken or written) of language and meaning" (1971:29). Smith adds that this lack of one-to-one correspondence is the reason why computers and animals become confused when trying to read or try to comprehend language. They do not have the language competence to bridge the surface structure with the deep structure. It is through the knowledge and use of transformational rules that we are able to understand language in the face of the lack of one-to-one correspondence between sound and meaning. Transformations account for the possibility of transforming one underlying meaning into a number of surface structures (paraphrasing) while preserving the underlying meaning. Inversely, they account for ambiguity in which one surface structure may have several underlying meanings.

An important aspect of meaning is that it does not suddenly appear at the end of a sentence; instead syntactic and semantic information is continually available to reduce the number of alternatives while the reader is reading. Thus, the fluent reader is able to
predict what the surface representation should be with only a minimum of visual cues to confirm his prediction. Smith (1971) also points out another aspect of meaning which we often fail to realize.

While the surface structure of English is organized linearly, meaning cannot be discussed in terms of order. Words are elements of the surface structure, not of meaning. The meaning of a sequence of words is something global, a "State of mind," an instantaneous set of relationships established in the cognitive organization, and not something strung out over time. The purpose of the sentence-producing grammatical device is to convert a "thought" that simply exists, with no spatial or temporal organization, into a sequence of words (p.192).

In "reading for meaning" the fluent reader makes use of information at both the surface and deep structure of language simultaneously.

Smith (1971) declares that the widely accepted assumption that in order to read it is necessary to decode printed symbols into sound and then extract meaning from sound is false. "Spoken words in their physical manifestation are just as far removed from meaning as the marks on a printed page. Meaning is not in the surface structure of language, either spoken or written" (p. 207). Smith points out that the exact opposite is true. "It is not that the listener interprets the sound to get meaning, but that he needs to know the meaning before he can hear the sound" (p. 74). In other words, it is necessary that the reader knows what the words mean to be able to pronounce them accurately. Just because historically and individually, the sound system is the first to be used it does not necessarily follow that in reading one must go from the visual symbols through the phonetic representation to extract meaning. To become dependent on vocalizing every word can actually prevent a child from comprehending what he is
reading. He is concentrating on the sound of the words, not the meaning. Smith (1971) adds, "The 'decoding' that the skilled reader performs is not to transform visual symbols into sound, which is the widely held conventional view of what reading is about, but to transform the visual representation of language into meaning. That decoding is effected through syntax" (p. 222). The function of syntax is to bridge the gap between visual (or acoustic) surface structure and meaning. It is the process by which visual information is allocated to meaning identification. However, if the network of relationships has been established for the spoken word then one only needs to plug the written word into this system. One of the most significant propositions in Smith's theory is that once the written word has been plugged into an established network of associations, the reader can move directly from the visual input to meaning. "The reader may if he wishes produce the sound of the word - the acoustic feature list is there - but the sound is not necessary for the semantic interpretation" (1971:71).

Learning to read.

Learning to read involves no learning ability that children have not already been called upon to exercise in order to understand the language spoken at home or to make sense of the visual world around them. In fact, learning to read should be very much simpler, given the complexity of these earlier language and visual accomplishments. . . . Learning to read is easy for a child - or should be, were it not for the fact that it is easy for an adult to make learning to read difficult (Smith, 1978:6-8).

Smith (1971) relates learning to read to the reading process. "Reading involves looking for significant differences in the visual configuration to eliminate alternatives, and knowledge can be acquired of what
differences are significant only through experience." And of major importance to the teaching of reading, he asserts, "This knowledge cannot be taught, it has to be acquired; the major contributions that the teacher can make are to provide information, feedback, and encouragement" (p. 209). He adds that this is all that is necessary because the mind only needs feedback as to whether the conclusions it makes regarding similarities, differences, and associations are right or wrong. The mind does not need, nor will it follow, step-by-step directions on what to do.

Smith points out that we are not even aware that we have this knowledge. It is implicit knowledge that we cannot express in words. Neither is it necessary that we have conscious access to this knowledge or to the processes that we employ when we acquire the knowledge. "Because the way in which human beings actually store and use knowledge is not accessible to consciousness, we often mislead ourselves into thinking that we can teach the actual rules though at best we can only point to regularities in which the unknown rules appear to be exemplified" (1971:8). Smith (1971) contends, "The human brain does not function by learning lists of rules that are presented to it: the brain learns by looking for significant differences, establishing functional equivalences, and deciding how events go together" (p. 182).

The fact that children acquire knowledge of significant differences through experience means that basically a child learns to read by reading. Smith (1971) explains:

The implicit knowledge of how to read that all readers have acquired has been developed through reading, and not through exercises or drills. The notion that there are rules that
will help children to read completely misses the fact that the only thing that improves reading is practice. . . . Better readers always seem to be more efficient at knowing the alphabet, knowing the "sounds of letters" and blending letter sounds together to make words because these are all tasks that become deceptively simple with experience in reading although they are difficult if not impossible before children understand what reading is about (p. 138).

In fact, Smith believes that learning the alphabet can be a handicap if adults use it to try to train children to sound out words before they are able to make sense of what the adults are talking about. However, Smith (1978) does not say that children should not be taught the alphabet. "It helps teachers and children communicate on the subject of written language, but until children have a good idea of what reading is about, learning the names of letters is largely a nonsense activity" (p. 148). In other words, being able to recognize words makes sense of learning letters.

What Smith classifies as "basic skills" is much different from the conventional prerequisites to reading. Smith (1978) identifies three: "Understanding that printed marks have differences that are significant, that written words can be associated with meaning in some way, and that there are relationships between print and spoken language; all these are insights that a beginning reader must acquire" (p. 131). The insight that is fundamental is that marks on the printed page are meaningful. In other words, children must learn before reading can begin that "a particular sequence of marks does not simply say 'horse', it means 'horse' in a very subtle and complex way" (p. 130). Once again Smith (1978) reiterates, "These insights come with
reading (and with being read to) not by being deprived of reading experience" (p. 155).

Smith, along with others, wonders why we do not take advantage of the fact that in a literate society children are surrounded by written language. Kenneth and Yetta Goodman (1976) join Smith in a plea to parents and teachers to encourage children to begin reading by making sense of the meaningful words and fragments of sentences they naturally meet in the world of print which appear on signs, labels, boxes, and television commercials. Smith contends, "In such circumstances children learn about print and about reading in the same way that they learn about spoken language, without obvious effort or the need for formal instruction... In natural, out-of-school surroundings, printed words exist not to be associated with sounds but with sense" (pp. 145,146).

Smith (1978) responds to the frequent question, "How can children develop reading ability before they know sufficient words to read any book?" with, "If children cannot read well enough to learn by reading, then someone else has to do their reading for them" (p. 129). He also stresses the importance of reading to children and then gives the three following ways reading to children helps them learn to read: "Understanding the functions of print, (2) gaining familiarity with written language, and (3) getting the chance to learn" (p. 144).

Smith (1978) summarizes his argument as follows:

There is one general answer to the question of how children learn to read, and that is by making sense of written language. A corollary to this statement is that children do not learn to read from nonsense. Children do not learn to read in order to make sense of print. They
strive to make sense of print and as a consequence learn to
read. This order of events is identical with the way in
which spoken language is learned. . . . Understanding that
children's first efforts are always to make sense of the
world removes much of the mystery from how they come to
master spoken and written language. . . . Children have
innate skills that enable them to make sense of the environ-
ment they are in, provided the environment has the possibility
of making sense in the first place. . . . Children would
never learn to talk if they waited for us to teach them
speech the way we often try to teach them to read, one
meaningless bit after another (p. 132,133).

If children cannot make sense of the spoken and written environ-
ment in the way that they make sense of everything else in their world
it is because they are confounded by nonsense. It follows that child-
ren should be required to read only what is genuinely interesting and
meaningful to them "rather than the bland and unnatural prose to which
many children are expected to attend, whether recounting a boring day
in the life of an insipid pair of children or relating that 'Sam can
fan the fat cat'" (1978:145).

According to Smith, there is not and should not be any essential
difference between the strategies and processes which a person learning
to read and the fluent reader employ.

The notion that learning to read is different from reading
becomes particularly dangerous with older students having
difficulty reading, who may be restricted to activities that
do not make sense to them so that they can acquire "basic
skills." But the truly basic skills of reading . . . can
never be taught directly and are accessible to learners
through the experience of reading. And not only does mean-
ingful reading provide the essential clues and feedback for
learning to read - it provides its own reinforcement. In
less technical terms, learning to read is a satisfying
Reading Models

The literature on reading is filled with reading models. There seems to be no want for ideas about how the reading process works. A few of the more prominent reading models are mentioned here. After reviewing these reading models there is no question in this author's mind that the Goodmans' model more closely resembles the reading process as it is in reality than any of the others.

Goodmans' reading model. Kenneth and Yetta Goodman developed a model of reading as a result of examining children's reading behavior. Their view of the reading process is the direct result of research using the miscue analysis technique. They explain (1978), "We use a taxonomy generated from the theory and the model to analyze the miscues subjects produce as they read and we use the miscues they produce to verify and modify the taxonomy and the theory. This interplay between theory and reality, we believe, is the essence of science" (p. 2-2). They contend that "understanding reading requires depth analysis and constant search for the insight which will let us infer the workings of the mind as print is processed and meaning created" (p. 2-2). They regard miscue analysis as a tool which makes available for examination certain aspects of the reading process. The primary source of data in using this technique is the observation of the oral reading of children. The observed responses (what the children actually said) are then compared with the expected responses (what is written on the printed page) through miscue analysis. The entire concept of miscue analysis rests on the following critical assumption:
A key assumption is that whatever the readers do is not random but is the result of the reading process, whether successfully used or not. Just as the observed behavior of electrons must result from a complex but limited set of forces and conditions, so what the readers do results from limited but complex information sources and interactive but limited alternatives for their use (p. 2-2).

The Goodmans propose that successful use of the reading process can be inferred when readers produce expected responses. They explain, "when miscues are produced, comparing the mismatches between expectation and observation can illuminate where the readers have deviated and what factors of input and process may have been involved" (p. 2-2). Through miscue analysis "it is possible to determine the degree to which a reader focuses on the various language systems (graphophonic, syntactic, and semantic) and the degree to which the reader is concerned with developing meaning while reading" (1980, p. 27). The Goodmans (1977) refer to oral reading miscues as "windows on the reading process at work" (p. 332).

Kenneth Goodman (1970) postulates that the "incorrect guesses which the reader makes on the basis of his knowledge of the language" mask the reader's perception of the real words if the words he substitutes fit grammatically and semantically into the sentence. Following is an example of the type of miscues children make. A fourth grader made the following miscues when reading a passage from a sixth grade reading book. In the child's first miscue he used "the" instead of "your." Obviously there is not a graphic relationship between "the" and "your." However, they are both what are called noun markers. All together in reading a ten page story, the child made twenty noun marker substitutions, six omissions and two insertions. He corrected
four of his substitutions and one omission. Similar miscues involved other function words such as auxiliary verbs and prepositions.

Kenneth Goodman's (1970) original intention in developing a model of reading was to refute the conventional but unscientific conception of the reading process. He contended that "the inadequate common notion that reading is merely a precise, sequential process of word identification has persisted and has greatly influenced reading instruction." He consequently developed a viable scientific alternative.

Goodman (1970) defined reading as "a receptive process in which minimal available language cues are selected from perceptual input on the basis of the reader's expectation. As the data are being processed, the reader forms hypotheses and then confirms, rejects, or refines them as reading progresses." However, Goodman said his definition could be stated simply as "reading is a psycholinguistic guessing game." In the Goodmans' (1978) reading model reading is also viewed as a "psycholinguistic process in that it starts with a linguistic surface representation encoded by a writer and ends with meaning which the reader constructs" (p. 2-1). Goodman (1979a) prefers that the model be classified as an interactive model of reading because the key element in the reading process is the reader's interaction with the text. There is thus an interaction between language and thought in reading. "The writer encodes thought as language and the reader decodes language to thought" (1978, p. 2-1). There is also interaction among the various systems in the process itself. "Processing is simultaneous at many levels all interacting" (1979a, p.5).
Kenneth Goodman (1979) describes reading as a cyclical process in which information is dealt with and meaning constructed continuously "with optical, perceptual, syntactic and semantic cycles linking into each other" (p. 3). The Goodmans (1978) explain further that if the readers' focus is on meaning, then "each cycle melts into the next as the readers leap toward meaning" (p. 2-5). In Kenneth Goodman's (1979) reading model, readers go through the following process:

Readers use the strategies of sampling, predicting, confirming, and correcting. Those strategies depend on use of graphophonic, syntactic, and semantic cues as they are found in natural language texts. The same cues which are used to confirm prior predictions are used to make subsequent ones. And again they function always in the context of the readers' striving to make sense of the text (p. 3). . .

The reader, being always tentative to some degree, is always prepared to modify or produce an alternate schema, to correct, seeking new perceptual information if necessary to achieve the constant goal of meaning construction (p. 8).

The Goodmans (1978) suggest that "there is a single reading process which underlies all reading at all stages of development...no matter what the language background or relative proficiency of the reader" (p. 3-1). Goodman (1979) adds, "The difference between readers of different levels of proficiency is not in how this process works but how well [underlined by author] it works. Less proficient readers cannot construct meaning by a different process. They must use the same cues, cycles, strategies" (p. 4). According to Goodman (1979), how well the process works depends on the level of the reader's "confidence."

The level of confidence of the reader at any point in time strongly effects the process. If the reader is unsure of the meaning being constructed, finds the text syntactically complex, the concept load heavy, or the concepts strange,
then the reader becomes more tentative, more cautious, more careful. The reader uses more cues, monitors more closely, reprocesses frequently, corrects often. If the reader has a high level of confidence then the reading plunges forward with only minimal sampling and self monitoring (p. 2).

The Goodmans (1978) describe proficient readers as being both efficient and effective. "They are effective in constructing a meaning which they can assimilate or accommodate and which bears some level of agreement with the original meaning of the author. And readers are efficient in using the least amount of effort to achieve effectiveness" (p. 2-2). Thus readers become highly selective in sampling available cues and highly effective in their predictions as their proficiency increases. Yetta Goodman and Dorothy Watson (1977) add the main characteristics of a proficient reader. "Two characteristics of proficient readers are that they are active and that they are risk-takers; that is they get wrapped up in interpreting their reading and consequently they are able to make good predictions about what the author has written" (p. 869). The Goodmans note that the degree of proficiency will show in the miscues of readers.

The Goodmans et al. (1979) reiterate, "Proficient readers especially, but all readers to some degree, focus on constructing meaning throughout the reading process" (p. 27). In order to construct meaning, however, readers must not only efficiently use the available cues but also effectively use their own knowledge of language and the world to predict and confirm as they read. It should be noted that even highly proficient readers are limited in comprehension of texts by what they already know before they read. It follows that "any reader's
proficiency is variable, depending on the background brought by the reader to any given reading task" (1978, p. 2-2).

The vital role that comprehension plays in the reading process is evident in the Goodmans' reading model. "Effective reading can only be defined in terms of comprehension" (1979, p. 3). Important to understanding this role is the fact that "comprehension is the combined result of what the reader understood prior to reading and the effectiveness of comprehending" (1979:2). Thus, the knowledge the reader brings to the reading act and the effectiveness of the strategies he employs are strongly related. For comprehension to take place, knowledge of the language is critical because in order to get to meaning readers must be able to predict the syntactic structures and then in turn use these structures to confirm or correct prior predictions.

Central to the thesis of this dissertation, Goodman (1977) asserts: "The two most important resources that any learners bring to learning to read and write are their competence in the oral language and their undiminished ability to learn language as it is needed for new functions" (p. 312) [underlining added]. Goodman adds, "Most children becoming literate have the advantage of being already quite advanced in oral language competence" (p. 311). And thus by inference, Kenneth Goodman also explains why those readers who do not have the necessary oral language competence are not able to comprehend what they read. And again by inference one can readily see what is important in preparing children to read. "Children who learn to read easily are often the ones who have been read to by adults in the home and who have been
encouraged to participate in various literacy activities taking place in the family" (Goodman et al. 1979b, p. 29).

If reading does not result in comprehension then the desired goal has not been reached. "Any reading which does not end with meaning is a short circuit. Since reading is a graphic code and speech is also a code, it is possible for readers to concentrate on matching print to sound with no meaning resulting. Since the readers go from code to code, such short circuits may be considered recoding" (1978:2-7).

According to Goodman (1970), reconstructing the message of the writer should be referred to as "decoding" while changing the representation from a visual to a phonological code should be called "recoding" rather than "decoding." Goodman deems recoding an unnecessary operation. He believes that it is a common and unfortunate fallacy that "graphic input is precisely and sequentially recoded as phonological input and then decoded bit by bit to accumulate meaning" (1970). He calls this the "end of the nose" view of the reading process for it assumes that input is solely that which is in sharp focus directly in line with the end of the nose. Goodman et al. (1979) contend that "no method which focuses only on...recoding, whether on a phoneme-grapheme, syllable-spelling pattern, or word level can be considered a complete instructional program for any language, no matter how 'regularly' it is spelled" (p. 24).

In summary, the Goodmans' reading model could be described as a language process in which "the comprehension of any text by any reader is an interaction of what the reader brings to the text, what the text
characteristics are, and what the author has brought to it" (1979a, p. 8).

Other reading models. Rumelhart's (1977) reading model, although not as developed, is similar in many respects to the Goodmans' model and is also classified as interactive. Even though Louise Rosenblatt (1978) refers to her reading model as transactional because it implies a more complete interaction between reader and text, her reading model could also be called interactive. Adams et al (1978) do not really present a reading model. They, however, discuss their view reading as an interactive process.

Following are other psycholinguistic models of reading. In the Venezky and Calfee (1970) model of reading, the dual processes of syntactic-semantic integration and the forward scanning and chunking of information take place simultaneously. Roger Brown's (1970) model is an analysis-by-synthesis model. In his model, the text is scanned with semantic and syntactic expectancy, words and short phrases are recognized through a word-filter device and stored in short-term memory in the form of abstract articulatory features. The Systems of Communications Model conceived by Ruddell (1970) is a comprehensive model of language processing. Parallel systems involving the decoding/comprehension processes in the listening/reading systems and the encoding/production processes in the speaking/writing systems are all included in his model. In his model language is divided into three levels - a surface level, an integration level, and a deep structure level.
Following is a brief description of the major cognitive models of reading. In seeking to develop a model of the intellect, Holmes (1953) concentrated on reading. Through his system of substrata analysis he developed a psychological model for reading. Later, Holmes and Singer (1964) added a developmental component to the substrata theory. Holmes seemed to ignore continued discourse in his model. This important factor is included in the reading model of Kintsch and vanDijk (1978). Their model of text processing and comprehension consists of two semantic levels. Cohesive units of meaning called propositions are processed in cycles at the microstructure level. The interrelationship of concepts to form schemata takes place at the macrostructure level. The dual processing concept in the horse-race model of Forster and Chambers (1973)) resolves the conflict over which perceptual process (visual or auditory) is most important when reading. They assumed that there are two available paths leading to word names, one via lexical search and another via grapheme-phoneme association rules. Word processing starts simultaneously on both paths and races to the finish-line for recognition.

As can be seen the conceptions of reading are diverse. Some are elaborate and complex and some are too simple in that they only include word recognition. Only the Goodmans and Ruddell treat speech and reading as parallel language processes, a factor which is important to consider when relating language to reading.
Supportive Evidence

Empirical evidence which supports Smith's theory of reading and the Goodmans' model of reading is vast. Only a few examples of both neurolinguistic and psycholinguistic research are given here to illustrate how the supportive evidence from two different fields of investigation converge for mutual confirmation.

Neurolinguistic research. Eran Zaidel (1973) when investigating the language functions of the disconnected and isolated right hemispheres of neurosurgical patients made the following interesting observations:

1. There emerged surprisingly rich auditory lexicons in the RHs [right hemispheres] extending from mental ages 11 to 15 and only slightly inferior to the vocabularies of the corresponding left hemispheres (p. 183).
2. The RH somehow retrieves the meaning of the word by its auditory gestalt rather than by analyzing its phonetic components (p. 183).
3. The RH decodes words by continuous processing of auditory patterns whereas the LH proceeds by categorical perception and phonetic feature extraction (p. 185).
4. The RH has no grapheme-to-phoneme correspondence rules, such as are used by beginning readers to decode a written word by sounding it out first (p. 186).

Based on these findings, Zaidel concludes that visual to auditory recoding is not neurologically necessary. "In other words, lexical decoding can take place directly from the orthographic representation without need for preliminary recoding into a phonological form" (p. 188). However, he found that a translation from the visual to the auditory mode did seem necessary for reading longer phrases which require a phonological base for temporary storage.
Zaidel, however, seemed perplexed as to how the right hemisphere could recognize words without using grapheme-to-phoneme correspondence rules. "It [RH] would seem to recognize word orthographies as visual gestalts which are opaque for submorphemic linguistic relationships. Still, gestalt visual word recognition in the RH has to mean something more abstract than associating the meaning of the word with a particular sensory template" (p. 186). Chomsky, a priori, offers Zaidel an explanation and at the same time illustrates how the two types of linguistic research compliment each other.

Psycholinguistic research. Carol Chomsky (1973) contends that readers interpret written words according to an underlying system in which words are specified and related according to their meaning rather than their sound. She makes a summary statement of the conclusion which Noam Chomsky and M. Halle made in their study of the sound patterns of English. She (1973) states: "The conventional spelling of words corresponds more closely to an underlying abstract level of representation within the sound system of the language than it does to the surface phonetic form that the words assume in the spoken language." In fact, as Noam Chomsky (1970) said, "The conventional orthography is a near optimal system for representing the spoken language." He explains, "In English, words undergo pronunciation shifts when suffixes are added to them" (p. 93). For example, vowel alternation such as in "nature-natural" and "sane-sanity" which is very common in English takes place "under specifiable conditions
of great generality and wide applicability" (p. 93). In further explanation he writes:

The lexical spelling thus acquires the character of an abstract representation, from which the actual phonetic realizations are predictable according to general rules of pronunciation. . . . The conventional orthography, by corresponding to lexical spelling rather than phonetic representation, permits immediate direct identification of the lexical item in question, without requiring the reader to abstract away from irrelevant phonetic detail. . . . English has many kinds of surface phonetic variations which need not, and preferably ought not, be represented in the lexical spelling of words. They are wholly predictable within the phonological system of the language, and are therefore best introduced within the grammar by means of automatic phonological rules. As with vowel alternation, these other variations obscure an underlying sameness which the lexical spelling is able to capture (1970:94-96).

Chomsky concludes, "By being 'unphonetic' in all of these cases, by not exhibiting grapheme-phoneme correspondence, the orthography is able to reflect significant regularities which exist at a deeper level of the sound system of the language, thus making efficient reading easier" (p. 97) (Underlining added).

Keiman (1975) lends empirical evidence to the postulate that direct lexical access is possible without prior phonological coding. He found that subjects who were asked to repeat digits while the words were being presented took less response time in deciding whether two words were synonyms than deciding if two words rhymed. Smith (1971) gives a commonsense argument which demonstrates that decoding written symbols to sound is not necessary in order to extract meaning. He simply states, "After all, deaf people learn to read" (p. 44).

Recent psycholinguistic research has explored the psychological reality of "chunking" surface structure constituents into meaningful
bits of information. Glanzer (1962) has shown that nonsense syllables connected by a function word (e.g., and, of) are more easily learned than when connected by a content word (e.g., house). This supports the view that a constituent group is more easily processed because it is a more linguistically natural word group. In fact, a study by Golinkoff (1975) found that a common characteristic of readers with poor comprehension was that they were unable to organize text into phrasal units (p. 76). The work of Johnson (1965) dealing with a paired associate learning task has shown that adult subjects make more recall errors between phrases than within phrases. This suggests that phrases may be processed as chunks. An experiment by Foder and Bever (1965) also supports this view. In their study, a short clicking noise is made as a sentence is read. The subjects always reported that the click occurred at the end of a phrase no matter when the clicking was heard. Frank Smith (1971) relates how this phenomenon can easily be demonstrated. "Simply switch off the lights while a person is reading aloud, and note how many words he is able to continue uttering in the dark" (p. 196). He adds that it should be noted that the visual span tends to extend to a phrase boundary whether that be two words or six or seven.

The letter cancellation paradigm, perhaps more than any other current technique in experimental psycholinguistics, shows that to extract meaning each of the individual words need not be identified and, except to identify spelling errors, letter identification does not take place at all. This illustrates that in the process of chunking the words into phrases for meaning, the more common words are
literally skipped over. This technique clearly demonstrates what Frank Smith means when he says that much of the visual information is redundant. Even when asked to deliberately identify a particular letter, fluent readers tend to overlook the letter in the more common words. In the letter cancellation task the subject is asked to read a passage and at the same time cancel all the exemplars of a particular letter or letters that occur in the text. Drewnowski (1975) found that a high miss rate in the letter cancellation task is characteristic of good readers. They, e.g., tend to miss the "t" in words such as "the" and "to." Smith and Pattison (1982) contend that only reading models which incorporate syntactically guided scan can fully account for all the letter cancellation data.

There is also a great deal of evidence that demonstrates that it is not necessary for word identification to precede meaning identification. In other words, readers read for meaning, not to identify individual words. Besides all the letter cancellation data, following are examples of other studies which also give supportive evidence. In an experiment that tested the language processing of French/English bilinguals, Kolers (1966) dramatically demonstrated that readers pay little attention to the actual words when reading for meaning. Fluent bilinguals were asked to read meaningful passages of text in which words from the two languages were randomly mixed. The readers not only had no apparent difficulty reading the text, but they were often not even aware of when it switched from one language to the other. In fact, they would sometimes substitute the other language translation for the actual word. For example, they would say "the door" when the
printed text was "la porte" or vice versa. In other tests with bilin-
guals he noted that readers typically remember the word's meaning but
not the language it was in. As a result of his research, Kolers
(1973) states: "The conclusion seems obvious that for a person who
knows them, words are perceived and remembered preferentially in terms
of their meanings and not in terms of their appearances or sounds" (p.
470). Cohen (1970) found that it took no longer for readers to search
text for words which belong to a particular semantic category (e.g.,
"all the animals") than it did to look for a particular letter or
word. Marshall and Newcombe (1966) reported that a brain injured man
identified isolated words for meaning rather than name, e.g., he would
read "ill" for "sick." Slobin (1966) demonstrated that in children's
repetitions of spoken sentences they reproduced the meaning of the
sentence and not the exact words.

Perfetti and Goodman's study (1970) supports Smith's theoretical
construct of partitioned categories which form a network of semantic
associations. In a study with three treatment groups they found that
when processing connected discourse, the semantic richness of sentences
led to the activation of a larger set of semantic properties which was
not reflected in unrelated words because semantic context had not been
activated. This construct is also supported by the research of Samuels
(1971). He found that subjects performed significantly better in
comprehending a reading passage containing words with which they could
form many associations than a control group who read a passage contain-
ing low association value words.
Research by Ruddell (1965) has shown that reading comprehension of fourth grade children was significantly higher on passages using basic language patterns which they frequently used in their speech than those passages using low-frequency and more elaborated construction. On the other hand, in a study with third and fourth grade children, Pearson (1974) found that sentence complexity was an aid to comprehension rather than a hindrance. Isakson and Miller (1978) found that better readers were significantly more sensitive to and aware of textual syntactic and semantic cues. Perfetti, Goldman, and Hogaboam (1979) in a study to distinguish good and poor readers in the elementary grades found that the better readers were faster at semantic search than the poor readers.

Miller (1962) and Miller et al (1951) demonstrated that words in context following a similar grammatical pattern were perceived more accurately than when in isolation. These findings suggest that contextual constraints narrow the possible range of appropriate words. Additional support for the importance of context in narrowing semantic possibilities and thus making it easier to "figure out" new words is found in the research of Goodman (1965). In this study it was shown that although children may be unable to decode words in isolation they deal successfully with the same words in context.

The data collected by the Goodmans and many other researchers using the miscue analysis technique have provided supportive evidence not only to the Goodmans' model of reading, but also have in turn lent support to Smith's theory of reading. The Goodmans have used the miscue analysis research procedure since 1962 with various populations.
and with many different languages to include Yiddish, German, Spanish, French, Hebrew, Mandarin, and Polish. For a fairly comprehensive list of the studies using the miscue analysis technique which were conducted prior to 1978, see Goodman and Goodman (1978) and Goodman et al (1979). Following are the results of some other studies in which the miscue analysis technique was used. Clay (1968) in an analysis of 8,000 substitution errors made by 100 children showed that a high incidence (72 percent) of the substitutions were syntactic equivalents. Kolers (1973) in analyzing the errors college students made when reading found that eighty-two (82) percent of the errors were grammatically correct substitutions. MacKinnon (1959) observed in a detailed study of beginning readers that children attempted to substitute syntactic patterns they were familiar with in place of unfamiliar patterns.

A review of the studies in support of the postulate that readers read (or should read) for meaning and not to identify individual words would not be complete without mention of Edward Thorndike's (1917) classic study. Thorndike found that the potency of any word or group of words may be out of proportion in relation to the rest of the words in the sentence and thus throw the reader. He concluded that reasoning is essential in reading comprehension and that the reader must continually evaluate what he is reading. In a pertinent statement, Thorndike said, "The vice of the poor reader is to say the words to himself without actively making judgments concerning what they reveal."
Conclusions

Thus, we reach the following conclusions as a result of our investigation into the nature of the reading process:

1. If we accept the premise that knowledge of the language not only facilitates the reading process but is what makes reading for meaning possible, then, we can conclude that a certain level of oral language proficiency is an essential prerequisite in learning to read.

2. If we accept the premise that visual to auditory recoding is a neurologically and linguistically unnecessary operation in the reading process and that knowledge of the language is not only necessary but also an efficient and effective facilitator in both learning to read (breaking the visual code) and reading (extracting meaning from the text), then, we can conclude that linguistic competence is both a more essential precondition to learning to read and a more essential condition to the reading process itself than knowledge of phoneme-to-grapheme correspondence rules.

3. If we accept the premise that in learning to read, as in learning to speak a language, the essential learning takes place subconsciously through innate abilities, then, we can conclude that it is less important to teach the learner "reading skills" than to provide him the opportunity to learn to read through practice. In other words, a person learns to read by reading.

And now to answer the following questions. How do these conclusions affect our view of the language/reading relationship? How do they affect our views concerning the teaching of reading?
The Language/Reading Relationship

The nature of language and the nature of reading have each been examined separately so as to gain an understanding and thus insight into the processes which operate within each and to more fully realize how the ability to function in each mode is acquired. From this base the intricate and interdependent interrelationships between language and reading are now investigated. First, a relationship is drawn from an enlightening historical perspective. Then, language and reading are contrasted. Next, two opposing theoretical views of the language/reading relationship with the resulting instructional approaches are presented. Research evidence on the views and approaches is then given. The results of the studies relevant to the language/reading relationship are then presented and critiqued.

The Language/Reading Relationship from a Historical Perspective

David Olson (1977) begins his essay, *From Utterance to Text: The Bias of Language in Speech and Writing*, with the following thought provoking statement: "The faculty of language stands at the center of our conception of mankind, speech makes us human and literacy makes us civilized" (p. 257). Olson deems it important to consider the consequences of literacy as seen in its impact on the culture and on the development of language in the individual. He argues that "there is a transition from utterance to text both culturally and developmentally and that this transition can be described as one of increasing explicitness, with language increasingly able to stand as an unambiguous or autonomous representation of meaning" (p. 258).
Olson (1977) differentiates between explicit, written language which he refers to as "text" and informal, oral language which he terms "utterance" (p. 258). He contrasts text and utterance as follows:

1. The linguistic modes themselves - written language versus oral language;
2. Usual usages - conversation, story telling, verse, and song for the oral mode versus statements, arguments, and essays for the written mode;
3. Summarizing forms - proverbs and aphorisms for the oral mode versus premises for the written mode;
4. And the cultural traditions built around these modes - an oral tradition versus a literate tradition.

Olson (1977) contends that the language/reading relationship in all its various ramifications has remained "unduly puzzling and polemical primarily because of different assumptions about the locus of meaning" (p. 258). One view is that meaning is in the shared intentions of the speaker and hearer and the other view is that meaning is conventionalized in the language itself. Olson contends that the views are not mutually exclusive, rather that in utterance "meaning is in the shared intentions of the speaker and hearer;" whereas, in text meaning is "conventionalized in the language itself." He uses de Laguana's words to explain: "The evolution of language is characterized by a progressive freeing of speech from dependence upon the perceived conditions under which it is uttered and heard, and from the behavior that accompanies it. The extreme limit of this freedom is reached in language which is written (or printed) and read" (In Olson, 1977:262). According to Olson, the evolution of language "appears to have originated with Greek literacy and to have reached a most visible form with the British essayists" (p. 262). Olson begins relating the
historical development of language by examining language prior to its being written down.

In the oral language tradition mnemonic devices are necessary to insure the preservation of the message. "A variety of oral statements such as proverbs, adages, aphorisms, riddles, and verse are distinctive not only in that they preserve important cultural information but also in that they are memorable" (p. 263). Olson gives one important characteristic of the language of the oral tradition. It is not explicit. In other words what is said is often not exactly what is meant. Context, prior knowledge, and wisdom are required for interpretation. Written language was originally used to write down and thus preserve important parts of the oral tradition and "not for the expression of original ideas" (p. 264). However, it is apparent that "with the invention of writing, the limitations of oral memory became less critical" and thus the message "no longer depended on its 'poetized' form for its preservation" (264). Thus, the written mode pushed language towards being explicit; for, in order to preserve the meaning and at the same time "be recovered by readers without recourse to some intermediary sage," the language had to unambiguously represent the meaning (p. 270).

"The Greek alphabet was the first to approach such a degree of explicitness and yet to be simple enough to provide a base for mass literacy" (p. 264). By using a fully developed alphabet to faithfully transcribe the sound patterns of speech, some of the ambiguities of oral language such as homographs were made explicit. However, more important is the fact that "the technology was sufficiently explicit
to permit one to analyze the sentence meaning apart from the speaker's meaning" and thus written language "became an instrument for the formulation and preservation of original statements" (p. 266). Olson concludes his explanation of the first step in the evolution of language with the following statement: "Written language had come free from its base in the mother tongue; it had begun the transformation from utterance to text" (p. 266).

However, Olson (1977) is quick to explain that an explicit writing system does not insure that the language will be semantically explicit. "According to Bloomfield and Kneale and Kneale, the remaining lack of explicitness necessitated the invention of the formal language of logic and mathematics" (p. 265). Olson claims that by fully utilizing their writing system the Greeks contributed the following advances in the use of language. It enabled them to (1) differentiate between myth and history by subjecting what was written down to critical analysis, (2) make a clear distinction between prose and poetry by insuring that "prose statements were neither subtle nor devious", (3) develop logical procedures that could help clarify and organize thought, and (4) develop abstract categories such as taxonomies which were so important to the development of science. It is little wonder that this dramatic impact of writing on knowledge led the Greeks to think "they had discovered a method for determining objective truth" when in reality "their rules for mind were not rules for thinking but rather rules for using language consistently; the abstract properties of their category system were not true or unbiased descriptions of reality but rather invariants in the structure of
their language" (p. 267). In other words, they had not only learned to use the written form of language to preserve meaning, but also to organize and clarify their thinking, and in the process they refined and extended the system (language) itself. "Moreover, not only did the language change, the picture of reality sustained by language changed as well; language and reality were reordered" (p. 269).

The writing style which began with the Greeks "culminated in the essayist technique" (p. 270) which was the result of another cultural invention, the printing press. For, "although the Greeks exploited the resources of written language, the invention of printing allowed an expanded and heterogeneous reading public to use those resources in a much more systematic way" (p. 268). Olson suggests that this required the "further explicitness of writing at the semantic level" because since writing had to withstand widespread analysis and interpretation, ambiguity could not be tolerated. Olson explains,

A reader's task is to determine exactly what each sentence is asserting and to determine the presuppositions and implications of that statement . . . the more fundamental effect of this approach to text was on the writer, whose task now was to create autonomous text - to write in such a manner that the sentence was an adequate, explicit representation of the meaning, relying on no implicit premises or personal interpretations (p. 268).

Olson notes that the British essayists were the first to use this approach in formulating original theoretical knowledge. The essayist technique became a device for examining problems which resulted in producing new knowledge. "The essay could serve these functions, at least for the purposes of science and philosophy, only by adopting the language of explicit, written, logically connected prose" (p. 269).
This necessitated that meaning be "dictated by the lexical and syntactic features of the sentence itself. To this end, the meaning of terms had to be conventionalized by means of definitions, and the rules of implication had to be articulated and systematically applied" (p. 270). Thus, in further explanation, Olson states, "No longer did general premises necessarily rest on the data of common experience . . . rather, a premise is believed because true implications follow from it, not because it is intuitively plausible" (p. 269). Olson concludes, "The result was not an ordinary language, not another tongue, but rather a form of language specialized to serve the requirements of autonomous, written, formalized text" (p. 270). Thus through hundreds of years of development a new form of language had evolved. It can be seen that the potential for this development of language is inherent within the language system itself. By starting with the premise that Chomsky's theory of language is valid it can be seen that the structure for the extension and refinement is there once the basic rules of grammar are formed. It is then a matter of pushing them to function at higher levels of capacity through the cultural invention of the written language. In Chomsky's words,

The language generated by the grammar is infinite. Putting aside irrelevant limitations of time, patience, and memory, people can in principle understand and use sentences of arbitrary length and complexity. Correspondingly, as these limitations are relaxed in practice, our ability to use language increases in scope - in principle, without bound . . . We do not have to extend our knowledge of language to be able to deal with repeated or written sentences that are far more complex than those of normal spoken discourse. Rather, the same knowledge can be applied with fewer extrinsic constraints (1980, p. 221).
Olson contends that the transition of the focus of meaning from utterance to text in the development of language "applies with equal force to the problem of language acquisition" (p. 275). He summarizes the transition in his definition of language acquisition as follows: "Language development is primarily a matter of mastering the conventions both for putting more and more of the meaning into the verbal utterance and for reconstructing the intended meaning of the sentence per se" (p. 261). One only need to analyze the language development of an educated individual from this perspective to realize that it follows a pattern which is parallel to the cultural evolution of language. In the early stages of language development meaning is "dependent in every case upon nonlinguistic and paralinguistic cues for the sharing of intentions" (p. 275). Olson adds that "at early stages of language acquisition the meaning may be specified nonlinguistically, and this meaning may then be used to break the linguistic code" (p. 275). Olson cites several studies which suggest that for young children to assign meaning to even a simple sentence, it must be appropriate to the context and it must fit into the child's prior knowledge of the world. However, Olson adds, by late childhood, schooled children, at least, are able to "put meaning into the sentence." To use Olson's words in the context of the individual, one might also say that the child's language has "come free from its base in the mother tongue." Once a child learns to read and reads, the language provided by the text becomes a model for continued and continuous language development. "Thus, formal schooling, in the process
of teaching children to deal with prose text, fosters the ability to 'speak a written language'" (p. 271).

Bissex (1984) offers a beautiful explanation of children's literacy development in reference to the cultural evolution of language. She writes,

When we speak of children's development in writing, we mean development toward those forms selected and refined by our culture. Often we do not appreciate the forms, used in other times and places, that children independently explore but must unlearn as part of their schooling. We tend to see our writing system as a given and children as developing toward it. Yet if we step away to gain a broader perspective in time, we see the writing system itself developing; we see that the child's literacy learning is cut from the same cloth as mankind's written language development" (p. 101).

For some children, however there is a tremendous gap and an abrupt transition from oral language to written language. Olson speaks directly to this problem and thus hits on the crux of the language/reading relationship with the following statement:

The relations between utterances and texts become acute when children are first confronted with printed books. As I have pointed out, children are familiar with using the spoken utterance as one cue among others. Children come to school with a level of oral competence in their mother tongue only to be confronted with an exemplar of written text, the reader, which is an autonomous representation of meaning. . . . As a result, when children are taught to read, they are learning both to read and to treat language as text. Children familiar with the use of textlike language through hearing printed stories obviously confront less of a hurdle than those for whom both reading and that form of language are novel (p. 276) [underlining added].

It follows that for those children who do not learn to read, their language is not likely to "come free from its base in the mother tongue"; for, as Olson says, "Schooling, particularly learning to
read, is the critical process in the transformation of children's language from utterance to text" (p. 278).

Olson traced the development of the expository style of writing. However, of equal importance is the development of literary style which Donaldson (1978) addresses. "The written word differs from the spoken word in ways we have not yet considered. Its development over the centuries has entailed the elaboration of literary forms - inversions, literary idioms, stylistic devices of many kinds - which have carved a great gulf between the language we speak and the language we write" (p. 101). She continues, "Children must learn to master the literary forms. But they will learn best to grapple with possibilities of meaning if they are allowed to deal in the beginning with the familiar cadences of the spoken tongue" (p. 101) [underlining added].

Thus, with a basic understanding of why oral and written language are different, a brief look at the unique characteristics of each and how language and reading differ follows.

Language and Reading Contrasted

David Olson explained why oral and written language are different. He also explains how they are different. Olson (1977) points out the following essential differences in comprehending ordinary, conversational speech and explicit, written prose. In conversational contexts, sentences are interpreted according to "agreed upon lexical and syntactic conventions; a shared knowledge of events and a preferred way of interpreting them; a shared perceptual context; and agreed-upon
prosodic features and paralinguistic conventions"; whereas, the comprehension of text requires only a shared agreement of linguistic conventions, a minimum shared knowledge of the world and "a preferred way of interpreting events" (p. 272). Olson adds, "However, the degree to which this linguistic knowledge is conventionalized and formalized need not be very great in oral contexts since the listener has access to a wide range of information with which to recover the speaker's intentions" (p. 276). In written language, however, since all this additional information is not available, "all of the information relevant to the communication of intention must be present in the text." In addition, if as in the essayist technique, the text is to permit and sustain certain conclusions, "then it must become an autonomous representation of meaning" (p. 277). This is achieved by bringing the meaning of terms and the logical relations holding between them to a much higher degree of conventionalization.

Olson also contrasts the differences between utterance and text as those differences pertain to the underlying principles of meaning, truth and function. In regard to meaning, "for prose texts, it is critical that the premises are explicit and the inferences are correctly drawn." The criterion for a successful statement in prose text is its formal structure; whereas, "the criterion for a successful utterance is understanding on the part of the listener" (p. 277). The understanding is usually due to shared experiences and interpretations of the speaker and listener. In regard to truth, in oral utterance it has to do with "truth as wisdom"; whereas, truth in prose text is "the product of the disinterested scientist" (p. 277). "A statement is
taken to be true not because the premises from which it follows are in agreement with commonsense but rather because true implications follow from it" (p. 278). "Third, conversational utterance and prose text involve different alignments of the functions of language" (p. 278). Olson adds that even though all language serves both functions, there is a shift of emphasis from the interpersonal function which is primary in oral speech to the logical function which is of prime importance in prose text. "The emphasis, therefore, can shift from simple communication to truth, to 'getting it right' " (p. 278).

The contrasting difference which is most commonly heard is that oral language is contextualized whereas written language is decontextualized. Smith (1984:146-148) contends that referring to written language as being "decontextualized" is an overgeneralization. He prefers to use "situation-dependent" in reference to ordinary, conversational language because "the form of the language is determined by the situation or circumstances in which it is produced; whereas, most written language is 'situation-independent'." In other words, in texts, "the physical setting does not determine the words or their meanings." Smith points out that ambient print (sometimes referred to as public or environmental print), such as seen on signs or labels and as used in television commercials, is situation-dependent. Evidence suggests that in a literate society, children's first meaningful experience with written language is through public print (Goodman, 1980) and that most children regardless of social class are able to read environmental print before they start to school (Heath, 1984).
On the other hand, "many forms of oral language are situation-independent. These include the spoken language of oral story-telling, or reports, descriptions, explanations, and discussions" (p. 147). Smith then makes a highly significant point. "Such spoken language is as decontextualized as any text and may be as important for providing a child with essential experience in language detached from its physical setting as being read to" (underlining added). And in direct reference to the subjects of the study of this dissertation, he states, "Although children from oral traditions frequently are regarded as underprivileged when compared with those from more literate backgrounds, familiarity with story-telling may be more advantageous to children approaching textual literacy than a wealth of ambient print, alphabet books, flash cards, and phonics drills" (p. 147).

In a sense, however, "no meaningful language is independent of context." He explains:

Powerful constraints, and therefore clues, exist for situation-independent language [oral or written], but they operate within the text or discourse itself. They are the constraints of sense, syntax, and other linguistic conventions such as lexical selection, cohesion, and discourse structure. These constraints function in exactly the same way as the environmental clues for situation-dependent speech and print. They permit the reader (or listener) to anticipate and monitor meaning and the learner to hypothesize and receive relevant feedback... It is this context that permits comprehension and learning.

And again central to the issue, Smith declares, "A child unfamiliar with what I call context-dependent language... in which the constraints lie within the text rather than in the physical setting, will be unable to grasp the language to find out what makes it work, what makes it comprehensible and useful." We must not fail to realize that
the first and, Smith says, the "only time many children are likely to meet decontextualized language is during formal instruction." It is argued that these children do not have the necessary experience with decontextualized (situation-independent) language, oral or written, to be prepared to independently comprehend decontextualized text. They are not ready to read.

The most obvious difference between oral and written language is that reading employs visual input while oral language uses auditory input (Goodman, 1979). However, "as literate adults, we have become so accustomed to the written word that we seldom stop to think how dramatically it differs from the spoken one. The spoken word exists for a brief moment as one element in a tangle of shifting events. . . . The written word endures" (Donaldson, 1978:92). In fact since written language lacks situational support, which is so characteristic of oral language, it has developed into a language "so distinctive as to make it a special dialect" (Holdaway, 1979:29).

Wick Miller (1969) points to another important distinction. "Writing, as contrasted with speech, has a relatively recent history. It goes back no further than five thousand years. Furthermore, we can call writing an invention, whereas speech is the product of human evolution and deeply rooted in human biology" (p. 41). From this fact, he reasons that "since writing is recent, and the product of human invention, we cannot a priori expect every normal child to have the capacity for reading" (p. 41). One wonders, however, is not the issue here more a matter of motivation determined by functional need
than innate capacity? Goodman (1977) would respond that the differences between oral and written language are due to differences in function rather than to any intrinsic differences. Goodman gives the following differing characteristics between oral and written language:

While any meaning that can be expressed in speech can also be expressed in writing and vice versa, we tend to use oral language for [here-and-now] face-to-face communication and written language to communicate over time and space. Oral language is likely to be strongly supported by the context in which it is used; written language is more likely to be supplemented by illustrations. Written language can be polished and perfected before it is read; therefore, it tends to be more formal, deliberate, and constrained than oral language (p. 317).

In addition there is the important difference in functional need. Goodman adds, "For most people, oral-language competence develops earlier than written-language competence because it is needed sooner" (p. 317). It is for this reason that Henry Sustakoski (1969) could say that "all physiologically normal people learn to speak considerably before they learn to write" (p.62).

Delores Durkin (1981) brings out other differences between spoken and written language. She notes that spoken language is not usually polished. It is interspersed with unfinished sentences and false starts. However, comprehension of spoken language is aided by pauses which segment sentences into syntactic phrases, by intonation and stress, and by prosodic features such as facial expression, gesture, eye movements, and pointing. Durkin comments, "Whereas both linguistic and extra-linguistic factors facilitate communication when the medium is spoken discourse, many characteristics of written discourse complicate it" (p. 31). For example, in written language, even though
sentences are usually carefully constructed, syntax tends to be complex
and the content less familiar and/or much more technical. The rhythmic
nature of language is also another important aid to listening comprehen­sion. Marking phrases with the rhythm and melody of language is an
often overlooked critical characteristic of oral language. Schreiber
(1980) points out that something readers must learn to do is to encode
"rhythms and melodies" into texts. It should be noted that the phrases
and rhythmic patterns of a language are captured and emphasized in
children's songs.

Olson (1984) notes that written language can be treated more
opaquely, "as a structure in its own right." The reason is that
"writing preserves surface structure, the words themselves, which can
therefore be subjected to analysis, study, and interpretation, none of
which are encouraged by oral language" (p. 186). As shall be seen,
this characteristic of written language has some unfortunate ramifications in teaching reading. David Reed (1969) addresses the critical
factor as concerns the language/reading relationship. "Neither speech
nor writing depend directly on the other but are indirectly related by
virtue of the fact that both are representations or actualizations of
linguistic form" (p. 79). Then does it not follow that "oral and
written language differ much more in how they are taught than in how
they are learned " (Goodman, 1977: 323)?

Opposing Theoretical Views of the Language/Reading Relationship

Lauren Resnick (1969) identified two main theoretical perspectives from which the language/reading relationship is viewed: One
views "reading as translation" and the other views "reading as language." In the view that reading consists primarily of translating the written code into the oral code, reading is considered "to be essentially a process of translating printed symbols into some approximation of oral language and then letting already developed oral language abilities take over." Resnick adds, "In this view, reading is largely 'parasitic' on speech" (p. 322). The child must simply learn what the symbols "say." Thus, only word recognition needs to be taught directly. Because it is assumed that the child already has the ability to comprehend speech, the proponents of this view conclude that all that is necessary for the child to read with fluency is to be able to recognize the words. "The reading-as-translation view generally leads to a predominant, or even exclusive, preoccupation with mastery of the alphabetic code" (p. 322).

The other view holds that "reading is a separate, autonomous language process" which runs parallel to oral language not through it. Those who view written language as a separate system agree that reading instruction "must focus on deriving meaning from written language and on functional use of the written word. People with this view of the nature of reading do not believe that learning the code is very difficult or that not knowing it is the major cause of reading failure" (p. 323).

The reading-is-language view. Holdaway (1984) eloquently encapsulates the view that oral and written language are parallel. "The
simple sanity of seeing reading and writing as a unity akin to listen­ing and speaking, learned by copious use in genuine transaction influenced by the human rather than the technological skill of the teacher, provides the stable foundation of a theory drilled in the bedrock of human experience" (p. 7).

Goodman (1977) contends that "despite their differences and history of acquisition, oral- and written-language" are parallel language processes (p. 317). Thus, for those who are literate, "linguistic effectiveness is expanded and extended. They have alternate language forms, oral and written, which overlap in functions but which have characteristics which suit each for some functions better than the other" (1976:461). Goodman (1978) is very concise and explicit in expressing his view of the language/reading relationship. "Reading is language, so what's true for language must apply to reading. Reading and listening are both receptive language, so they cannot differ except in the linguistic medium and use" (p. 2-13). It follows then that "readers may go from print to meaning in a manner parallel to the way they go from speech to meaning" (1977:317).

Because of his view that oral and written language are parallel processes, Goodman (1978) can easily fit oral language into his reading model.

Three kinds of information are available and used in language, whether oral or written. These come from (1) the symbol system, which uses sounds in oral language and graphic shapes in written; (2) the language structure, which is the grammar. . . . The same syntax underlies both oral and written languages; (3) the semantic system, which is the set of meanings as organized in concepts and conceptual structures. Meaning is the end product of receptive language, both listening and reading; but meaning is also the context
in which reading takes on reality. Listeners readers bring meaning to any communication and conduct themselves as seekers of meaning (p. 2-4).

Smith (1971) holds a very similar view to that of Goodman but expresses it in a slightly different way. "Speech and writing are both aspects of the same language" which differ only at the surface level (p. 223). Smith (1971) explains, "We can consider the two cases of speech and writing jointly if we regard the words, spoken or written, as the surface representation of a message, and the meaning as something deeper. . . . The surface level refers to the physical manifestation of language as it impinges on the ear or eye, and the deep level refers to meaning or semantic interpretation" (p. 29).

Thus, "writing and speech stand at an equivalent level to each other, and not in any hierarchical relationship" (P. 72). He adds that speech has primacy only because it precedes writing historically and in the language development of most individuals.

Goodman (1976) explains a central assumption of the thesis of this dissertation. "Language proficiency is an important and valuable precondition to learning to read because "written language development draws on competence in oral language since both share underlying structures" (p. 474) (underlining added). "Since for most learners, oral language competence reaches a high level earlier" such learners have little difficulty learning to read. Conversely, those who have a weak language base are likely to experience some difficulty in learning to read. Goodman continues, "As children become literate the two systems become interactive and they use each to support the other when they need to" (Goodman, 1976:474).
Not only adult linguists and theorists such as Frank Smith and Kenneth Goodman hold this view of the language/reading relationship, but very interestingly this view is also shared by very young children. For this reason it seems to be not only a logical but also an intuitive and natural view of the language/reading relationship. Young children before they are exposed to formal instruction in reading seem to intuitively understand that print represents meaning. To them it is a type of drawing. Yetta Goodman (1984) contends that "children believe that print related to a picture says the name of the items represented in the picture, not that it is an oral language equivalent to the print" (p. 106). She noted that "children as young as three years begin to use say as a metaphor for read." They, for example, ask, "What does this say?" and "This says my name" (p. 4). Ragnhild Soderbergh (1971) in teaching his two-year-old daughter to read noted that the words printed on her word cards had real meaning to her. The grandmother and grandfather cards were her favorites, but she exclaimed that she became so frightful when it said "frightful" on a card. Sylvia Ashton-Warner's (1963) highly successful organic reading operates on this same principle. Emilia Ferreiro (1978), after observing preschool children, concluded that they probably did not think of the text as representing speech. Rather, they saw it as an independent representation of reality to which speech could be related.

The reading-is-translating view. From this perspective reading is viewed only as being indirectly and incidently related to language. Deborah Holmes (1973) gives the following basic assumptions of this
view: (1) that identification of individual letters is a necessary preliminary to word identification, and (2) that identification of words is a prerequisite for comprehension. These assumptions are expressed by the proponents of this view. From Leonard Bloomfield (1963) we hear the complete opposite definition from that of the reading-is-language view. "Writing is not language but merely a way of recording language by means of visible marks" (p. 21). Another advocate of this view states, "Learning to read . . . requires primarily the translation from written symbols to sound, a procedure which is the basis of the reading process" (Venezky, 1967:102). And again we hear from Bloomfield (1942) in the statement: "In order to read alphabetic writing one must have an ingrained habit of producing the sounds of one's language when one sees the written marks which conventionally represent the phoneme" (p. 128). "The heart of the matter" (of reading) according to Gibson (1970) "is surely the process of decoding the written symbols to speech" (p. 139).

In rebuttal to the reading-is-translating view, Goodman (1977) would point out that "even in an alphabetic system, the interrelationships between the oral and written forms of the language are not simple phoneme-grapheme correspondences, but are relationships between patterns of sounds and spelling patterns" (p. 164). Goodman (1977) argues that reading involves much more than "going from print to speech" as the assumptions of the reading-is-decoding view imply. "Reading is not simply knowing sounds, words, sentences, and the abstract parts of language that can be studied by linguists. Reading,
like listening, consists of processing language and constructing meanings" (p. 326).

Goodman (1980) also strikes at the commonly held assumption that children must know the grapheme-phoneme correspondences before they can read. "All that we have learned about language development indicates the fallacy of the assumption that knowledge of form must precede use" (p. 155). Smith (1984) draws from Halliday's (1975) theme, that children learn language as they use it in the following statement: "Infants do not learn spoken language as an abstract system which they then use for a variety of purposes" (p. 144), neither do or should they be expected to learn to read by learning an abstract system and then put it to use. Huey (1918) proclaimed, "It is contrary to all natural processes of learning to insist on precise and focalized knowledge of meanings and functions before the more general use-knowledge has paved the way and given the material for reflection" (p. 348).

The central idea of Frank Smith's book Reading Without Nonsense (1978) is that reading which is devoid of language is meaningless. Smith (1971) acknowledges that the spoken and written forms are "related in that there are complex and somewhat imperfect rules for 'mapping' between speech and writing." He however, maintains that "it is by no means necessary to believe, although it is widely assumed, that writing is speech (rather than 'meaning') written down, and that reading is the conversion of writing to spoken language rather than a direct conversion to 'meaning!'" (p. 45). Smith (1971) insists,
There is a widespread misconception that spoken words have a kind of magical character; that their meaning is apparent the moment they are uttered. Therefore, all one has to do to acquire the meaning of written words is to convert them into vocal or subvocal speech. But spoken words in their physical manifestation are just as far removed from meaning as the marks on a printed page. Meaning is not in the surface structure of language, either spoken or written; meaning in each case has to be constructed by exactly the same grammatical and semantic processes. 'Converting' a written message into verbal form does not itself provide the meaning, it merely interposes an additional stage in the process of comprehension. This additional stage is a snag, a hindrance, not a help to comprehension (p. 207).

Sustakoski (1967) points out a common fallacy which is perpetuated by proponents of the reading-is-decoding view. "An all too common myth is that letters are pronounced, that in fact they have 'sounds'. As a result of this belief "teachers attempt to have a child 'pronounce' the letters of the word as if the letters had sounds instead of allowing the written configuration to evoke the oral counterpart in the child's mind, which is the true nature of the process of reading" (p. 61). Sustakoski (1969) reiterates, "Since children already know language they only need to learn to decode its written representation" (p. 317).

Kolers (1973) cited many studies to include a number of his own which illustrate "the potent role grammar plays in reading." He contends that "grammar by its very nature involves sequences of words rather than single words" (Kolers: 1973, p. 45). He emphatically states; "Any theory that attempts to account for reading in terms of translating graphemes into phonemes, in terms of the discrimination of individual letters, or in terms of a sensitivity to the morphemic structure of single words, is hopelessly insensitive to even the
simplest kinds of linguistic processing the reader engages in" (p. 45). Kolers claims that the reader is not trying to translate graphemes into phonemes; "instead, he is treating words as symbols and is operating on them in terms of their meanings and their relations to other symbols" (p. 48).

Instructional Approach Resulting From the Reading-is-Translating View

As Holdaway (1984) noted, "Theory determines fact as much as fact determines theory" (p. 6). A theory, a point of view, becomes a belief system on which the practitioners tenaciously base their actions and reactions. As can be seen, the opposing views of the language/reading relationship presented above lead to radically different instructional approaches to the teaching of reading.

The view that reading consists primarily of converting written symbols into speech sounds and the instructional approach which results from this view stem from behaviorist and nativist theory. Goodman (1980) relates their principal arguments. Since children usually learn to read after they start to school, "behaviorists could argue that written language development requires explicit, controlled exposure to a carefully sequenced hierarchy of skills and sub-skills for its development." They are so convinced that this is the only way to learn to read that "the inability to learn to read and write through the skill instruction is used to argue for even more tightly controlled and sequenced instruction" (p. 154). Goodman then summarizes the nativists argument as follows:
And nativists could argue that it is oral language for which humans are pre-programmed. To them, written language is a secondary and abstract representation of oral language. It is thus not learned like language but requires 'metalinguistic awareness' - that is explicit knowledge of how language works - for its development. Their view is that oral language develops so easily because it is not learned but innate; written language is more difficult to develop because it is learned and not innate. To some nativists it is not surprising that written language is hard to learn; in fact it is surprising that it isn't harder (p. 154).

The instructional approach which is based on the reading-is-translating view has reigned in one form or another for over seventy years. It is well established as the traditional method of teaching reading. It is argued that it has been not only an ineffective method of teaching reading to language-minority children but that it is a major cause of their reading failure. As Bruner (1984) said, "The problem of reading seems more and more to be a function not of the difficulty of reading per se but of the difficulties created by the way in which we teach reading. Education is the problem, not the solution" (p. 200). According to Bettelheim (1982), our present approach to teaching reading could even be a cause of the reading failure of those children labelled dyslexic. Bettelheim (1982) quotes the World Federation of Neurology's definitions of dyslexia which reads as follows: "Dyslexia is a disorder in children who, despite conventional classroom experience, fail to obtain language skills of reading, writing, and spelling commensurate with their intellectual abilities" (p. 44). One tends to agree with Bettelheim that this definition begs the all-important question of whether these 'conventional classroom experiences' are not the cause of the children's
failure to obtain the required skills which, according to their intelligence, should be quite within their reach" (p. 44).

Print starvation. Bruner's major complaint is as follows: "The prime myth is that reading instruction should consist exclusively of teaching phonics, vocabulary, and grammar" (p. 195). To this myth was added the ill-conceived need to simplify the text. "Reading experts, enamored by the mechanics of reading... thought that readability of text was best assured by simplification." It was unfortunate that the metric which was used to simplify the text was based on "the three ancient maxims" of phonics, vocabulary, and grammar. "Somehow the context got lost in the details." This movement resulted in basal readers which were "too impoverished in content to provide a context... which the child could understand... What, indeed, is 'Run Jane run. Catch the ball.' about?" (p. 119). Thus, "a misstatement of the problem has magnified the difficulty of reading by suggesting that you need to oversimplify what you are about to teach to make it teachable by the foolish method you have used" (p. 200).

Not only is the reading material of poor quality, but it is also spoon fed to the children one page at a time. The central theme of Smith's theory of reading is that children learn to read by reading. Unfortunately, those children who most need the "practice" of reading are deprived of the opportunity to do so, for, as Smith (1983) says, "The more difficulty children experience in learning to read, the less reading and the more nonsense drills we typically arrange for them to do" (p. 5). To this Holdaway (1984) adds, "In school, slower progress
children spend many weeks 'on' a few pages of print - what I call 'criminal print starvation.' We urgently need a massive increase in quantity of print transacted in learning to read and write" (p. 3). Holdaway cites several studies which show that "there is an extremely high correlation between the quantity of material transacted in beginning reading program and success or failure in later reading" (p. 3).

Reading is a language art. A criticism expressed by Smith and Holdaway concerns the way the language arts have been segregated. "A traditional error of thinking about reading and writing was to see them as discrete subjects isolated from the world of language and spoken culture and then to teach them as if they had no relationship to listening and speaking" (Holdaway, p. 12). Smith (1979:118) argues that "the categories of the language arts are arbitrary and artificial; they do not refer to exclusive kinds of knowledge or activity in the human brain." He contends that not only do the four aspects of language not involve different cognitive processes, but neither do they necessarily need to occur at different stages or levels of cognitive development. Holdaway (1979,) adds, "By concentrating in the past on the exclusiveness of literacy tasks even from each other we have undervalued the fundamental processes of all language and even created activities such as 'word calling' which are basically nonlinguistic in nature and are practised only in schooling" (p. 13).

Phonics or look-say? David Reed (1969), an advocate of the reading-is-language view, directly addresses the issue.
The practical consequences of this view of the relationship between speech and writing is that it is equally wrong to try to teach the process of reading either by the 'look-say' method, which assumes that there is no relationship between speech and writing, that every graphic configuration is a 'sight word' to be memorized . . . or by the 'phonic' method, which assumes that there is a simple and direct relationship between sounds and letters, so that children should be encouraged to 'sound out' new words . . . Furthermore, if neither look-say nor phonic methods of reading instruction are based on a defensible theory of the relationship between speech and writing, it makes no better sense to employ both methods in one course of study, as the majority of basal readers now do" (p. 80).

Holdaway (1979:29) notes that the debate which has raged over these two opposing methods of teaching word recognition - phonetic versus whole word - has caused a great deal of harm because proponents of both methods influenced publishers to produce "readers" with "controlled vocabulary" which changed the "character of the books for reading instruction in ways which distorted and impoverished the language quite grossly" (p. 28). In addition, the practice of teaching words in isolation before they were read in meaningful context was promoted. This again was unfortunate because as Donaldson (1978) observed, "The child who is expected to respond by immediately making the right sound whenever an isolated word is shot at him on what is known as a 'flash card' will not be considering possibilities of interpretation at all" (p. 100). Since the words are without context, either linguistic or nonlinguistic, the task of recalling and/or sounding the words out becomes unnecessarily difficult.

Huey (1918) had the following to say on the subject of learning new words:
New words are best learned by hearing or seeing them used in a context that suggests their meaning, and not by focusing the attention upon their isolated form or sound or meaning. It should constantly be remembered that words are functional, and that their main function is to help express a total meaning which always requires or implies their association together with other words. . . . The best way to get a reading vocabulary is just the way that the child gets his spoken vocabulary, by having the new words keep coming in a context environment that is familiar and interesting, and by trying to use them as they will serve his purposes (p. 348).

Just so the acquisition of power over new reading-matter comes naturally, by this method, provided the new matter be well with in the child's natural comprehension and interest; and he should not be encouraged or expected to read matter that is not (p. 334).

The basal readers. The major attack by the proponents of the reading-is-language view has been aimed at the basal readers. Dissatisfaction with the "readers" goes back to the early nineteen hundreds. Huey (1918) had this to say about the basal readers which were being published at that time. It almost sounds as if he were criticizing the readers of today.

In working over the primers and first readers, one is impressed with the fact that the artistic side has had far more attention and a far greater development than has the side of method and reading content (p. 276) . . . . No trouble has been taken to write what the child would naturally say about the subject in hand, nor indeed, usually, to say anything connectedly and continuously as even an adult would naturally talk about the subject. The language used often shows a patronizing attempt to 'get down to the child's level'. . . . Down in his child heart he scorns such reading-matter, although he will often plod through it with some interest to please a beloved teacher. Better a thousand times that we have no primers than that we inflict such travesties on the child (p. 280).

Bruno Bettelheim, a child psychologist, searched for over fifteen years for the psychological reasons why some children have difficulty learning in school, especially why they are unable to learn to read,
has this to say about the basal readers. "Not only are the stories from which the child is asked to learn to read devoid of any merit; with their empty sentences and their annoyingly boring repetitions of the same few words, they dull the child's mind instead of stimulating it" (1982:265). Bettelheim and Zelan (1982) sought the opinions of the young readers themselves. They found that "without exception, the children complained about how stupid the stories in their basic readers had been, and how much they had hated having to read them" (p. 14).

Bettelheim also made the following rather discouraging remark: "In theory, there is no lack of recognition that reading ought to be taught for meaning, but unfortunately it remains mere theory . . . since educational practice runs directly counter to this theory and will continue to do so as long as reading texts are completely worthless" (p. 265).

Holdaway (1979) complains that the 'readers' contain unnatural stories which have been "mangled to serve some instructional purpose - it as almost as if children are being forced to learn to read a different language from the one they speak so well" (p. 29). He refers to the language of the texts as "semi-language which has been denatured" (1984:6). Holdaway (1979) also feels that it is unfortunate that true literature has been excluded from "the literacy undertaking in the interest of controlled vocabulary and phonetic regularity" (p. 17). Another criticism of the basal readers made by Sustakoski (1969) is that "some texts use pictures to tell the story, thereby diminishing the motivation to break the code" (p. 62).
Reductionist versus constructionist approach to teaching. Roger Shuy (1984) refers to the way reading is presently taught as reductionistic. He contends that the reductionist view of learning, "which breaks big things down into little things and removes all comprehensive clues that social and linguistic context provides, is at war with their [the children's] natural learning strategies" (p. 170). Shuy continues, "By adhering to the reductionist theory of learning and thus reducing learning to read to a rigid sequential decoding-first approach, as virtually all commercial reading programs do . . . the fantastic abilities these same children exhibited" when they used a constructivist approach to learn to talk is not only underestimated but also ignored and thus not utilized (p. 14). Huey (1918) also addressed this issue, "We have had quite too much dissection of small sections of knowledge and of language and much too little of actual constructive use of the mother tongue" (p. 267). Smith (1973) adds, "A major insight to be gained from the study of spoken language development is that we cannot expect a child to learn simply on the basis of the rules that adults try to feed to him" (p. 146). This is especially true if the rules are unruly and unreliable. Smith (1973) contends that children probably use memorized phonics rules as a last and partial resort for identifying words. It is more likely that they use "analogic devices based on knowledge that they acquired unconsciously, just as they unconsciously acquired knowledge of how to distinguish dogs from cats" (p.123). Not only that, as Smith (1983) points out, "Rote learning, the deliberate effort to memorize unrelated
items of information, is so difficult and inefficient as to be clearly unnatural, the brain's least preferred way of learning" (p. 125).

As reiterated over and over by Smith and Goodman, children reconstruct language by forming hypotheses and testing them. Bruner also expresses this view in the following assertion: "Written language is a problem space in which hypotheses and the capacity for self-correction are present in abundance. It should be treated as such, rather than as some sort of mysterious assembly line of bits and pieces to be put together." He adds that it is a mistake to treat the "'errors' of reading . . . as stupidities rather than as interesting hypotheses" (p. 200). Children need this "problem space" even though they don't use all of it. In fact, according to Smith (1973) this is the basic reason why the reading process cannot be fragmented. "Reading is a process in which the reader picks and chooses from the available information only enough to select and predict a language structure which is decodable" (p. 164).

The Goodmans also criticize the reductionist approach to teaching reading. "No method which focuses only on 'decoding' (we prefer to call it recoding), whether on a phoneme-grapheme, syllable-spelling pattern, or word level can be considered a complete instructional program for any language, no matter how 'regularly' it is spelled" (Goodman et. al, 1979:24). Yetta Goodman (1984) points out that "a highly structured instructional system that focuses on mastery of one rule or skill before another" trivializes the process and "focuses some insecure children on insignificant and often erroneous principles about language" (p. 109). Holdaway (1984) would add, "Through these
controls, they make literacy tasks ever more difficult by destroying those strategies by which the young human brain really learns to cope" (p. 12).

Smith (1975) points out that the "great complexity embodied in linguistic learning" exists in the mind of the learner not in the sophisticated technology or "method" which the teacher uses. He adds that unless we can get full cooperation from that complex young mind our instructional technology is useless - no more than "sounding brass or a tinkling cymbal." In other words, as Holdaway (1984) said, we should view children as "developing human beings rather than objects of instruction" (p. 21). Holdaway (1979) comments, "Paradoxically, when the school meticulously leaves no stone unturned to teach literacy skills thoroughly, it leaves no room for children to learn those skills with the same efficient use of their faculties as they bring to bear on comparable tasks outside the school" (p. 14).

It is suggested that the reader, after reading the following comment which Holdaway (1979) made, pause for a moment to think about it.

Slow progress towards universal education kept alive the false expectation that by attending school all children would learn to read and write (p. 28). . . . The failure of the schools was met with frustrated concern and heated public debate about what they should be doing. . . . The search for the perfect method was mounted - a search that was to continue for three generations. . . . Meanwhile, children everywhere learned to talk (p. 29).

Instructional Approach Resulting From The Reading-Is-Language View

Since proponents of the reading-is-language view regard reading as constructing meaning from written language, a process parallel to
comprehending spoken language, it follows that they would conclude that children can and should learn to read and write in the same way they learn to talk. And thus we expect to hear statements such as the following: Goodman (1979a) says, "Literacy, reading and writing, is learned in the same way as oral language. If language learning is, as Halliday has said, 'learning how to mean', then literacy learning is learning how to mean with written language" (p. 9). And the Goodmans also say (1976) "Our contention is that acquisition of literacy is an extension of natural language learning for all children" (p. 459). Smith (1971) adds, "Reading is an aspect of language, only superficially different from the comprehension of speech, and thus many of the skills employed by a child in learning the regularities of spoken language may also be employed to learn reading" (p. 28). Smith (1971) continues,

The fact that almost all children have acquired a good deal of verbal fluency before they face the task of learning to read has a dual significance for understanding the reading process. In the first place children have a basis of language that is obviously relevant to the process of learning to read - the written language is basically the same language as that of speech, even if it has special lexical, syntactic, and communicational aspects. But equally important, study of the manner in which children learn to speak and understand spoken language can provide considerable insight into the manner in which they might approach the task of learning to read (p. 45).

Smith mentioned one important difference in initially learning to speak and becoming literate. Most children already know the language and so can use that knowledge to facilitate breaking the alternate code. A child learning to read does not have to learn the language
and the coding system at the same time as does an infant when learning to speak the language. Goodman (1977) explains,

Since the deep structure and rules for generating the surface structure are the same for both language modes, people learning to read may draw on their control of the rules and syntax of oral language to facilitate developing proficiency in written language. This is not a matter of translating or recoding print to sound and then treating it as a listening task. Rather, it is a matter of readers using their knowledge of language and their conceptualizations to get meaning from print, to develop the sampling, predicting, confirming, and correcting strategies parallel to those they use in listening (p. 317).

It follows then, as Smith (1983) says, "Reading should be learned very much quicker, as it has so much spoken language knowledge to support it" (p. 105). And as many reading teachers can testify most children do learn to read relatively quickly and easily. Smith continues, "When children do learn to read, whether they learn at three years of age, six, or ten, they learn ... in a matter of a few weeks. The instruction may last for years, but the learning is accomplished in weeks" (p. 105). It is of course possible to learn language through the visual mode which is ideal for the deaf and often a more practical way for a literate person to learn a foreign language. Just as Goodman (1979) said, "People learn languages through reading and writing them as well as through listening to and speaking them. ... They use their focus on the meaning of written language as a means of deriving its syntactic rules and its lexicon" in the same way as they use meaning to learn to speak a language (p. 31).

As was seen, the two theoretical views of the language/reading relationship are diametrically opposed. It thus seems likely that the consequent instructional approaches would also take opposite stances.
The McCracken's contrasting description of the two approaches bears this out. In their book, Reading is Only the Tiger’s Tail, Robert and Marlene McCracken (1972) suggest that "a natural way to teach reading is to reverse the order of the steps. First, a child learns to love books and stories; second, he learns that books are to be comprehended; third, he learns to recognize words. There is a deliberate emphasis upon teaching in the traditional sequence and upon learning in the reverse sequence" (p. 18).

Developmental learning model. John B. Carroll (1965) must had been wondering about the notion, "Meanwhile, children everywhere learned to talk" (Holdaway, 1979:29) when he wrote:

The process by which children learn their native language is in many respects a mystery. One major mystery is the fact that through an experience in which the child is presented with a tremendous variety of language utterances, not sequenced, ordered, or 'programmed' in any particular way, not even 'taught' in the usual sense, the child is nevertheless able somehow to acquire the complex patterns of his language . . . by the time he is aged six or seven. That such complex learning occurs with apparent ease tempts us to think that the process of native language learning is in some sense an 'ideal' learning process, and that it might be worthy of imitation when we try to arrange the conditions for other kinds of learning. Might it not be possible for a child to learn to read in somewhat the same 'natural' way that he learns his native language? Could reading perhaps be 'acquired' through conditions and experiences analogous to those by which the child acquires his native language, rather than by the slow, careful teaching processes which we have thought necessary (p. 577)?

Carrol immediately dismissed the idea as merely being "provocative."

Holdaway (1979, 1984), however, developed the idea into a "developmental learning model" for learning to read.
Holdaway (1979) proposes that children can become literate in a natural, developmental manner similar to "the type of learning engaged in by infants before they enter school and by school children outside the instructional environment." Such learning "occurs with a minimum of instruction as a 'natural' part of ordinary development" (p. 14). He defines developmental learning as learning which is "highly motivated, consistently purposeful, globally activating, powerfully reinforced both intrinsically and extrinsically, and meaningfully related to other aspects of development" (p. 22). Holdaway (1984:12-14) describes the strategies which are used by young children when learning in natural ways. They are (1) brain radiating (using complexity from within), (2) observing and emulating, (3) making sense, (4) predicting, (5) approximating, (6) self-regulating, (7) participating, (8) practicing, (9) risk-taking and safety-netting, and (10) pain-avoidance and pleasure-seeking. Bissex would agree to the above strategies and would add some of her own. "Child mind asks questions, seeks order, and monitors and corrects its own learning. These are natural functions of human mind. However, these are also functions . . . that teachers have so preempted that children often abandon them when in classrooms" (p. 99). Holdaway notes that an important characteristic of developmental learning is that it is "short on teaching and long on learning." It capitalizes on the fact that children "use the complexity built into the human brain to carry out tasks beyond our present competence to describe or understand - and therefore, in any accurate way, to teach" (p. 12). Holdaway, as is Bissex, is aware of the problem associated with natural learning in
a school setting. "The very idea gives us as teachers a sense of insecurity - it is almost as if this type of learning, so manifestly efficient, threatens our professional functions" (p. 15).

It is important to note that just because a child is surrounded by print, it does not necessarily mean he will "naturally" start reading. As Goodman (1979) said, "Language learning is motivated by functional need" (p. 21). Because literacy is just an alternate mode of communication and expression, the functional need must be motivated by social intervention. Thus Smith (1984) contends, "Social interaction is required to make literacy learning possible but can also confound learning. Society cannot impose literacy on children, either through prescription or instruction. Rather, society must make literacy learning possible" (p. 143). And this, he proposes, can be accomplished through a certain type of interaction which he appropriately calls "apprenticeship, or engagement with relevant demonstrations." Thus, collaboration in learning to read and write should not be "in the form of deliberate instruction but as an apprenticeship, working alongside interested others who already know how to do what the child sees some purpose in learning" (p. 135).

Holdaway (1979) reasoned, "There seems a strong case for looking at initial language learning as a suggestive model - perhaps the basic model - for literacy learning" (p. 21). The reason being as follows:

There is no more successful example of language learning than that provided by mastery of native language during infancy. Since time before history, regardless of race, class, or educational background, families have succeeded in transmitting their native language to their infants - or their infants have succeeded in learning the language within a natural environment of language use. The efficiency with
which spoken language is learned is beyond question; it presents a body of evidence which dwarfs that of modern research into insignificance. What possible evidence could research present which would have the effect of questioning the effectiveness of those processes by which infants learn language (p. 19)?

He anticipates the counter argument. "Many experts would protest, however, that acquiring spoken language during childhood is a special case. . . . They would say that it is a fallacy to apply principles we see operating in early language acquisition to the learning of literacy skills which, by comparison, are artificial and unnatural - and must therefore be taught" (p. 20). And Holdaway's rebuttal is that "we cannot be justified in dismissing the relevance of early language acquisition for literacy learning unless we have assured ourselves by extensive and rigid trials that literacy cannot be acquired in the same manner. Such trials have never been conducted, but there is a wealth of evidence . . . indicating that literacy skills develop in the same 'natural' way as spoken language when the conditions for learning are comparable" (p. 20).

The primary source for this evidence is the early readers. Holdaway notes, "A number of children enter school actually reading. The evidence suggests that they are not deliberately taught but learned in natural, developmental ways" (p. 39). Holdaway questions the worth of readiness programs which were set up "without reference to the learning situations which actually produce the most literacy-ready children at school entry" (p. 39). Holdaway suggests that "a study of literacy orientation in the pre-school years may provide answers to
some . . . questions and create a picture of what the entry to literacy in a developmental environment may look like" (p.39).

Early readers. Huey, created such a picture in 1918.

We have a valuable suggestion as to the right method given by those children to be found now and then who learn to read for themselves, no one knows how or when. They grow into it as they learned to talk, with no special instruction or purposed method. And usually such readers are the best and most natural readers of all. The natural method of learning to read is just the same as that of learning to talk . . . He long hears the sentences without grasping their meanings, and babbles forth . . . without expressing any meanings, but gradually and with no confusion, without 'special methods and devices,' he catches glimpses of meaning in what is said - getting the general drift of what is said first and the finer distinctions as time goes on. Just so, a few years later, he finds that he is in an environment of . . . printed language as omnipresent as was the spoken language . . . and his scribbling is as little like writing or printing as his early babble was like speech. But he begins to be interested in these printed and written things, and to imitate; and the steps from this to facile reading and writing are as certain and as natural as were the earlier ones for spoken language (p. 331).

Bettelheim (1982) adds to the picture with the all important ingredient, an interest in books. "Indeed quite a few children learn to read before or after they enter school without receiving any training in decoding or other skills. They learn it at home, more or less independently from what they are taught in class, being children who have acquired a love of reading as they were being read to." With an interest in books as his prime motivator, "all on his own, then, the child begins to pick out words and learns to recognize them with his parents' help or that of an older sibling. In this way the child teaches himself to read" (p. 9). He adds, "I have known many preschool children who taught themselves to read thus; and I also knew some who first learned to read words upside down" (p. 9). (It is quite evident
that these children never read from left to right nor did they use the "beginning sound" strategy.)

Durkin (1966) conducted a longitudinal study of forty-nine children who learned to read at home before they entered the first grade. One of her most interesting findings was that more than half of the early readers came from low-SES homes and only fourteen percent of the families were of professional status. She described them as having very good memories and as "pencil and paper kids" who were very much interested in drawing-scribbling, and copying words. "Ability to make letters led to the question. 'How do you spell...?' and ultimately to ability in reading and writing" (p. 144). A second study was also made by Durkin (1963) with children in New York City. Here she identified 157 early readers. They exhibited a wide variance in intelligence which ranged from 82 to 170 on the Stanford-Binet scale. The median reading-grade level at the end of the first grade was 3.7. She also took a random sample of thirty of these students and compared them with matching non-early readers. Of special significance is the fact that "all the parents of the early readers and twenty-two parents of non-early readers reported that they read to their children before they started school" (p. 147). Parents of early readers tended to discuss the pictures and point out particular words as they read usually in response to the children's questions. The parents of early readers did not hesitate to help their children read when they asked for help. On the contrary, the parents of the non-early readers were hesitant about helping their children learn to read because they felt reading should be taught by a trained person.
Margaret Clarke (1976) conducted an in-depth study of thirty-two children who were fluent readers at approximately five years of age. Although a multitude of complex factors contributed to these children's learning to read without formal instruction, Clark (1984) identified four significant characteristics of these children.

1. Not all scored high on a conventional intelligence test.
2. Although few children had received formal instruction in reading, the support and involvement of adults, usually the parents, in dynamic oral interactions with the children in a variety of settings was impressive.
3. The strengths of these children appeared to be a growing sensitivity to spoken and to written language rather than a high level of visual-motor development.
4. The majority of the children studied were boys. (There were twenty boys and twelve girls in the study.)

She also noted that older siblings frequently read to these children. Clark (1984) remarks, "In light of subsequent studies of young children's responses to elaborate story structure and of their growing awareness of how to predict the ideas and even precise words and sentences of print, my uneasiness with conventional oral reading tasks and conventional artificially created print as a medium for early reading instruction now is even greater" (p.125). Clark hopes that her study as well as other studies of early readers will provide "insights in developing a stimulating environment in school for more children, in which they can learn to read, learn from reading, and enjoy the wide range of shared experiences that could be opened up for them by literacy" (p. 128).

Teale (1978) in reviewing studies of early readers noted that reading material was easily available or made available to the children. King and Friesen (1972) commented that almost all the children
in their study had access to easy reading material in their home and that some parents had extensive book collections for their children. Clark (1976) noticed that families in her study used the library extensively.

Some individual case studies are also worth noting. First, mention needs be made of the Goodmans' daughter, Kay, who was a self-taught reader. Her parents (1963) report that she was an independent reader at five and a half years of age and by the end of the first grade was reading at the fifth grade reading level and was an accurate speller.

In discussing the language development of her daughter during the period of from between three to four years of age, Payton (1982) confirmed for herself the theoretical notions of psycholinguists such as Smith and Goodman. She observed her child as hypothesizer who predicted, tested, and confirmed or amended linguistic data in order to comprehend. She stressed that oral language situations may have a more obvious impact on language development because they demand active involvement whereas reading is passive unless it is coupled with interactive dialogue.

Soderberg (1971) wondered if children could not learn to read at the same time, at the same age, and in the same way as they learn to talk. He tested his hypothesis with his daughter who confirmed his suspicions. She learned to read at the age of two with minimal but systematic help and encouragement.

Glenda Bissex (1984) carefully observed and documented the literacy behaviors of her son as he became literate when a preschooler. As
typical of early readers she noted that her son wrote, using invented spelling, before he did much reading. "Paul's spelling, like his language acquisition, was a process of active learning and experimentation, hypotheses-making and -testing, and incorporation of new information from his environment through the processes of assimilation and accommodation, as described by Piaget" (p. 89). As a result of observing children learning, she made the following thought-provoking statement:

The child as teacher is child mind interacting with the information and structures provided by its immediate environment, and guided and supported by the enduring structures of human mind and language which, like a great net, protect it from falling into the abyss of nonlearning. Children have demonstrated their power to abstract, hypothesize, construct, and revise. Given this view of children, surely one role of education is to affirm each child's inner teacher (p. 101).

Torrey (1973) conducted an indepth case study of a black, lower middle-class, early reader. John in many respects was a typical early reader. He was not of unusually high intelligence nor was his verbal ability extraordinary. Like other early readers he took the initiative to learn to read himself which he did with very little help from others. Also typical of early readers he took an interest in identifying words and writing messages. He evidently broke the visual code primarily with the help of television commercials. His mother reported that he memorized and recited the commercials as they appeared on the screen. Jane Torrey checked and found that about forty words per hour are simultaneously shown and pronounced on television commercials.

John enjoyed dictating to Torrey but resisted reading to her because he felt she could read for herself. Torrey reported that when
he did read, it was fast and confident and with proper intonation. He could sound out words but preferred to ask when he didn't know a word. Again typical of early readers he rarely misspelled a word even though, according to Torrey, "his articulation was frequently so different from mine that I could not understand his words" (p. 152). In such instances he would obligingly spell the words for her. He did not, however, have a conscious awareness of what the word "word" meant.

Once when dictating to Torrey and she asked him to clarify a word for her, he spelled the entire sentence. Very interestingly, however, he paused between the words. Torrey comments, "His writing system obviously went far beyond any simple sound-symbol association" (p. 152). As a result of analyzing the errors John made when reading, Torrey concluded, "Writing to him was firmly understood as a natural alternate form of language. It was as though he read, not the words, but the meanings, and then expressed that same meaning in his own way" (p. 154). John's naturally learned reading ability suggests to Torrey that "reading is learned, not taught" and that "the key for learning to read may be the child's asking the right questions of his environment" (p. 156). She adds that the environment need not necessarily include an older person who consciously and overtly tries to teach the child to read.

Theodore Andersson (1981) cites three cases of preschool biliteracy. Mariana, a dominant English/Spanish bilingual, was biliterate by the time she was four years old. Since English was predominantly used in the home, she learned Spanish primarily by listening to and discussing books read to her in Spanish. In the second family, the Christian
children learned to read Spanish at home before they went to school and then quickly learned to read English when they started to school. The Christians (1977) wanted to provide their children with the most favorable conditions for a lifetime development of the two languages. They believed this involved "building the strongest possible foundation in the minority language before the children reach school age, including the teaching of reading and writing" (p. 95). Yuha, Korean/English bilingual, learned to understand and speak Korean and English at the same time. She, however, learned to read first in English with all instruction in Korean. After she became an independent reader, in one month she learned to read Korean and so was biliterate just before she entered the first grade. Lee (1977) writes about his daughter: "She speaks and behaves like an American among Americans; she speaks and behaves like a Korean among Koreans. Early bilingual reading seems to have aided her for her bilingual and bicultural adjustment in the United States" (pp. 143-144).

One can see what prompted Frank Smith (1983) to say, "As many parents in North America are discovering, children have a reading problem only if they are still unable to read when they get to school" (p. 5). Early readers explicitly illustrate that learning to read is similar to learning to talk and that allowing children to learn to read naturally is a viable method for "teaching" reading. A view of early readers and how they learn to read also paints a picture of what a pre-reading program should look like. Reading to children seems to stand out more than anything else as an essential part of the early reader's pre-reading activity. If the above researchers were asked to
identify the one single factor in the early readers' environment which promoted their early reading ability, it would undoubtedly be that their parents and/or older siblings read to them. With rare exceptions such as John in Torrey's study above, having been read to as a child seems to be an important prerequisite for learning to read, not only for early readers but for all children.

Reading to children. Because of his remarkable insight into the reading process and how a child learns to read, Edmund B. Huey (1918) would have readily given the following response as a solution to the problem of educating low-SES, language minority children. His answer to the problem would read as follows:

The secret of it all lies in parents' reading aloud to and with the child [underlining added] . . . So, almost as naturally as the sun shines, in these sittings on the parent's knee, he comes to feel and to say the right parts of the story or rhyme as his eye and finger travel over the printed lines. All that is needed is books of good old jingles and rhymes and folk stories and fairy tales, with illustrative pictures, and a mother or father or friend who cares enough for children to play this way and to read aloud to them. The child will keep it up by the hour and the week and the month, and his natural learning to read is only a question of time (p. 333).

And as a footnote he would add: "The child should long continue to hear far more reading than he does for himself" (p. 334).

"Experience in being read to features prominently in the histories of early readers" (Teale, 1984:110). Teale then documents this statement with fourteen citations. And then he lists ten studies to verify the following statement: "It also has been found to be positively related to academic readiness and success with beginning reading in
school" (p. 110). For example, Wells (1981, 1982) found that listening to stories was more highly correlated with reading achievement in school than factors such as oral language, parental interest in and help with schoolwork and early experience with literacy. Wells concluded that because it provides experience with decontextualized language and the opportunity to learn some of the essential characteristics of written language, the story-reading experience facilitates the acquisition of literacy and helps the child to deal with the reflective, disembedded thinking that is so necessary for success in school. Teale, however, stresses that the findings are more than mere correlations. "Virtually unquestioned by researchers is the premise that reading to children contributes directly to their early literacy development" (p. 9).

Carol Chomsky (1972) found that reading to children contributes to furthering their oral language development as well. She studied the language acquisition of thirty-six children between the ages of six and ten and found that five of the nine structures which she selected were acquired in unvarying sequence, thus revealing five development stages in the acquisition of syntax. Although the order of linguistic development did not vary, the rate varied considerably among the children. She found that exposure to written language (through both listening to and independent reading of books) influenced the rate of linguistic development. To illustrate this, she compared three kindergarten children of near the same age (5.9-6.1) and intelligence (118-120) who were at three linguistic stages of development. Child A who was in Stage 1 of linguistic development had
listened to zero number of words being read to him during the week of observation. Child B who was in Stage 2 had listened to 17,700 words (number of words multiplied by the complexity factor) and Child C who was in Stage 3 had listened to 62,500 words.

Delores Durkin (1981) points out that listening to stories acquaints children with the styles of written language. She notes that "in the light of current work with comprehension, reading to children emerges not only as a means for bridging the gap between spoken and written language but also as a way to (1) develop a schema for 'story', (2) expand vocabularies, and (3) add to children's knowledge of the world" (p. 31). Dorothy Butler (1983) explains how listening to stories prepares children to read. She writes,

The child who is listening expertly is employing the senses and techniques which the mature reader uses. He is well on the road to reading. He is able to accept and mentally process a stream of language; to order the ideas being presented, selecting the dominant, retaining the supportive, suppressing the irrelevant - relegating all to positions appropriate for maximum understanding of the author's message (p. 312).

Teale points out the following beneficial characteristics of the book-reading episode. One, "the events are socially interactive ones in which the actual reading of the text and the meaning produced in the reading are constructed through a cooperative negotiation between adult and child" (p. 118). This oral, social interaction is important to language development. Two, "experience with stories can help the child develop a specific way of taking from text." He explains, "We adopt a certain stance when we read aesthetically." We don't focus on the referential aspect of the text or the information to be taken from
it, but rather on "the journey experienced through the text" (p. 119). And three, "participation in story-book readings familiarizes the child with certain literary conventions and serves to develop the child's schema for stories, or his or her story grammar" (p. 119). Teale concludes, "We cannot state with certainty that story is the key to or a necessary aspect of informal literacy development in children, but it does seem to be a most felicitous gateway through which young children enter the world of reading" (p. 119).

Holdaway (1979) noted that in most cases children who have little difficulty learning to read "display a deep familiarity with a number of favourite books" and "come to print with high expectations, not only that they will succeed in unlocking its mysteries, but also that the mysteries are worth unlocking" (p. 38). For these children story reading had been "among the happiest and most secure" experiences in their lives. Their introduction to books had probably begun at infancy, "long before the tasks of oracy were mastered." However, Holdaway contends that the "much-lauded bed-time story situation is only half the picture: practice of prereading-like behaviour and writing completes the picture" (p. 5). He explains, "Both activities are complementary aspects of the same language-learning cycle" in which "the most powerful strategies of mature reading are being established" (p. 61). One must agree with him that this kind of prereading activity makes "the normal description of pre-reading skills look quite ridiculous" (p. 61).

Bruner (1984) makes the claim that "what initially attracts children to reading and into mastering all the mechanics of it, is the
opportunity that text provides for penetrating possible worlds, worlds beyond the mundanities of here and now" (p. 196). From the premises that children use symbolic props extensively in their play and that "children's language use (during acquisition) is most daring and most advanced when it is used in a playful setting," Bruner argues that the stories which the children have heard become a "prop" for their play which in turn provides them with an opportunity to practice using the language of books. He says that dramatic stories have most of the characteristics of spoken language such as personalness and emotion but are not embedded in dialogue which is the critical vehicle of oral language. However, by acting out the stories in play, the children embed the language of the text in dialogue. It is in this manner that children begin to practice speaking written language. Thus Bruner suggests that we begin effecting a change in our approach to teaching reading "by making reading an instrument for entering possible worlds of human experience - as drama, story, or tale - in order to bring it as close as possible to the forms in which children already know spoken language best" (p. 200).

Bettelheim's thesis, almost identical to that of Bruner, is that "learning, particularly learning to read, must give the child the feeling that through it new worlds will be opened to his mind and imagination" (p. 50). The key to learning to read according to Bettelheim and to Bruner and to Holdaway is that having listened to stories being read to him, the child "learns to love books" (Bettelheim 1982:9) which is a powerful motivating factor in learning to read. Bettelheim contends that "children who acquire a great interest in
reading in their homes . . . form the overwhelming majority of those who later become the good readers" (p. 9). It is rather disheartening that the educational establishment, backed by research, points to them as "demonstrating that the methods used to teach reading in school are successful" (p. 9). However, the opposite is probably true. As Bettelheim points out, "Since these children are so anxious to learn how to read, it is more likely that they learn to read despite the school's methods of teaching reading rather than because of them" (p. 9).

An interesting side note is the study in which Fowler (1981) reexamined the Terman studies to determine the role that parents played in the extraordinary cognitive abilities of geniuses. Among other factors, he found that these parents spent hours and hours reading to their children.

Holdaway (1979) notes that "many of the features we observed in the bed-time story situation are shared with the transmission of the oral tradition. The oral tradition is linguistically enriching for many of the same reasons, presenting special styles and conventions of language which both stimulate linguistic awareness and introduce forms common in the written dialect" (p. 58). As noted by Smith (1984) and discussed above, story telling is equally as effective in providing children with the necessary experience in situation-independent language as being read to. Holdaway says that special forms of language such as chants, songs, nursery rhymes, folk stories, and fairy tales are important in the enculturating process. These language forms are
especially valuable "teaching" devices because "the language of enculturing is usually highly wrought, firstly because it is, in fact memorable, and secondly because it is designed to have a powerful and lasting effect on development" (p. 57). As Holdaway comments, it is unfortunate that "little is left of that great wealth of common cultural experiences which used to be so important in early education, and used to contribute so much to general language development" (p. 57).

Thus, two radically different views of the language/reading relationship are as different in practice as they are in theory. To make the decision as to which is "right", which is what all practitioners must ultimately do, it is important to have some empirical evidence on which to base that decision.

Research Evidence on the Two Views of the Language/Reading Relationship

Research evidence seems to lean heavily in favor of the reading-is-decoding view of reading. Jeanne Chall (1983a), in a updated edition of one of the most comprehensive reviews of research literature on the two instructional approaches based on these opposing views, in her book titled Learning to Read: The Great Debate, concludes:

The considerable basic research from the laboratory and clinic on the reading process conducted during the 1970's tended to give further support to the importance of phonics or decoding for the development of word recognition, accuracy in oral reading, and silent, reading comprehension. Almost all of the summaries of past research by various investigators also concluded that code-emphasis programs were more effective than meaning-emphasis (p. 42).

This conclusion and the conclusions upon which it is based are classic examples of defective reasoning which rest on false assumptions and
misinterpretation of research results. First, in regard to the correlation studies, it should be remembered that correlation does not imply causation. As Ferguson (1976) cautioned, "In psychology and education the presence of a correlation between two variables can rarely be interpreted as implying a direct causal relation" (p. 125). It is argued by Smith (1978) that it is more likely that facility in decoding skills is a consequence of being able to read rather than a cause. "While it is true that children who know the alphabet and who are good at phonics, and who understand terms like 'word' and 'sentence,' tend to be good readers, in each case the ability to read is a cause rather than a consequence of the particular skill" (p. 156). In agreement, Goodman and Goodman state: "The functional awareness of the isolated skills of reading is a result of learning to read, not a prerequisite" (p. 19). On the other hand there is no assurance that knowledge of decoding skills will guarantee being able to read with comprehension. Smith (1984) also speaks to this. "The fact that research demonstrates particular skills that nonreaders do not have should not be interpreted to mean that the nonreaders will become readers if drilled in those particular skills, which may be a consequence rather than a cause of reading" (p. 114). In fact there is a wealth of evidence that shows there are many children who have the decoding skills, "word-callers," who are not able to read with comprehension. This becomes apparent at the fourth grade level when the text becomes much more decontextualized and is accompanied by very few illustrations. (Often, word-callers mouth the words and get the meaning from the pictures.) It is not surprising to find word-callers
who do not even realize that what they are reading is supposed to make sense. They are concentrating so intently on accurately pronouncing the words that they block out the meaning of what they are uttering. They might as well be reading a foreign language. Chall, herself, recommends:

We also need studies that continue beyond the third grade. Such studies are needed because declines in reading achievement at Grade 4 and beyond continue to be reported particularly for children from low income families. . . . Because the fourth grade usually represents a break between an emphasis on word recognition and decoding, and an emphasis on reading for comprehension, it would be well to follow up beginning reading studies at least till Grade 4 and beyond" (p. 44).

For the most part the research evidence shows that children tend to learn what they are taught. Word recognition and reading for accuracy are what are stressed in a phonics approach. Recognizing words, whether they are in isolation or strung together in meaningless text (at last meaningless to the word-caller) can not be construed as reading. Word-callers read with accuracy because they have been taught that that is the main objective in "reading." By using the Goodman miscue analysis technique, one can readily determine if a child is reading for meaning or calling words by the way he corrects his errors. Smith (1973) explains,

The less proficient reader either corrects an error immediately - because he has adopted the cautious and inefficient habit of double checking every word that he reads - or he reads on regardless of whether his word-identification errors makes sense. He is not monitoring himself for meaning. The more skilled reader on the other hand is most unlikely to correct errors until he reaches a point where a mistake in meaning becomes obvious. At that point a child who is reading for meaning will, like the fluent mature reader, check back to see what has gone wrong (p. 80).
One more point needs to be made regarding Chall's conclusion. Before a meaningful comparison can be made between the two approaches to teaching reading, a clearly defined and detailed description needs to be made of what is meant by a code-emphasis approach. One can only deduce that it is not very similar to Holdaway's developmental learning approach. A certain number of hours per week of reading instruction is mandated by law in most states and so school "programs" which use this approach are difficult to find even though there are probably many teachers who use a natural learning approach. Thus, the major part of the evidence in support of the developmental learning approach is in the research done with the early readers who learned how to read before they came to school.

Chall cited a number of studies (p. 24) which reported that knowledge of the alphabet was the best single predictor of reading achievement. This is interesting because it is a beautiful example of a correlation in which the predictor variable is an extraneous variable. Knowledge of the alphabet usually means the child (or the parents) have an interest in print and reading which is important in successfully learning how to read. However, as Shank (1982) said, "Letter names are entirely superfluous to learning how to read. . . . It can't hurt to know them, of course, but their relevance to reading is nil" (p. 24). It is no more necessary to know the letters of the alphabet in order to learn how to read than it is for an infant to know the phonemes of the language to learn how to speak. In fact, very few adults, fluent speakers of the language know the phonemes of their language. Huey (1918) had remarkable insight into the reading process,
however he was not very good at predicting human behavior. The follow-
ing quotation is included partly because it is amusing.

The alphabet method, used almost universally in Greece and Rome, and in European countries generally until well into the nineteenth century, and which was nearly universal in America until about 1870, is now chiefly of historical interest (p. 265). Just how naming the letters was supposed to assist in pronouncing the word is difficult to see. The value of the practice in learning to read doubtless had much to do with blinding centuries of teachers to its uselessness for the reading of words and sentences (p. 266). . . . Indeed, one may read very well without knowing even what sounds the individual letters represent (p. 313). . . . There is no reason why the child should not learn the alphabet, therefore, first as last, but let him do it only in his play, and as it interests him (p. 312).

As Huey and Shanck said, it is not in any way harmful for children to learn the letters of the alphabet. In fact early readers use their knowledge of the alphabet in their invented spelling which they use before they learn how to read (Smith, 1971). What is harmful, however, is that parents and teachers are often led to believe that knowledge of the letters of the alphabet is a necessary prerequisite for learning how to read and worse that it is a sufficient prerequisite for learning how to read.

Chall's conclusions undoubtedly were welcomed by teachers, educators, and especially by text book companies. It legitimatized what they are doing. In the meantime, millions of children suffer the consequences. Research such as that which has been done by Marie Clay (1979) is more meaningful and valuable. For example, she concluded from one study that "the behavior of the best readers suggested the hypothesis that they were processing cues at the intersentence, sentence, and phrase level, whereas the poor readers worked at best on
the two or three-word phrase level and more usually at the word, syllable, and letter level." (p. 153). She commented after concluding a case study: "My understanding of error behavior also changed in that year, 1962, because the high-progress readers made the most errors" (p. 150). Clay found self-correction, a natural learning strategy "by which children could teach themselves, irrespective of the program they were in" to be an over-looked explanatory variable for understanding how children learn how to read. This strategy suggested to her that "perhaps materials that are rich in language cues allow for dissonance and permit the cross-checking and self-correction strategies that construct and support a self-improving system" (p. 156). In observing children in their third year of instruction she noted that the children attempted and were successful in "sounding out" unknown words only eleven percent of the time even though teachers had been stressing word analysis for two years. On the other hand, the children used the self-correcting strategy in almost half of their word-solving problems. Clay cites an especially interesting study conducted by Glynn and McNaughton (1975) in which retarded children were reinforced through a behavior modification program for self-correcting their reading errors. The results showed that they made spectacular gains in reading. This illustrates the complementary use of two learning theories which helps clarify their roles in learning. Extrinsic reinforcement was used to reward a desired behavior (in this case a natural learning strategy) and not to reward a correct response, which has its own intrinsic reward, while the actual learning took place through an innate learning device.
All the research evidence cited earlier in support of the Smith/Goodman theory of reading can also be included here. Mention should be made again of Zaidel's finding that visual to auditory recoding is not neurologically necessary. In other words, decoding skills are an artificially contrived conscious exercise which the mind does not even use. The studies relating reading to its counterpart, the comprehension of oral language provide additional evidence in support of the reading-is-language view.

The argument for the relationship between these two receptive language processes and what this implies starts with the Goodman's premise that "reading is as much a language process as listening is" (p. 47). From this premise Myron Tuman (1980) reasons, "reading and listening are analogous forms of receptive communication" (p. 698). Further, the assumption that learning to read consists of mastering decoding skills, the assumption on which much of today's reading instruction rests, needs to be questioned. "If students have just as much difficulty understanding what they hear as they do what they read, then decoding or word recognition must not be their primary problem." He contends that the misguided emphasis on phonics training assumes that "decoding is the major stumbling block for poor readers... that the trouble resides with the reader's inability to receive the message in an intelligible form... when the problem all along seems to be the reader's inability to understand the message after it is received" (p. 703). Following are some studies which support Tuman's hypothesis and the view that reading-is-language.
Duker (1965) reviewed and summarized twenty-three major studies between 1926 and 1961. He noted that the researchers reported positive correlations of between .48 and .70 in reading and listening comprehension. He concluded that poor listeners tended to be poor readers.

Sticht et al (1974) reviewed over thirty-one studies which compared reading and listening comprehension at various grade levels. They found that in the elementary grades most of the studies showed that children comprehended speech better than they did what they had read. However, from grade seven through twelve, the proportion of studies which showed an advantage in reading comprehension increased, as did the proportion of studies which showed no difference between the two modes. Sticht et al also reviewed studies that evaluated the transfer of specific instructional training in one modality to the other modality. They found that if students had relatively equal verbal and reading comprehension and if the training proved to be effective in one mode, then it was very likely to transfer to the other mode.

A study conducted by Sybil Hoffman (1978) showed that fourth-grade students given training in listening comprehension made significant gains in reading comprehension as compared to a control group who had not received the training. Robert Lemons (1974) whose subjects were also black fourth-graders reported similar results. Walker (1975-76) as a result of his research which also illustrated the same phenomenon, made the following comment: "Perhaps special instruction in it [listening comprehension] is not necessary since transfer from
listening could be expected" (p. 165). However, when listening comprehension is weak, it is encouraging to know that special instruction will transfer.

Smiley et al (1977) found that remedial seventh graders had just as much difficulty comprehending stories when they listened to them as when they read them. They were not able to distinguish gradations of importance of either the written stories or the stories presented to them orally. The remedial seventh graders were able to read/decode the stories but their understanding of them was at about the first grade level.

Mosenthal (1976, 1977) as a result of his studies using syllogisms concluded that "a common linguistic competence underlies both silent reading and oral language processing (p. 87). Kintsch and Kosminsky (1977) and Reed (1977) came to similar conclusions. Guthrie and Tyler (1976) found that in listening and in reading, both good and poor readers could repeat more words in meaningful sentences than in syntactically correct sentences which were not meaningful, but more words in the syntactically correct sentences than in random lists of words. They also concluded that "the processing of semantic and syntactic information in the two modalities appears to be similar" (p. 419).

A comparison can be made of the effectiveness of reading-for-meaning and reading-by-decoding by comparing the decoding method with learning to read non-alphabetic systems in which direct decoding to sound is not possible. Rozin et al (1973) taught reading disabled children to read English represented by Chinese characters in about four hours of tutoring. The researchers stated that the children had
no difficulty learning to associate more than twenty-six complicated and arbitrary visual symbols with their represented meanings, "yet these same children had failed to acquire the basis of English reading in almost two years of schooling" (p. 112). They surmised that one of the reasons for the "success" of these children in learning to quickly and easily learn to read the Chinese symbols could be "the complete absence of sound mapping in Chinese" (p. 113). Thus, synonyms constituted correct responses as did variances in the pronunciation of the words. It was an interesting experience to read the short passage encoded in Chinese symbols (shown on page 109). One realizes that only words that carry the semantic meaning need to be represented and put in the proper word order. One then uses his knowledge of the language to fill in most of the functors (morphemes which carry the grammatical meaning). Frank Smith (1973) notes in the introduction to the paper the implications of this study for understanding the reading process. He comments, "Readers do not use (and do not need to use) the alphabetic principle or decoding to sound in order to learn or identify words" (p. 105). One can not help but wonder if the reason why there is no need for remedial reading programs for children who learn to read a non-alphabetic written language might not be because it is not possible to teach decoding rules.

Studies which directly compare the instructional approaches which stem from the two views of the language/reading relationship are rare. That is why the following interesting and exciting study by Hughes can be considered a gem. It becomes evident as one reads the following report that the British firmly believe that "people not only learn to
Hughes (1972) conducted a cross-cultural study of British and U.S. elementary children's writing and reading. Of particular interest is his comparison of the syntactic growth of children in the two countries in relationship to both reading and writing and as the link between these two reciprocal linguistic processes. Children aged eight-to-nine and ten-to-eleven from nineteen classrooms in the Nottingham area of England and in or near Kalamazoo, Michigan, in the United States, who were from two socioeconomic levels, were the subjects of his study.

The British children spent between eight (8) and fourteen (14) hours per week writing, one hour of which was creative writing as a class and the remainder was in self-directed writing; while the children in the U.S. schools spent from one-half (1/2) hour per month to two and one-half (2 1/2) hours per week in free writing. What is especially exciting about this study is that the "British children were not taught reading in a formal way. There were no basals nor reading workbooks. . . . British children read from children's literature and trade books" (p. 17). They read for pleasure and to research their topics. By comparison, the children in the United States averaged six and one-half (6 1/2) hours per week on reading. Much of this time was spent in formal reading groups. Hughes was not able to find one school in the Nottingham area which used the traditional formal approach to teaching reading!
On the sentence-combining test, the measure for syntactic maturity, the British children showed significant gains over the children from Michigan for all groups with the exception of words per clause. "The heavy use of subordinate clauses by the British children was particularly impressive, especially for British upper-class children at both levels" (p. 13). The ten-to-eleven year olds scored as high as the norm for skilled adults in the United States on the test in which they embedded kernel sentences to form subordinate clauses. Not only did the British children write more often, they produced longer compositions of higher quality. Hughes includes examples of the children's writing which clearly illustrates the difference in the quality of their writing. British middle-class children averaged 115 words per composition while U.S. children of the same age and social class averaged 49 words per composition. British children at the upper-SES level averaged 179 words while the U.S. children averaged 79 words per composition.

"In both Britain and the United States, reading comprehension percentiles obtained from standardized tests correlated highly with syntactic maturity scores" (p. 17). The British children scored significantly higher on syntactic maturity than U.S. children for the same age and social class. Unfortunately, it was not possible for Hughes to obtain comparable reading scores; however, he reasons that "since the British children scored significantly higher on syntactic maturity than United States children of the same age and socioeconomic status, they must also be the more able readers, i.e., those with higher comprehension" (p. 17). Hughes concludes that the results of
the study "suggest that the time spent in writing may, indeed, be more beneficial to reading, as well as to writing, than so much time spent on reading skills" (p. 17).

The following comprehensive ethnographic study of two instructional approaches (almost identical to those under discussion) at the pre-reading stage gives a clear picture of each approach in an educational setting but unfortunately gives no statistical data to compare the effectiveness of the approaches. Lynne Putnam (1982) describes in detail two philosophically different approaches, the "literate environment" approach and the "traditional" approach, to reading readiness as they were used in six inner city kindergartens.

The "literate environment" approach was conceptualized by the researchers and was an attempt to duplicate, in the classroom, the learning experiences and conditions which are characteristic of the home environment of early readers. Class time was divided into periods in which children would (1) pretend read, discuss books with friends, or print; (2) listen while their teachers read and reread stories to them; (3) participate in follow-up activities related to those stories, including dramatizations; (4) "read" books during sustained silent reading time; and (5) participate in activities to foster metalinguistic awareness. Phonics workbooks were also provided for those children who became interested in decoding. It was decided by the researchers and teaching staff that the phonics books would in the future be supplemented by easy-to-read books. Putnam explains, "books lie at the heart of the literate environment approach." All the activities that the children do "flow from the books. Dramatizations follow
story reading; art projects and science projects pick up on story themes; and children pretend read and discuss the same books that have been read to them by the teacher" (p. 124).

Putnam stresses the value of pretend reading. She observed that the children were "in effect, 'lifting' book talk and incorporating it into their pretend readings" (p. 137). Pretend reading gave the children an opportunity to practice verbalizing and thus more completely internalize syntactic structures they heard in the story readings. For the children in Putnam's study, this also meant practice in using the standard dialect. For example, Putnam noted that one of the children in pretend reading The Three Little Pigs used the non-standard dialect only twice (e.g., 'he be comin down the chimney') and the standard dialect throughout the rest of the story. Putnam proposes that "the efforts of pretend readers to produce 'book talk' serves as a kind of practice for the predicting process which occurs in mature reading." And, if this is accepted as true, then "pretend reading can be considered excellent training in 'reading comprehension' " (p. 140).

Putnam concluded that even though only a relatively few students had actually broken the code and could be considered to be independent readers, all the children responded like early readers. "Like early readers they seemed 'hooked on books.' They loved to listen to stories read aloud and to act them out. They often requested to hear their favorite stories repeated, and when the stories were read over and over again, they readily memorized many of the lines" (p. 191).
To observe the "traditional" approach, Putnam chose classrooms which were typically traditional in their approach to teaching reading readiness skills. In the traditional approach classrooms, the sub-skills were taught in a one lesson/one skill format; emphasis was placed on pre-reading skills such as visual and auditory discrimination, letter recognition, and sound/symbol association; and participation by the students was passive - answering a factual recall question or circling an answer in a workbook. Putnam noted that not only in the readiness program which was used in these classrooms but also in the readiness programs of the six top-selling basal reader series in this country not once was there a suggestion "that children be given books and encouraged to pretend read, or be given paper and encouraged to attempt to print" (p. 259).

Putnam observed that little time was spent on reading and writing in the "traditional" approach classrooms. She noted that there was a library center in one of the classrooms which was attended by four to eight children a day and a ten-minute book-sharing period in another classroom. However, the library center was closed shortly after school started and not reopened until January because the teacher felt the children were not ready for it. Putnam was suspicious that the book-sharing idea was "borrowed" from the "literate environment" classroom across the hall. In the final observation of one of the classrooms, the researchers counted 100 books on the classroom bookshelves but 223 books and a set of storybook records in the storage room out of the reach of the children. Putnam felt that the teachers regarded pretend reading as little more than play. The children were
never encouraged to even print their names and during one observation they were even reprimanded for writing on and "messing" their papers. There were reports from parents of the case-study children that the children did pretend read and print at home. Putnam concluded that "what a pre-reading skills curriculum asks children to do is mismatched with what they seem to want to do most. . . . It restrains them from trying to read and print. Yet that seems to be what intrigues the children the most" (p. 260).

Thus, there is fairly conclusive evidence from many different types of research to support the theoretical view that reading-is-language and the developmental learning instructional approach based on that view. We can conclude that a heavy emphasis on decoding skills is not only not necessary for learning to read but presents a barrier for some students which prevents them from learning to read with comprehension. Now a vertical relationship of language and reading will be drawn to answer the following question: Does language competency in the oral mode facilitate learning to read? Or to ask the question negatively: Is oral language deficiency a cause of reading failure?

Studies Relevant to the Language Reading Relationship

If we accept the premise that reading is language, that the oral and written forms of language are parallel and reciprocal linguistic processes, then, we can make the assumption that development in one mode will influence development in the other. If we accept the premise that the reader relies on the semantic and syntactic clues of the
language to extract meaning from the text, then, we can make the assumption that success in learning to read is dependent on language competency. We would predict a high positive correlation between level of oral language proficiency and reading achievement. A search of the research literature has been made to produce evidence which will either help verify these assumptions or give reason to question them.

A thorough search of the Educational Resources Information Center (ERIC) files, language, education, and psychological journals, and doctoral dissertations has been made to find studies which pertain to the oral language/reading relationship for a comprehensive review of the research which has been done in this area. The studies are reviewed and critiqued below. They are grouped in the following categories: (1) past reviews of the literature, (2) studies done with the linguistically disadvantaged, (3) studies which predict reading readiness and reading achievement, (4) studies which distinguish between good and poor readers, and (5) experimental studies.

Past reviews of the literature. Research prior to 1941 on the relationship between oral language and reading was summarized by Gaines (1941). In the studies which Gaines examined, he found eight which indicated a significant relationship and five which did not. None of these studies is included in this review of the literature. Patrick Groff (1977) reviewed the literature for the period between 1941 and 1977. To report the studies he divided oral language into two components, fluency and complexity, and then grouped the studies
according to studies which found a significant relationship and those which did not. He listed ten (10) studies in which it was reported that there was a significant relationship between oral language fluency and reading achievement and sixteen (16) in which there was not. He found eleven (11) studies which showed a positive correlation between oral language complexity and six (6) which did not. There is some overlap for some studies included both language fluency and complexity. This illustrates that knowledge of the underlying structures of the language is more important in learning to read than simply being verbal. In addition to those studies listed by Groff (1977), this review of the literature will include several others for the period between 1941 and 1977.

Hammill and McNutt (1980) conducted an exhaustive search of the literature for the years between 1950 to 1978 to present a synthesis of research on the relationships of listening, speaking and writing to reading. Eighty-nine suitable studies were found. Hammill and McNutt reported that the synthesis of these studies revealed a strong positive relationship between measures of writing and reading. A low positive correlation was found between comprehension of speech and reading. Practically no relationship was shown between speaking and reading. A closer examination of their results needs to be made. In the measures for listening comprehension, the median coefficient for receptive vocabulary was .32; whereas, the median coefficient for contextual listening was .44 which illustrates that ability to derive meaning from connected discourse is more important than vocabulary in learning to read. Spelling showed the highest positive correlation to reading.
The median coefficient was .68. Thinking back to the early readers who are typically excellent spellers, could it be that one also learns to spell by reading? The method which was used to synthesize the studies makes their results questionable. First, more than eighty percent of the studies they used did not designate type of reader (good or poor) or socioeconomic status. It is critical that these variables be accounted for in determining the relationship between language and reading. Second, by using the median correlation coefficient for all the studies, as they did, the results of the studies are averaged out so that those which found a low correlation cancelled out those which found a high correlation. Moreover, they also lumped the measures of assessment together. For example, in two measures of assessing contextual listening, Hammill and McNutt found that the median coefficient for the listening subtest of reading readiness tests to reading was .23; whereas, the median coefficient for tests of grammatic closure was .64. This kind of information is meaningful. Only those studies which they used for analysis which are pertinent and used an acceptable methodology are included in this literature review.

Studies with the linguistically disadvantaged. Studies conducted with bilingual children in programs of bilingual education are included later in this chapter under the subheading, The Language/Reading Relationship and Bilingualism. The following studies were done with children from culturally and linguistically different backgrounds than
white middle-class children whose speech more closely approximates the standard English dialect.

To determine the effect deficiency in English would have on the relationship between speech competency, vocabulary, and reading ability, Ivey (1968) compared 185 Indian children which she divided into three groups. Group One was Cherokee; Group Two was Choctaw, Creek, or Seminole; Group Three was from a number of different tribes. Results showed significant correlations between speech competency, vocabulary, and reading ability for groups One and Two. For Group Three, only the correlation between vocabulary and reading was found to be significant.

Bradley (1971) investigated the relationship between the oral language proficiency and reading achievement of first grade children with a French linguistic background. The oral language proficiency of 200 children from four schools in Louisiana was assessed at the beginning of first grade. Each school represented a different socioeconomic group. Reading achievement was measured at the end of second grade. The results indicated a significant difference in the language patterns of entering first graders in the four schools. Those children of higher socioeconomic status tended to score higher in both tests of oral language proficiency and reading achievement. A significant degree of correlation was also found between reading achievement and oral language. This is an important study because it shows that socioeconomic status has a greater effect on oral language development and consequently reading achievement than being bilingual.
Deffenbaugh (1972) investigated the oral language of Black elementary children from inner-city New York who were grouped as good, average, and poor readers. There was no significant difference in their use of English in the interview/discussion measure. In other words, their use of the Black dialect was consistent regardless of their reading level and thus no correlation was found between linguistic performance and reading achievement. However, the groups did differ significantly on measures of linguistic competency such as the sentence completion test and the Berko nonsense word test. This suggests that knowledge of the grammatical structure of the language is what correlates with reading achievement, not speech production. The high progress readers, although they did not use standard English constructions in spontaneous speech, were able to comprehend these structures when they read them.

Results of a study by Levin (1981) indicate that the miscues of a small but representative sample of Black-English speakers, who were two or more years below norms in reading, were fewer and of higher quality when the dialect of the reading material more closely approximated their speech. This is supported by Hobson (1981) who did a similar study with Black-English speakers. At first these studies seem to contradict Deffenbaugh's study cited above; however, since the children in Levin's and Hobson's studies were poor readers, they more than likely did not comprehend the standard English dialect either spoken or written. For these children, it thus makes more sense to give more opportunity to hear and thus learn to comprehend the standard English dialect (especially the written dialect) by being read to than
it does to rewrite the texts in Black-English dialect which is neither practical nor helpful.

Elbert (1975) in a study with 65 Black second grade students in two Texas schools examined the degree of relationship between predictor variables of oral language, sex, and socioeconomic status and the criterion variable reading achievement. Elbert found all the correlations to be highly significant. Grammar was found to be the most significant variable for three of the four reading tests.

A random sample of 12 students from 212 Black first grade students from low socio-economic families was the subjects for a study done by Korn (1976). This study revealed that: (1) the reading comprehension ability of these children was enhanced by the similarity of the oral and written syntactic patterns; (2) the proportion of black English in the oral language of the children is not a predictor of first grade reading comprehension; (3) there is a degree of correlation between proportion of black English usage and reading skill in basal reader materials; (4) their oral language repertoire includes a variety of language structural patterns; (5) they are capable of switching to standard English from most of the black English features; (6) they have communication competence in modifying their language patterns as they talk with different people in different situations. Attention should be drawn to number three above. Children who speak a non-standard dialect, understandably have a very difficult time with decoding skills.
The Goodman and Goodman (1981) report that in their research with speakers of eight different dialects to include Rural, Black, Appalachian, Down East Maine, and Hawaiian Pidgin, the children's dialect did not seem to interfere with their learning to read. They concluded, "The only disadvantage was rejection of these dialects by the school and the pervasive attitude that speakers of low-status dialects have difficulty learning to read" (p. 439). They also cited a study done by Sims (1972) with inner-city Black children. Sims compared the miscues the children made when they read from standard English text with the miscues they made when they read from text written in Black-English. She found that most of the miscues were related to poor reading strategies rather than to dialect interference.

Studies in which oral language development and reading achievement among children from differing socioeconomic backgrounds were compared are particularly relevant. The outstanding study by Loban which follows is the only study of such depth and duration found in the literature.

Loban (1976) conducted a longitudinal study with a sample of 338 kindergarten children from Oakland, California. The random sample was stratified according to socioeconomic status, ethnic background, intellectual ability and socioeconomic status. Loban followed 211 of these kindergarteners through the twelfth grade. From the 211 subjects he selected a group of children who were high in language ability, a group who were low in language ability and another group who were randomly selected from the sample. There were thirty-five children in
each subgroup. Most of his statistical data are based on these sub-
groups. Twenty-five (25) of the children in the High group were from
the three highest levels of socioeconomic status and there were none
from the two lowest levels; whereas, twenty-six (26) of the students
in the Low group were from the three lowest levels of socioeconomic
status and none were from the highest level. Children of various
ethnic backgrounds (Anglo, Black, Chicano, and Asiatic) were dispersed
through all three groups. Loban comments, "Minority subjects who came
from securely affluent home backgrounds did not show up in the low
proficiency group. The problem is poverty, not ethnic affiliation"
(p. 23).

Following are some examples of comparisons of oral language
ability: On a measure of average number of words per communication
unit, the High group was at least five years in advance of the Low
group during all the years of the study. The level of proficiency in
elaboration at which the high group was in the first grade was not
reached by the Low group until grades five and six. Even though the
Low group did make progress they never, even in high school, ever used
as many multibase deletion transformations as the high group did in
grades 1, 2, and 3. The High group were already using more dependent
clauses in their oral language at grade four than the Low group did in
the eleventh grade. Initial weaknesses in oral language persisted
through twelve years of schooling and such weakness was correlated
with poor performance in reading and written expression. The gap
never closed. In regard to our main concern, the relationship between
oral language and reading, Loban wrote: "It is of special note that
those superior in oral language in kindergarten and grade one before they learned to read and write are the very ones who excel in reading and writing by the time they are in grade six" (p. 71).

In a study Palamar (1978) examined language differences among fifth and seventh grade students from the same school - from working class, middle class, and upper middle-class socioeconomic families. She found statistically significant differences among all three socioeconomic groups from both grade levels on all measured language variables. She noted, however, that either the variables of intelligence and socio-economic status or intelligence and language are so highly correlated that when Palamar controlled for the variance associated with IQ, no statistically significant differences were found. There is a wealth of evidence that shows that intelligence and language are highly correlated.

A random sample of 100 sixth-grade students from the Bloomington Metropolitan School District were selected to investigate their oral language in relationship to their silent reading, oral reading, and listening comprehension. Their language was studied in relation to the variables of age, intelligence, sex, occupational status, and educational background of both parents. Evertts (1961) found significant correlations between the use of subordinate elements and use of moveables (language complexity) and occupational status, parents' education, verbal intelligence, and chronological age. A high positive correlation existed between the structure of children's oral language and silent reading comprehension, oral reading interpretation, and listening comprehension.
In order to confirm whether or not British and American findings on the language/reading relationship applied to Canadian urban children, Rodgers et al (1974) conducted a study with thirty-five (35) English-speaking first grade children from a school in a low income area, thirty-five (35) from a middle, and thirty-five (35) from a school in a high income area. Cluster analysis was used to create derived groups of children sharing similar competencies in seven measures of oral language proficiency. Membership in a high, medium, and low group was highly predictive of reading achievement measured at the end of the second grade. It was noted that the reading test means of the three groups were in the same rank order as the profiles resulting from the cluster analysis. The researchers noted that all students in the low oral language group came from the schools in middle and low socioeconomic areas; and those two schools provided only about a third of the high oral language proficient students. Thus from the results of this study, it is clearly shown that significant differences in oral language competence exist among grade one English-speaking children in a Canadian urban setting. Further, these differences correlate highly with reading achievement and with the socio-economic area in which the children reside.

Hammer (1969) divided a sample population of sixty children into four sub-populations of mature middle class, mature low class, immature middle class, and immature low class. The data revealed that among mature first grade students, the middle-class students scored much higher in frequency of use of movables and connectors than did the mature children from low income families. There were no significant
differences in the frequencies of any of the movables or connectors between the two immature groups. Hammer concluded that "all children use some movables and connectors in their speech patterns by the time they enter first grade, but that the rate of acquisition of these patterns depends not only upon the socioeconomic level but also, with some children, upon maturity."

Carol Chomsky (1972) examined the relationship between the exposure to the written language and the rate of linguistic development of thirty-six (36) children between the ages of six and ten. The results showed a strong correlation between a number of the reading exposure measures and language development. In the "mini-comparisons" SES appeared as a factor most strongly in the youngest group where many of the reading measures varied directly with SES. Chomsky noted,

> It is hardly news that higher SES parents read to their young children more; what is interesting is that SES is less of a differentiating factor among the older children. . . . For these children (particularly the oldest group where SES varies least), it is their own [reading] activity, not SES differences, that varies with linguistic stage (p. 28).

Carol Chomsky's study illustrates two points. One, that oral language and reading are mutually supportive. Oral language competence facilitates learning to read and in turn once a child learns to read, reading promotes language development which is also manifested in oral language proficiency. The other point is that the gap in oral language proficiency which is associated with socioeconomic status need not persist throughout the child's school years as it did with the children in Loban's study. The direction can be reversed if the child learns to read and reads. The child will develop his language through reading.
Studies which predict reading achievement from oral language proficiency. Birsh (1980) illustrated that it is possible to predict children's reading achievement at age eight by measuring their oral language proficiency at thirty (30) months of age. She found that infants who scored more than one standard deviation below the mean for the group of thirty-one (31) boys were the poorest readers at age eight. However, the children who at thirty months of age used the greatest number of different grammatical constructions and the most predicative utterances were the better readers five years later. A similar study supports this finding. School-age reading, listening, and speaking are predictable from preschool language skills, concluded Fischer (1975) who did a follow up study of forty-two (42) children to determine the relationship between linguistic ability at age three, mother's speech style, and reading abilities at age six. She reported correlations which ranged from .82 to .92 between the above variables.

Melton (1978) found that expressive language was a better predictor of kindergarten children's reading readiness than performance in auditory skills, visual skills, language skills, and knowledge of letter names. The other variables did not show significance in any of the reading readiness models. The high correlation between expressive language and reading readiness factors led to the conclusion that assessment of expressive language is a valid method of determining a child's reading readiness. Inherent in these conclusions is the implication that reading readiness draws on the child's knowledge and use of spoken language.
"Talkative" children are not necessarily better readers. Torrance and Olson (1982) conducted a three-year longitudinal study involving twenty-nine (29) Canadian children. They sampled the oral language of the children in free conversations and in more formal school-like tasks. They found that one side of oral competence, complexity of linguistic structure, to be related to acquisition of reading skills; while a second aspect of oral competence, initiating and maintaining conversation, was not related to reading skills.

Fisher (1982) examined the reading performance and oral language skills of twenty-four (24) first grade and twenty-two (22) second grade children in a Catholic school in New Jersey. A language screening test and a reading achievement test were administered one week apart in November. The results showed a moderate correlation of $r$ of .48 at the .05 level of confidence for the first graders, and a substantial correlation of $r$ of .61, significant at .01, for the second grade students.

Garman (1981) used three instruments to measure the reading readiness of 221 lower-middle class kindergarten children near a large midwestern city. The instruments were the subtests from a criterion-referenced basal test, an informal test of reading readiness, and the Grammatic Closure subtest of the Illinois Test of Psycholinguistic Abilities (ITPA). The children were tested for word knowledge and reading comprehension when in the first grade. The reading readiness scores were correlated with the reading achievement scores. All correlations were significant at the .001 level. The reading readiness tests correlated with the first grade reading achievement test as
follows: letter recognition test, .51; basal readiness test, .61; Grammatic Closure Test, .47. Since the oral language measure correlated the lowest, Garman concluded, "These findings did not indicate a particularly strong relationship between syntactic maturity of oral language, as measured by the Grammatic Closure Test, and success in initial reading instruction." It is obvious, however, that Dorothy Garman did not know what the instrument she used measured. Without question the Grammatic Closure test measures the morphological component of grammar and not the syntactical component. It is also unfortunate that she did not know how to interpret her findings for this is an interesting study. Further investigation of her study revealed that the correlation between the Grammatic Closure Test and reading achievement for children in School Two was .62 and .37 for children in School Three! As an explanation for this variance Garman concedes, "In general, students of School 2, compared to those of School 3, had a higher mobility rate and a somewhat lower family income." It should be noted that there is usually little variance in the oral language proficiency of middle class children. Most of these children usually score uniformly high on tests of oral language ability. If these children fail to achieve in reading it is likely to be due to other factors. But children from low-income families are often deficient in their oral language abilities which in turn correlates with the variance in reading achievement as it did in this study.

Hiebert (1980) concluded that logical reasoning ability, lexical comprehension and home teaching activities are the best predictors of
reading readiness. She noted that the most prevalent home teaching activity was reading to the children. She suggested that results from this study support the theory that the acquisition of oral language and knowledge about print operates on both fronts simultaneously. She conducted the study with a sample of sixty (60) children and their parents who lived in a midwestern city. Children were tested on measures of print awareness, logical reasoning ability, and lexical and grammatical comprehension of oral language. Information about the child's home experiences was obtained by surveying parents about their own reading habits and reading activities which they participated in with their children.

Jansky and deHirsch (1972), in a survey of a large population of kindergarten children, found that the best predictor of success in beginning reading was a combined score from a group of tests, two of which measured language competency (an informal picture naming test to measure oral language fluency, and the Sentence Memory subtest of the Stanford-Binet to measure syntactic maturity). Reading achievement was measured near the end of second grade. Jansky found a .66 correlation between the kindergarten tests and reading achievement. It should be noted that sentence imitation is an excellent measure of linguistic competence.

Another study in which proficiency in oral language is shown to be a good predictor of success in reading was reported by Drake (1975). Several measures of reading readiness were given to 177 kindergarten subjects to include three measures of oral language development. Factor analysis of the tests revealed that ninety percent of the
variance was accounted for by a language dimension while ten percent was residual, dependent upon visual-perceptual and motor performance, combined with chronological age. Two of the language tests, language comprehension and sentence imitation, were found to have the highest loading on the language factor. Drake concluded that there was a significant relationship between selected elements of language competence and reading readiness, but that a follow-up study was necessary to determine if these language variables are related to reading achievement.

Evanechko et al (1974) investigated the relationship between a child's performance in written language and his reading ability. The sample population consisted of 118 fourth grade students from a school in British Columbia. The results of correlation analysis showed that four of the thirteen language measures used were significant predictors of reading achievement. Fluency in language appeared to be the single most important factor for success in reading. The investigators stated "Since language is learned more readily in oral form than written form, the development of fluency and control of syntactic complexity in oral language would seem to be the first step."

Wood (1973) examined the dictated language of beginning readers in relationship to their spontaneous speech and than compared the two forms of speech to the miscues they made when reading. He found that the first graders' spontaneous language is developmentally more mature than the language they dictate for writing. He identified four characteristics of beginning first graders' dictated language as being helpful in predicting the success children will have in reading basal
reading texts. The four characteristics are: (1) percentage of T-units under nine words, (2) mean number of words per T-unit, (3) number of sentence-combining transformations per T-unit, and (4) type/token ratio. "T-unit" is a unit of measurement which is used in measuring oral language proficiency and could be defined as one complete utterance. A T-unit could thus be a word, phrase, or sentence.

In a study with eighty-six (86) Montreal inner-city children, Farrell (1973) found that four language measures predicted reading proficiency at a significant level. Regression coefficients ranged from .70 to .82. The Northwestern Syntax Screening Test was the strongest predictor in all cases. Findings favored structured tests over free speech samples as better predictors.

Compton (1972) in a study with 140 children from twenty-three (23) first grade classrooms in Virginia found significant differences between the verbal group and the nonverbal group in reading achievement, in vocabulary, and in comprehension. Compton commented that the findings of this study support the idea that a child's ability to express his ideas verbally is a fairly good indicator of his success in learning to read. In a study with forty-one (41) first grade children from New Jersey, Gaswind (1982) found a significant correlation (r= .55) between their language ability and reading achievement.

Many studies are focused on the phonological, syntactic and lexical aspects of language. Morphology was emphasized in a study with 145 first and second grade students from a suburb in North Virginia. The results showed that there was a significant relationship between inflectional performance and reading and that it was
higher at the second grade level (Brittain, 1970). He noted that it should thus be possible to predict reading achievement by the level of morphological development of the child.

The relationship of linguistic awareness and conservation to reading achievement was investigated by Duren (1981) who conducted a study with third grade children. She found that both correlated to reading achievement, but conservation was not as highly correlated to reading achievement as was linguistic awareness. She also found that the affects of linguistic awareness continue well beyond the readiness level.

Even though the majority of studies demonstrates that reading achievement can be predicted by level of oral language proficiency, there are a few which do not. Following are some correlation studies which refute the oral language reading relationship.

In a study with 122 Spanish-surnamed and 75 Black third graders from five different elementary schools in the San Antonio Independent School District participated in a study conducted by Rich (1972). The relationship of the children's reading achievement to their ability to reproduce orally selected phonological, morphological, and syntactical structures was investigated. Correlation between the oral language score and reading achievement varied from moderately low to moderately high. The Teacher Score was the only variable that made a significant independent contribution. It should be noted that an inappropriate instrument was used to measure these children's language ability. The oral language measure, The Gloria and David Beginning English Series No. 20, Test 6, is not difficult enough to use with children who were
this old. This is why, even though English might be a second language or a second dialect for these children, they all scored quite high with very little variability among the scores.

Hopkins (1976) investigated the relationship of 10 oral language measures of proficiency of 100 first grade children to their reading achievement at the end of the year. The children were all from white middle-class homes in a small city. She found statistically significant, but very low correlations between reading comprehension and selected oral language measures. Five stepwise multiple regression analyses showed that average utterance length and number of words in garbles were the only two predictor variables which were at all significant. She did a follow up study (1977) with these same children when they were in the third grade. The ten oral language measures predicted reading achievement somewhat better in the third grade than in the first grade. The average utterance length was again the best single predictor of reading achievement. Again, this study was done with white middle-class children and so, as should be expected, there was very little variability in their oral language scores.

Bougere (1968), using a random sample of 60 first grade students from a South Chicago suburb, compared the predictive value of the results on the Metropolitan Readiness Test (MRT) versus the results gained from analyzing the language samples of interviews. She stated that the MRT was the best predictor of reading achievement in the first grade. However, she suggested that the predictive value of the MRT could be significantly increased by adding certain language measures. The results of this study are not surprising because the
MRT is designed to measure those skills which are important prerequisites for learning what is taught in the first grade. Also, data gathered from an interview situation yield a very poor sample of linguistic competency.

In a similar study involving 77 children from middle-class families in a small city in Ohio, Sudak (1978) found language as measured by a test of auditory comprehension of language (designed to test vocabulary, syntax, and morphology) to be an unreliable predictor of reading achievement. Its predictive capacity was exceeded by both the standard reading readiness measures and the intelligence test. Once again this study was with white-middle class children.

One of the questions which Martin (1955) attempted to answer was how oral language relates to success in reading. Other questions which he addressed were: (1) Are motor abilities a factor in the development of language arts abilities? (2) Are children's drawings important in evaluating language arts abilities? (3) Are there developmental interrelationships among the language arts factors - oral language, reading, drawings, writing, and spelling? Initial data were collected on 240 first-grade children of comparable socioeconomic (white middle-class) backgrounds from three elementary school in Austin, Texas. However, data from only 100 children were used in this study because complete data were available on only these children at the end of the second year for the follow up study which is reported below. The relationship of the oral language, as was used informally by these children, to reading readiness at the beginning and reading achievement at the end of the first grade was virtually negligible.
Only one oral language measure (the number of different words used) showed a low, positive relationship. They suggested that evidence in this study seemed to indicate that at the first grade level, growth in each language variable followed an individual developmental pattern and was unrelated to other variables. This is very likely to be true especially with white middle-class children who were the subjects of their study. The same 100 children for whom the results are given above were tested again at the end of second grade. A negligible relationship was still found between reading and two measures of oral language (total length of response and the average length of sentences) which seems to indicate that learning to read has little or no dependence upon oral language as tested in children's show-and-tell situations. This study showed that despite some similarities, each child's pattern of language development seemed to be unique. Note that Martin and Winter are not referring to oral language development specifically but to development in the entire language arts as a whole. Martin also reported that there generally was steady progress in each language area through the two years. The quality of these first and second grade children's development in language seemed to result from the action and interaction of many factors within themselves and their environment. The researchers hope to dispel educational myths such as the following with their finding. "For example, many persons assume that the first grader who comes to school knowing how to write his full name from memory, or who is able to speak fluently, is certain to be successful in every phase of learning." Martin used "show-and-tell" situations to collect the speech samples which, as does the interview
situation, yield poor examples of children's speech. In addition, they only measured for fluency which ordinarily has a low correlation with reading achievement.

A random sample, stratified by building, of 351 first-grade boys in the Bloomington, Minnesota, Public Schools was taken of which 305 were subjects of a study conducted by Cordes (1965). Percent of success on each of the five types of abilities on the Berko Morphology Test was determined for each reading achievement group. Cordes found that the language tests used did differentiate some, but not to any marked degree, among these students and that they were not highly related to reading success. However, a significant mean difference was found between the language test and the two intelligence variables. The best predictor variables in every case were intelligence and chronological age in that order. The results would probably have been more meaningful if the researchers had stratified the sample by socio-economic status rather than by building.

Shepherd (1973) conducted a study to determine whether the syntactical structure of the oral language of two groups of kindergarten children (one group Black and the other Caucasian) from inner-city schools was an accurate predictor of their reading readiness. The listening subtest of a standardized achievement test was not found to be as statistically significant as the numbers subtest in relationship to the oral language factors studied. Shepherd did not find a significant difference between the Black and Caucasian children in their oral language. He adds, "Some evidence of language immaturity for the Black children was found but this was considered as a need for further
research and not crucial to this investigation." This statement is quite perplexing since it appeared that this was his question. It is evidence of poor methodology to use only one instrument to attempt to measure language competency, especially if that instrument is the listening subtest of an achievement test.

In a study with 60 first graders from two socioeconomic levels, Mahaffey (1975) found no statistically significant relationships between three oral language measures and two reading achievement measures for the total group. A surprising significant negative correlation was found between oral fluency and reading comprehension for the middle-class socioeconomic group. He recommended that other measures of oral language competency be used, that similar investigations should be extended over several grades for longer periods of time, and that experimental rather than correlational studies be made. It is not as surprising that he found a negative correlation for the middle-class group as it is that he did not find a correlation between oral language and reading for the low-SES group. However, it should be noted that Mahaffey also used only fluency as a measure of oral language competency which is possibly the reason why he did not find a significant correlation.

The relationship between the oral language fluency of entering first grade children from upper, middle, and lower SES families and their success in learning to read at the end of the school year was examined by Moe and Rush (1977). Oral language samples were collected through individual semi-structured interviews and spontaneous situations. The researchers found that the means of all the oral language
measures descended in order from upper to middle to lower SES groups. Thus, analysis of variance by SES group yielded significant differences among most of the oral language variables. However, results of the regression analysis where knowledge of letter names was not included as a predictor variable were generally low. The highest R square was .44 with the upper SES group with the four best oral language predictor variables. Unfortunately, Moe and Rush also used only fluency as a predictor variable of reading achievement. This particular aspect of language proficiency, namely fluency, for some reason seems to have very little relationship to reading achievement.

Studies which differentiate between good and poor readers.

Deficit oral language abilities seem to be an underlying problem of poor readers. The following studies demonstrate this to be true.

Vogel (1974) even found that the underlying problem with dyslexic children is a weakness in language ability. In comparing the syntactic abilities of normal and dyslexic children she found the difference between the two groups was significant at the .001 level of significance (F=4.849). She concluded, "Dyslexic children with reading comprehension difficulties are deficient in oral syntax." Her subjects were Caucasian second grade boys who were similar in all respects except in reading ability and the discovered differences in oral language abilities. They were similar in mental, sensory, and emotional functioning, and had had the same educational opportunities.

The results of a study conducted by Schulte (1967) with below average and average second grade readers showed the better readers to
be consistently superior on three of the four oral language measures which she used. Her findings indicate that the placement, type, and fillers of subordination may be more important than a general measure of subordination in studying children's language. In searching for a reason for the differences in oral language abilities of children who were equated for IQ and social class background, she concluded that even though they shared a similar background of experience, it certainly was not the same and thus experience and maturation could be interacting to produce oral language differences.

In a study with children at the second grade reading level, Fry (1967) found that the below average readers used more contractions, violated subject-verb agreement in number more often, used more nominal compounds, and used "existence" type sentences (e.g. There is a boat) more often; whereas, the above average readers used more conversation in their stories, used or moved more time adverbials, used more compound predicates, used a greater total number of transformations and used more T-rules per communication unit. This study illustrates that the poor achievers were little past the labelling stage in their oral language development.

Sixty students were selected from a screened population to form two matched groups of high achievers and low achievers in silent reading. Raulin (1962) found the high achievers in reading to be significantly superior in their oral vocabulary in the gross number of words, the total number of different words, and the total different words in the 3000 and over category which they used in a sample of their speech.
Results of a study by Alvermann (1981) showed that 60 disabled readers differed significantly from Carol Chomsky's average readers in the number of syntactic structures comprehended and the number of subjects at each of five linguistic stages which Chomsky identified for six to 10 year olds.

Calvert (1972) found a relationship between measures of syntactic maturity in oral language and reading comprehension scores. Thirty-two fifth and sixth graders enrolled in schools from Harnett County, North Carolina, were grouped as reader achievers or underachievers. Narrative language samples were collected from the students by recording their responses to a picture shown to them. From analyzing audio-taped language responses, Calvert found that oral language of achievers was significantly more complex than underachievers when a composite language measure was used for evaluation.

Two studies were reported by Ryan (1977) which dealt with the relationship between various aspects of linguistic awareness and reading ability. In the first study a comparison was made between two sample groups of twenty first and second graders from a Midwestern parochial school. Performance on linguistic awareness measures for ten children who scored above the median on the Slosson Oral Reading Test was compared with the ten who scored below the median. Twenty-two third and fourth grade remedial readers from a Midwestern public school were the subjects of the other study. In both studies performance on all but one linguistic task reflected the advantage of better readers over poorer readers in linguistic awareness and competency.
Keith (1981) compared the miscues and oral language proficiency of high and low ability readers. The results indicated that there was a statistically significant difference between high ability readers and low ability readers in discriminating between grammatical and ungrammatical sentences. The proportion of syntactic/semantic errors on the oral reading measure was significantly higher for low ability readers. The findings suggested that language skills relating to these elements contributed to the high ability readers' superior performance.

Forty-four second grade students participated in a study in which Rounds (1979) examined the relationship between field dependence/indpendence, grammatical awareness, reading ability, and training in grammatical awareness. The results showed that given the same level of cognitive development, children with more grammatical awareness were better readers. Cognitive style was a factor in the acquisition of grammatical awareness with field independent children having higher levels of grammatical awareness.

Children who had high scores in oral language made "miscues" that were grammatically and semantically acceptable which resulted in better comprehension says Chambers (1977) as a result of studying the development of oral language and beginning reading of eighteen (18) first grade children. She found that the test in which children were asked to repeat sentences verbatim was the best measure of children's control over their language.

In a study concerned with the correlation between word identification, selected aspects of oral language, short-term memory, and
other selected factors of first, second, and third graders, Crowell (1976) found: (1) sentence comprehension and sentence repetition (oral language measures) explained a significant proportion of word identification at all grade levels, (2) within each grade, the highest third in word identification differed from the lower two-thirds in most oral language variables. Auditory and visual memory means did not differ. Note, word identification and not reading comprehension was measured which illustrates that those children who scored higher in word identification were probably also better readers.

The following study was the only one found in the research literature which showed there was no difference in the language ability between good and poor readers. Twenty fourth grade boys were grouped into average achieving readers if they scored within the fifth stanine and low achieving readers if they scored within the first two stanines. Meisel (1975) found the only significant difference between the low and average readers was in the mean length of the T-units. Therefore, no conclusive statement was made to support the purported relationship between oral language and reading achievement. This study compared "average" not "good" readers with poor readers. Children who scored within the fifth stanine were likely to be marginal, not just average.

Experimental studies which illustrate the effects of intervention. The next question which needs to be asked is whether special instructional programs can enhance language development and in turn promote success in learning to read. Very few studies have been done to investigate this question.
Cummings (1981) compared two groups of first grade students who started the year four months below national norms. The instructional method for the control group was a basal reader and for the experimental group an integrated language arts approach was used. At the end of the year the experimental group's average grade level was 2.6 while the control group's average grade level was 1.5.

Bradley (1971) compared first grade children in a school in Louisiana who were from low socioeconomic Black families. An experimental group was formed out of this group which was placed under a special oral language development program for the two year period. Results showed that the students scored significantly higher in tests of oral language after the two year period than those in the control group.

Perry (1975) investigated the relationship of a home literacy environment and the reading achievement of low socioeconomic disabled readers. The experimental group of students in grades four through six received four selected youth periodicals and related teaching materials prepared by the examiner each month for eight months and the parents were asked to encourage their children to read and discuss the magazines and other materials provided. The findings suggested that low socioeconomic disabled readers can benefit from a program similar to the one provided for the experimental group. It was also suggested that direct parental involvement in student learning experiences can result in improved student achievement.
Hughes (1975) found that those children who had practiced sentence-combining for two hours a week for thirteen weeks made significant gains over the control group in reading comprehension. The gains were the greatest for those who were initially at the lower range in reading. An interesting sidelight of his study and relevant evidence in support of the language/reading relationship was the nearly perfect correlation between syntactic maturity and reading comprehension. Consistently, students who scored in the high level on tests of syntactic maturity also scored at the high level in reading comprehension and so on at each of the three levels.

Summary of and conclusions from the empirical evidence concerning the oral language/reading relationship. One can readily see a decided imbalance in favor of studies which support versus studies which refute the oral language/reading relationship. After reviewing the research literature it is not possible to agree with Groff’s (1977) statement that "there is ample empirical evidence to suggest this relationship. Unfortunately there is ample research to question it."

Some general remarks can be made about the studies which do not support the relationship:

1. Studies with white middle-class children will usually not show a positive correlation between oral language proficiency and reading. Mahaffey (1975) even found a negative correlation. This is not surprising because these children typically come from homes where they have had an opportunity to learn to speak a "written dialect," a dialect similar to the language used in readers. Thus, when these
children show a variance in their in reading achievement it is more often due to other causes.

(2) Language is a complex and complicated system in which its four subsystems operate simultaneously. To even approach an accurate measurement of language ability it is important that at least three of these aspects of oral language ability be measured and this cannot be done with one instrument. Language samples taken from an interview situation or "show and tell" presentations offer very poor data. A measure of fluency by itself can be deceiving and not necessarily a good indicator of language proficiency. A quiet, contemplative child does not show off his linguistic competence. Instruments which measure the knowledge and use of complex and elaborated syntactical structures are probably the most valid measurements of language proficiency. As mentioned in several of the studies above, sentence imitation is one of the most accurate instruments to measure linguistic competency and incidently very easy to administer.

(3) Some of the studies were obviously not carefully controlled. In studying language factors socioeconomic status must be considered. There is no doubt that language ability will vary with SES as was found even in the Moe and Rush (1977) study. But why they found the highest correlation between oral language and reading for the upper SES group in their study remains a mystery. The only explanation that can be offered is that fluency is a more important factor of language proficiency among middle-class children than it is among low-SES children.
(4) Cognitive development and language development are so interrelated that one could use instruments which measure them interchangeably, especially IQ tests which measure verbal intelligence. In fact, one of the subtests of the Stanford-Binet is a sentence imitation test. It is no wonder that when a test of IQ is used it overrides the oral language measures.

Thus, for one or another of the above reasons, all of the above studies which refute the oral language relationship can be eliminated as lending real support to the hypothesis that level of oral language proficiency of low-SES children does not affect reading achievement. With such overwhelming support in favor of the oral language/relationship, one cannot agree with Karlin (1971) that, "the findings of research on the relative importance of oral language development on beginning reading are far from clear-cut; thus, it follows from this that oral language ability by itself does not seem to be a good discriminator of potential and actual reading achievement." Rather, one must agree with Wilkinson (1968) who after reviewing British research commented, "Oracy is the basis of literacy. There is little point in trying to teach children to read if they lack certain basic skills. We need remedial oracy rather than remedial reading classes" (p.114).

Conclusions

The following conclusions were reached as a result of a thorough and detailed investigation of the relationship of reading to language:
(1) From an extensive review of the research literature we can conclude that for low-SES children there is a strong positive correlation between oral language proficiency and reading achievement.

(2) If we accept the premise that written language and oral language are parallel and reciprocal linguistic processes, then, we can conclude that reading can be defined as constructing meaning from a visual representation of the surface structure of language, similar in every respect to comprehending speech in which meaning is constructed from an auditory representation of the same underlying language structure.

(3) If we accept the above conclusion as true, then, we can also conclude that learning to read is similar to learning to comprehend speech, except for the fact that in most cases the person learning to read already knows the language. Therefore, if the person learning to read has linguistic competence in the language (knows the language), that person not only, only needs to break the alternate visual code but can also use his knowledge of the language to help break the visual code.

(4) If we then accept the premise that the strategies which are used to break the language code, spoken or written, are innate and beyond present comprehension, then, we can conclude that given the opportunity, motivation and a functional need, children will learn to read as naturally as they learned to speak. Thus, the reading teacher's role changes from teacher to motivator and facilitator in helping children learn to read.
(5) If we accept the premise that even though oral and written language share the same basic linguistic structure, they differ in many respects. (The difference of present concern is that through cultural evolution written language has become more refined, elaborated, explicit, and situation independent.) And if we accept the premise that the difference of present concern has come about because of cultural intervention, that even though the potential for the change was inherent in language itself, the change was not, then, we can conclude that children's ability to comprehend written language will vary depending on their experience with explicit, situation-independent language.

Therefore, it seems reasonable that those children who do not have adequate competency in situation-independent language, the language of books, will have the most difficulty learning to read with comprehension under a phonics approach for the following reason. Since they do not have the language proficiency in situation-independent language necessary to use it as a facilitator in breaking the visual code they rely heavily on knowledge of sound-to-symbol correspondence rules. Thus, they are easily deceived into believing that decoding symbol to sound is reading, nothing more. The fact that many teachers also believe the child is reading because all the physical manifestations are there puts the cycle into a vicious circle. Thus, by using the phonics approach to teaching reading, the initial handicap of language inadequacy in learning to read is confounded.

This brings us to the next question. What are the differences in the experiential background of preschool children that cause this
variance in language proficiency? As has been indicated by a number of studies, children who have this language deficiency (unfamiliar with situation-independent language) come from homes of low socioeconomic status. What is it about being poor that could possibly cause this language deficiency?

The Language/Reading Relationship and Socioeconomic Status

Basil Bernstein has been called upon to shed some light on the problem of educating children who come from homes of low-SES status. The primary reason why educating these children has remained a problem for so long is as Bernstein (1961) said, "We have failed to think through systematically the relationship between the pupil's background and the educational measures appropriate to successful learning" (p. 163). Most importantly, through his work, he has identified what it is in the social environment of low-SES children that prohibits them from developing the "situation-independent" language (Bruner, 1984) or, as Cummins (1981) terms it, "cognitive/academic language proficiency" to successfully learn how to read.

Then through case studies we will go into the homes of middle-class and low-SES children to compare the differences in their experiential background to find what exactly it is in the social environment of middle class children that promotes the development of "cognitive/academic language proficiency" that is lacking in the social environment of low-SES children.
Bernstein (1970) argues that "the genes of social class may well be carried less through a genetic code but far more through a communication code that a social class itself promotes" (p. 29). He contends that "different forms of social relation can generate very different speech systems or linguistic codes" by regulating "what is said, when it is said, and how it is said" (p. 29, 30). As an illustrative example, he asks that the speech of an army combat unit, regulated by two different social situations, be compared to note how different the speech they would use when together on a maneuver is from the speech they would use when talking to the chaplain.

Bernstein (1961) contends that "the forms of spoken language mark out what is relevant affectively, cognitively and socially and experience is transformed by that which is made relevant" (p. 169). From infancy what is made relevant by the speech of the lower working class is so different that it is almost antithetical to what is made relevant by the speech of the middle class. Thus, the experience of these children as made relevant by the language form of the social group follows very different paths. "The type of learning, the conditions of learning and the dimensions of relevance initiated and sustained by the spoken language are completely different" (1961:169). He even goes so far as to say that as a result children from these social classes "have learned two different forms of spoken language, the only thing they have in common is that the words are English" (p. 169). He laments that it is unfortunate for the children from the lower working class "that this communication code directs the child to
orders of learning and relevance that are not in harmony with those required by the school" (1970:29). As a result, these children score low on verbal IQ tests, have difficulty with abstract concepts, and have difficulty learning to read. Bernstein reasons that "their general inability to profit from the school . . . may result from the limitations of a restricted [linguistic] code" (p. 37).

The path of development toward a specific linguistic code begins with the social interaction between mother and child. In the social relationship between the lower working-class mother and her child "little pressure is placed upon the child to verbalize in a way which signals and symbolizes his unique experience" (1961:168). This pattern continues for the lower working-class child; whereas, in the middle-class mother/child relationship "the shift of emphasis from non-verbal signals . . . occurs earlier and the pattern of the verbal signals is far more elaborate" (p. 168). The mother, in the middle-class relationship, provides motivation for the child to talk by exerting a pressure to verbalize his feelings and intentions. The mother also facilitates the process by providing a model of the speech forms she expects the child to eventually use. Thus, "for the middle-class child there is a progressive development toward verbalizing and making explicit, subjective intent, whilst this is not the case for the working-class child" (p. 168). Bernstein emphasizes that "this is not necessarily the result of a deficiency of intelligence but comes about as a consequence of the social relationship acting through the linguistic medium" (p. 168).
It is also a characteristic of the linguistic code of the lower working class to inhibit the elaboration of speech by directing attention to concrete, here-and-now referents. Bernstein maintains that this inhibiting function of the speech of those of low-SES produces "a categoric sentence . . . in which the reason and conclusion are confounded" (p. 172). Bernstein (1961:172) illustrates this with the following example of a conversation between a mother and her child who are on a bus. The child is sitting on her mother's lap.

Mother: Hold on tight.
Child: Why?
Mother: Hold on tight.
Child: Why?
Mother: You'll fall.
Child: Why?
Mother: I told you to hold on tight didn't I?

Bernstein then compares this conversation with an example of a conversation that might take place between a middle class mother and child in the same situation.

Mother: Hold on tightly, darling.
Child: Why?
Mother: If you don't you will be thrown forward and you'll fall.
Child: Why?
Mother: Because if the bus suddenly stops you'll jerk forward onto the seat in front.
Child: Why?
Mother: Now darling, hold on tightly and don't make such a fuss.

Thus, "the lower working-class child learns a form of language which symbolizes the normative arrangements of a local group rather than the individuated experience of each of its members. The form of the communication reinforces the pattern of social relationships but fails to induce in the child a need to create speech which uniquely fits his experience" (1967:169).
Bernstein refers to the linguistic code of the lower working class as a "restricted code" and the linguistic code of the middle class as an "elaborated code." He defines the restricted code as a form of language "which can be marked off from other forms by the rigidity of its syntax and the restricted use of formal possibilities for verbal organization." It is characterized by a "relatively condensed speech in which certain meanings are restricted and the possibility of elaboration reduced" (1961:169). Because of the limited number of possible alternatives in syntactical organization and class of content, speech in a restricted code is highly predictable; whereas, with the elaborated code the speaker can choose from a wide range of syntactic alternatives which makes prediction difficult. It is this creative use of language in the elaborated code which generates an indefinite number of alternatives to sentence construction that makes it possible to clarify meaning and make it explicit. In its pure form, the lexicon of the restricted code is also entirely predictable as, for example, in ritualistic ceremonies. Thus, the syntactic organization, and to a lesser extent the lexicon, is flexible with the elaborated code and rigid with the restricted code. He points out that the limiting nature of the restricted code is not due to the size of the vocabulary; rather, "it is a matter of the means available for the organization of meaning and these means are a function of a special type of social relationship." Thus, the size of the vocabulary "is a symptom but not a cause of the speech form." However, he points out that people using the restricted code do have tacit knowledge of the basic underlying grammatical system of the language. It does not mean
that they are nonverbal or that they are "linguistically deprived." He cautions, "Lest the restricted code be misinterpreted as simply poor language, we must be aware that it contains a vast potential of meanings. It is a form of speech which symbolizes a communally based culture. It carries its own aesthetic. It should not be disvalued" (p. 37).

An elaborated code will facilitate making intentions verbally explicit but requires complex planning. However, with a restricted code, the speaker must rely on extralingual channels to make his intentions verbally explicit. With the elaborated code meanings are more universal; whereas, with the restricted code meanings tend to be particularistic. The restricted code will verbally emphasize "the communal rather than the individual, the concrete rather than the abstract, the substance rather than the elaboration of processes, the here-and-now rather than exploration of motives and intentions, and positional [status] rather than personalized forms of social control" (p. 29). The elaborated code is person-oriented; it will arise whenever the culture emphasizes the "I" over the "we." It will also arise when the other person's intentions cannot be taken for granted; for, the restricted code is based on shared intentions and assumptions. The use of the restricted code by couples who have been married for a long time illustrates this.

Bernstein notes that "middle-class children will have access to both forms which will be used according to the social context" (p. 170). However, most lower working class children do not have a choice.
They grow up in a society "which is limited to a form of spoken language in which complex verbal procedures are made irrelevant by the system of non-verbal, closely shared, identifications which serve as a backcloth to the speech" (p. 168). They have only the restricted code at their disposal. Bernstein (1961:167,168) then asks what happens to these children.

What is the effect on behaviour if this form of spoken language is the only one which individuals have at their disposal? What are the implications if individuals are unused to signalling meaning unless it is against a background of common and closely held identification whose nature has rarely, if ever, been verbally elaborated and made explicit? What is the result of learning to operate with restricted speech structures where the burden of meaning may lie not so much in what is said, but how it is said, where language is used not to signal and symbolize, fairly explicitly, individual separateness and difference but to increase consensus? . . . What does it mean, in terms of verbal conceptual growth, if speech is only, or mainly, used in circumstances where the intent of the other person may be taken for granted and no pressure induces the need to create speech specially to fit the needs of those outside the group who do not share its experience? Where the number of situations which serve as stimuli for verbalization is restricted by the conditions and form of the social relationship?

In response to Bernstein's question, just one of the things that happens to these children is that many of them do not learn to read. The National Commission on Excellence in Education (1983) reported that "some 23 million American adults are functionally illiterate by the simplest tests of everyday reading, writing, and comprehension" (p. 8). And most of the children who do learn to read never read once outside the school door. Thus, they never learn to speak the written dialect which they, in turn, do not and cannot transmit to their children. And so, individually and as a subcultural group, language and the associated cognitive processes such as abstract thinking and
logical reasoning fossilize at a preliterate stage of development. As a whole the lower working class have not made the transition from "utterance to text." If only educators would recognize this, this vicious cycle could so easily be broken. In our "assumptional blindness" we continue to teach these children as if they had the critical prerequisite in learning to read. We assume, just because they can talk, that they are at the same stage or level of language proficiency as middle class children. In language development, we are expecting these children to jump from before the time of the Greeks to the present when they walk from home to school.

**Comparison of Experiential Backgrounds**

At this point it would be very easy to draw a false conclusion by making the mistake of over generalizing. It has been shown (Hinckley (1979) that a majority of the children who have difficulty learning to read are from low-SES homes; however, a large majority of low-SES children do learn how to read. In fact, in her study with early readers Durkin (1958) found that over fifty (50) percent of the children were from low-SES homes and only seven (7) of the forty-nine (49) children were from professional middle-class homes. Her study is very valuable because it provides a clue to both the discovery of what is lacking in the experiential background of children who have difficulty learning to read and what to do about it. However, a close examination of the social environment of both middle-class homes and low-SES homes is necessary to find out precisely what it is that is present in the experiential background of those who do not have a language deficiency.
and absent in the experiential background of those who do have the language deficiency. (By "language deficiency" this author means a lack of language competency because the language is still at the preliterate stage of development. This does not mean that there is a deficiency in basic interpersonal communication skills or situation-dependent language but that there is a deficiency in cognitive/academic language ability and situation-independent language.) In this way it can be determined what is causing the deficiency and consequently what to do about it in precisely the same way the medical profession found out how to prevent scurvy.

Experiential background of middle-class children. An ethnographic study of the literacy events in the homes of three different cultural groups by Schieffelin and Cochran-Smith (1984) provides a close-up picture of middle-class homes as the parents interact with their children in preliteracy activities. Of the three groups they observed only the group consisting of college-educated, professional, school-oriented parents and their preschool-aged children from a Philadelphia suburb is discussed here. This particular study was chosen to illustrate that it is not necessary to be concerned with all minority language children, only those who also come from low-SES homes. Families of varied ethnic origins were represented in the community which Schieffelin and Cochran-Smith observed. They state: "Their cultural and ethnic backgrounds included white Eastern and Western European, Jewish, Indian, Filipino, Egyptian, English, and Black
American. Two of the children in the group were bilingual, and one was monolingual in Arabic" (p. 5).

The researchers noted that parents in this Philadelphia suburb took literacy for granted and thus "assumed that their children's early print interest emerged 'naturally' as part of their normal, routine development" (p. 5). Of particular interest, they noted that "without exception, the families in this community read stories to their children frequently and regularly. In this community bedtime reading was as much a taken-for-granted part of child raising as attending to physical needs" (p. 10) (underlining added). The researchers noted, however, that the parents never simply read to their children. The story-book reading was accompanied by a great deal of verbal interaction in which the parents acted as mediator between the children and the text. In this way the language of the book was given a context. The researchers commented, "Hence, in this community story-reading was a special literacy event that provided a transition between the language strategies used to make sense of oral face-to-face communication and the language strategies used to make sense of the decontextualized print of story-book texts" (p. 10).

They observed that the children were constantly surrounded by books, literacy-related items, and writing materials. The parents encouraged their children to read the books independently. However, they never pushed their children to learn the alphabet or practice writing the letters. The children took a keen interest in printing which they did more or less independently and for quite a long period of time before they learned the "mechanical skills of decoding and encoding" (p. 9).
The researchers commented that what was particularly noticeable from their data was "an image of the child as constant learner, sorting out the rules for interpreting and using print effectively by organizing and using it for his or her own social purposes" (p. 9). They make the following summary statement in regard to all three of the cultural groups which they observed: "One theme that emerges from all three of our study examples is that, for an individual to become literate, literacy must be functional, relevant, and meaningful for individuals and the society in which they live" (p. 22).

Several other studies paint a very similar picture of preliteracy activity in middle class homes to include: Snow and Ferguson (1977); Gleason and Weintraub (1978); Snow (1979), Scollon and Scollon (1981; and Heath (1982), (1983). As a result of her extensive work in this area, Heath (1984) makes the following pertinent statement: "Studies of mainstream middle-class children at home and of literacy activities in classrooms have shown that what is being transmitted in preschool book-reading is much more than how to read and write. The children learn a set of master patterns of language use, which serves as a basis for the subsequent acquisition of other patterns of language and thought" (p. 52). She also related an insightful observation which Bourdieu, a sociologist, made. Heath (1984) commented,

All these studies provide support for Bourdieu's notion that the transmission of cultural capital by the middle-class involves much more than the provision of books and leisure time for book-reading; it implies also a host of sustained institutional and routine mechanisms that work together harmoniously to integrate children from such homes into learning with literacy (p. 52).
Experiential background of low-SES children. The study by Shirley Heath and Charlene Thomas (1984) provides a close-up picture of a typical low-SES home and at the same time shows what is likely to happen when books are introduced into such homes and book-reading is encouraged. Heath notes that from the standpoint of an anthropologist this was very similar to observing the behavioral changes which resulted from the introduction of the fork in Europe in the fourteenth century.

As might have been noticed, the subject of this study was also the co-author of the published paper of the study. Charlene Thomas, referred to as "T" as a subject of the study, was an unemployed, high school dropout. She is Black, the mother of two preschool children, and lived in Trackton. Heath gives some background information about the community in which T lived. "Trackton parents did not exhibit the routines and patterns of talking, reading, and writing with their young children that are described in the research literature on mainstream school-oriented families" (1984:53). She noted that children do enter school with an awareness of print and can read public print such as the names of cars and motorcycles, and brand names of products. An interesting observation that Heath made was that the children can also read the slogans on T-shirts. And of special significance, she noted that even though all the adults in Trackton could read and write, they did not read for themselves, or to their children. Nor did they tutor or encourage their children to read or write. She saw no special children's books in the homes.
In this interesting and enlightening case study, Shirley Heath "looked over T's shoulder to discover what happened when she initiated, with minimal guidance, a new form of parent-child interaction (book-reading) with De, her preschool child" (p. 70).

The researchers noted that T bought a set of Walt Disney books for De and put them away on a high shelf in the bedroom. She did not report having read to him from them. The researchers gave her an alphabet book and several children's books to read to De. However, she at first never read these either; rather, a great deal of T's early effort was concentrated on deliberately "teaching" her young son to talk. It appears that she was using the concept of "teaching" as was modeled for her during her years at school to consciously instruct her child and possibly, indirectly to fulfill what she perceived was expected of her by the researchers. Heath comments,

In several sessions, T said she held one of the children's books in her lap, but on the tape she cannot be heard talking about the book; instead she asked De to name objects in the room and to call members of the family. She named body parts for him, and during this naming, she put her face very close to his. For this and all other labeling, she neither held up nor pointed to the objects or people being named (p.58).

It was also noted that when T read the alphabet book she would begin by focusing on the objects in the alphabet book and saying, "Say__." She soon shifted to having De "say" the names of objects and people. T told the researchers that she had not started reading to De yet because he would not sit still long enough. Soon all the members of the family joined in "teaching" De to parrot words. No one ever asked De such questions as "What's this?" Heath noted that T followed the
same pattern of interaction with her son as the other parents in Trackton did with their children. "In Trackton, adults did not talk to infants or young children as though they expected them to be communicative partners, although they talked about children in their presence and surrounded them with verbal and nonverbal communication" (p. 59). Neither did adults try to interpret or expand the children's utterances. Of special note in this case study was that during the initial weeks of trying to read with Be, T and other family members seemed to equate reading with saying the names of things.

But then it happened. T actually read to De who at the time was not quite two years old. Heath gives a detailed description of what was probably T's first successful attempt at actually reading a story-book to De. T started the session with her usual desire to control the attention of her son and her direct requests for repetition of words. However, once she started reading the story, "the child listened and watched the book, saying nothing until his mother had finished the story" (p. 63). And then a very interesting thing happened. T started to leave the room because the baby started crying. In order to detain her, De quickly pointed to a picture in the book and said, "What's this?" This is highly significant for two reasons. One, the experience had been meaningful and thus pleasurable which was indicated by De's not wanting it to end. Two, he had spontaneously used language for a purpose - a very clever one at that. No one had taught him to say "What's this?" or when to say it. (One wonders when or if he had even heard the sentence.) This episode was undoubtedly a turning point in acquiring literacy for both T and her son.
They had discovered reading was language, not a collection of words. They discovered that reading could be meaningful and pleasurable. Evidently, T in her years at school had gotten the wrong impression of what reading was all about.

Exciting as the case study with T and De may be, Heath cautions, "T may be a unique individual, and the behaviors that occurred simultaneously with book-reading for her may not follow for other individuals in the same cultural conditions" (p. 70). She suggests that more studies which closely examine fine details of behaviors connected with literacy events are needed. She concludes, "Only with more of such 'close readings' of human behavior will we be able to speak with confidence about ways in which uses of oral and written language are related and to identify prior conditions and consequences of literacy" (p. 71).

From the work of Heath (1980) it is known that it is not that the adults of low-SES are illiterate or that print cannot be found in their homes. Literacy is not absent in these working-class families' homes. However, there is a vast difference in the quality and quantity of the book-reading activity. Compare the above description of the Philadelphia suburb community with the following study done by Anderson and Stokes. They (1984) compared the frequency and duration of literacy-related events in the homes of three ethnic groups (Black American, Mexican-American, and Anglo-American) in the metropolitan area of San Diego. They broke the literacy events into the following
categories: daily living, entertainment (to include source, instrumental, and media), school-related activity, religion, general information, work, literacy techniques and skills both adult and child initiated, interpersonal communication, and storybook time. It should be noted what the researchers included in the category of "storybook time." They explain; "Typically the books involved in these events were alphabet books or books that have objects pictured with their corresponding label; such materials contain no story line in the conventional sense" (p. 30). Storybook time as thus described constituted 1.7 percent of the time spent on all literacy activity for all three groups of children. Broken down, this was 4.3 percent of the time for Anglo-American, zero amount of time for the Black-American, and 1.5 percent of the time for Mexican-American.

Comments regarding the importance of reading to children. As noted by Teale (1984) it is generally accepted by researchers, the educational community, and to a large degree by the general public that the practice of reading to young children is beneficial. However, the glaring absence of this practice in the homes of low-SES children has gone relatively unnoticed. Most researchers have been so preoccupied with identifying and examining symptoms and satisfied with finding correlations that they have failed to look for causes. There is obviously something missing in the low-SES children's language diet and it seems very likely that listening to stories and all the activities that surround this literacy event are what is missing.
Not so obvious and not as often thought about is the absence of a rich oral tradition in the majority of low-SES homes. As Smith (1984:147) pointed out, the language of stories in their oral form is just as decontextualized as in the written form and thus provides children with the same experience in situation independent language as being read to. And as Holdaway (1979:56) pointed out, story-telling shares the same features as bed-time story reading. However, with the advent of written literature, compulsory formal education, and television, story-telling has become a dying art in both literate and non-literate societies. What is unfortunate for low-SES children is that, while in middle-class homes story-telling has been replaced by storybook reading, in many low-SES homes telling stories has been replaced by alphabet books. As evidenced by the research of Heath (1982, 1983, 1984), other forms of situation-independent oral language (such as discussions, explanations, descriptions of past or future events) which involve the children in either active dialogue or passive listening are also usually absent in these homes. The first time many of these children come in contact with situation-independent language is when they start to school. And Smith (1984) contends that "the only time many children are likely to meet decontextualized language is during formal instruction" (p. 148). It is argued that these children do not have the necessary experience with situation-independent language, oral or written, to be prepared to independently comprehend decontextualized text.

But the fact still remains, the majority of these children do learn to read. The major problem then is not that they do not know
how to read but that once they know how to read they do not read. As Smith so strongly emphasized, not only to learn to read but also to become a proficient reader one must read. Just as children learn to talk by talking, and learn to walk by walking and swim by swimming, they learn to read by reading. Moreover, the more they practice, the more proficient they become. As the research of Clay (1968) has shown, the reason why practice is so important to become a proficient reader, as it is to become proficient at anything, is that the natural learning strategy of self-correction makes learning a self-improving system. However, as Holdaway (1984) pointed out, an important consideration in natural learning is the strong natural tendency to avoid pain and seek pleasure. Practice is not enjoyable in and of itself; it is the strong desire to become proficient for what is conceived as a good reason that makes practice tolerable. As Bettelheim (1982) said, children will not be motivated to learn to read and to practice reading by telling them that reading is "something of great practical value, important if one wants to get ahead in life" (p. 50). Nor will they be very enthusiastic about learning to read just so that they can read the basal readers and school text books. But rather as both Bettelheim (1982) and Bruner (1984) contend, children must be lured into reading by enticing them with its possibility of opening up new worlds. Children must not only be ready to read but they must be anxious to read.

Thus, reading to children provides two essential preconditions to learning to read. One is that it promotes language development. It can bridge the gap between spoken and written language. The other
which is equally essential is motivation. Children come to realize that reading "is the source of unlimited knowledge and the most moving aesthetic experiences" (Bettelheim, 1982:51). Bettelheim, in his concern for developing the motivation to read, argues that it is the responsibility of the school to provide this motivation if the home does not. He writes,

> So many children have home backgrounds which do not motivate them sufficiently to want to learn to read that it should be the task of the educational system to counteract and compensate for what is missing in the child's home, so far as the wish to become literate is concerned. . . . It is particularly important that these children should not be exposed to books and teaching methods that fail to arouse their interest in and love of reading, and so prevent them from recognizing the great merit of becoming literate (p. 12).

Donaldson (1978) agrees with Bettelheim. She proclaims that for those children who have not had the experience of being read to at home "it is of the highest importance that they should have stories read to them in school, and that these should be chosen for the qualities of the language as well as the merits of the story" (p. 101). Bettelheim contends that if in our educational effort there were less concern on developing reading skills, and more effort on developing the desire to become literate, "then the final result might be that a much larger segment of the adult population would be literate" (p. 21).

Donaldson's (1978) following statement is only too true. "It is universally recognized that when children come to school there is a wide gap between those who are best prepared and those who are least prepared for school learning. The question then is how to close the gap early, for if it is not soon closed it will widen" (p. 98).
is illustrated by studies such as those done by Loban and Chall. Loban (1966) whose thirteen year longitudinal study is reported above observed, "Those who have the advantage of good oral proficiency and who come from favored socio-economic circumstances accelerate their reading ability as their schooling progresses. Those whose social background offers a limited linguistic start in school fall further behind as reading instruction continues." Chall and Jacobs (1983) found that although low-SES children who were below average readers were at grade level in grades two and three, they began to lose ground fast in grade four. Bettelheim (1982) gives an explanation for this by comparing these essentially non-readers with early readers. He contends that while many children who come from "culturally disadvantaged" homes do not become literate even though they acquire the necessary decoding skills for reading, the early readers learn to read without any instruction in decoding skills. The reason is that the early readers "learn to read from texts that fascinate them" while the non-readers spend all of their time "being drilled in skills of decoding and word recognition from texts devoid of meaningful content that are demeaning to the child's intelligence" (p. 9). It follows then, that if children do not have sufficient motivation and opportunity to practice reading they never become proficient, and if they never become proficient reading will not be very enjoyable, and if it is not enjoyable they will only read when they are forced to do so. It is in this vicious circle that many children from low-SES homes get stuck while those children who read and like to read surge ahead.
The secret of it all seems to be to create in children a love of reading. For it is this interest in books which motivates them to learn to read that is the very thing that insures that they will continue to read once they have learned how. And it is this continued reading that will change the direction of their predestined failure. As shown by Carol Chomsky's study (1972), it is through reading that children's oral language will continue to develop. And as shown by the results of the following study it is through recreational reading that they will become better achievers not only in reading but in general academic achievement, even affecting a seemingly unrelated subject such as math. As one part of the largest study to date on compensatory education, the Study of the Sustaining Effects of Compensatory Education on Basic Skills, Hinckley et al (1979) examined the effect of home environment on academic achievement. They found the child's out-of-school reading behavior to be the most strongly related to reading achievement. What is even more surprising is that out-of-school reading behavior had a fairly strong relationship to math achievement while homework activity was negatively related to both reading and math achievement. Out-of-school reading behavior was measured in terms of having more than thirty (30) books that the child can read in the home, subscribing to newspapers and magazines, a stated preference for storybooks over school or comic books, bringing home more than five library books every two weeks, and spending at least one hour per day in recreational reading.
Finally, it is through this continued interest in reading that these children will grow up to transmit a love of reading to their children and so break the vicious cycle that condemns them to poverty.

Conclusions

The following conclusions were made as a result of an investigation of the interrelationship between socioeconomic status and the language/reading relationship.

(1) If we accept the premise that, generally speaking, the language of low-SES children is at a pre-literate stage of development when they start learning to read, if we accept the premise that, generally speaking, the language of middle-class children is at a cognitive/academic stage of language proficiency when they start learning to read, if we accept the premise that storybook reading promotes the development of language from the preliterate level to the cognitive/academic level, and if we accept as fact storybook reading is a common practice in middle-class homes and relatively absent in low-SES homes, then, we can conclude that lack of the storybook reading experience is a cause of the inadequately developed language of many children from homes of low-SES. Inadequate language development which is due to this cause can be prevented by insuring that children from low-SES homes have had the storybook reading experience either at home or in pre-school or in school (in the first grade if necessary) before formal reading instruction begins. It can be overcome if formal reading instruction has begun (regardless of when) by insuring that the storybook reading event (or similar experience) is a major and
integral part of the reading program. To follow Smith's (1978:129) advice, if they cannot read, then someone should read to them and for them until they can read.

(2) If we accept the premise that practice is necessary to develop proficiency in reading, and if we accept the premise that there needs to be motivation for sustained practice, and if we accept the premise that the desire to know how to read which is due to an interest in exploring the possible worlds of books can be a strong motivating factor, then, it follows that an interest in books can provide the necessary impetus to become a proficient and life-long reader.

The problem of educating children from low-SES homes is undoubtedly compounded when the language which is used in the home is a language other than English. In the next section, an attempt is made to answer the following questions. Is it possible for these children to overcome the double handicap of being of low-SES and of speaking English as a second language? Why has bilingual education not been effective in educating minority language, low-SES children?

The next section also provides an explanation to the following interesting phenomenon regarding bilingualism. In a national study conducted by the Education Commission of the States (1982), it was found that minority language children from middle-class homes score well above the national average norms in reading achievement even though they score somewhat lower than their monolingual English-speaking counterparts. This finding is supported by the thirteen-year longitudinal study by Loban (1976) which is discussed above. It is
also supported by Baker and deKanter (1983) who stated: "Once socio-economic status has been controlled, the effects of language become negligible, especially for learning" (p. 96). It is understandable that minority language children who come from low-SES homes tend to be low achievers in reading. They have a double handicap. What is perplexing is why minority language children from middle-class homes do not have difficulty learning to read English.

The Language/Reading Relationship and Bilingualism

The education of minority language children has been and continues to be a controversial, socio-political issue in the United States. As was noted, minority language, middle-class children have no difficulty keeping up with their peers even though English is their second language. They seem to succeed equally as well in a regular, traditional education program as in a special program of bilingual education. They could be crossed out as far as this investigation is concerned except that they pose an interesting question. Why does learning via a foreign language, especially learning to read a foreign language, not pose a problem to them? On the other hand, the majority of minority language children from low-SES homes have benefited little from special programs of bilingual education. Extensive and expensive national studies, such as the American Institutes for Research Study (Danoff, 1978) and the Baker/deKanter Report (1981), of bilingual education are of little value in solving the problem because they offer no explanation as to why bilingual education has not been an
effective compensatory education program for minority language children. A solution to the problem which some people propose is to simply discontinue bilingual education on the grounds that it was an unfortunate experiment that did not work. Before such a drastic move is made, all those millions of children who would suffer the consequences at least deserve an explanation of why bilingual education has not helped them. In order to answer why, one must first realize that not all bilingual education programs have been ineffective. Some bilingual programs have been very successful. Thus, the literature was searched in an attempt to find every effective program of bilingual education, not only in the United States but internationally, which had been evaluated and reported. The more significant studies are reviewed here. Then a theoretical explanation of why these programs were effective was needed. James Cummins (1980a, 1981) offers this explanation in a theoretical model of bilingual proficiency and learning. In addition, ineffective programs of bilingual education were analyzed collectively to determine why they were not effective. What characteristics do effective programs of bilingual education have which ineffective programs do not have?

Theoretical Model of Bilingual Proficiency and Learning

Cummins has taken the seemingly paradoxical and contradictory results of research on bilingual education and formulated a theoretical model to account for the diverse evidence. His theory of bilingualism and learning explains why there is such a wide range of variance in the effects of bilingualism and bilingual education on academic
achievement and cognitive development. Through his theory he is able to explain why total immersion programs are effective for some children and not for others. And central to the present investigation his theoretical model of bilingual proficiency and learning explains why the programs of bilingual education cited below have been effective.

**Prevailing intuitive hypothesis.**

Parents of minority language children often try to use English in communicating with their children in the home because they feel that the use of their mother tongue (L1) may confuse children and reduce their chances of academic success. . . . Similarly, some teachers and administrators have expressed misgivings about bilingual education programs on the grounds that if minority children are deficient in English, then they need instruction in English, not their L1 (Cummins, 1981:16).

The above stated popular belief results in a prevailing attitude toward bilingual education which stems from not only intuitive reasoning but also from the interference theory of Fries (1963), the limited mental capacity hypothesis of Jensen (1962), and the "balance effect" hypothesis of Macnamara (1966). This view is supported not only by early research studies conducted prior to the early 1960's (see Darcy, 1953; Peal and Lambert, 1962 for reviews) but also recent large-scale studies such as the American Institutes for Research (AIR) Study (Danoff, 1978) in which it was found that English reading achievement of Hispanic bilingual children in programs of bilingual education was lower than Hispanic children in regular classrooms. It was also reported by the AIR study that the average Hispanic student scored at the twentieth (20) percentile in English reading. Cummins argues that the intuitive belief that if a bilingual child is deficient in English then he needs more instruction in English, not in his native language.
is unfounded and proposes the interdependence hypothesis to explain why.

**Interdependence hypothesis.** Cummins (1980, 1981) alternative argument rests on the counter-intuitive assumption that instruction in the child's first language (L1) permits and promotes the development of English language (L2) skills. His argument is based on the interdependence hypothesis which reads as follows (1981:21):

To the extent that instruction in Lx is effective in promoting proficiency in Lx, transfer of this proficiency to Ly will occur, provided there is adequate exposure to Ly (either in school or larger environment) and adequate motivation to learn Ly.

Cummins (1981) makes a comparison of the interdependence hypothesis and the commonly held intuitive hypothesis by illustrating each of them with the following models of bilingual proficiency. The argument that if children lack English language skills they need more instruction in English implies a "Separate Underlying Proficiency" (SUP) model. In this model it is assumed that proficiency in the two languages is completely separate. "Given the assumptions of the SUP model, blowing into the L1 balloon in order to better inflate the L2 balloon appears counterintuitive" (Cummins, 1981:25). However, Cummins, in his interdependence hypothesis, replaces the SUP model with a "Common Underlying Proficiency" (CUP) model "in which experience with either language can promote the development of the proficiency underlying both languages, given adequate motivation and exposure to both, either in school or in the wider environment" (p. 25) (underlining added). Cummins (1981:24,25) pictorially illustrates
the two models. A picture of two separate balloons in the mind of a bilingual person depicts the SUP model and a picture of one balloon with two openings or channels, in the mind of a bilingual person depicts the CUP model.

Important to the interdependence hypothesis is the Basic Interpersonal Communication Skills (BICS) - Cognitive/Academic Language Proficiency (CALP) distinction explained above under the subheading "Language Proficiency." Briefly, BICS are skills "such as accent, oral fluency, and sociolinguistic competence" which are directly observable in the person's speech. Cummins (1980b) defines CALP "as those aspects of language proficiency which are closely related to the development of literacy skills in L1 and L2" (p.177). Cummins (1980a) contends that the functions of CALP appear to be distinct from BICS in both L1 and L2. Central to his hypothesis is the contention that "L1 and L2 CALP are interdependent, i.e. manifestations of a common underlying proficiency" (p. 90).

Cummins (1981) represents the overlap between L1 and L2 CALP in bilingual proficiency with "a dual-iceberg metaphor in which common cross-lingual proficiencies [mainly CALP] underlie the obviously different surface manifestations of each language." Again, Cummins (1981:24) pictorially illustrates the "dual-iceberg" metaphor by representing the two distinctly different and clearly visible BICS of the two language as two separate icebergs jutting above the surface of the ground. The underlying proficiency which is common to both languages, CALP, is represented by the invisible part of the iceberg.
which is below the surface of the ground and forms the overlapping base for both of the protruding parts of the iceberg.

Thus, the interdependence hypothesis explains why "instruction by means of a minority language in the early grades is not just promoting proficiency in the surface manifestations of that language; it is also promoting the deeper cognitive and academic skills that underlie the development of literacy in both languages" (1981:23). It also explains why, once a child is literate in his first language, he can easily, almost automatically transfer the reading strategies he employs when reading his first language to reading the second language, if he has a fair amount of competence in speaking the second language, and especially if a phonics approach is not used to teach him to read the second language. What is especially significant about this implication of the interdependence hypothesis is that the person, if literate in his first language, does not have to be a fluent speaker of the second language to be able to learn to read it readily. His BICS are relatively unimportant when reading. For an example of the rapid transference of reading skills, recall Yuha (Anderson, 1981) the biliterate early reader, who after learning to read English, learned to read Korean in one month. Also see Genesee (1979), Lambert (1970), Tucker (1970), Lambert and Tucker (1972) for testimony to this phenomenon. The rapid transfer of reading skills is also supported by the typically high correlation between reading scores in L1 and L2 of children in bilingual programs (Cummins, 1979b). Evidence of the interdependence of CALP is very apparent in foreign exchange students at the high school level and foreign students attending our colleges
and universities. Even though many of these students speak English so that it is barely understandable, they often excell academically.

Cummins (1981) notes, "Recent research findings and evaluations of programs which have promoted children's L1 in the school show clearly that the poor academic performance of many bilingual children was caused not by their bilingualism, but by the attempts of the school to eradicate their bilingualism. These findings show clearly that bilingualism can be a positive force in minority children's development when their L1 is promoted by the school" (p. 17). Cummins (1978) contends that all bilingual programs which support the vernacular education for minority language children are consistent with the interdependence hypothesis. And in reciprocal support, his interdependence hypothesis in turn explains why these bilingual education programs are effective.

Effective Bilingual Education Programs

The following effective programs of bilingual education are reviewed so that some common characteristics of these programs can be identified. First, literature reviews of effective bilingual programs are discussed; second, effective bilingual education programs for Native Americans are cited; and finally effective international programs of bilingual education to include the French immersion programs are reported.

Literature reviews of effective bilingual programs. Cummins (1981) cites seven carefully controlled recent evaluations of bilingual
programs which give empirical evidence in support of his interdependence hypothesis.

1. **The Rock Point Navajo Study** (Rosier and Holm, 1980). In the bilingual program at Rock Point, Navajo was used as the initial and primary language of instruction. Children did not read English text until, by first learning to read Navajo, their reading skills were well developed. These children's English reading achievement was slightly above national norms by the end of the sixth grade; whereas, prior to the bilingual program in 1971, children were two years behind national norms in reading by the end of the sixth grade despite intensive study of English as a second language.

2. **Legaretta Study: Direct ESL - Bilingual Comparison** (Legaretta, 1979). All three types of bilingual education treatments were found to be significantly superior to the two English-only treatments in developing the English language skills of Spanish kindergarten children. Balanced bilingual usage, 50 percent English and 50 percent Spanish, was found to be the most effective type of bilingual program.

3. **Nestor School Bilingual Program Evaluation** (Education Associates, 1978). The Nestor bilingual program involved children from both Spanish and English backgrounds. The child's first language was used primarily as the language of instruction in the primary grades and gradually decreased until by the end of the fourth grade language usage was nearly equally divided between the children's two languages. It was found that Spanish background students who had spent five or more years in the bilingual program performed slightly better in English reading than the school average at the junior high
school level. The fact that at least 37 percent of the general school's population was native English speakers gives special significance to this finding. The program evaluation also found that Spanish background children showed .36 of a year's growth more than would be expected for each year they were in the bilingual program.

4. **Santa Fe Bilingual Program** (Leyla, 1978). In this program Spanish was used from 30 to 50 percent of the school day throughout the elementary grades. Children who were in the bilingual program continuously for at least four years were at national norms in English reading by the fifth grade. They were above the national average in mathematics by the fourth grade. The children in the bilingual program performed significantly better in English reading and mathematics than the control group.

5. **Sodertalje Program for Finnish Immigrant Children in Sweden** (Shutnabb-Kangas and Toukoma, 1976). In the Sodertalje Program, Finnish (L1 of the immigrant children) was initially the major language of instruction and continued to be used for some proportion of instructional time throughout the elementary grades. Children in this program performed at almost the same level in Swedish as Swedish-speaking children in Sweden and as well as Finnish-speaking children in Finland. In comparison, Finnish children in Swedish-only programs in Sweden were found to perform below 90 percent of the Finnish children in Finland of equal socioeconomic status. They also performed worse in Swedish than 90 percent of the Swedish children.

6. **Manitoba Francophone Study** (Edwards, 1973). In a large-scale study carried out by Herbert which compared the results of using
varying amounts of French in the instruction of minority language francophone students, it was found that regardless of the amount of French used, the students' French benefited at no cost to their progress in English. For example, students for whom 80 percent of their instruction was in French (L1) and 20 percent in English (L2) did just as well in English as students receiving 80 percent of their instruction in English (L2) and 20 percent in French. The achievement in French of the francophone students, however, was positively correlated with the amount of instruction in French which would be expected.

7. Edmonton Ukrainian-English Bilingual Program (Edmonton Public School Board, 1979). In this program Ukrainian was used as the language of instruction 50 percent of the time. About 15 percent of the students in the program were fluent Ukrainian speakers. Evaluation of the bilingual program by the Edmonton Public School Board showed that by the end of the fifth grade, children in the program significantly out performed children in the control group in English reading comprehension skills. In a more recent evaluation of this program, Erma Chapman (1982) reported that by the third grade students in the bilingual program were comparable in English language skills to the students in the regular program, plus they were learning the Ukrainian language.

In addition, Cummins noted that Troike (1978) in his review of bilingual programs found ten other well-controlled evaluations of bilingual programs in the United States which show similar results. Two of these programs are worthy of mention here. One is the Chinese bilingual program in San Francisco. In this program the Chinese-dominant students were at or above district and national norms in
English and math in three out of six grades, and only one month below in two others. English-speaking students in the program demonstrated that they could learn Cantonese with no detriment to the development of English language skills by performing at or above national and district norms in all grades.

The other study is the St. John Valley French/English bilingual program in Maine. The program evaluations show that after five years in the bilingual program, students out-performed the students in the control schools in English language skills and math. Students in the bilingual program (1974-75) achieved average or above-average national achievement in all subject areas in grades one through four. Prior to the bilingual program 80 percent of the French-speaking students scored below grade level. Dube' and Herbert (1975) concluded that when the development of the first language is promoted by the school, achievement in second language skills (to include English reading skills) is substantially better than when the first language is not used in school.

Zappert and Cruz (1977) reviewed evaluations and research studies on bilingual education. Of the three evaluations and twelve research studies which met their criteria (97 percent of the evaluation reports were rejected), they found only one percent to be negative, 58 percent to be positive, and 41 percent to be neutral. They attest, "A non-significant effect, that students in bilingual education classes are learning at the same rate as students in monolingual classes, demonstrates the fact that learning in two languages does not interfere
with a student's academic and cognitive performance. ... A non-significant finding can [thus] be interpreted as a positive effect in bilingual education."

Even though the Baker/DeKanter Report (1981) based on a review of the literature on the effectiveness of bilingual education is viewed with a great deal of skepticism (Yates et al, 1982), their results should be considered. They judged only 28 of the over 300 documents they reviewed to be "methodologically applicable" to their concerns and so were the only studies on which they based their conclusions. Since they found no strong evidence to support it, they concluded that transitional bilingual education as a federally mandated instruction method is "clearly not justified" and that there is also no justification for assuming that it is necessary to use the child's native language as the language of instruction for that child to make satisfactory progress in school. They came to this conclusion because the results were mixed and contradictory but failed to ask the essential question. Why were the results contradictory? Baker and deKanter's conclusion concerning the use of the child's native language is in direct contradiction to the conclusion reached at the historical UNESCO conference (1953). The assembled experts established it as axiomatic that the best medium for teaching is the mother tongue of the pupil. The only study cited above or below which Baker and deKanter found acceptable and/or reviewed is the Legaretta Study (1979). However, they included nine other studies with positive results which are not cited elsewhere. They include the following:
Covey (1973) who found that Spanish ninth grade students in the bilingual program out-performed the students in the regular program in English language skills but not in math. McConnel (1980) in evaluation of individualized bilingual instruction found that the kindergarten through the third grade Spanish students at Pullman, Washington, did better in the bilingual program than in the regular program. Melendez (1980) reported in his Ph.D. dissertation that 75-100 percent of reading instruction in the student's native language (L1) was better than 50-75 percent in L1 or 100 percent in the child's second language (L2). Twenty-five of the thirty-nine applicable studies which Baker and deKanter (1983) summarized showed no difference when students in a transitional bilingual education program were compared with what Baker and deKanter refer to as submersion and immersion programs of instruction. (See Chapter One for definitions.) According to Zappert and Cruz (1977), quoted above, and Swain (1974), a non-significant effect in regard to bilingual education is not necessarily a negative effect and can even be interpreted as a positive effect in a child's education.

Effective Native American programs of bilingual education. Since Crow Indian children were the subjects of the study of this dissertation, studies which evaluate the effectiveness of bilingual education for Native Americans are of course the most relevant.

Crow Indian. As part of an extensive, longitudinal study with Crow Indian Children, Steve Chesarek (1981) found that Crow-speaking children who had been in a bilingual program for three years outscored
English-speaking, Crow children on several subtests of the Peabody Individual Achievement Test. Chesarek (1981) elaborates: "In other words, children who had only three years exposure to English in a bilingual program context were surpassing children for whom English had been the only language for their entire lives." The English-speaking children were a specifically identified part of the control group. Children who came from homes where one or both parents spoke Crow, but raised their children to speak only English comprised this group. Instruction in the bilingual program was in Crow, including Crow reading in the morning, and English, including lessons in English as a second language (ESL), in the afternoon.

Cherokee. It seems appropriate to include the oldest and one of the most impressive "bilingual programs" in the United States. It is reported by Walker (1968), that due to the widespread use of Sequoyah's syllabary and the system of education of the Cherokee Nation, by the 1880's, ninety (90) percent of the Western Cherokee were not only literate in Cherokee, but also more were literate in English than the white population in either the adjacent states of Texas and Arkansas.

Indians in Mexico. One of the first, well known studies which supports the view that it is advantageous to learn to read in the primary and dominant language was conducted by Modiana (1968) with the Indians in the Chiapas highlands of Mexico. Modiana compared the educational progress of children in the Instituto Nacional Indigenista (INI) with that of those in the state and federal schools. The children in the INI schools were taught to read in the vernacular during a preparatory grade and were given oral Spanish drills. They were
introduced to reading in Spanish in their second year of schooling. The state and federal schools were conducted exclusively in Spanish. She found that the INI students scored significantly higher on the Spanish reading test.

**Indians of Peru.** Gudschinsky (1971) described several projects that had the support and guidance of the Summer Institute of Linguistics. One of these projects was in the mountains of Peru. In the village schools there, the children spend two years becoming literate in Quechua. In the third year which was a transition year, they learned to read and write Spanish. They entered the Peruvian grade one in their fourth year of education. She noted that more children remained in school under this system of education and that they were "competitive with Spanish children" when they were in the third grade.

**Navajo.** The Rock Point study described above should be recalled as it is truly an exemplary bilingual program in the Native American context. In recalling this study we should remember that it was not until the sixth grade that the children surpassed national norms in reading achievement which indicates that it takes more than three years for a bilingual program to yield positive results.

**Eskimo.** Evaluation (Orvik, 1973) of three pilot project bilingual programs in Yupik Eskimo/English showed that growth in oral English language proficiency was significant at the .01 level for kindergarten and first grade children in the experimental schools over those in the control schools. Yupik Eskimo was the language of instruction for the entire school day, except for forty (40) to sixty (60) minutes of
daily instruction in ESL, in the experimental schools; whereas, the children in the control schools received all instruction in English. In his discussion of the first year results, Orvik (1975) noted that not only did the bilingual program accelerate the growth of the native language vocabulary of the students, but there was equally strong acceleration in the growth of English language vocabulary. Unknowingly, Orvik (1975) spoke in direct support of Cummins' interdependence hypothesis when he stated: "The reservations most often expressed by potential recipients of a bilingual program is that the children are going to get behind, 'lose ground' in their ability to use English. That such retardation doesn't seem to exist - on the contrary, acceleration is more likely the case, was probably the most important finding for external evaluation at that early stage of the bilingual program" (p. 40).

In discussion of a three-year evaluation of the program, Orvik (1975) made an interesting observation. The ability of the children in the bilingual program to encode Yupik sounds and words successfully was quite strong at every level and the children in levels one and two were also strong at free written expression and yet a negative t value was found in their knowledge of the alphabet. In regard to this rather unusual occurrence, Orvik (p. 48) stated: "It does seem certain that a concept of the alphabet is not necessary for other basic encoding operations, particularly in the accurate formation of sounds and words received aurally. The bilingual children do fine without it and the traditionally taught children are at no apparent advantages possessing it (recall that spelling was not considered in judging the free
essay). . . . In fact, trying to establish an alphabet concept early may only lock the child into an ungeneralizable system which later the child is required to repudiate upon second language literacy training."

It was noted by the author of this dissertation, who was personally involved with the above cited bilingual program, that students in the experimental schools, who had read only Yupik and had no formal instruction in reading English, scored higher than the students in the English-only control schools on tests of English reading achievement. In testimony of the almost automatic transfer of reading skills from one language to another, it was exciting to watch the children, who as they became fairly proficient in reading Yupik, would pick up books written in English and just start reading them.

After reviewing the above cited studies, the author of this paper tends to agree with Troike (1978) in the conclusion he reached in his executive summary of Research Evidence for the Effectiveness of Bilingual Education. He stated:

> Despite the lack of research and the inadequacy of evaluation reports, enough evidence has now accumulated to make it possible to say with confidence that quality bilingual education programs can meet the goal of providing equal educational opportunity for students from non-English speaking backgrounds. In fact, the evidence is sufficiently strong to permit the statement that if a program is not producing such results, something is wrong (though not necessarily with the program) and needs to be changed.

Effective international programs of bilingual education. Patricia Engle (1975) reviewed relevant, international literature in order to evaluate evidence bearing on the issue of "what language to use in teaching minority children in a bilingual culture." In a world-wide search she uncovered twenty-four studies directed toward this question.
Six of these studies which are particularly pertinent and are not cited elsewhere in this paper are summarized below.

The Philippines. Ramos et al (1967), in a carefully controlled experimental study conducted in the Philippines, found that in the sixth year evaluation the students in the experimental group were superior to those in the control group in social studies achievement tests and slightly higher in reading and arithmetic tests. The experimental group received instruction in the vernacular in the first and second grades and then abruptly switched to English in the third grade. The children in the control group received all instruction in English from the first grade through the sixth grade. The results of this study were so widely accepted in the Philippines that this model of bilingual education was made national educational policy for all children in the country.

Africa. Malherbe (1946) surveyed 18,773 children in South Africa in monolingual and bilingual schools. The children in the bilingual schools were behind at first, but caught up by the sixth grade. The Institute of Education at the University of Ife in Western Nigeria compared an entirely vernacular approach (all Yoruba except for a special class in English as a Second Language) with an instructional approach in which there were three years of instruction in Yoruba and three years of instruction in English. Unfortunately the results were not reported.

The United States. Engle (1975) reported on a model bilingual program in the United States which has been one of the most widely publicized, closely followed, and most "successful" bilingual programs
in the United States. The entire population of children in the Coral Way School in Florida received all their instruction in the morning in one language, either Spanish or English, and all their instruction in the afternoon in the other language. Richardson (1968) reported that although the Spanish-speaking children tended to score somewhat lower than the English-speaking children on standard achievement tests, both groups scored in the upper percentile range. Bruce Gaarder (1967) made the comment that at the fifth grade level the children in Coral Way School were able to learn equally well in both languages, to which he added the interesting aside, "This is a level of achievement that cannot be expected in even our best college-level foreign language programs." It should be noted that the children who attended the school were generally Cuban refugees or descendants who were of upper- or middle-class socioeconomic status. They were above average in intelligence as measured by the Otis on which the the group score was in the 89th percentile.

Russia. Studies by Kreusler (1961) and Serdyuchenko (1962) attribute the rapid spread of literacy after the Revolution to a long tradition of use of the vernacular language as the language of instruction.

Ireland. Macnamara (1966) compared six groups of children in the first through the sixth grade who were instructed with various combinations of the English and Irish languages. Note, that even though Irish is the official language in Ireland, it is spoken by only a small percentage of the population; thus, Irish was the second language for most of these children. Macnamara found no significant difference
among the groups in language skills. Since all students scored below British norms, he interpreted his findings to be negative and thus in support of his "balance effect" hypothesis. However, Cummins (1979) contends that Macnamara's findings actually show that children can learn a second language at no cost to the development of skills in their first language. Cummins (1977) did a more recent study in Ireland which confirms the neutral interpretation.

**Spain.** Castillejo (1933) reported that if English-speaking children entered school in kindergarten in Madrid, they would be comparable in language skills to monolingual students by the fourth grade.

Of the conclusions that Engle (1975) made as a result of her investigation, two are particularly relevant. (1) "The success of a bilingual program is related to a complex web of factors that differs in each situation: how much language is used in the home, the relationship between the languages in the larger society, the values that are put on each language, and so on" (p. 19). (2) "Some studies have observed a transfer from one language to another in the absence of any teaching in the second language. This effect may be stronger in middle class children" (p. 19).

Before leaving the international scene, two studies carried out in Europe should be mentioned. One is the study conducted by Burstall (1975) because it is the most extensive longitudinal study on second language learning to date. Since bilingual education has been commonplace in Europe for many years, we should also examine a typical
bilingual school and do so through the observations of Eileen Tway (1982).

England. In a longitudinal study, Burstall (1975) followed 17,000 students, who learned French as a foreign language in British schools, from the primary grades through secondary school. The finding which is most relevant to our purpose was that the achievement of children from the working class, when they were from twelve to fourteen years of age, showed a sharp decline in comparison to the students from middle class homes. Although motivation was likely a contributing variable, it is also likely that a literate home environment where reading in one or both languages is practiced and encouraged was a contributing factor.

Luxemburg. Children become literate in two languages, German and French, in addition to their native Luxemburgish, during the elementary grades. They begin their study of German in the first grade, French in the second, and continue to study the two languages extensively throughout the elementary grades. In high school, many of the students take English and only after that do they begin their study of "foreign" languages such as Italian. The principal purpose of Tway's (1982) study was to find out what particular methods and techniques the teachers used in order to succeed in what seems to be a formidable task. She observed that "teachers were teaching language in each case, not 'reading' alone. . . . Every lesson involved all of the language arts; reading was set in a total language context." The teachers relied heavily on the language experience approach. Tway also noticed that even though the teachers had drill in reading skills,
the drills were never done as an isolated exercise. Skills were always practiced in meaningful context and thus were learned as they were directly applied to speaking, listening, reading, and writing activities.

All of the studies cited above were with language minority children and most of them were with children from low income families. These two factors make these bilingual education programs especially exceptional. Large-scale studies (e.g., AIR, 1978) which aggregated data from throughout the country for analysis show that the vast majority of bilingual education programs are not effective in raising the level of academic achievement of minority language bilingual children to national norms. It is important to have some understanding as to why this is the case. What specific characteristics make the above cited studies exceptional? How do these programs differ from the bilingual programs which are not effective? These are difficult questions to answer since so little ethnographic data accompany any of the studies. There is one consistent pattern in all the effective bilingual programs. The amount and length of time the first language is used correspond with gains in academic achievement. A careful examination of the studies also reveals that the majority of the above bilingual education programs had most of the following characteristics: (1) Initial reading was in the vernacular, and in the vernacular only, until reading skills were well developed. (2) The student's L1 was used as the language of instruction for at least fifty percent of the time for the first two or three years of schooling. (3) Those programs, namely the Rock Point bilingual program and the Sodertalje
Program, in which the bilingual students surpassed national norms took six years to show these positive results. (4) The programs were implemented as designed and instruction was quality controlled. This last characteristic although not well documented is such a strong variable in the success of any educational program it can almost be implied.

Two highly successful programs, Coral Way School and the French Immersion programs, do report that highly qualified teachers were employed to the extent that first language teachers were imported from Europe if necessary.

Why the majority of bilingual education programs are ineffective?

There is also some evidence that the above qualities are not characteristic of the ineffective programs. A series of studies by Cecilio Orozco (1982) gives real insight into the situation of language usage in the classroom which explains, to a great extent, why many supposedly bilingual programs show negative results. In the first study forty-five children (preschool through the sixth grade) in non-bilingual classrooms were each observed for one full school day. It was found that the amount of talking by these children in situations where the teacher was in control ranged from zero to seven minutes with a median of thirty-nine seconds. The second study, also done in Fresno, California, was with (K-6) children in bilingual classrooms. The median for these children of all speech controlled and/or induced by adults in the classrooms in both English and Spanish was fifty-five seconds. In the third study, Orozco, in a national sample of thirteen Spanish-English (K-6) bilingual classrooms found a
comparable mean of thirty seconds of speech in a school day. Orozco made some other interesting observations. He noted that none of the methodologies or techniques used in the bilingual classrooms were unique. They could all be found, even the use of the students' first language, in non-bilingual classrooms. He also observed that fifteen (15) out of thirty-eight (38) teachers in the second study and seven (7) out of thirteen (13) in the third study taught all day in English, yet not one taught all day in a non-English language. James Cummins wrote to Cecilio Orozco concerning the first two studies: "I found your data interesting (and disturbing)." It might be concluded from Orozco's observations that about fifty percent of the teachers in bilingual programs either had never heard of the interdependence hypothesis or tenaciously held on to their intuitive belief that the children in their classroom "need" more exposure to English not less. It is also quite evident that the teachers, especially in the bilingual classrooms, do not realize how important practice is in learning to speak a language. What can be deduced from studies two and three is a major problem with bilingual education in the United States. It is the problem of implementation. It is quite likely that the teachers whom Orozco observed were not teaching as stated in the program's instructional design.

Baker and deKanter (1983) concluded that although research is lacking to support it, improper implementation of bilingual programs is a plausible explanation for the mixed results of the studies which they reviewed. Unfortunately, the problem of improper implementation is poorly documented. Some evidence is available, however, such as
that of Troike (1978) who observed that a bilingual program which was supposed to involve a balanced use of the two languages actually employed English sixty-seven (67) percent of the time. Additional evidence is provided by Tsang (1982) who used a case study methodology to observe, among a number of other things, the language use in bilingual classrooms in a Chinese community. Tsang noted that the second grade bilingual teacher shifted from the intent of the bilingual program to total focus on the development of English language skills. The observers were not able to detect any difference in her instruction from that of the nonbilingual classrooms in the school. She also segregated her students in groups according to language ability. The group of children who were the least proficient in English were taught throughout the school day and throughout the school year by the instructional aid "who had neither the educational background nor the English proficiency to qualify for a California teacher's credential." Tsang sums up his evaluation of the classroom with the following statement: "All in all, the students who had enrolled in this class to develop their Chinese did not receive any Chinese instruction, and the immigrant NEP [non-English proficient] students who had enrolled in the class to benefit from bilingual instruction did not receive a meaningful education." Tsang concluded from his observations that Chinese was used only as a supplementary tool to aid instruction and the most important goal was to help the students learn English. Other researchers (Shultz, 1975; Philips, 1975) have made similar observations. In fact, personal observation renders Tsang's description to be typical of bilingual education programs. G.H. Matthews (1979),
noted linguist who has worked with the Crow language on and near the Crow Reservation for many years, in personal communication, made the following statement: "Crow teachers used the Crow language much more prior to the time of bilingual education programs than they do now when teaching in a bilingual program."

Another problem which confronts bilingual education is quality of instruction. A number of studies (e.g., Ramos et al., 1967; Ladefoged et al., 1971) have shown that teacher effectiveness and training play a crucial role in the success of bilingual education programs. "A critical factor in the failure of many programs of language teaching is the low quality of teaching or methods. Teachers may have limited knowledge of the second language, or no training in teaching in the native language" (Engle, 1975).

Elizabeth Reisner (1983) presents the following statistics on the quality, utilization, and availability of bilingual education teachers:

Of the 42,000 teachers using a second language in instruction, only 13,000 could be considered minimally qualified in bilingual education. . . . In 1976-1977, approximately 77,000 teachers were providing ESL instruction to students. Of that number, however, only 14,000 had had at least one course in teaching ESL. . . . The 1976-1977 survey indicated that 34,000 minimally qualified bilingual teachers were then working as teachers. However, only 13,000 were using a second language in instruction and thus could in any way be considered to be teaching in a bilingual program. Another 5,000 of the minimally qualified pool of bilingual teachers were teaching ESL but were not using a second language. The remaining 16,000 minimally qualified bilingual teachers were not using their bilingual or ESL skills in their teaching. Of this number 7,000 had never taught using a second language or provided ESL instruction. . . . The estimated need for approximately 48,700 to 102,000 bilingual-education teachers is being met by approximately 15,100 to 16,700 minimally qualified bilingual teachers (pp. 190, 191).
Sirarpi Ohannessian (1967) in *The Study of the Problems of Teaching English to American Indians: Report and Recommendations* reported that she had observed "sharp differences of sophistication, training, and competence among teachers of English and other subjects in these schools." She observed some excellent teaching; but for the most part, the teachers were not aware of the problems of second language learning and the modern approaches and methods of teaching to these problems because they had little or no training in linguistics or TESOL. Ohannessian noted, "Sometimes insufficient training and information cause a distorted interpretation of modern techniques, ending in their misuse" (p. 15).

In a recent survey of teacher competency in language skills (NABE News, 1984), it was found that twice as many teachers in 1980-1981 had the language skills and basic academic preparation to use the home languages of the students in instruction as in 1976-77. In spite of this increase, approximately four out of every five teachers using a non-English language in the classroom during 1980-81 were not reported as having the necessary language skills or basic academic preparation for bilingual education. In regard to teaching English as a second language, it was found that about seven percent of teachers teaching ESL in 1976-77 and seventeen percent of those teaching ESL in 1980-81 had ESL training.

Another reason for the lack of quality bilingual education programs in the United States is that in many programs practices contrary to what is known from theory and research are used. As noted above, one of the characteristics of effective bilingual programs is that
formal instruction in reading a second language does not begin until reading skills are well developed in the primary language. And yet Shore (1974) noted that the practice of simultaneously introducing reading in two languages was a wide-spread pattern among bilingual programs. He noted that fifty-two percent of the Title VII programs in 1969-70 followed this practice.

The following comments attack an approach to teaching language arts which is ill-founded and yet tenaciously practiced in both bilingual and regular classrooms throughout the country. Genishi (1981) writes,

> Observers across the country see a clear segregation of the traditional arts of writing, reading, listening, and speaking, although recent research treats them as tightly interrelated. . . . Published curricula give us the impression that children master the language arts by acquiring a fixed number of sequential skills. . . . Research on language development and acquisition of literacy consistently shows that children bring their own interpretations and rules to social and linguistic activities. Integrative language activities in the classroom will allow children to bring their interpretive and rule-seeking abilities into the classroom context (p. 114).

Burke (1982) in testimony at the Language and Literacy hearing for the Commission on Excellence in education made the following comment:

> "Reading was instructionally separated from other language arts; listening, speaking, and writing. The possible facilitative effects involving the other language arts such as discussion and writing were traded for a direct approach which unfortunately involved a lot of skill sheets that stressed primarily lower level reading skills." In relationship to the above statements, the reader is asked to recall
the approach used in Luxemburg through which the students become literate in several languages.

**Immersion Versus Submersion**

The French immersion programs provide a model of bilingual education which seems to be a direct contradiction to not only the effective bilingual education models described above but also diametrically opposed to Cummin's interdependence hypothesis. The French Immersion programs in Canada began with the St. Lambert Experiment (Lambert and Tucker, 1972) which was an experiment in a home-school language switch to determine the following: (1) whether reading and content matter learned in the child's second language would readily transfer to the first language with little or no formal instruction; (2) whether children would become as proficient in the second language as native speakers of the language; and (3) whether there would be any harmful effects either cognitively or emotionally.

Under this program, children from English-speaking homes went to school where the teachers spoke only in French, the students' second-language, in kindergarten and grade one. The students began the study of language arts in their first language (English) in the second grade. In the upper grades, approximately sixty (60) percent of the instruction was in French (L2) and forty (40) percent was in English (L1). By the time they were in the fourth grade the children in the experiment showed no difference on tests of achievement and intelligence than the English-schooled controls except for one measure of story retelling and comprehension of adult language. The experimental
children were in the 50th percentile of the Montreal norms in French but were again slightly lower in their story retelling ability. Since the children learned to read English with no formal instruction, Lambert hypothesized that either the students learned to read English at home or else reading skills transferred from one language to another. Since then immersion programs in which instruction in the first two or three years of school is entirely in the student's second language have spread throughout Canada (see Swain, 1974 for a review of the research findings) and to several schools in the United States (Cohen, 1975). These carefully planned and researched programs have consistently shown positive results in regard to their three primary hypotheses which are stated above (Lambert and Tucker 1972, Cohen 1975, Cohen and Lebach, 1974; Barik and Swain 1975; and Swain, 1974).

A recent, long-term evaluation of some French immersion programs highlights the cumulative benefits of bilingual education. Swain et al (1981) present the results of an ongoing evaluation of two of the first Early French Immersion (EFI) programs in Ontario, Canada. These programs began in 1970 and so the students who entered school at the time of EFI's inception were completing the eighth grade at the time of testing. The researchers concluded that through appropriately designed programs it is possible to develop a high degree of bilingualism among majority language students with no long-term detrimental effects on cognitive growth, first language skills, or academic achievement. In fact the cumulative effects of the bilingual program seemed to have positive effects on the development of first language skills. The evaluators, however, were reluctant to attribute the
higher IQ scores of the immersion students to their bilingualism. "While it is not clear that the immersion students' superior IQ scores are due to the immersion program, it is clear that the program has not had any ill effects on cognitive ability" (p.3).

Whereas the two models of bilingual education (immersion type programs in which the major portion of the instruction is in the child's second language in the primary grades and the more traditional type bilingual program in which the child's first language is initially used as the language of instruction) seem to be completely opposite; traditional unilingual education in the United States seems to be quite similar to the immersion programs. This appearance is deceptive. Cohen and Swain (1967) point out important differences between traditional unilingual (submersion) education and immersion bilingual programs. Following are two important differences: (1) In a submersion/unilingual educational program, students who are just learning English are indiscriminately grouped with native English speakers which tends to make the non-English speakers feel intimidated, insecure, and inferior. In the immersion programs, all the students are linguistically "in the same boat." In the French Immersion programs, for example, all the students speak English as their first language, and none of them speak French when they start to school. (2) Submersion/unilingual education is not and does not profess to be bilingual education. Students (especially Native Americans) were not even permitted to speak their native language in school. Whereas, in the immersion programs the intended goal is for the students to be functionally literate in two languages.
There is one other difference which involves a vital distinction. In submersion/unilingual education the language which is used exclusively for instruction is the language which is spoken by the majority of the people in the country. In the United States that language is, of course, English. Any group of speakers of a language other than English are therefore referred to as a "minority language" group. In submersion/unilingual education the speakers of the less prestigious languages (minority language children) are in danger of having their language replaced by English, the dominant language of the country and the language of the school. Lambert (1975) refers to this as "subtractive" bilingualism in that since the bilinguals' first language is not used or promoted by the school and the majority of the society in which the child lives, it is in a constant stage of subtraction and consequent replacement by the majority language. An illustration of what Lambert means by subtractive bilingualism is a national study of the Spanish/English bilingualism of young Hispanic children in the United States which was conducted by Garcia et al (1981). Linguistic proficiency in Spanish increased from ages four to five and then decreased at age six. The English language proficiency of these same children showed a continuous increase over the same time period. Lambert terms the form of bilingualism of the immersion program students as "additive", since through the bilingual program a second socially relevant language is added to the children's first language. Since the children's first language is valued and promoted by the schools and communities in which the children live, and since it is
the language of the majority, it is not going to be replaced but continually reinforced and developed.

On the other hand, both bilingual models are similar in the following respects: (1) They both have functional literacy in two languages as their goal. (2) Although not concurrent, there is instruction in two languages. (3) The two languages have equal status. (4) Initial instruction and reading are in a minority language. The one important difference is that the languages which are used for initial reading and instruction are in reverse order.

The immersion-in-L2 model is more effective with majority language, middle-class children and the instruction-in-L1-first is more effective with language minority children from homes of low socioeconomic status. Why? Cummins (1979) contends that identical principles underlie the positive effects of both types of bilingual education programs and that the key to understanding why "lies in recognizing the functional significance of the child's mother tongue in the developmental process."

Developmental Aspect of the Theoretical Model of Bilingual Proficiency and Learning

Cummins incorporates another dimension, language development, in his interdependence hypothesis. He (1979:233) explains:

The developmental interdependence hypothesis proposes that the level of L2 competence which a bilingual child attains is partially a function of the type of competence the child has developed in L1 at the time when intensive exposure to L2 begins. When the usage of certain functions of language and the development of L1 vocabulary and concepts are strongly promoted by the child's linguistic environment outside of school, as in the case of most middle-class children in immersion programs, then intensive exposure to
L2 is likely to result in high levels of L2 competence at no cost to LI competence. The initially high level of LI development makes possible the development of similar levels of competence in L2. However, for children whose LI skills are less well developed in certain respects, intensive exposure to L2 in the initial grades is likely to impede the continued development of LI. This will, in turn, exert a limiting effect on the development of L2. In short, the hypothesis proposes that there is an interaction between the language of instruction and the type of competence the child has developed in his [LI] prior to school.

In his later writing, Cummins (1980, 1981) clarifies some of the points in the explanation quoted above. A clarification of the developmental aspect of his interdependence hypothesis should lead to less misinterpretation and eliminate much of the controversy over the optimal age issue. The "type of competence" Cummins is referring to is CALP (cognitive/academic language proficiency). Cummins (1980) states: "Because LI and L2 CALP are manifestations of the same underlying dimension, previous learning of literacy-related functions of language (in LI) will predict future learning of these functions (in L2)" (underlining by author). It should be noted that Cummins does not mean knowledge of the alphabet and knowledge of sound-symbol correspondence when he uses the expression "literacy-related functions of language." Also, it would perhaps be easier to understand exactly what Cummins means if he used "intensive literacy training in L2" rather than "intensive exposure to L2." Cummins (1980) makes the prediction "that older learners, whose CALP is better developed, will acquire cognitive/academic L2 skills more rapidly than younger learners; however, this will not necessarily be the case for those aspects of L2 proficiency unrelated to CALP [namely BICS]" (p. 180). (It should be remembered that "BICS" stands for "basic, interpersonal,
communication skills."") As can be seen from the French immersion programs, the important factor is a sufficiently developed CALP and not age. Also, Cummins would be more consistent with the interdependency aspect of his hypothesis if he used "transfer" rather than "acquire" in the statement directly above.

Thus, Cummins explains why children from middle-class homes are likely not to experience any difficulty learning to read, whether it be their first or second language. They have a sufficiently developed CALP. Academic success seems to almost entirely depend on that one factor. Whether a child speaks a majority or a minority language is even made irrelevant by this factor.

If children have not reached a threshold level of competency in CALP in L1 prior to the time they enter school, it is likely that they never will unless there is continued support for its development outside of school and/or the development of CALP in L1 is consciously and directly promoted by the school. Promotion of the development of CALP by the school rarely happens except in special programs, because most teachers, administrators, and curriculum developers are not aware of the CALP/BICS distinction and thus are deceived because they measure children's linguistic competency solely on BICS. They usually assume that all children have sufficient linguistic competency by the time they are six years old to began reading.

Cummins (1978) explains a sociolinguistic situation which is common among the Crow people and many other language minority language groups. "In situations where rapid language shift is occurring, the
LI skills which some minority language children develop could accurately be described as impoverished. For example, parents may continue to speak LI to each other but attempt to use L2 with their children thereby exposing them to a low level of LI stimulation and faulty L2 models" (p. 857). Central to the thesis of this dissertation, Cummins continues his argument. These children may deceptively have adequately developed BICS but "as with low socioeconomic status (SES) children in general, their LI experience may not have emphasized functions of language which are important for educational success" (p. 857).

**Studies which validate the developmental aspect of the theoretical model of bilingual proficiency and learning.** The following studies empirically demonstrate the aspects of the interdependence hypothesis discussed above. They give substantial evidence in support of the developmental aspect of Cummins' interdependence hypothesis.

**Crow Indian children.** In an extensive, longitudinal study, Chesarek (1981, 1983) followed and compared the cognitive development of over five hundred children during their attendance at the two largest schools on the Crow Reservation from the first through the fifth grade. Verbal and non-verbal IQ tests to include the Ravens Colored Progressive Matrices, Cattell's Culture Fair Test, the Peabody Picture Vocabulary Test, subtests of the Illinois Test of Psycholinguistic Abilities, and the Peabody Individual Achievement Test were used to collect the data. No significant difference was found on non-cognitive ability, as measured by the Ravens test, between Crow-speaking children and English-speaking children upon entry to school.
(the first grade level). Chesarek noted that when there was a difference the Crow-speaking children scored higher. However, the English-speaking children scored significantly higher (about a two-year difference) on tests of verbal ability, namely the Peabody Picture Vocabulary. In other words, the Crow-speaking children scored at the level of a four-year-old native English-speaking child. Chesarek made an interesting observation in regard to the results of these tests, which also serves as a good example of what happens in actual school situations due to a lack of understanding of the role of language in cognitive development and academic achievement. Chesarek noted that while teachers tended to overestimate the English language proficiency of Crow-speaking bilinguals there was at the same time "a prevalent notion that the children were in fact mentally inferior." To illustrate how wrong the commonly held assumption was, a close examination of the data revealed that Crow bilinguals in a "slow" second grade classroom (children were grouped according to perceived ability) received four of the five top scores for that grade level on the Ravens test.

Chesarek used his data base to make some interesting comparisons. (1) He compared children who had been in an experimental bilingual education program (described above) for three years with children "submerged" in traditional English-only education which he used as control group. In discussing the results, Chesarek states: "We began to see a definite trend for increasingly lower Raven scores from the bilingual children at the control school with less of a gap at the pilot school where the Crow language was in fact used and encouraged."
(2) He compared the scores of fifth grade children, none of which had ever been in a bilingual program, on a non-verbal IQ test and found that the dominant Crow-speaking children at this age scored lower than the native English-speaking children; whereas, children tested at school entry had showed no difference. (3) In probably the most interesting comparison, Chesarek identified a group of Crow children who were monolingual speakers of English even though one or both of the parents of these children spoke Crow as their dominant language. He found that these children (a) scored lower than other English monolinguals on the reservation on all measures of English ability, (b) that "this group at school entry level also scored significantly lower on the non-verbal Ravens test than either the Crow speakers or the other English monolinguals." He concluded, "If it is possible to apply the notion of cognitive deficit in any way at all to groups at school entry level, it seems perhaps to apply to this particular group." (c) As noted earlier in this paper, these children also scored lower on several subtests of the Peabody Individual Achievement Test than the Crow-speaking children in the bilingual education program. Chesarek (1983) made the following recommendation:

Discussion of these results indicates the need for including the home language in the instructional program of non-English speakers in a bilingual community so that cognitive advantages of early childhood experiences are maintained. In the case of the child in a bilingual community who is raised as an English speaker, by parental choice or necessity . . . either an early educational intervention or an intensive language development program at school entry would appear necessary to help overcome an apparent developmental cognitive handicap.
Crow and Northern Cheyenne children. Audrey Simpson (1975) conducted a study "to examine the quantity and quality of oral English used by six-year-old Crow and Northern Cheyenne Reservation Indians in Montana" (Simpson, 1978). The Crow and Northern Cheyenne first grade children were interviewed by their Native American teacher aides. Twenty-five tapes from each tribal group were randomly selected, transcribed, and analyzed. Fluency (quantity of speech) was measured by counting the number of words, communication units, and elliptical clauses. Quality of speech was determined by counting deviations from standard English. Following are those findings which are of particular interest: (1) No important differences were found between Crow and Northern Cheyenne children in either the quantity or quality of their speech. Crow children did have significantly more maze counts (utterances which do not contribute to meaning) than did the Northern Cheyenne children. This finding is especially interesting when one considers that probably seventy-three (73) percent of the Crow children in the study spoke Crow as their dominant language (Read, 1980) while it is likely that none of the Northern Cheyenne children spoke Cheyenne as their dominant language. (2) A comparison of the speech of both Crow and Northern Cheyenne children with the black children of Loban's study (1966) in Oakland, California, showed that the Oakland children scored significantly higher. For example, the mean for total number of words was 150 while the lowest mean in Loban's study was 432. Loban suggested that a mean of 432 signified that the children were not ready for reading instruction! Simpson's conclusion as stated in her journal article titled, "Are Native American First
Graders Ready to Read?" (Simpson, 1978) was: "Cultural differences are known to create handicaps; however, it seems probable that the lack of facility with the language used in schools may be the Native American child's greatest barrier to reading success."

Cree children. In a small study with first and second grade Indian children on the Hobbema Cree Indian Reserve in Alberta, Leslie (1977) found there was a significant positive correlation between children's oral Cree competence and English reading skills. Correlation between the Gates-McGinitie vocabulary reading test scores and Cree oral language proficiency was .76, p < .001; and correlation between reading comprehension and Cree language proficiency scores was .66, p < .01. Cree is still spoken in most of the homes on the Reserve; however, the schools at the time of this study did not have a bilingual education program.

Finnish migrant children. The studies (Hanson, 1979; Skutnabb-Kangas, 1979) involving Finnish migrant children are of particular interest because Cummins' developmental interdependence hypothesis evolved from them. In an investigation conducted for UNESCO, Skutnabb-Kangas and Toukomaa (1976) tested the hypothesis "that those [Finnish migrant children] who have best preserved their mother tongue are also best in Swedish" (p.48). The investigators paid particular attention to the interdependence between the children's first language (L1), Finnish, and their newly acquired language (L2), Swedish. Their findings support their hypothesis especially if we interpret "preserved" to also include "developed." They found that the level of development of the Finnish children's mother tongue at the time they
moved to Sweden was highly correlated with how well and quickly they learned Swedish (L2). Those children who were ten when they entered Swedish schools maintained their Finnish and in a short time surpassed migrant children who were born in Sweden in their Swedish language skills. However, those children who were eight or younger when they moved to Sweden acquired Swedish at a slower rate and to a lower level of competency. In fact the investigators found that "in those who moved before starting school, the risk of becoming semilingual is greatest" (p.75). The term "semilingual" originated with Scandinavian researchers and, in referring to bilinguals, means inadequate language proficiency in both languages. To put it in Cummins terms, there is not CALP in either language. Toukomaa and Skutnabb-Kangas contended:

The basis for the possible attainment of the threshold level of L2 competence seems to be the level attained in the mother tongue. If in an early stage of its development a minority child finds itself in a foreign-language learning environment without contemporaneously receiving the requisite support in its mother tongue, the development of its skill in the mother tongue will slow down or even cease, leaving the child without a basis for learning the second language well enough to attain the threshold level in it (p. 28).

Hispanic children. Ramirez and Politizer (1976) in a study of Spanish/English bilingual education in the United States found that the use of Spanish at home not only resulted in higher levels of Spanish skills but was in no way detrimental to learning English. However, when only English was used at home, Spanish proficiency deteriorated with no improvement in English competency. Cardenas (1977) and Gonzalez (1977) observed that immigrant children who recently arrived from Mexico and whose Spanish was firmly established were more successful in acquiring English language skills than native-
born Mexican Americans. In a study in Los Angeles, Kimball (1968) found significant positive correlations between high grades and both recency of immigration from Mexico and use of Spanish in the home.

Conclusions

Thus, we reach the following conclusions as a result of our investigation of the relationship between language/reading and bilingualism:

(1) If we accept the premise that bilingual education, if the programs are educationally sound and properly implemented, can be effective in the education of minority language, low-SES children, then, we can conclude that bilingual education should be offered to those children who have demonstrated that they do not have adequate language proficiency to learn to read with comprehension.

(2) If we accept the premise that CALP (cognitive/academic language proficiency) is a common underlying language proficiency in both languages of a bilingual and if we accept the premise that development of literacy in L2 is a function of the level of CALP at the time reading instruction in L2 begins, then, we can conclude that initial reading instruction for minority language, low-SES children, who generally do not have a sufficiently developed CALP in either language should be in L1.

Summary and Conclusions

It was contended that the solution to the problem of educating minority language, low-SES children lies within existing knowledge.
Thus, as extensive review of the literature was made to bring together all knowledge which related to the language/reading relationship and the effects of the following intervening variables on that relationship: educational intervention, socioeconomic status, and bilingualism. The key variables, language and reading, were examined independently, in relationship to each other, in relationship to socioeconomic status, and in relationship to bilingualism.

Language

Through the theoretical framework of Noam Chomsky, the nature of language and the process of language learning were explored. Chomsky's explanation of the following concepts were presented: universal grammar, generative grammar, and the creative aspect of language. In addition to Chomsky's view of language and learning, the cognitivist view of language acquisition was given through Jerome Bruner and Frank Smith. Stephen Krashen's model for teaching English as a second language was presented. Language proficiency was defined in detail with emphasis on the following distinction between two levels of language proficiency which was proposed by James Cummins: basic interpersonal communication skills (BICS) and cognitive/academic language proficiency (CALP).

From an examination of the nature of language, the following conclusions were reached:

(1) Language is learned subconsciously through an innate structure or at least through innate abilities.
(2) The variance in language ability is due to experiential background and not innate language ability.

Reading

To gain a deeper understanding of the reading process, reading was also approached from a theoretical standpoint. Frank Smith's theory of reading was complemented by Kenneth and Yetta Goodmans' model of reading. Both the theory and the model stem from Chomsky's theory of language and thus give prominence to language in the reading process. This theoretical framework provided a firm base and convincing rationale for the relationship of reading to language. Supportive empirical evidence to this theoretical construct of the reading process was also included in this section.

The following conclusions were reached as a result of the investigation into the nature of the reading process:

(3) A certain level of oral language proficiency is an essential prerequisite to learn to read with comprehension.

(4) Linguistic competence is both a more essential precondition to learning to read and a more essential condition to the reading process itself than knowledge of phoneme-grapheme correspondence rules.

(5) It is less important to teach the learner "reading skills" than to provide him with the opportunity to learn through practice.

The Language/Reading Relationship

The intricate and interdependent relationship between language and reading was investigated. This relationship was first viewed from
a historical perspective in which David Olson traced the cultural evolution and individual development of language from "utterance to text." Oral language and reading were then contrasted with emphasis on the differentiation which Frank Smith makes between situation-dependent and situation-independent language. Then, two opposing theoretical views of the language/reading relationship, reading-as-translation and reading-as-language, and the consequent instructional approaches were described in detail. Research evidence which supports the views and approaches was given. Finally, the results of the studies relevant to the language/reading relationship were presented and critiqued.

The following conclusions were drawn from existing knowledge on the relationship of reading to language.

(6) From an extensive review of the research literature it is concluded that there is a strong positive correlation between oral language proficiency and reading achievement.

(7) Reading can be defined as constructing meaning from a visual representation of the surface structure of language, similar in every respect to comprehending speech in which meaning is constructed from an auditory representation of the same underlying language structure.

(8) Learning to read is similar to learning to comprehend speech, except for the fact that in most cases the person learning to read already knows the language. Therefore, if the person learning to read has linguistic competence in the language (knows the language), that person not only, only needs to break the alternate visual code but
also can use his knowledge of the language to help break the visual code.

(9) Given the opportunity, motivation, and a functional need, children will learn to read as naturally as they learned to speak. Thus, the reading teacher's role changes from teaching to motivator and facilitator in helping children learn to read.

(10) Children's ability to comprehend written language will vary depending on their experience with explicit, situation-independent language.

The Language/Reading Relationship and Socioeconomic Status

Basil Bernstein makes an important distinction between the language used by the middle-class, "elaborated code," and the language used by those of low-SES, "restricted code," which was explored in this section. Through case studies, a comparison was made between the experiential background of children from middle-class homes and those from low-SES homes to find precisely what it is that is lacking in the social environment of low-SES homes that is present in middle-class homes.

The following conclusions were made as a result of an investigation of the interrelationship between socioeconomic status and the language/reading relationship.

(11) A lack of the storybook reading experience is a cause of the inadequately developed language of many children from homes of low-SES.

(12) An interest in books and reading can provide the necessary impetus to become a proficient and life-long reader.
(13) If prior to entering school, the child has not had the necessary experience to develop his language to an adequate level to be able to learn to read with comprehension, then, it is the responsibility of the school to provide this experience.

The Language/Reading Relationship and Bilingualism

In his theoretical model of bilingual proficiency and learning James Cummins offers an explanation for the contradictory results of research on bilingual education. Central to his model is the developmental interdependence hypothesis which was explained in detail in this section. Effective programs of bilingual education which support his hypothesis and in turn support bilingual education were cited. Reasons were given why the majority of bilingual education programs in the United States have not been effective. Effective and ineffective programs of bilingual education were then compared to identify characteristics of effective programs which are not characteristic of ineffective programs.

The following conclusions were drawn as a result of a literature review of the interrelationship between bilingualism and language and reading.

(14) Bilingual education should be offered to those children who have demonstrated that they do not have adequate language proficiency to learn to read with comprehension.

(15) Initial reading instruction for minority language, low-SES children who generally do not have a sufficiently developed CALP in either language should be in L1 (first language).
Closing Statement

This literature review can most appropriately be concluded with the following optimistic look to the future. Yetta Goodman et al (1981) stated:

I foresee a time when our school practice will be conceived as an expansion of children's language development, when we will be working in harmony with their natural learning. Then, we will see the importance of all language experience in school being useful and relevant to the learner. We will appreciate at that time the strength of children as language learners and know how to support and build on such strength (p. 157). . . .

Literacy will soon, I believe, come to be accepted as a natural development for all learners, and we will have school programs that involve whole language right from the beginning. The classroom will become, then, a literate environment in which children read and write in increasingly more effective and varied ways (p. 158). . . .

The fight is a professional fight. But it is, in contemporary conditions, also a political fight. Researchers, scholars, parents must join the school professionals in waging this fight on behalf of learners. Knowledge is of no use if it is not applied. And there is much new knowledge to apply to the teaching and learning of oral and written language (p. 158).
In this chapter a detailed account is given of the procedure which was followed to determine the degree of correlation between the English oral language proficiency of first grade American Indian students on the Crow Indian Reservation prior to formal reading instruction and their reading achievement at the end of the first grade. This chapter includes a description of the following: (1) the population and selection procedure, (2) the language factors which were measured, (3) the instruments which were used to collect the data, (4) the method which was used to organize and depict the data, and (5) the statistics which was used to analyze the data. The major hypothesis and eighteen (18) hypotheses for the subcorrelations are stated in null form.

The Population

The population from which the sample for this study was drawn can be defined as Indian children who attended the first grade at one of the seven elementary schools on the Crow Indian Reservation during the 1982-83 school year. The subjects attended the following elementary schools: St. Charles Mission School and the public school in Pryor, the Indian controlled school at St. Xavier (Pretty Eagle), and the public schools at Fort Smith, Wyola, Lodge Grass, and Crow Agency.
The two largest schools at Crow Agency and Lodge Grass each had a student enrollment of between 250 and 300 students in kindergarten through the sixth grade. All the other schools had an enrollment of less than 100 students.

All of the students were near six years of age. Children who had been retained were not included in the population from which the sample was drawn. The English oral language proficiency of the students varied from virtually no English (monolingual Crow speakers), to bilingual children who were proficient in both English and Crow, to monolingual English speakers who spoke only English. The ancestry of the children was predominantly Crow Indian. However, some of the parents, although Indian, were from other tribes. Only one subject had a non-Indian parent. There was also a wide variance in the socioeconomic status of the students. The above stated similarities and differences in the population were necessary and important to the study because it was essential that the children be near the same age and yet show a wide range of variance in English language ability and in socioeconomic status.

A proportional, stratified random sample of about thirty (30) percent of the above defined population (first grade students attending school on the Crow Indian Reservation) was taken. Computer generated tables of random numbers were used to select a total of twenty-nine (29) students from eleven (11) first grade classes in seven (7) schools. One of the students was eliminated because he had a severe hearing problem. Since it was imperative that the subject's oral language proficiency be measured prior to the onset of the study, it
was not possible to replace this subject. The number of students selected from each class is shown on Table 1.

Table 1. Number of subjects drawn from population.

<table>
<thead>
<tr>
<th>School</th>
<th>Classroom</th>
<th>Population (N=94)</th>
<th>Sample (n=29)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fort Smith Public</td>
<td>Class A</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Pretty Eagle</td>
<td>Class B</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Lodge Grass Public</td>
<td>Class C</td>
<td>31</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Class D</td>
<td>(11)</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Class E</td>
<td>(10)</td>
<td>(3)</td>
</tr>
<tr>
<td>Pryor Public</td>
<td>Class F</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>St. Charles Mission</td>
<td>Class G</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Wyola Public</td>
<td>Class H</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Crow Agency Public</td>
<td>Class I</td>
<td>(10)</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Class J</td>
<td>(9)</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Class K</td>
<td>(10)</td>
<td>(3)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>94</td>
<td>29</td>
</tr>
</tbody>
</table>

As a part of this study the subjects were classified in reference to the linguistic abilities (both speaking and reading) of the children. In addition demographic data were collected to characterize the students at each level of reading achievement. The breakdown of each category is shown in Table 2 below:

Table 2. Breakdown of demographic data into categories.

<table>
<thead>
<tr>
<th>Category</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Female</td>
</tr>
<tr>
<td>Racial Background</td>
<td>Full blooded Crow Indian</td>
</tr>
<tr>
<td></td>
<td>Mixed ancestry</td>
</tr>
<tr>
<td>Linguistic make-up Parents:</td>
<td>Monolingual English</td>
</tr>
<tr>
<td></td>
<td>Bilingual: Crow/English</td>
</tr>
</tbody>
</table>
Table 2. (Continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child:</td>
<td>Monolingual English</td>
</tr>
<tr>
<td></td>
<td>Monolingual Crow</td>
</tr>
<tr>
<td></td>
<td>Bilingual: Crow/English</td>
</tr>
<tr>
<td></td>
<td>Bilingual: English/Crow</td>
</tr>
<tr>
<td>Socioeconomic Status</td>
<td></td>
</tr>
<tr>
<td>Combined income of</td>
<td>Below $10,000</td>
</tr>
<tr>
<td>parents:</td>
<td>Between $10,000 and $18,000</td>
</tr>
<tr>
<td></td>
<td>Above $18,000</td>
</tr>
<tr>
<td>Education of parents:</td>
<td>8th grade</td>
</tr>
<tr>
<td></td>
<td>High School</td>
</tr>
<tr>
<td></td>
<td>College</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
</tr>
<tr>
<td>Pre-reading Activity</td>
<td></td>
</tr>
<tr>
<td>Began reading storybooks to child:</td>
<td>2 years or younger</td>
</tr>
<tr>
<td></td>
<td>3 years or older</td>
</tr>
<tr>
<td>Average number of books:</td>
<td>2 or less per week</td>
</tr>
<tr>
<td></td>
<td>3 or more per week</td>
</tr>
<tr>
<td>Family Make-up</td>
<td></td>
</tr>
<tr>
<td>Parents:</td>
<td>Both parents</td>
</tr>
<tr>
<td></td>
<td>Single parent</td>
</tr>
<tr>
<td></td>
<td>Grandparents</td>
</tr>
<tr>
<td></td>
<td>Guardian</td>
</tr>
<tr>
<td>Siblings:</td>
<td>2 or less</td>
</tr>
<tr>
<td></td>
<td>3 or more</td>
</tr>
<tr>
<td>School</td>
<td>Fort Smith Public</td>
</tr>
<tr>
<td></td>
<td>Pretty Eagle</td>
</tr>
<tr>
<td></td>
<td>Lodge Grass Public</td>
</tr>
<tr>
<td></td>
<td>Fryor Public</td>
</tr>
<tr>
<td></td>
<td>St. Charles Mission</td>
</tr>
<tr>
<td></td>
<td>Wyola Public</td>
</tr>
<tr>
<td></td>
<td>Crow Agency Public</td>
</tr>
</tbody>
</table>
Language Factors

Several factors of both oral language and reading were observed, measured, and analyzed for this study. These factors were considered collectively and separately. Oral language was broken into the following factors: language fluency, language complexity, and linguistic competence and performance in the morphological, syntactical, semantic, and phonological aspects of language. Reading was broken into the following factors: recognition of words, reading comprehension, and oral reading.

Each of the six factors of oral language proficiency was combined with each of the three factors of reading achievement to make a total of eighteen (18) sub-correlations under the major correlation. Thus, it is possible to see the separate correlational relationships among the various aspects of the speaking and reading processes. The results of these sub-correlations also indicate which one factor of oral language proficiency is the best indicator of success in learning to read.

Language can briefly be defined as a system of arbitrary, vocal or visual symbols which permits all people who have learned that system to communicate. Language has four sub-systems. They are (1) phonology (the sound system), (2) morphology (that part of the grammatical system that deals with the structure and formation of words), (3) syntax (that part of the grammatical system that deals with the arrangement of words to form sentences), and (4) semantics (the underlying system concerned with meaning). All four systems are highly
complex and intricately interrelated. It is not possible to completely separate them and thus measure any one aspect in complete isolation. The best that can be done in this regard is to use instruments which focus in on one particular aspect.

In regard to language complexity, the concern is not whether the language the child uses is necessarily grammatically correct but how complex the construction of his sentences is and whether, in fact, he uses sentences at all. The complexity of language, however, is not necessarily dependent on number of words or sentence length. Consider the complexity of the sentence, "See Spot run." In measuring for complexity, it is critical that a speech sample which is indicative of the child's linguistic competency be obtained. An interview situation and "playground talk" yield poor speech samples. In the interview situation, only one or two word responses are necessary. At the playground, a minimal amount of language is necessary for communication. Speech samples obtained from telling a story, retelling a story, or "talking about a picture" are usually fairly representative of the linguistic competency of a child.

Fluency was not measured by just counting the number of words. Quality of sentence construction was also considered. For example, when scoring a string of words or phrases which were strung together with "ands" only the words prior to the first "and" were counted; whereas, any number of extensions to a sentence using "that" was counted because the use of "that" is grammatically much more complex. This method of scoring controlled for rambling.
Little description and explanation of the aspects of reading seem necessary. Word recognition simply assesses the child's knowledge of phonics rules, or whether the child has memorized the word as a sight word. A valid measure of reading comprehension at the first grade level is difficult to obtain from silent reading tests. Group (written) tests of reading comprehension sometimes only measure the child's ability to "read" the pictures. This is one reason why an oral reading test was also used to measure comprehension. The Goodmans' (Goodman & Goodman, 1978) rationale for scoring reading errors was used when scoring oral reading. When a child missed a word because he had substituted a grammatically and semantically correct word for the word which appeared in the text, a point was subtracted for accuracy but added to his comprehension score, for such errors, if the meaning is not altered, are good indicators of comprehension. An example of this type of "error" is the substitution of "daddy" for "father," a substitution which nearly twenty (20) percent of the subjects made.

Data Collection

Two processes of data collection were used. A brief personal interview with the parents or guardians of the subjects was conducted by the researcher to collect the following demographic data on each child: sex, ethnic background, linguistic make-up, socio-economic status, pre-reading activity, family make-up, and school. These data were used to respond to the following research question: How do the subjects at the various levels of reading achievement compare in
regard to level of oral language proficiency, sex, linguistic make-up, socioeconomic status, family make-up, and pre-reading activity?

A battery of tests of oral language proficiency and reading achievement was used to collect the data for the main hypothesis. Since there is no one instrument available which measures all aspects of oral language proficiency, it was necessary that a battery of three tests with their subtests be used. Two instruments were used to measure three aspects of reading achievement. The following instruments were used to measure the oral language proficiency of the subjects in September, 1982: The Basic Inventory of Natural Language (BINL) (Herbert, 1976), the Grammatic Closure subtest of the Illinois Test of Psycholinguistic Abilities (ITPA) (Kirk et al, 1969), and the Test of Oral Language Development (TOLD) (Hammill and Newcomer, 1977) to include the subtests Picture Vocabulary, Oral Vocabulary, Grammatic Understanding, Sentence Imitation, and Word Discrimination. The following instruments were used to measure the reading achievement of the subjects in April, 1983: The Gates-MacGinitie Reading Tests (GMRT) (MacGinitie et al, 1978) and the Gilmore Oral Reading Test (GORT) (Gilmore and Gilmore, 1968). The instruments which were used to measure each of the various aspects of oral language and reading are given in Table 3 below.

This researcher administered all the tests to all of the subjects. All of the subjects were given the oral language tests within a one week time span during September, 1982. Likewise, they were given the reading tests within one week in April, 1983.
### Table 3. Instruments used to measure language and reading factors.

<table>
<thead>
<tr>
<th>Language Factor</th>
<th>Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Fluency</td>
<td><strong>BINL</strong>&lt;br&gt;(Score associated with fluency)</td>
</tr>
<tr>
<td>Language Complexity</td>
<td><strong>BINL</strong>&lt;br&gt;(Score associated with complexity)</td>
</tr>
<tr>
<td>Phonology</td>
<td>Word Discrimination subtest of TOLD</td>
</tr>
<tr>
<td>Morphology</td>
<td>Grammatic Closure subtest of ITPA</td>
</tr>
<tr>
<td>Syntax</td>
<td>Grammatic Understanding subtest of TOLD&lt;br&gt;Sentence Imitation subtest of TOLD</td>
</tr>
<tr>
<td>Semantics</td>
<td>Oral Vocabulary subtest of TOLD&lt;br&gt;Picture Vocabulary subtest of TOLD&lt;br&gt;Sentence Imitation subtest of TOLD&lt;br&gt;Grammatic Understanding subtest of TOLD</td>
</tr>
<tr>
<td>Word Recognition</td>
<td>Vocabulary subtest of the GMRT</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>Comprehension subtest of the GMRT&lt;br&gt;Gilmore Oral Reading Test&lt;br&gt;(Score associated with comprehension)</td>
</tr>
<tr>
<td>Oral Reading</td>
<td>Gilmore Oral Reading Test</td>
</tr>
</tbody>
</table>

**Oral Language Tests**

Each of the instruments used to measure the oral language proficiency of the American Indian children who were the subjects of this study is described below.

**Basic Inventory of Natural Language (BINL)** (Herbert, 1976). BINL was used to measure oral language proficiency in terms of language complexity and fluency. Herbert (1976) stated that BINL is used to measure the syntactical aspect of English grammar and is used to calculate the average sentence length as a measure of fluency. With
this instrument, the use of important language features such as modifiers, phrases, and clauses is measured. The test is individually administered as follows: The exact words of the child are taped (and later transcribed) as s/he talks about three or four posters or a picture book s/he has selected. The administrator is cautioned to not ask yes-no questions but to simply say, "Tell me about the picture." Ten complete utterances, be they individual words, phrases or sentences are later transcribed, analyzed, and scored.

Four levels of language proficiency have been established by BINL with score ranges for K-12. The score ranges at the K-2 level are as follows: Non-English speaking (score range 0-24), limited English speaking (score range 25-49), fluent English speaking (score range 50-74) and proficient English speaking (score range 75-200).

Three validity tests have been conducted on the BINL. One was to test the validity of the BINL scoring system. It was conducted in 1974 on English-dominant and Spanish-dominant students from Southern California. The study was conducted to examine the correlation of average sentence length to level of complexity scores shown by BINL. The results lend minimal support to the validity of the BINL scoring system for measurement of language complexity across and within four combinations of English and Spanish speakers. For the 112 English-dominant speakers who took the test in English, the correlation was .43, and for the 70 English-dominant speakers who took the test in Spanish the correlation was .36. For the 95 Spanish-dominant speakers who took the test in English the correlation was .26, and for the 65
Spanish-dominant speakers who took the test in Spanish the correlation was .32.

Second, validity for dominance and proficiency was independently tested and studied by the Fresno Unified School District in 1975. In the conclusions of the study it was stated that the BINL "appears to discriminate between the languages in identifying dominance and to provide a valid measure of growth in language development."

Third, concurrent validity of language complexity was established by comparing the BINL scoring of language complexity with that of the Gilmore Oral Reading Test. The ten (10) increasingly difficult oral paragraphs of the Gilmore Oral Reading Test were found to be comparable to the speech of students at ascending levels of language complexity. Students who produced language comparable to the language of the Gilmore Oral paragraphs were placed on a scale of increasing BINL levels of complexity. The results of the study showed that the BINL average complexity level scores for all ten levels of the Gilmore Oral Reading Test rose as would student scores when similar levels of language were generated orally.

Two studies of the reliability of the BINL were conducted to find out if there is consistency of the levels of oral language complexity across the ten sentence samples taken from each student. The question was whether or not the first five sentences a student utters are as complex as the last five sentences. In conducting the studies a random sample of 2,808 students from a population of 7,500 English-dominant speakers from grades K-12 from Stockton, California, was selected. From San Diego 899 Spanish-dominant students, grades K-6,
were randomly selected from a population of 2,700. Students in both groups represented a cross-section of socioeconomic status. In both studies it was concluded that the level of language complexity of the first five sentences did not vary significantly from the last five sentences. The correlation coefficient for the English-dominant students from Stockton was \( r = 0.926 \); and for the Spanish-dominant students from San Diego, \( r = 0.927 \).

In 1979, a study of the frequency distribution of BINAL English oral language scores was made on a total of 125,887 students who had been tested using the BINAL. The students were from the Los Angeles Unified School District who came from homes where a language other than English was spoken. A total of 84 languages other than English was identified. The sample included a complete range of proficiency in the other-than-English language. The students represented all levels of socioeconomic status and were both boys and girls, ages 5-19. Data were analyzed to arrive at the minimum complexity level, the maximum complexity level, the mean average score, and the standard deviation of the scores by grade level. The standard deviation of the mean scores by grade level was consistently within a five (5) point raw score range. This was an expected level due to the diversity of the group's abilities. The second stage involved computing a correlation coefficient and a standard error of measurement for each of the grade levels. The correlation coefficient for the first grade was 0.96 and the standard error of measurement was 5.64.

Test of Oral Language Development (TOLD) (Hammill & Newcomer, 1977). Five subtests of TOLD were used. Each of the subtests is used
to measure a different aspect of spoken language. Semantics, the aspect of language associated with meaning, is measured by two subtests. One is Picture Vocabulary which is used to assess the ability to understand the meaning of words and is a measure of linguistic competence. In this subtest, the child must select one of four pictures that most closely matches a spoken stimulus word. The accompanying expressive subtest, Oral Vocabulary, is used to measure the ability to define common words that are spoken orally. The Grammatic Understanding and Sentence Imitation subtests are used to measure receptive and expressive abilities of that part of English grammar that deals with syntax. In the subtest, Grammatic Understanding, the child must select one of three pictures which best corresponds to a spoken sentence. Sentence Imitation involves the ability to repeat sentences spoken by the examiner. The Grammatic Closure subtest of the Illinois Test of Psycholinguistic Abilities which is described below was used in place of the Grammatic Completion subtest of TOLD.

Phonology was assessed by the subtest called Word Discrimination. Involved is the ability to differentiate between orally presented word pairs that are either the same or minimally different.

The TOLD subtests have been shown to have content validity. Item validity has been demonstrated on the items of the TOLD at all age levels. The median coefficients ranged from .31 to .74 and thus fell within the acceptable range of item-test correlations for well constructed tests.

To establish concurrent validity a particular criterion test was selected for each of the TOLD subtests. The following tests were used
as criterion measures: for the Word Discrimination subtest of TOLD, the Auditory Discrimination Test was used as a criterion-test; for the Word Articulation subtest of TOLD, the Templin-Barley Tests of Articulation; for the subtest Picture Vocabulary, the Peabody Picture Vocabulary Test; for the subtest Oral Vocabulary, the Weschler Intelligence Scale for Children; for the subtest Grammatic Comprehension, the receptive subtest of the Northwestern Syntax Screening Test; for the subtest Sentence Imitation, the expressive subtest of the Northwestern Syntax Screening Test; and for the Grammatic Completion subtest, the Grammatic Closure subtest from the Illinois Test of Psycholinguistic Abilities. When correlation coefficients were computed, all values except the Grammatic Comprehension/NSST - Receptive correlation were found to be well above the .30 minimum. In fact, most of the correlations were so high that the TOLD subtests could be used interchangeably with their criterion-test.

The concurrent validity of TOLD's total score was supported by another study in which the TOLD total score was correlated with the Test for Auditory Compreshension of Language. The resulting coefficients was .72 for the six-year-olds.

To establish construct validity, the intercorrelation coefficients associated with the TOLD subtests and criterion-tests listed above were factored according to the principal axis with a varimax rotation method. Two factors (syntax and morphology) with eigen values greater than 1.0 emerged from this analysis. Because the two phonological subtests did not load with the other subtests they were treated as
supplemental tests. Since the Word Articulation subtest is a supplemental test and since it is used primarily to identify problems in articulation, this researcher elected not use it. However, the other test of phonology, Word Discrimination, was used.

The diagnostic validity of the instrument is probably the most critical to this study. Diagnostic validity was demonstrated by establishing that the subtests of TOLD can be used to discriminate significantly among groups of children who differ in language competence. In a study in which a deviant language group (linguistically handicapped) was compared with a control group ("normal" speakers), it was indicated that all the TOLD subtests successfully differentiated children with language problems from normal speakers. All the t-ratios were significant beyond the .01 level of significance. Consequently, one might expect that the test results of the subtests of TOLD could be used to classify students into various stages of language development in any or all of the seven language abilities which were measured.

Information is provided concerning three types of reliability for TOLD - internal consistency, stability, and the standard error of measurement. Three studies were made to estimate the internal consistency of TOLD and its subtests. The reliability coefficients for six-year olds ranged from .61 for Picture Vocabulary to .95 for Sentence Imitation in the first study. For the second study, reliability coefficients ranged from .80 for Grammatic Understanding to .92 for Sentence Imitation. The third study was with children who had shown evidence of problems in oral communication. Internal consistency was estimated by applying the Kuder-Richardson formula 20 to the subject's
scores. The coefficients for the subtests ranged from .80 to .89. The coefficients derived from this analysis were large enough to suggest that all of the TOLD subtests can be administered reliably to linguistically handicapped children.

In order to study the stability of the TOLD, Pearson product-moment coefficients were computed on the scores of 21 children who had been tested twice, the intervening period being five days. The resultant coefficients of the subtests and the total were all found to be statistically significant at beyond the .01 level of significance as they exceeded .80 in every case.

Grammatic Closure subtest of the Illinois Test of Psycholinguistic Abilities (ITPA) (Kirk et al, 1969). The Grammatic Closure subtest of ITPA was used exclusively to measure linguistic competence and performance of the morphological aspect of language. This test is used to measure the child's ability to use the underlying rules of morphology in language by assessing the child's use of grammatic inflections. The tasks are used to elicit the child's spontaneous response to often repeated verbal expressions of standard English. It is used to measure the child's ability to supply the missing part of a grammatic inflection, hence, the word "closure." It is used to measure the form rather than the content of the missing word, since the content is provided by the examiner. For example, the examiner points to the appropriate pictures as he reads: "Here is a dog; here are two ___." The child responds "dogs."
ITPA was conceived as a diagnostic tool to delineate specific abilities and disabilities in the area of communication in pre-school age, mentally retarded children. After five years of clinical use and the accumulation of many research findings, including studies done with American Indian children, the materials and procedures of the experimental edition of the ITPA were redesigned and the test restandardized. The revised edition of the ITPA was published in 1968.

The Grammatic Closure subtest of ITPA was substituted for the Grammatic Completion subtest of TOLD. Conclusive evidence of the reliability and validity of the Grammatic Closure subtest of ITPA has been established. The only results which are given here are those which show that it is superior to its criterion-test, the Grammatic Completion subtest of TOLD. The reliability coefficient for six-year olds for the Grammatic Closure subtest of ITPA was .89 compared to the TOLD subtest which was .82 for one test of reliability and .83 for the other. This difference is insignificant. The important question is concerned with the validity of the Grammatic Completion subtest of TOLD. By not using pictures, the contaminating variable of difficulty is introduced in the Grammatic Completion subtest of TOLD. With this instrument, it is not possible to know whether a child misses an item simply because he does not understand what is being said or because he does not know the grammatical form of the word he is to supply. With the Grammatic Closure subtest of ITPA, the semantic content of the words can be deduced from the pictures; thus, only knowledge of the morphological rules of the language are measured and nothing else.
Reading Tests

Following is a description of the instruments which were used in April, 1983, to measure the reading achievement of the American Indian children who were the subjects of this study.

Gates-MacGinitie Reading Tests (GMRT) (MacGinitie et al, 1968). Level A, Form 1 of the Gates-MacGinitie Reading Tests was used to assess the general level of reading achievement of the students. In the GMRT there are two subtests, a Vocabulary Test and a Comprehension Test. The Vocabulary Test is used to measure primarily decoding skills. Each of the 45 items contains four words and a printed picture. The child is asked to read the words and choose the one which corresponds to the picture. The Comprehension Test involves the total reading task - understanding the relationships of words and ideas within a passage. Each passage is accompanied by four pictures. The child chooses the picture that illustrates the passage or that answers a question about the passage.

The following steps were taken to assure test validity of the GMRT. (1) Vocabulary words were selected from a special study of words in sixteen commonly used reading series for grades 1, 2, and 3, and from recognized lists of words frequently used in school reading materials. (2) Vocabulary items used to test decoding skills were developed on the basis of a special study of decoding skills taught in sixteen commonly used reading series for grades 1, 2, and 3. (3) Vocabulary words were chosen on the basis of their general usefulness; nonsense words were not used. (4) Content of comprehension
passages was chosen according to a plan that specified the proportion of natural science, social science, humanities, and narrative material for each test. The emphasis at the younger grade levels was on story material. (5) Passages were written to suit the knowledge and interests of children beginning to read. All passages were written in standard English. (6) The aim for the specially written materials for the primary grades was to maintain a high level of children's interest while providing a range of difficulty in vocabulary and structure particularly appropriate to children in the early grades. (7) Both literal and inferential questions were written to test understanding of the passages. (8) Prior to the initial tryout of items, all items were screened by minority consultants, and items that the consultants thought might be offensive to, or inappropriate for minority group members, were either rewritten or eliminated. Approximately twice as many items were constructed for the tryout as were used in the final forms. From this pool, only items of appropriate difficulty and usefulness as test items were chosen.

All levels of the Gates-MacGinitie Reading Tests have been shown to be highly reliable. Alternate-forms and the Kuder-Richardson Formula 20 reliability coefficients were computed for each test level. The K-R 20 coefficients ranged from .90 to .95 for the Vocabulary Test and from .88 to .94 for the Comprehension Test. Data on the standard error of measurement are provided in the examiner's booklet.

Since it is not possible to know for certain if a first grader is reading or guessing when making the responses in a silent reading test, an oral reading test was also used in this study. One of the
reasons the Gilmore Oral Language Test was chosen as one of the instru-
ments for this study is that it was used as a criterion-test in a 
correlation study for concurrent validity of BINL (Basic Inventory of 
Natural Language), one of the oral language tests used in this study.

The Gilmore Oral Reading Test (GORT) (Gilmore & Gilmore, 1968). 
GORT is used to measure reading accuracy, reading comprehension and 
reading rate. It consists of ten carefully constructed paragraphs of 
increasing difficulty. Not only does the vocabulary become more 
difficult but so does the complexity of the language which is used. 
The paragraphs form a continuous story which is illustrated. 

In the development of the paragraphs a good balance was maintained 
among several factors: vocabulary level, paragraph length, number of 
complex sentences, number of polysyllables, and overall readability. 
The most important aspect of the construction of the test was the 
gradation of the difficulty of the paragraphs. The three variables 
considered were vocabulary, sentence structure, and interest.

Vocabulary was controlled by increasing the number of words in 
each successive paragraph. This was done in order to accommodate the 
capacities of pupils of different levels of maturation. The difficulty 
of the vocabulary was also a major consideration. The reading 
paragraphs were revised according to the values contained in A Core 
Vocabulary (1960). With this list and a sampling of widely used 
readers an index of the grade in which words appear for the first time 
was compiled. Vocabulary difficulty was also regulated through the 
controlled use of polysyllabic words. The number of words of three or
more syllables increases gradually through the paragraphs. Besides the complexity of the word structure, consideration was also given to the concreteness or abstractness of the word.

Two factors of sentence difficulty were considered in the construction of the oral reading paragraphs—sentence length and percent of complex sentences. The mean number of words per sentence ranges from four (4) words per sentence in the first paragraph to 25-30 in the tenth paragraph. The percent of complex sentences varies from zero (0) in the first and second paragraphs to 70 percent in the tenth paragraph.

The student's comprehension of each paragraph in the test is tested by five questions, each relating to some item mentioned in the paragraph. Since the material was carefully graded with respect to vocabulary difficulty; grammatical construction, and subject matter, it was assumed that comprehension of the paragraphs would become progressively more difficult and that the questions would differentiate readers of varying degrees of comprehension skill.

The GORT was standardized in 1967 in six school systems. The school systems were selected in order to include cases from a variety of socioeconomic backgrounds. The eighteen schools involved ranged from an "inner city" school to a college laboratory school.

Concurrent validity was established by comparing test scores with those obtained from other oral reading tests. The following criterion tests were used: the Standardized Oral Reading Paragraphs by Gray, and the oral reading test from the Durrell Analysis of Reading Difficulty. The tests were administered to 25 pupils of the same age in Grade 5.
The Pearson product-moment correlations obtained from the study for accuracy were .77 for Gilmore-Gray, .80 for Gilmore-Durrell, and .73 for Gray-Durrell; for comprehension .59; and for rate .45 for Gilmore-Gray, .50 for Gilmore-Durrell, and .39 for Gray-Durrell.

The Gilmore Oral Reading Test was one of the several tests used in the Cooperative Research Program in First-Grade Reading Instruction, conducted by Guy L. Bond and Robert Dykstra (1964/1965). The range of intercorrelations between the Gilmore Accuracy scores and other measures was reported for the various reading treatments. For word reading the range was .75 to .83; and for paragraph meaning, from .78 to .85. In another study on the relationship of GORT with other measures of reading a correlation of .91 was found between the Wide Range Achievement Test and the GORT accuracy score.

To obtain reliability data, a research program was conducted in the spring of 1968. Form C was given to children in Grade 3 and grade 6. Form D was administered within two weeks of Form C. For the third grade alternate form reliability for accuracy was .94, for comprehension .60, and for rate .70. The standard error of measurement for accuracy was 2.5 and for comprehension was 3.2.

Organization of Data

In Chapter Four, frequency distribution tables (Tables 4 and 5) are used to show the number and percent of subjects at five levels of oral language proficiency and the number and percent of students at four levels of reading achievement. A comparison between the frequency distribution of the oral language proficiency and reading achievement
of the subjects of the study is also depicted with two bar graphs (Figures 2 and 3). A series of tables (Tables 6 through 10) are used to show the following characteristics of students at each of the four levels of reading achievement: oral language proficiency, pre-reading activity, socioeconomic status, linguistic make-up, family make-up and sex of the child.

The raw data for hypothesis one were organized for canonical correlation analysis by setting up a table (not shown) on which the raw scores for each of the six (6) independent variables and the (3) dependent variables were listed in columns for each subject. A nine-by-nine whole R matrix (shown on Table 12) was computed from this raw score data and was partitioned as in Figure 1 below.

Figure 1. Whole R matrix.

$$R_c = \begin{bmatrix} R_{11} & \cdots & R_{12} \\ \cdots & \ddots & \cdots \\ R_{21} & \cdots & R_{22} \end{bmatrix}$$

where $R_c$ = the whole correlation matrix of the $k+(n-k)$ variables
where $R_{11}$ = the correlations of the $k$ independent variables
where $R_{22}$ = the correlations of the $n-k$ dependent variables
where $R_{12}$ = the correlations between the independent and dependent variables
where $R_{21}$ = the transpose of $R$ (Kerlinger & Pedhazur, 1973).

The statistical results for the hypotheses were summarized with tables (Tables 13 and 14).
This study was conducted with a sample of a small and unique population; however, the subjects shared essential characteristics with the larger population identified in Chapter One. The American Indian children who were the subjects of this study were representative of a population who are language minority and of low-SES. It was important that the data be statistically analyzed and the statistical significance of the canonical correlations be assessed so that a generalization of the results of the study could be made to the population of American Indian children who attend school on the Crow Indian Reservation.

Description of the Statistics Used in the Study

Since the Pearson product-moment correlation coefficient is a common, widely used statistic it is not described. Canonical correlation is described because, according to Bruce Thompson (1980), even though this procedure has been available since 1935, "relatively few researchers have used the technique in published studies" (p. 1). Also, a basic understanding of canonical correlation is necessary to understand the stepwise canonical correlation technique which was used to further analyze the data for the major hypothesis.

Canonical correlation. Bruce Thompson (1980) defines canonical correlation as a "sophisticated multivariate technique which can be used to study relationships between two variable sets which each contain more than one variable" (p. 1). Thompson (1982) contends that
even though analysis of variance and its analogues are the most widely used, canonical correlation might be more appropriate for research when one or more of the independent variables are higher than nominally scaled and/or when there is more than one dependent variable. Thomas Knapp (1978) even argues that canonical correlation is a general procedure for investigating the relationship between two sets of variables and that "virtually all of the commonly encountered parametric tests of significance can be treated as special cases of canonical correlation analysis" (p. 410).

Kerlinger and Pedhazur (1982, 1973) explain the canonical correlation analysis process. First a whole R matrix is calculated in which the matrix is partitioned as shown in Figure 1 above. Thus, two linear composites are formed, one of the independent variables on the left and one of the dependent variables on the right. The correlation between these two composites is then analyzed to compute the canonical correlation R. Thus, as Kerlinger and Pedhazur (1973) said, canonical correlation "produces a double least squares solution." The canonical correlation squared which is the equivalent to the eigenvalue "represents the amount of variance in one canonical variate that is accounted for by the other canonical variate" (Warwick 1975:517).

Thompson (1980) defines canonical variate coefficients as the weights which are applied to the variables; each set of which constitutes a canonical function. He contends that canonical variate coefficients are calculated so that they meet the following two criteria. One, the squared canonical correlation coefficient indicates that "the proportion of variance shared by the two sets of variables
have been weighted by variate coefficients so that $R$ squared is as large as possible" (p. 2). In other words, as Warwick (1975) stated, "The basic strategy of canonical correlation analysis is to derive a linear combination from each of the sets of variables in such a way that the correlation between the two linear combinations is maximized" (p. 517). The second criterion met is that the product-moment correlation of all canonical functions must be zero. "In other words, each canonical function is always perfectly uncorrelated with every other function identified in an analysis" (Thompson, 1980:3). Thus, there can only be as many canonical functions as there are variables in the smaller set of variables.

According to Thompson (1980), canonical correlation involves three underlying assumptions. One, "the technique requires that 'true' correlations among the original variables can indeed be computed" (p. 3). However, this does not mean that only interval type variables can be used. "The second assumption of canonical correlation analysis is that the magnitude of the coefficients in the correlation matrix must not be attenuated by large differences in the shapes of the variables' distributions" (p. 4) because large disparities in the original variable distributions will affect the canonical analysis. The third assumption involves the test for statistical significance. This assumption requires that "the variables have a multivariate normal distribution in the population" (p. 5).

**Stepwise canonical correlation.** Bruce Thompson (1982) developed a statistical technique, stepwise canonical correlation, an extension
of canonical correlation which makes "canonical correlation analysis an even more useful procedure" (p. 2). Thompson explains, "The procedure is a direct analogue of multiple regression analysis" (p. 2).

Thompson (1982) explains the basic process in stepwise canonical correlation analysis as follows:

A canonical structure coefficient represents the correlation between a variable and a canonical function. The square of a canonical structure coefficient indicates the proportion of variance which a variable linearly shares with a canonical function. A variable's canonical communality coefficient is equal to the sum of all the variable's squared canonical structure coefficients; the number of structure coefficients which a variable has is equal to the number of variables in the smaller of the two variable sets. . . . Thus, variables with the smallest communality coefficients may be deleted in a stepwise procedure as a direct analogue to stepwise backward multiple regression analysis (p. 3).

An important consideration with a small sample size is that "stepwise canonical correlation analysis will produce more parsimonious results and will conserve degrees of freedom for hypothesis testing" (p. 3). For example, since "the degrees of freedom for testing the canonical correlation associated with the first canonical function is equal to the number of variables in each variable set times each other" the degrees of freedom for testing the statistical significance of the first canonical correlation in this study was six times three or eighteen (18). After the stepwise deletion of one of the predictor variables, the degrees of freedom was five times three or fifteen (15). The conservation of degrees of freedom is important because it "tends to reduce the likelihood of Type II errors occurring as a function of variable set sizes" (1982:4).
Statistical Hypotheses

The research hypotheses were stated in Chapter One. The statistical hypotheses are stated in null form below.

That for twenty-eight (n=28) American Indian children attending the first grade on the Crow Indian Reservation during the 1982-1983 school year:

1. The canonical correlation (R) between six language factors of oral language proficiency (independent/predictor variables) and three reading factors of reading achievement (dependent/criterion variables) is zero at the .01 level of significance.

   a. At Step 2 after the first stepwise canonical correlation deletion, the canonical correlation (R) between the remaining five independent/predictor variables and three dependent/criterion variables is zero at the .01 level of significance.

   b. At Step 3 after the second stepwise canonical correlation deletion, the canonical correlation (R) between the remaining four independent/predictor variables and three dependent/criterion variables is zero at the .01 level of significance.

2. The Pearson correlation coefficient (r) between oral language fluency and word recognition is zero at the .01 level of significance.

3. The Pearson correlation coefficient (r) between oral language fluency and reading comprehension is zero at the .01 level of significance.

4. The Pearson correlation coefficient (r) between oral language fluency and oral reading is zero at the .01 level of significance.

5. The Pearson correlation coefficient (r) between oral language complexity and word recognition is zero at the .01 level of significance.

6. The Pearson correlation coefficient (r) between oral language complexity and reading comprehension is zero at the .01 level of significance.

7. The Pearson correlation coefficient (r) between oral language complexity and oral reading is zero at the .01 level of significance.
8. The Pearson correlation coefficient (r) between linguistic competence and performance of the semantic aspect of language and word recognition is zero at the .01 level of significance.

9. The Pearson correlation coefficient (r) between linguistic competence and performance of the semantic aspect of language and reading comprehension is zero at the .01 level of significance.

10. The Pearson correlation coefficient (r) between linguistic competence and performance of the semantic aspect of language and oral reading is zero at the .01 level of significance.

11. The Pearson correlation coefficient (r) between linguistic competence and performance of the morphological aspect of language and word recognition is zero at the .01 level of significance.

12. The Pearson correlation coefficient (r) between linguistic competence and performance of the morphological aspect of language and reading comprehension is zero at the .01 level of significance.

13. The Pearson correlation coefficient (r) between linguistic competence and performance of the morphological aspect of language and oral reading is zero at the .01 level of significance.

14. The Pearson correlation coefficient (r) between linguistic competence and performance of the syntactical aspect of language word recognition is zero at the .01 level of significance.

15. The Pearson correlation coefficient (r) between linguistic competence and performance of the syntactical aspect of language and reading comprehension is zero at the .01 level of significance.

16. The Pearson correlation coefficient (r) between linguistic competence and performance of the syntactical aspect of language and oral reading is zero at the .01 level of significance.

17. The Pearson correlation coefficient (r) between linguistic competence of the phonological aspect of language and word recognition is zero at the .01 level of significance.

18. The Pearson correlation coefficient (r) between linguistic competence of the phonological aspect of language and reading comprehension is zero at the .01 level of significance.

19. The Pearson correlation coefficient (r) between linguistic competence of the phonological aspect of language and oral reading is zero at the .01 level of significance.
Analysis of the Data

As designed, canonical correlation analysis was used to measure the magnitude of the relationship and interrelationships between six language factors (predictor variables) and three reading factors (criterion variables). This was done to test hypothesis number one. The six language factors of oral language proficiency are (1) language fluency, (2) language complexity, (3) linguistic competence and performance of the morphological aspect of language, (4) linguistic competence and performance of the syntactical aspect of language, (5) linguistic competence and performance of the semantic aspect of language, and (6) linguistic competence of the phonological aspect of language. The three reading factors of reading achievement are (1) word recognition, (2) reading comprehension, and (3) oral reading.

The following procedure was used. With the subprogram CANCORR (Tucky, 1975:515) the raw data were analyzed and a nine-by-nine whole R matrix was generated and partitioned as in Figure 1 above. Thus, two linear composites were formed, one of the language factors (predictor variables) on the left and one of the reading factors (criterion variables) on the right. The partitions were then used to compute a new matrix from which the canonical correlation ($R_c$) was computed. The eigenvalue, the canonical correlation squared ($R_c^2$), which represents the proportion of variance in one canonical variate which is accounted for by the other canonical variate was also computed.

The whole R matrix was then used for the backward deletion of predictor variables with the stepwise canonical correlation procedure. Only independent/predictor variables were considered for deletion.
The variable with the smallest canonical communality coefficient was deleted at the first step. Two canonical functions were then extracted from this nine-by-nine whole R matrix by ignoring the correlations which involved the deleted variable. From the new eight-by-eight whole R matrix a second predictor variable was deleted by the same process. Finally, the third stepwise deletion was made from a seven-by-seven whole R matrix. Since there can be only as many canonical functions as there are variables in the smaller set of variables, which was three in this case, only three stepwise deletions could be made. A chi-square value was computed to test whether the original canonical correlation ($R_c$) was significant at the .01 level of significance. Chi-square test of statistical significance was also applied after each stepwise deletion to determine if the resulting canonical correlation ($R_c$) was significant at the .01 level of confidence.

The Pearson product-moment correlation coefficient (r) was employed to measure the correlation between each of six language factors, independent variables, with each of three reading factors, dependent variables, to produce a total of 18 correlation coefficients. Critical values at the .01 level of confidence were used for the correlation coefficients to determine which, if any, of hypotheses two (2) through nineteen (19) would be rejected.

All computation was done with a computer not only to insure accuracy but also because computation for canonical correlation analysis is so astronomical that hand calculation is prohibitive. The stepwise canonical correlation analysis was done by Dr. Bruce Thompson, the person who developed the procedure.
In this chapter the population was defined as Indian children who attended the first grade on the Crow Indian Reservation during the 1982-83 school year. A proportional, stratified random sample of about 30 percent of the population was drawn. Thus, there was a sample of twenty-eight children who were the subjects of the study.

The six language factors of oral language proficiency which were the independent variables for hypothesis number one and three factors of reading achievement which were the dependent variables were described. The instruments which were used to measure these factors and thus collect the data were described. To measure oral language proficiency the instruments were: the Basic Inventory of Natural Language (BINL); five subtests of the Test of Language Development (TOLD) to include Picture and Oral Vocabulary, Grammatic Understanding, Sentence Imitation, and Word Discrimination; and the Grammatic Closure subtest of the Illinois Test of Psycholinguistic Abilities. The tests to measure reading achievement were: the Gates-MacGinitie Reading Tests and the Gilmore Oral Reading Test. It was stated that demographic data were collected through interviews with the parents or guardian of each child.

It was explained that the data were organized and displayed with a number of tables and graphs to include a table of the whole R matrix for hypothesis number one and tables which summarize the results.
Nineteen hypotheses were stated in null form. The statistics which were used to analyze the data were described. Canonical correlation and stepwise canonical correlation were used to analyze the first hypothesis and chi-square was used to test the significance of the correlations. Pearson product-moment r was used to analyze the data for hypotheses two (2) through nineteen (19).

A portrayal of the data, as it was organized and analyzed, and the results of the analysis are reported in the following chapter.
CHAPTER 4

RESULTS OF THE STUDY

In the first part of the this chapter, the results of the objective analysis of the data are reported. Both the linguistic and demographic data were organized and are depicted in a series of tables. First, additional research questions one (1) and two (2) are responded to. Each null hypothesis is restated and the findings which result from the analysis of the data concerning that hypothesis is given in graphic and/or narrative form. Additional research questions three (3) and four (4) are then answered. The second part of this chapter deals with additional question number five (5) through a subjective analysis of selected subjects and their social environment in the form of mini-case studies and comparisons.

Results of the Objective Analysis of the Data

Since there was no statistical analysis of the demographic data, special care was taken to present these data in a descriptive, detailed, and meaningful manner; however, no conclusions or generalizations have been made regarding the demographic data. A brief mini-comparison is also made between three, middle-class Caucasian children who were going to school on the Crow Indian Reservation and the subjects of this study. Results of the statistical analysis of the data are then reported. The conclusion regarding which instrument(s)
most accurately measures oral language proficiency as a predictor of reading achievement is then given.

Comparison Between Oral Language Proficiency, Home Environment Factors, and Reading Achievement

This section, in addition to presenting the linguistic and demographic data in an organized form, also answers the following additional research question: How do the subjects at various levels of reading achievement compare in regard to the following characteristics - level of oral language proficiency, pre-reading activity, linguistic make-up, socioeconomic status, sex, and make-up of the family? Each part of this question is responded to separately.

Comparison between oral language proficiency and reading achievement. The following tables and graphs are presented in response to the first part of the above question: How do the subjects at various levels of reading achievement compare in regard to level of oral language proficiency? An attempt was also made to answer the following question: At what level of oral language proficiency should a child be to be successful in learning to read?

In the frequency distribution table, Table 4 below, the number and percent of students who scored at each of five levels of oral language proficiency are shown. The levels which are used here were defined by Herbert (1973) for the Basic Inventory of Natural Language (BINL). As shown by this table, there was a fairly normal distribution in oral language proficiency.
Table 4: Distribution of scores in oral language proficiency.

<table>
<thead>
<tr>
<th>Level of Oral Language Proficiency</th>
<th># of subjects</th>
<th>% of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (200-250) Proficient Speaker of English</td>
<td>4</td>
<td>14.3%</td>
</tr>
<tr>
<td>B (150-200) Fluent Speaker of English</td>
<td>5</td>
<td>17.9%</td>
</tr>
<tr>
<td>C (100-150) Limited Speaker of English</td>
<td>12</td>
<td>42.9%</td>
</tr>
<tr>
<td>D (50-100) Very Limited Speaker of English</td>
<td>6</td>
<td>21.4%</td>
</tr>
<tr>
<td>E (0-50) Non-Speaker of English</td>
<td>1</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

The distribution of reading scores at four levels of reading achievement is shown in Table 5 below. As can be seen on Table 5, 50 percent of the subjects in this study were classified as non-readers (Level D) and 71.4 percent were reading below grade level. It can be seen on Table 6 that all of these subjects, except one, were at Level C (limited English proficient) or below in their oral language proficiency before they began reading. These data would suggest that a child should be at least Level B in oral language proficiency before formal reading instruction begins, to read at grade level at the end of the first grade. However, it should also be noted that one subject at Level A in oral language proficiency scored in C level in reading achievement and one subject at Level B in oral language proficiency scored in Level D in reading achievement.

As can be seen by looking at Table 6, 100 percent of the subjects in Level A in reading achievement were also in Level A in oral language proficiency and 80 percent of the subjects in Level B reading were in Level B in language proficiency; whereas, 92.8 percent of the subjects who were in Level D in reading achievement were in Level C or lower in oral language proficiency.
Table 5. Distribution of reading achievement scores.

<table>
<thead>
<tr>
<th>Reading Level</th>
<th># of subjects</th>
<th>% of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level A (140-200)</td>
<td>3</td>
<td>10.7%</td>
</tr>
<tr>
<td>Above grade level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level B (90-140)</td>
<td>5</td>
<td>17.9%</td>
</tr>
<tr>
<td>At grade level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level C (50-90)</td>
<td>6</td>
<td>21.4%</td>
</tr>
<tr>
<td>Below grade level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level D (0-50)</td>
<td>14</td>
<td>50.0%</td>
</tr>
<tr>
<td>Non-reader</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6. Language proficiency at four levels of reading achievement.

<table>
<thead>
<tr>
<th>Level of oral language proficiency</th>
<th># and %</th>
<th># and %</th>
<th># and %</th>
<th># and %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level A</td>
<td>Level B</td>
<td>Level C</td>
<td>Level D</td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level A</td>
<td>3 - 100%</td>
<td></td>
<td>1 - 16.6%</td>
<td>1 - 7.1%</td>
</tr>
<tr>
<td>Level B</td>
<td>4 - 80%</td>
<td></td>
<td>4 - 66.6%</td>
<td>7 - 50.0%</td>
</tr>
<tr>
<td>Level C</td>
<td>1 - 20%</td>
<td></td>
<td>1 - 16.6%</td>
<td>5 - 35.7%</td>
</tr>
<tr>
<td>Level D</td>
<td>1 - 20%</td>
<td></td>
<td>1 - 20%</td>
<td></td>
</tr>
<tr>
<td>Level E</td>
<td>1 - 20%</td>
<td></td>
<td>1 - 20%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>14</td>
</tr>
</tbody>
</table>

A graphic comparison between the distribution of oral language proficiency and reading achievement scores is made with Figures 2 and 3 below.

Comparison between home environment factors and reading achievement. In Table 7 below the data are presented in response to the following part of the question: How do the subjects at various levels of reading achievement compare in regard to pre-reading activity? Specifically, when did their parents start reading storybooks to them and approximately how many books per week were read?
Figure 2. Level of oral language proficiency of the subjects.

Figure 3. Level of reading achievement of the subjects.
Table 7. Pre-reading activity at four levels of reading achievement.

<table>
<thead>
<tr>
<th>Read storybooks to subjects</th>
<th># and %</th>
<th># and %</th>
<th># and %</th>
<th># and %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Level A</td>
<td>Level B</td>
<td>Level C</td>
<td>Level D</td>
</tr>
<tr>
<td></td>
<td>Reading</td>
<td>Reading</td>
<td>Reading</td>
<td>Reading</td>
</tr>
<tr>
<td>2 and younger</td>
<td>3 - 100%</td>
<td>2 - 40%</td>
<td>2 - 33.3%</td>
<td>3 - 21.4%</td>
</tr>
<tr>
<td>3 and older</td>
<td>3 - 60%</td>
<td>4 - 66.6%</td>
<td>11 - 78.6%</td>
<td></td>
</tr>
</tbody>
</table>

As can be seen by looking at Table 7, one hundred percent of the subjects in Level A reading achievement started listening to storybooks being read to them when they were two years old or younger and three or more books were read to them a week; whereas, 78.6 percent of the students in Level D reading achievement started listening to books when they were three years old or older and 92.9% of the them listened to two or less books per week.

The data in response to the next part of the question are presented in Table 8 below. The question is as follows: How do the subjects at the various levels of reading achievement compare in regard to linguistic make-up? In other words, which parents were found to be bilingual and which were monolingual speakers of English? Which of the subjects were found to be bilingual, which monolingual English speakers, and which were monolingual speakers of Crow?
Table 8. Linguistic make-up of subjects at 4 reading levels.

<table>
<thead>
<tr>
<th>Language(s) spoken by child</th>
<th># and % Level A Reading</th>
<th># and % Level B Reading</th>
<th># and % Level C Reading</th>
<th># and % Level D Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>*English/Crow</td>
<td>1 - 33.3%</td>
<td>2 - 40%</td>
<td>2 - 33.3%</td>
<td>10 - 71.4%</td>
</tr>
<tr>
<td>Crow/English</td>
<td>1 - 33.3%</td>
<td>1 - 20%</td>
<td>2 - 33.3%</td>
<td>3 - 21.4%</td>
</tr>
<tr>
<td>English</td>
<td>2 - 66.6%</td>
<td>2 - 40%</td>
<td>4 - 66.6%</td>
<td>1 - 7.1%</td>
</tr>
<tr>
<td>Crow</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bilingualism of parents

Mother-Father

| **B - B** | 3 - 60% | 3 - 50% | 12 - 85.7% |
| **M - B** | 2 - 66.6% | 1 - 16.6% | 2 - 14.3% |
| **B - M** | 1 - 20% | 1 - 16.6% |           |
| **M - M** | 1 - 33.3% | 1 - 20% | 1 - 16.6% |

*The dominant language is given first.
**"B" stands for bilingual and "M" stands for monolingual.

As can be seen, 71.4 percent of the subjects who were in Level D reading, spoke Crow as their dominant language and the one subject who was classified as monolingual Crow was also in Level D. However, the subject who had the highest score in both oral language proficiency and reading achievement was bilingual. There were four monolingual English speakers at Levels A and B in reading achievement and seven in Levels C and D. Both parents of 50 percent of the students in Level C and 85.7% of the students in Level D reading were found to be bilingual.

Table 9 below was constructed to present the data in response to the following question: How do the subjects at the various levels of reading achievement compare in regard to socioeconomic status? What
Table 9. Socioeconomic status of subjects at four reading levels.

<table>
<thead>
<tr>
<th>Family income</th>
<th># and % Level A</th>
<th># and % Level B</th>
<th># and % Level C</th>
<th># and % Level D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reading</td>
<td>Reading</td>
<td>Reading</td>
<td>Reading</td>
</tr>
<tr>
<td>$18,000 and over</td>
<td>2 - 66.6%</td>
<td>2 - 33.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$10,000-$18,000</td>
<td>1 - 33.3%</td>
<td>1 - 20%</td>
<td>1 - 16.6%</td>
<td>5 - 35.7%</td>
</tr>
<tr>
<td>Less than $10,000</td>
<td>1 - 33.3%</td>
<td>4 - 80%</td>
<td>3 - 50.0%</td>
<td>9 - 64.3%</td>
</tr>
</tbody>
</table>

Education of parents

<table>
<thead>
<tr>
<th>Mother</th>
<th>Father</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>H</td>
</tr>
<tr>
<td>H</td>
<td>8</td>
</tr>
<tr>
<td>C</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>C</td>
</tr>
<tr>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>C</td>
<td>H</td>
</tr>
<tr>
<td>H</td>
<td>C</td>
</tr>
<tr>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

8 = completed eighth grade
H = graduated from high school
C = attended college
is the family income of the subjects in each of the four levels of reading achievement? What is the education level of their parents?

In regard to socio-economic status, 66.6 percent of the parents of the subjects in Level A in reading achievement had incomes of over $18,000 and none of the families of the children in Level A had an income of less than $10,000; whereas, 64.3 percent of the parents of the subjects in Level D reading had incomes of below $10,000 and none had an income of over $18,000. One or both of the parents of 64.2 percent of the subjects in Level D reading achievement had only an eighth grade education. One of the parents of 66.6 percent of the subjects in Level A had a college education.

The data on Table 10 were compiled to answer the following questions: How do the subjects at the various reading levels compare in regard to family make-up? In other words, how many siblings did they have? Were both parents living at home? How many boys and how many girls were at each of the four levels of reading achievement?

In regard to family make-up, 100 percent of the children in Level A reading were living with both parents and had two or less brothers and sisters. However, both parents of 83.3 percent of the subjects in Level C and 57.1 percent of the subjects in Level D were also living at home. The subjects were fairly evenly distributed in regard to sex with a fifty-fifty split in Level D.
Table 10. Family make-up of the subjects at 4 reading levels.

<table>
<thead>
<tr>
<th>Make-up of the family</th>
<th># and %</th>
<th># and %</th>
<th># and %</th>
<th># and %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level A</td>
<td>Level B</td>
<td>Level C</td>
<td>Level D</td>
</tr>
<tr>
<td>Parents at home</td>
<td>Reading</td>
<td>Reading</td>
<td>Reading</td>
<td>Reading</td>
</tr>
<tr>
<td>Mother-Father</td>
<td>3 - 100%</td>
<td>3 - 60%</td>
<td>5 - 83.3%</td>
<td>8 - 57.1%</td>
</tr>
<tr>
<td>Mother only</td>
<td>1 - 20%</td>
<td>1 - 20%</td>
<td>1 - 16.6%</td>
<td>1 - 7.1%</td>
</tr>
<tr>
<td>Father only</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grandparents</td>
<td>1 - 20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of siblings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 or more</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 or less</td>
<td>3 - 100%</td>
<td>4 - 80%</td>
<td>3 - 50.0%</td>
<td>3 - 21.4%</td>
</tr>
<tr>
<td>Sex of the subject</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>1 - 33.3%</td>
<td>3 - 60%</td>
<td>2 - 33.3%</td>
<td>7 - 50.0%</td>
</tr>
<tr>
<td>Male</td>
<td>2 - 66.6%</td>
<td>2 - 40%</td>
<td>4 - 66.6%</td>
<td>7 - 50.0%</td>
</tr>
</tbody>
</table>

A Comparison Between Selected Subjects and Caucasian Children

An additional comparison was made to suggest answer the following question: In regard to oral language proficiency and reading achievement, how did the subjects of this study compare with Caucasian, middle-class children who attended the same schools? This question is often asked in a slightly different way. Why do Caucasian, middle-class children who attend reservation schools, have the same teachers, and use the same textbooks and materials, succeed while so many of the Indian children fail? A comparison was made to suggest an answer to this perplexing question. It should be noted that even though representative and proportional, this comparison was made with only three
Caucasian children. The comparison was made to provide some insight into the situation, not to give any definitive answers. Data were collected on three Caucasian children who attended three different schools on the Crow Indian Reservation. The data were collected at the same time and with the same instruments as were used with the subjects of the study. So that a comparison can be made, Table 11 was constructed. The scores of the three subjects who scored the highest in reading and in oral language and the three who scored the lowest are given. The mean score and standard deviation for each test for all the subjects (n=28) are also given. This is followed by the oral language and reading scores of the Caucasian children.

Table 11. Oral language and reading scores for Caucasian children and selected subjects.

<table>
<thead>
<tr>
<th>Oral language proficiency</th>
<th>Reading achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variables</td>
<td>Independent Variables</td>
</tr>
<tr>
<td>Case Flncy Cmplx Morph Syntx Smntc Phono LaTotl Decd Cmpr OrlRd RdTotl</td>
<td></td>
</tr>
<tr>
<td>1A. 15.7 95 18 35 61 17 241.7</td>
<td>35 51 75 161</td>
</tr>
<tr>
<td>2D. 11.6 74 20 30 53 17 205.6</td>
<td>41 45 65 151</td>
</tr>
<tr>
<td>3C. 8.5 68 17 37 65 20 215.5</td>
<td>35 46 62 143</td>
</tr>
<tr>
<td>12B. 11.7 70 22 42 73 18 236.7</td>
<td>17 17 23 57</td>
</tr>
</tbody>
</table>

Lowest scoring subjects in reading achievement

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>26U. 4.3 22 3 17 35 12 93.3</td>
<td>9 9 3 21</td>
<td></td>
</tr>
<tr>
<td>27X. 4.3 18 9 16 32 8 87.3</td>
<td>12 11 -3 20</td>
<td></td>
</tr>
<tr>
<td>28Z. 1.2 2.7 2 4 18 5 32.9</td>
<td>8 6 -8 6</td>
<td></td>
</tr>
</tbody>
</table>

Mean and standard deviation of subjects' scores

<table>
<thead>
<tr>
<th>Mean</th>
<th>S.D.</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.9</td>
<td>41.6</td>
<td>10.0</td>
<td>21.2</td>
</tr>
<tr>
<td>21.2</td>
<td>40.4</td>
<td>13.0</td>
<td>9.4</td>
</tr>
<tr>
<td>9.4</td>
<td>43.7</td>
<td>4.2</td>
<td>9.1</td>
</tr>
<tr>
<td>19.4</td>
<td>11.8</td>
<td>22.9</td>
<td>23.9</td>
</tr>
</tbody>
</table>

Scores of Caucasian children

| | | | | | | |
|---|---|---|---|---|---|
| 1W. 7.5 65 24 45 71 20 232.5 | 37 49 66 152 |
| 2W. 7.1 66 25 36 68 20 222.1 | 39 44 68 151 |
| 3W. 9.7 73 21 38 64 17 222.7 | 35 45 56 136 |
KEY:

Case = Subjects
The children are listed in rank order according to their total reading scores. The letter, following the number, denotes rank order position according to the total language score.

Flncy = Oral Language Fluency
This score is the average number of words per sentence from a sample of at least ten utterances.

Cmplx = Level of Oral Language Complexity
This score represents the average level of complexity of the language structures used in a sample of at least ten utterances.

Morph = Morphology
This score represents the level of linguistic competence and performance of the morphological aspect of the English language.

Syntx = Syntax
This score represents the level of linguistic competence and performance of the syntactical aspect of the English language.

Smntc = Semantics
This score represents the level of linguistic competence and performance of the semantic aspect of the English language.

Phono = Phonology
This score represents the level of linguistic competence of the phonological aspect of the English language.

LaTotl = Total Oral Language Score
This score was used only to rank order the subjects.

Decd = Decoding of Reading Words
This score represents the ability to decode and/or recognize printed English words.

Compr = Reading Comprehension
This score represents the ability to read English text and comprehend the content.

OrlRd = Oral Reading
This score represents the ability to read English text aloud.

RdTotl = Total Reading Score
This score was used only to rank order the subjects.
The parents of Child 1W and Child 2W were ranchers. Child 2W's mother was also the librarian at the Fort Smith school. Child 3W's father taught at the high school in Pryor and his mother was attending graduate school. These children were from middle-class homes. The oral language scores of these children are typical for middle-class, six-year-old children. It can be assumed that the variance in oral language proficiency would be just as insignificant among the general population of middle-class six-year-old children as it was for these children. However, it is quite possible that there would be considerably more variance in reading achievement than was found in this very small sample of three. There are deviants such as 12B who seem to not be motivated to learn to read. There are, of course, numerous causes of reading failure.

As can be seen by looking at Table 11 above, the oral language and reading scores for the three top scoring subjects were very similar to those of the Caucasian children. In fact, the subjects' scores were somewhat higher. Child 1A retained her top position in both oral language and reading. It can also be seen how far from the mean the Caucasian children's scores were and the wide range in variance between the scores of both the Caucasian children and the highest scoring subjects with the scores of the lowest scoring subjects.

A comparison of home environment factors between the Caucasian children and the top scoring subjects reveals that all of the children spoke English as their first and dominant language. However, it should be noted that Child 1A is bilingual. All of the families except one had incomes above $18,000. All the children were from
small families in which both parents were present. At least one of each of the Caucasian children's parents had a college education. Child 1A's mother had a college education and all of the top scoring subjects' parents had at least a high school education. Without exception, the parents started reading to the children when they were one or two years old and read to them almost every night. The one difference that stands out in the home environment of the lowest scoring subjects was that their parents had rarely, if ever, read to them.

Results of the Statistical Analysis of the Data

Null hypothesis number one is restated. The results of the canonical correlation analysis of this major hypothesis, hypothesis number one, and each of the stepwise deletions are then given. This will include a table showing the whole R matrix and a summary table of the canonical correlation analysis. The results of the Pearson r correlations to include a summary table and a scattergram for each of the eighteen (18) subcorrelations are given.

Statistical hypothesis number one. For twenty-eight (n=28) American Indian children who attended the first grade on the Crow Indian Reservation during the 1982-1983 school year, the canonical correlation ($R_c$) between six language factors (predictor variables) and three reading factors (criterion variables) is zero.

The canonical correlation ($R_c$) was found to be .8333, significant at the .0002 level of significance; therefore, null hypothesis number one was rejected. The eigenvalue was found to be .6944; thus, 69.4
percent of the variance in the reading scores of these subjects can be said to be accounted for by the variance of their oral language scores. The canonical correlation from the set of canonical variates with the next largest amount of variance (canonical function number two) was found to be .6871, significant at .032, with an eigenvalue of .4721. The independent variable, phonology, was deleted at this step of the stepwise canonical correlation analysis. The communality coefficient for phonology was found to be .5854; thus 58.5 percent of the variance accounted for by phonology was reproducible by the other possible canonical functions.

At Step 2 the canonical correlation analysis was computed from an eight-by-eight whole R matrix since the independent variable phonology had been deleted. The canonical correlation \( r_c \) was found to be .8078 for the first function with a level of significance of .002. The eigenvalue or RC squared \( r_c^2 \) was found to be .6525. The independent variable, fluency, which had a communality coefficient of .7385 was deleted at this step.

Canonical correlation was computed with the remaining seven variables at Step 3 of the analysis. The canonical correlation \( r_c \) for the first function was found to be .8077 with an eigenvalue of .6524. At this step, all three communalities were close to one and so no variables in the set could be deleted.

The nine-by-nine whole R matrix in Table 12 below is the matrix which was used to compute the canonical correlation at Step 1 of the analysis. Phonology was deleted from this matrix for Step 2 of the analysis and fluency was deleted from this matrix for Step 3 of the
Table 12. The 9x9 whole R matrix.

<table>
<thead>
<tr>
<th></th>
<th>Flncy</th>
<th>Cmplx</th>
<th>Morph</th>
<th>Syntx</th>
<th>Smntc</th>
<th>Phono</th>
<th>Decde</th>
<th>Compr</th>
<th>OrlRd</th>
</tr>
</thead>
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<td>.614</td>
<td>.627</td>
<td>.599</td>
<td>.488</td>
<td>.625</td>
<td>.664</td>
<td>.667</td>
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<tr>
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<td>1.000</td>
<td>.603</td>
<td>.674</td>
<td>.630</td>
<td>.483</td>
<td>.651</td>
<td>.698</td>
<td>.679</td>
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<td>.603</td>
<td>1.000</td>
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<td>.708</td>
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<td>.674</td>
<td>.797</td>
<td>1.000</td>
<td>.966</td>
<td>.527</td>
<td>.642</td>
<td>.659</td>
<td>.699</td>
</tr>
<tr>
<td>Smntc</td>
<td>.599</td>
<td>.630</td>
<td>.813</td>
<td>.966</td>
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<td>.425</td>
<td>.527</td>
<td>.567</td>
<td>1.000</td>
<td>.547</td>
<td>.466</td>
<td>.442</td>
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<tr>
<td>Decde</td>
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<td>.651</td>
<td>.708</td>
<td>.642</td>
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<td>.547</td>
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<td>.904</td>
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<td>.927</td>
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Table 13. Summary table of the canonical correlation analysis

<table>
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<tr>
<th>Step 1</th>
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<th>RC²</th>
<th>RC</th>
<th>Chi-Square</th>
<th>DF</th>
<th>Level of Significance</th>
<th>Stepwise Deletion</th>
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<tr>
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<td>46.97</td>
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<td>.0002</td>
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<td>2</td>
<td>.472</td>
<td>.687</td>
<td>18.85</td>
<td>10</td>
<td>.032</td>
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<td>3</td>
<td>.196</td>
<td>.442</td>
<td>5.01</td>
<td>4</td>
<td>.286</td>
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</tr>
</tbody>
</table>

Step 2

|        | 1      | .652 | .808 | 35.67      | 15 | .002                 | Fluency           |
|        | 2      | .315 | .561 | 10.84      | 8  | .211                 |                   |
|        | 3      | .792 | .281 | 1.94       | 3  | .585                 |                   |

Step 3

|        | 1      | .652 | .808 | 33.33      | 12 | .0006                | none              |
|        | 2      | .294 | .543 | 8.97       | 6  | .175                 |                   |
|        | 3      | .025 | .157 | .60        | 2  | .741                 |                   |
analysis. Note that the values of the correlation matrix are simple Pearson r correlation coefficients.

Statistical hypotheses 2 through 19. Following are the results of the Pearson product-moment correlation analysis for each hypothesis two through nineteen.

For twenty-eight (n=28) American Indian children who attended the first grade on the Crow Indian Reservation during the 1982-1983 school year:

2. The Pearson correlation coefficient (r) between oral language fluency and word recognition was found to be .625, significant at the .0002 level of significance; therefore, null hypothesis number two was rejected.

3. The Pearson correlation coefficient (r) between oral language fluency and reading comprehension was found to be .664, significant at the .00006 level of significance; therefore null hypothesis number three was rejected.

4. The Pearson correlation coefficient (r) between oral language fluency and oral reading was found to be .667, significant at the .00005 level of significance; therefore, null hypothesis number four was rejected.

5. The Pearson correlation coefficient (r) between oral language complexity and word recognition was found to be .651, significant at the .00009 level of significance; therefore, null hypothesis number five was rejected.

6. The Pearson correlation coefficient (r) between oral language complexity and reading comprehension was found to be .698, significant at the .00002 level of significance; therefore, null hypothesis number six was rejected.

7. The Pearson correlation coefficient (r) between oral language complexity and oral reading was found to be .679, significant at the .00004 level of significance; therefore, null hypothesis number seven was rejected.
8. The Pearson correlation coefficient (r) between linguistic competence and performance of the semantic aspect of language and word recognition was found to be .592, significant at the .00045 level of significance; therefore, null hypothesis number eight was rejected.

9. The Pearson correlation coefficient (r) between linguistic competence and performance of the semantic aspect of language and reading comprehension was found to be .655, significant at the .00008 level of significance; therefore, null hypothesis number nine was rejected.

10. The Pearson correlation coefficient (r) between linguistic competence and performance of the semantic aspect of language and oral reading was found to be .669, significant at the .00005 level of significance; therefore, null hypothesis number ten was rejected.

11. The Pearson correlation coefficient (r) between linguistic competence and performance of the morphological aspect of language and word recognition was found to be .708, significant at the .00001 level of significance; therefore, null hypothesis number eleven was rejected.

12. The Pearson correlation coefficient (r) between linguistic competence and performance of the morphological aspect of language and reading comprehension was found to be .683, significant at the .00003 level of significance; therefore, null hypothesis number twelve was rejected.

13. The Pearson correlation coefficient (r) between linguistic competence and performance of the morphological aspect of language and oral reading was found to be .740, significant at the .00000 level of significance; therefore, null hypothesis number thirteen was rejected.

14. The Pearson correlation coefficient (r) between linguistic competence and performance of the syntactical aspect of language and word recognition was found to be .642, significant at the .00012 level of significance; therefore, null hypothesis number fourteen was rejected.

15. The Pearson correlation coefficient (r) between linguistic competence and performance of the syntactical aspect of language and reading comprehension was found to be .659, significant at the .00007 level of significance; therefore, null hypothesis number fifteen was rejected.

16. The Pearson correlation coefficient (r) between linguistic competence and performance of the syntactical aspect of language
and oral reading was found to be .699, significant at the .00002 level of significance; therefore, null hypothesis number sixteen was rejected.

17. The Pearson correlation coefficient (r) between linguistic competence of the phonological aspect of language and word recognition was found to be .547, significant at the .0013 level of significance; therefore, null hypothesis number seventeen was rejected.

18. The Pearson correlation coefficient (r) between linguistic competence of the phonological aspect of language and reading comprehension was found to be .466, significant at the .0062 level of significance; therefore, null hypothesis number eighteen was rejected.

19. The Pearson correlation coefficient (r) between linguistic competence of the phonological aspect of language and oral reading was found to be .442, significant at the .00924 level of significance; therefore, null hypothesis number nineteen was rejected.

The results of hypotheses two through nineteen are summarized in Table 14 below. The hypotheses have been arranged in rank order according to degree of correlation. Table 14 is followed by a scattergram for each hypothesis two through nineteen. The scattergrams graphically illustrate the goodness of fit of the linear regression of each correlation. They are also arranged in rank order just as in Table 14.

Correlation between instruments which assessed oral language proficiency and reading achievement. The subjects' scores were used in a Pearson r correlation analysis to determine which one of the instruments which were used to measure oral language proficiency was the best predictor of reading achievement. Correlation coefficients were computed for each set of variables in which the tests of oral language proficiency were the predictor variables and the tests of
Table 14. Summary table of the results of hypotheses 2 through 29.

<table>
<thead>
<tr>
<th>Hypothesis Number</th>
<th>Variables</th>
<th>r</th>
<th>( r^2 )</th>
<th>Significance</th>
<th>Decision</th>
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<tr>
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<tr>
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</tr>
<tr>
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<tr>
<td>3</td>
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<tr>
<td>8</td>
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<td>Phonology/Oral Reading</td>
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<td>.196</td>
<td>.0092</td>
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</tbody>
</table>

reading achievement were the criterion variables. Thus, an attempt was made to answer the following additional research question: What single measure (test) of oral language proficiency is the best indicator of reading achievement? As can be seen on Table 15 below, the Grammatic Closure subtest of the Illinois Test of Psycholinguistic Abilities (ITPA), which is used to measure a child's linguistic competence and performance of the morphological aspect of the English language, was found to be the best single predictor of success in learning to read English text. The correlation coefficient for the Sentence Imitation subtest of the Test of Oral Language Development (TOLD), which is used to measure a child's ability to reproduce sentences of the English language, was only slightly less. It should
Table 15. Correlation between tests of oral language proficiency and reading achievement.

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Pearson r</th>
<th>Significance Level</th>
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<tr>
<td>Grammatic Closure (ITPA)</td>
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<tr>
<td>Sentence Imitation (TOLD)</td>
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<td>.00001</td>
</tr>
<tr>
<td>Word Discrimination (TOLD)</td>
<td>.482</td>
<td>.005</td>
</tr>
<tr>
<td>Grammatic Understanding (TOLD)</td>
<td>.468</td>
<td>.006</td>
</tr>
<tr>
<td>Oral Vocabulary (TOLD)</td>
<td>.456</td>
<td>.007</td>
</tr>
<tr>
<td>Picture Vocabulary (TOLD)</td>
<td>.368</td>
<td>.027</td>
</tr>
</tbody>
</table>

also be noted on Table 15 that there is quite a large gap in the correlation coefficients between these two instruments and the rest of the instruments. Therefore, it is suggested that both of these instruments be used as indices of subsequent reading achievement. Because vocabulary tests are often used not only as a measure of oral language proficiency, but also as a measure of intelligence, it will surprise some people that the Picture Vocabulary subtest of (TOLD) had the lowest correlation with reading achievement of any of the instruments.

This concludes the report of the results of the objective analysis of the data. Following is a description of the personality characteristics and home environmental factors of selected subjects.

Subjective Analysis of the Subjects

Personal and subjective information about some of the children in this study should bring additional insight and a more humanistic understanding of the problem and possible solutions. Relevant information about other subjects of this study is reported; however, a more detailed description is given of the students at the extremes - the
three subjects who scored the highest and the three who scored the lowest on the reading achievement tests.

**Top Three Students in Reading Achievement**

The oral language proficiency and reading achievement test scores of these children can be seen on Table 11 above. It should be remembered that the subjects were listed in rank order according to each child's total reading score and that the letter, following the number, denotes rank order position according to each child's total language score.

**Child 1A.** Child 1A scored the highest in both oral language and reading, hence the code number "1A." She is bilingual, but English is her first and dominant language. Her mother spoke only English and her father was a bilingual Crow/English speaker. Child 1A occasionally spoke Crow with her grandparents and some of her friends, but English was spoken almost exclusively in the home.

Her mother was a counselor at the school at Crow Agency. Her father had a good steady job. Their income was over $18,000. Her mother was working on getting a Master's degree in education. Her father was a high school graduate. Child 1A's mother seemed ready and able to help her children with their school-work whenever they needed help. Her father was also present both times the researcher visited the home. He was also interested in his children's education and proud of them. Child 1A's family was a warm, close, and happy family with an ideal mixture of both Crow Indian and white middle-class cultures. Thus, Child 1A had the advantages of both a closely-knit
immediate family and the added support of a large extended family. She talked about her upcoming dance recital and a Crow birthday celebration in the same breath. Crow birthday celebrations are often big events with a feast to which the entire extended family is invited. Her grandmother, who is a very traditional Crow Indian, said she was at first concerned because her daughter-in-law was so strict and demanding of the children for, as she said, that is not the "Crow way." The grandmother, however, said that she now realized that this kind of training was necessary and important in getting a "whiteman's" education.

Child IA has an older brother; from the time she was a baby, she would sit and listen when her parents read books to him. She seemed to get along well with her brother who was happy and willing to sit and listen when she now read to him. Books were everywhere — book collections, library books, school books.

Crow Agency, where Child IA attended school, used Ginn 720. Her mother said her daughter and two of her friends were racing to see how many levels they could complete before the end of the school year. They had just finished Level 6. This characteristic in Child IA was evidenced when she took the oral reading test. She was anxious to continue reading even though the reading became extremely difficult for her. She was the only one of the children tested who attempted Paragraph 5 of the Gilmore Oral Reading Test. She was twisting her hair and pulling on her shirt, but she read through it all. Even though she didn't know over half of the words, she answered all of the comprehension questions correctly. In response to one of the questions, she answered just as she had read, "a sparkling Montana lake",
for "a sparkling mountain lake." In others words, as long as she knew "lake," and she intuitively knew the grammar of the English language, she could, as Kenneth Goodman would say, make a psycholinguistic guess at the adjectives which preceded "lake." This is what she did.

Child 2D. Child 2D was a quiet, conscientious boy. He also came from a small, close family. He had one sister who is younger than he. Both parents were very concerned about their children's education. They asked to see the results of his oral language test and they were quite apprehensive when he took the reading tests. His mother said that they had really just started "reading" in school and so he probably would not do very well on the test. Child 2D worked hard. He read and answered every question on the test. When he finished, his mother was so happy and proud of him that she hugged him. His father was proud, too. When asked about reading to their children the parents said that they read to them every night, because they would not go to sleep until they did.

Child 2D's parents are Indian, but not Crow. They are both monoglingual speakers of English, and so, of course, only English was spoken in the home. Both parents worked. Both were high school graduates. Very few Indian people live at Fort Smith where child 2D's parents lived and worked. It is essentially a government established community in conjunction with the Big Horn Reservoir and Recreation Area. And so Child 2D lived in a white middle-class community in the middle of the Crow Indian Reservation.
Child 3C. Child 3C was also a quiet conscientious boy. Both his parents are Indian but neither one is of the Crow tribe. His father does speak Crow, however. English is the only language spoken in the home and if Child 3C does speak any Crow it is very limited. Both parents graduated from high school. His mother graduated from business college and was working. His father was unemployed at the time and so their income was between $10,000 and $18,000. Child 3C had one sister.

His parents reported that he not only enjoyed their reading to him, but that from a very young age he delighted in pretending that he could read. They added that they, of course, knew he was not really reading, but that he did get most of the words right.

When Child 3C took the reading test at St. Charles School, he gave his full, concentrated effort for the entire time-period, even though most of his classmates were up getting books to look at and doing some talking. At that time of this study, Distar was used at St. Charles. The teacher was somewhat apprehensive about her students taking a standardized reading test because she said her students were used to relying on programmed cues. It was obvious, however, that the only cues Child 3C needed were his linguistic competencies in the English language. His oral reading of the sentence, "She talks to her cat, Puff," was particularly revealing. He read, "She plays with her cat, Piff." I said, "What?" He reread the sentence exactly the same way. The word "father" appeared twice in the first paragraph. He read "father" the first time it appeared and "daddy" the second time. And he was able to do make these linguistically correct "errors" even though he consistently pronounced "the" as "thee."
Three Poorest Students in Reading Achievement

The oral language and reading scores of the three children who scored the lowest in reading may also be seen on Table 11 above. All three of these children are full-blood Crow Indians who speak Crow as their first and dominant language. They all come from homes with incomes of less than $10,000 a year.

Child 26U. Child 26U lived at home with his mother, younger sister and older brother. He, however, often stayed with his grandmother. His father did not live at home. His mother did not work and so they had very little income. His mother had only an eighth grade education. However, she was studying to take a GED. There were some alphabet books and coloring books in the home but no storybooks. When asked if she read to her children, she said that she tried to read her textbooks to them but they would never sit and listen.

Child 26U was able to read through the first paragraph in the Gilmore Oral Reading Test and tried to read paragraph two. However, he made no attempt to read when he took the silent reading test. As soon as he got the test booklet, he very quickly and carefully marked every box even through the second part of the reading test; then he closed the booklet with the exclamation that he was all done. He was.

It is believed by this researcher that this was an indication that, even though he would continue to go to school for as long as he was compelled to and would go through all of the required motions of learning; he would not longer make an effort to learn. Mentally, he was a school drop out in the first grade.
What happened to Child 26U was particularly disheartening to this researcher because he had been in her English as a Second Language (ESL) class when she taught in the Lodge Grass school the previous year. She remembered him as the child who when in kindergarten had "pretend read" Brown Bear, Brown Bear word perfectly after only hearing it once. This was the child who was observant enough to notice that in an illustration in the book Are You My Mother? the artist forgot to put egg shells in the nest in which the baby bird had hatched. This was the child who when taking the Boehm's Test of Basic Concepts, on the question which was testing knowledge of the concept "between" asked what "between" meant. In the test booklets for that test, small pictures in the upper right hand corner designated the page. After two or three pages, Child 26U began to say, "Turn to page 'house', etc." Child 26U's oral language scores actually went down from when he took two of the same tests in kindergarten to the time when he took them for this study. He went from a score of four (4) in the Grammatic Closure subtest of ITPA when he was in kindergarten to a three (3) when he was in the first grade. He went from a score of 5.42 to 4.3 in average sentence length and from 29.43 to 22 in level of complexity on the BINL.

Child 27X. Child 27X's father was also absent from the home. And his mother had only an eighth grade education. She did not work. Child 27X had one younger brother, but there always seemed to be a number of members of the extended family and friends visiting. When asked if she read to her children, Child 27X's mother responded that
Crow parents did not read to their children. She added that this was a custom of "white" parents but it was something that Crow parents rarely did. And she was right. When asked if anyone told Crow stories to her children, she responded with a flat, "No."

Child 27X was in the same class at St. Charles as Child 3C. This made an interesting comparison because these children, who were at the opposite extremes in reading achievement, were in the same school, had the same teacher, and were using the same reading method. This made the fact that their oral language scores were at opposite extremes all the more significant. In other words, in a comparison between these two children, variables such as school, teacher, and reading method could be eliminated. This essentially left differences in language ability and personality to account for the wide variance in reading achievement.

Child 28Z. Child 28Z was the only subject who could be labelled monolingual Crow when she began the first grade. She did not attend Headstart or kindergarten which is where most of the children who are monolingual Crow speakers first learn to speak English. As can be seen by her score on the oral language tests, she knew only a few words in English when the tests were given. The teachers at Wyola did not really know what to do with her. She was in the kindergarten classroom part of the time, in Special Education some of the time, and some of the time in the first grade classroom. As would be expected, Child 28Z could "sound out" a few words but was not able to read one complete sentence. However, she had learned to comprehend spoken
English to some extent. When she was given the comprehension questions at the end of the oral reading paragraph, even though she had not actually heard the story, she was able to respond with a color word when asked what color the cat was. She also responded with "the man" when asked who was working in the yard which indicated that she was at least able to understand the questions and make meaningful responses.

Child 28Z came from a very traditional Crow Indian family which was the reason she never attended kindergarten. It is not compulsory that children attend kindergarten. Naturally, the parents did not read to their children but they did tell Crow stories. Child 28Z's mother graduated from high school but her father did not. Her mother worked as a teacher's aide.

Other Subjects

Following are interesting comments on some of the other children. In response to the question, "What's the girl's name?", Child 23Y responded "G." This was puzzling until he responded to the question asking for the cat's name with "C." Note that Child 23Y was next to the lowest in his oral language test scores. He, unlike Child 28Z, was still unable to understand English well enough to know what was being asked. However, he made an assumption that he was being asked the letters with which the words started. Even though Child 23Y's reading score was somewhat higher than that of Child 28Z and he knew the letters of the alphabet and most of the sound-symbol correspondence rules, the question might be asked, "Was he really at an advantage?"
Child 16MM attended school in Bozeman, Montana, (a small university city with highly rated schools) for the last half of the school year and yet her scores in reading were comparable to the scores of the other subjects who were at the same level of oral language proficiency as she when they began reading.

Indicative of the intellectual abilities of these children was the clever strategy which Child 20S developed for solving the answers to the comprehension questions on the silent reading test. She soon realized she could not read the sentences and so she tried to sound out one or two words which would match up with the pictures. Not only that, but she also realized the best clues were at the end of the sentence or paragraph. What was unfortunate, however, was that because of her limited ability in English, she would sound out a word and ask what it meant. Often what she sounded out would not even be a word in English.

Child 12B was the "deviant" of this study. He can be spotted out in left field (literally, the upper left hand corner) on all the scattergrams. Child 12B acquired his language proficiency effortlessly, as is the case with almost everyone learning his/her first language. However, he seemed unwilling to put forth the added effort required in formal education to learn to read. However, his reading scores, especially for the reading tests, are probably deceptive. He did not even finish either of the written tests. It was not that he did not have time, but that he would just get tired after a few minutes and would get up and start looking at books. Even after being encouraged to try to finish, he would mark a few answers and then start
doing something else. Unfortunately, the children at St. Charles school had just finished taking their achievement tests; so one of the possible reasons he did so poorly was that he was tired of taking tests. Except for accuracy, he did much better on the oral reading test. He read a great deal into the text in which he not only substituted and inserted individual words but also on occasion inserted entire phrases.

It should be noted that one of the original twenty-nine (29) subjects was eliminated from this study because of a severe hearing loss.

**Summary**

In the first part of the chapter, the results of the objective analysis of the data were reported. In response to additional question one, it was suggested that children should be at Level B in oral language proficiency before they began a formal program of reading instruction. A series of seven tables and nine graphs was used to characterize and compare the subjects who scored at four levels of reading achievement. In response to additional question number three it was shown that three randomly selected Caucasian children were similar to the three top scoring subjects in reading achievement, in oral language proficiency, and home environmental conditions.

It was reported that the canonical correlation for the major hypothesis is .833 which is significant the .0002 level of confidence. Thus, hypothesis number one was rejected. It was shown by the analysis of the data that 69.4 percent of the variance in the reading
scores of the subjects can be accounted for by the variance of their oral language scores. Phonology was deleted at Step 1 of the stepwise canonical correlation analysis and fluency was deleted at Step 2. All eighteen (18) null hypotheses for the subcorrelations were rejected. The greatest degree of correlation was found between the independent variable, morphology, and the dependent variable, oral reading, in which $r = .74$, $p < .00001$. The least amount of correlation was found between the variables, phonology and oral reading, in which $r = .44$, $p < .009$.

In response to additional question number four, it was suggested that the two best instruments to be used to measure oral language proficiency as an index to reading achievement were the Grammatic Closure subtest of ITPA and the Sentence Imitation subtest of TOLD.

In the second part of the chapter, the personality traits and the home/school, environmental/experiential conditions of the three highest achievers and the three lowest achievers in reading were described.
CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A brief summary of this dissertation includes the following: a restatement of the central thesis of the dissertation, a restatement of the problem of the empirical study which was conducted as part of the dissertation, a summary of the literature review, a definition of the population from which the subjects for the study were drawn, a list of the oral language proficiency and reading achievement factors and the instruments which were used to measure each, and a summary of the results of the study.

The six conclusions which resulted from the findings of the study are presented and discussed. The fifteen conclusions which were reached as a result of the literature review are restated and discussed. These conclusions are then used to argue for the causal relationship which results in a disproportionate amount of reading failure among minority language, low-SES children. Recommendations which stem from the causal model are made to parents, teachers, educators, researchers and decision makers.

Summary

This dissertation is summarized by providing a concise review of the main points of each chapter.
The Problem (Chapter One)

The education of minority language children from homes of low socioeconomic status (low-SES) was identified as the problem. The problem was reviewed and discussed. The problem and underlying factors were established in the thesis statement. The study which was conducted to give empirical evidence in support of the thesis was described.

Need for a viable solution to the problem. An overview of the problem of educating minority language, low-SES children included factual information regarding the magnitude and duration of the problem. A review of the large, federally funded, compensatory education programs which were instigated to overcome the problem showed the programs to be ineffective on a large-scale basis.

Discussion of the problem. A discussion of the problem resembled a brain-storming session in which pertinent comments, opinions, and ideas of educational leaders were quoted. These included comments from authorities in the fields of language and literacy, bilingual education, and educational research.

Thesis statement. It was stated that the thesis of this dissertation is that the crux of the problem of educating minority language, low-SES children lies in the relationship between language and reading. Many minority language, low-SES children have not reached the level of oral language proficiency in English which is necessary to be able to learn to read with comprehension. Underlying this surface problem are
two factors which directly affect the language/reading relationship. (1) The oral language of many low-SES children does not develop to an adequate level of proficiency to enable them to learn to read with comprehension because there is something lacking in the preschool, experiential background of these children. (2) The language inadequacy can either be overcome or confounded depending on the way reading is taught.

The empirical study. The study which was conducted to lend empirical evidence in support of a correlational relationship between language and reading was described to include the setting, general procedure, and limitations of the study. It was stated that the problem of the study was to determine the magnitude of the correlation between the level of oral language proficiency at the onset of reading instruction and reading achievement near the end of first grade of American Indian children who attended school on the Crow Indian Reservation during the 1982-1983 school year. Eighteen (18) sub-questions concerning the cross relationships between six factors of oral language and three factors of reading were asked. An additional five questions were asked which, among other things, requested a comparison of the following characteristics of the subjects who were at various levels of reading achievement: oral language proficiency, pre-reading activity, linguistic make-up, socioeconomic status, and make-up of the family.
Review of the Literature (Chapter Two)

It was contended that the solution to the problem of educating minority language, low-SES children lies within existing knowledge. Thus, an extensive review of the literature was made to bring together that knowledge which relates to the language/reading relationship and the effects of the following intervening variables on that relationship: educational intervention, socioeconomic status, and bilingualism. The key variables, language and reading, were examined independently, in relationship to each other, in relationship to socioeconomic status, and in relationship to bilingualism.

Language. Through the theoretical framework of Noam Chomsky, the nature of language and the process of language learning were explored. Chomsky's explanation of the following concepts was presented: universal grammar, generative grammar, and the creative aspect of language. In addition to Chomsky's view of language and learning, the cognitivist view of language acquisition was examined through the work of Jerome Bruner and Frank Smith. Stephen Krashen's model for teaching English as a second language was presented. Language proficiency was defined in detail with emphasis on the following distinction between two levels of language proficiency which was proposed by James Cummins: basic interpersonal communication skills (BICS) and cognitive/academic language proficiency (CALP).

Reading. To gain a deeper understanding of the reading process, reading was also approached from a theoretical standpoint. Frank
Smith's theory of reading was complemented by Kenneth and Yetta Goodmans' model of reading. Both the theory and the model were presented as stemming from Chomsky's ideas about language and thus gave prominence to language in the reading process. This theoretical framework provided a firm base and convincing rationale for the relationship of reading to language. Supportive empirical evidence to this theoretical construct of the reading process was also included in this section.

The language/reading relationship. The intricate and interdependent interrelationship between language and reading was investigated. This relationship was first viewed from a historical perspective in which David Olson traced the cultural evolution and individual development of language from "utterance to text." Oral language and reading were then contrasted with emphasis on the differentiation which Frank Smith makes between situation-dependent and situation-independent language. Then, two opposing theoretical views of the language/reading relationship, reading-as-translation and reading-as-language, and the consequent instructional approaches were described in detail. Research evidence which supports the views and approaches was given. Finally, the results of the studies relevant to the language/reading relationship were presented and critiqued.

The language/reading relationship and socioeconomic status. Basil Bernstein makes an important distinction between the language used by the middle-class, "elaborated code," and the language used by the those of low-SES, "restricted code," a distinction which was
explored in this section. Through case studies, a comparison was made between the experiential background of children from middle-class homes and those from low-SES homes in an attempt to find precisely what it is that is lacking in the social environment of low-SES homes that is present in middle-class homes that seems to result in successful reading achievement.

The language/reading relationship and bilingualism. In his theoretical model of bilingual proficiency and learning, James Cummins offers an explanation for the contradictory results of research in bilingual education. Central to his model is the developmental interdependence hypothesis which was explained in detail in this section. Effective programs of bilingual education which support his hypothesis and in turn support bilingual education were cited. Reasons were given why the majority of bilingual education programs in the United States have not been effective. Effective and ineffective programs of bilingual education were then compared to identify characteristics of effective programs which are not characteristic of ineffective programs.

Design and Procedure of the Empirical Study (Chapter Three)

In this chapter a detailed account was given of the procedure which was taken to conduct the empirical study of this dissertation. The design of the study can be seen as implicit in the account of the procedure.

The population. The population was defined as first grade American Indian children who attended school on the Crow Indian
Reservation in Montana, during the 1982-1983 school year. From this population a random sample of 29 children, stratified by school, was selected. One of the subjects was later eliminated because of a severe hearing loss.

**Language factors.** Oral language proficiency was broken down into the following six factors: (1) linguistic fluency, (2) linguistic complexity, linguistic competence and performance of the (3) morphological, (4) syntactical, (5) semantic, and (6) phonological aspects of language. Reading achievement was broken down into the following factors: (1) word recognition, (2) reading comprehension, and (3) oral reading.

**Data collection.** The following instruments were used to measure the oral language proficiency of the subjects in September, 1982: the Basic Inventory of Natural Language (BINL), five subtests of the Test of Language Development (TOLD), and the Grammatic Closure subtest of the Illinois Test of Psycholinguistic Abilities (ITPA). The following instruments were used to measure the reading achievement of the subjects in April, 1983: the Gates-MacGinitie Reading Tests and the Gilmore Oral Reading Test. The parents of the subjects were personally interviewed to collect demographic data and to make direct observations of the home environment of the subjects. Each instrument was described in detail.

**Organization of the data.** It was stated that a series of tables and graphs to include a table of the whole R matrix for canonical
Statistical treatment of the data. Statistical procedures used to analyze the data included: Pearson product-moment correlation, canonical correlation, and stepwise canonical correlation. The major null hypothesis was stated as follows: For twenty-eight (n=28) American Indian children who attended the first grade on the Crow Indian Reservation during the 1982-1983 school year, the canonical correlation (Rc) between six language factors of oral language proficiency (predictor variables) and three reading factors of reading achievement (criterion variables) is zero at the .01 level of significance. The null hypothesis was also stated for the canonical correlation after each stepwise deletion. The null hypothesis for each of the eighteen (18) subcorrelations was also stated. The statistical procedures used to analyze the data were given.

Results of the Study (Chapter Four)

In the first part of Chapter Four, the results of the objective analysis of the data were reported. A subjective analysis of the subjects was reported in the second part of the chapter.

Results of the objective analysis of the data. It was reported that all of the subjects except one who scored in Level C or below in measures of oral language proficiency in September, 1982, were reading below grade level in April, 1983. A series of seven tables and two graphs was used to organize and depict the data through which the
subjects at four levels of reading achievement were characterized and compared. It was shown that three randomly selected Caucasian children were similar to the three top scoring subjects in reading achievement, in oral language proficiency, and in home environmental conditions.

The results of the canonical correlation analysis of the major hypothesis showed that $R_c^2 = .833$ and $R_c^2 = .694$ which is significant at the .0002 level of significance; therefore, null hypothesis number one was rejected. Phonology was deleted at Step 1 of the stepwise canonical correlation analysis and fluency was deleted at Step 2. All eighteen (18) null hypotheses for the subcorrelations were rejected. The greatest degree of correlation was found between morphology and oral reading in which $r = .74$, $p < .00001$. The least amount of correlation was found between phonology and oral reading in which $r = .44$, $p < .009$. The two oral language tests which were found to be the best predictors of reading achievement were the Grammatic Closure subtest of the Illinois Test of Psycholinguistic Abilities (ITPA) in which $r = .74$ and the Sentence Imitation subtest of the Test of Oral Language Development (TOLD) in which $r = .73$.

**Subjective analysis of the subjects.** In the second part of the chapter the personality traits and the home-school, environmental/experiential conditions of the three highest achievers and the three lowest achievers in reading were related. Additional comments regarding several other subjects were also made.
First, the six conclusions which were reached as a result of the study and are based on empirical evidence are given and discussed. Next, the fifteen conclusions which were made as a result of the literature review and were drawn in philosophical argument are presented. From these conclusions a causal model is proposed which explains why the majority of minority language, low-SES children are underachievers in reading.

Conclusions from the Empirical Study

The first conclusion was reached from the results of the canonical correlation analysis. A second conclusion was drawn from the results of the stepwise canonical correlation analysis. A third conclusion resulted from the Pearson r subcorrelations. Three additional conclusions were made from an analysis of the data which were collected for the five additional research questions.

Conclusions from the results of the correlation analyses. The following conclusions were drawn from the results of an investigation of the canonical correlation between the oral language proficiency of beginning first grade Indian children who attended school on the Crow Indian Reservation during the 1982-1983 school year and their reading achievement at the end of the school year.

1. The canonical correlation ($R_c$) between six factors of oral language proficiency (predictor variables) and three factors of reading achievement (criterion variables) was found to be .833. The canonical
correlation ($R_c$) is statistically significant, $p < .0002$. However, as Thompson (1980) stated, "There is no absolute criterion regarding when a $R_c^2$ suggests that a relationship is educationally important. These decisions necessarily involve professional judgment and will vary from one study to another" (p. 18). The eigenvalue or $R_c^2$ was found to be .694; thus, 69.4 percent of the variance in the reading achievement of the subjects of this study can be said to be attributable to the variance in their oral language proficiency. It is judged by this researcher that this canonical correlation is educationally significant. It is therefore concluded that for American Indian children attending school on the Crow Indian Reservation there is a statistically and educationally significant positive correlation between level of oral language proficiency at the onset of reading instruction and reading achievement at the end of the first grade. It is also concluded that for these children the level of oral language proficiency is a good predictor of reading achievement. Beyond this, it is claimed that language competency is an important prerequisite for learning to read.

2. Phonology, with a communality coefficient of .585, was deleted at Step 1 of the stepwise canonical correlation analysis. Fluency, with a communality coefficient of .739, was deleted at Step 2 of the stepwise canonical correlation analysis. At Step 3 all three communality coefficients were close to one and so none of the remaining variables in the set could be deleted. It should be remembered that the predictor variables which were left at Step 3 analysis were language complexity, linguistic competence and performance of the
morphological, semantic and syntactical aspects of language. All of these aspects of language are measures of cognitive/academic language proficiency (CALP). The variables of language proficiency which were deleted, phonology and fluency, are measures of basic interpersonal communication skills (BICS). See Cummins (1980a, 1980b, 1981) for additional information on the CALP/BICS distinction. Therefore, it is concluded that CALP is a more important prerequisite in learning to read than BICS.

This conclusion clarifies a number of puzzling concerns regarding the language/reading relationship. It explains why in research literature studies which measure only fluency often do not find a significant positive correlation between language proficiency and reading achievement. Since phonology (pronunciation) and fluency are the most visible aspects of language proficiency, it now becomes understandable why parents, teachers, and administrators are often deceived by this surface level of language proficiency and judge a student's proficiency in English to be adequate to successfully learn to read when in actuality it is not. It is understandable, but unfortunate, that they then look for other causes of reading failure such as inferior intellectual ability or bilingualism.

This conclusion is in agreement with Cummins' (1980a, 1981) interdependence hypothesis in which he proposes that CALP is a common underlying proficiency in both languages of a bilingual. This, in turn, explains why majority or minority language, middle-class children who have developed CALP in their native language have relatively little difficulty in learning to read English even though their BICS
in English may not yet be developed. This explains why the Crow Indian children in Chesarek's (1981) study who were bilingual were ultimately better achievers in reading than Crow children who were reared to be monolingual speakers of English even though one or both parents spoke Crow as their primary language. The bilingual children probably had a rich and fully developed CALP in the Crow language; whereas, the Crow children who were monolingual speakers of English, had BICS in English but an underdeveloped CALP. It seems that it is not a question of CALP being transferable from one language to the other but rather that it is a common underlying language proficiency. Could this common underlying language proficiency have some connection with Chomsky's (1980) concept of a "universal grammar?"

3. Each of the six factors of language proficiency was combined with each of the three factors of reading achievement to make a total of eighteen (18) sub-correlations. An examination of the results of the Pearson r correlations which are listed in rank order on Table 14 in Chapter Four reveals the following: (1) the greatest degree of correlation was found between morphology and oral reading ($r = .74$). (2) The least amount of correlation was found between phonology and oral reading ($r = .44$). (3) The three correlations in which phonology was the predictor variable were in the lowest three rank order positions. (4) Neither fluency nor phonology appears in the seven highest ranking correlations. (5) Five of the six correlations in which decoding (word recognition) is a criterion variable are among the seven lowest ranking correlations. (6) Whereas, five of the six correlations in which oral reading is a criterion variable are among
the eight highest ranking correlations. In regard to predictor variables this information coincides with the results of the stepwise canonical correlation analysis. However, in viewing the correlational relationships individually, it is possible to get an inside view of the interrelationships. More importantly, this view of the correlational relationships allows for a closer examination of the criterion variables since they were not requested for stepwise deletion in the canonical correlation analysis. It can be concluded from this analysis that since the Pearson r correlations with decoding as the criterion variable are clustered among the lowest ranking correlations, decoding (word recognition) is of lesser importance as a factor in reading achievement than the other two criterion variables.

This conclusion supports Smith's theory of reading in which he proposes that the syntactic and semantic cues which come from an intuitive knowledge of the grammar of the language are of major importance in learning to read with comprehension. Smith (1978) contends, "Phonics is a cumbersome and unreliable system for any child, but especially for children finding it hard to make sense of reading" (p. 158). Decoding skills, except for identifying isolated words, are of little value unless they are accompanied by linguistic competence in the language. A classic example of this is Child 23Y of this study who, after "reading" a paragraph in the oral reading test, responded to the comprehension questions asking for the girl's name and the cat's name with "g" and "c", respectively. As far as this child was concerned, he was reading nonsense. The English language, in its spoken and written form, made little sense to him. He did not even
expect it to be meaningful. Compare Child 23Y with Child 28Z who, even though she could not read the paragraph, gave meaningful responses to these same questions. Granted, Child 28Z had not yet broken the visual linguistic code and so could not yet read. Even though at the beginning of the year she was a monolingual speaker of Crow, the English language was beginning to make sense to her. What happened to Child 23Y is also a good example of what happens when children who do not have a strong language base are taught under an instructional approach in which the major emphasis is on teaching phonics. Child 23Y illustrates how and why the problem of teaching minority language children is confounded by the way reading is taught.

Conclusions in response to the additional research questions. In this section each additional research question is restated along with a brief review of the results of any data analysis. Finally, the conclusion which was reached in response to the question(s) is given.

1. One conclusion was reached in response to the following additional research question: At what level of oral language proficiency should a child be in order to be successful in learning to read? As can be seen by referring back to Tables 5 and 6 in Chapter Four, 50 percent of the subjects in this study were classified as non-readers and 71.4 percent were reading below grade level. All of these subjects, except one, were at Level C or below in oral language proficiency at the onset of reading instruction. Of the subjects who were classified as non-readers (Level D), 92.8 percent were in Level C or
lower in oral language proficiency. It can thus be cautiously con-
cluded from the results of this one small sample, that for a child to read at grade level at the end of first grade, he should have scored at least in Level B in oral language proficiency at the onset of formal reading instruction. It should be noted that levels of oral language which are referred to here were defined by Herbert (1973) for the Basic Inventory of Natural Language (BINL). There are five levels of proficiency. See Table 4 in Chapter Four for the interval ratio of the levels.

A definitive answer to this question has important implications for teaching minority language children. Once a criterion level of oral language proficiency has been established, it can be used either as an entry or as an exit requirement for programs of bilingual education, as a required cognitive entry behavior for programs of mastery learning, for screening high risk students (namely, children from low-SES homes), or simply as a valid measure of reading readiness.

2. One conclusion was made in reference to the following research questions: How do the subjects at the various levels of reading achievement compare in regard to the following characteristics: level of oral language proficiency, linguistic make-up, pre-reading activity, socioeconomic status, sex, and family make-up? How did the first grade Indian children who attended school on the Crow Indian Reservation during the 1982-1983 school year compare with first grade Caucasian children who attended the same schools? What are some of the personality characteristics and home environmental conditions of the children in this study who scored in the three highest positions
and the three lowest positions in reading achievement? Since the results of the data analysis for these questions are complicated and lengthy they will not be repeated here. It is sufficient at this point to say that the most important characteristic of high achievers in reading in all the comparisons is that they came from homes with middle-class practices and values. It is not so much a question of the education of the parents or family income as it is a matter of a literate home environment. Generally speaking, children who come from middle-class homes, regardless of the language or languages spoken or read in the home, come from a literate home environment where reading is practiced and enjoyed. More specifically, storybook reading is a common and regularly practiced event in middle-class homes. This seems to be as characteristic of the middle-class home environment of the children on the Crow Indian Reservation as it is of the homes in the Philadelphia suburb which Shieffelin and Cochran-Smith (1984) observed. The practice of reading to pre-school children which is characteristic of middle-class homes seems critical to the development of CALP and in turn satisfactory achievement in reading. As can be seen by looking at Table 7, one hundred percent of the subjects in Level A reading started listening to stories being read to them when they were two years old or younger and they listened to three or more storybooks per week; whereas, 78.6 percent of the subjects in Level D reading were three years or older when or if their parents started reading to them and 92.9 percent of them listened to two or less books per week. It is thus concluded, with caution, that storybook reading
is a common practice in the middle-class homes which is rarely practiced in low-SES homes on the Crow Reservation and that this practice is positively correlated with language development and ultimately reading achievement.

3. Another conclusion was reached in response to the following research question: What single measure (test) of oral language proficiency is the best indicator of reading achievement? Why? As can be seen on Table 15 in Chapter Four, the Grammatic Closure subtest of the Illinois Test of Psycholinguistic Abilities (ITPA) as a measure of oral language proficiency was found to be the best single predictor of reading achievement. The Pearson \( r \) correlation coefficient for the Sentence Imitation subtest of the Test of Oral Language Development (TOLD) is only slightly less. By referring back to Table 15, it can be seen that there is quite a large gap in the correlation coefficients between the above mentioned instruments and the other measures of oral language proficiency which were used in this study. It is therefore concluded that the Grammatic Closure subtest of the ITPA and Sentence Imitation subtest of TOLD are the best indicators of reading achievement for American Indian children attending school on the Crow Indian Reservation.

Following are some of the reasons why the above named instruments give an indication of being more valid and accurate measures of oral language proficiency than the other instruments which were used in the study. It should be pointed out that it is the type of test and not the particular instrument that is important. There are two essential components of the grammar of a language. One is morphology which
consists of the system of rules which govern the formation of words. A test of grammatic closure can measure the amount of control a person has over the grammatical rules of the morphological system by assessing his ability to provide the missing part of a grammatic inflection. The other component of grammar is syntax which is the system of rules which govern the formation of sentences. A test of sentence imitation measures a person's control over the grammatical rules of the syntactic system by assessing his ability to repeat sentences of increasing complexity. Thus, these two instruments used together can quite accurately and precisely measure a person's knowledge of the grammar of a language. They are also very reliable instruments because they do not rely on speech samples. In regard to this, Clay et al (1983) made the following statement, "By having a child repeat sentences which represent a range of different syntactic structures in English, a teacher can learn as much in a relatively short time about his control of those structures as would be learned from listening to the child's spontaneous speech over a much longer period" (p. 10). An especially important feature of sentence imitation is that it assesses the child's ability to do precisely what he must be able to do to read. He must be able to chunk the words which he has heard into phrases while he is listening to the sentence so that these units can be held in short term memory until he repeats the sentence. In addition both of these types of tests are quick and easy to administer and are easy to score accurately.
Conclusions From the Review of the Literature

The fifteen conclusions which were made as a result of the literature review and were drawn in philosophical argument and supported by empirical evidence are presented below. The premises upon which the conclusions are based were formulated out of a culmination of theoretical constructs and empirical research under each of the following topics of investigation. Thus, the argument in defense of the thesis of this dissertation unfolds as follows.

Language. From an examination of the nature of language, the following conclusions were reached:

(1) If we accept the premise that virtually all normal children everywhere learn to speak a language effortlessly at a very young age and with no direct instruction, and if we accept the premise that language is a highly complex system, then, we can conclude that language is learned subconsciously through an innate structure or at least through innate abilities.

(2) If we accept the premise that children learn the rules of the basic language system regardless of experiential background, and if we accept the premise that variance in language ability is possible because of the creative property of language, and if we accept the premise that there is a wide variance in language ability among children, then, we can conclude that the variance in language ability is due to experiential background and not innate language ability.

Reading. The following conclusions were reached as a result of the investigation into the nature of the reading process:
(3) If we accept the premise that knowledge of the language not only facilitates the reading process but is what makes reading for meaning possible, then, we can conclude that a certain level of oral language proficiency is an essential prerequisite in learning to read.

(4) If we accept the premise that visual to auditory recoding is a neurologically and linguistically unnecessary operation in the reading process and that knowledge of the language is not only necessary but also an efficient and effective facilitator in both learning to read (breaking the visual code) and reading (extracting meaning from the text), then, we can conclude that linguistic competence is both a more essential precondition to learning to read and a more essential condition to the reading process itself than knowledge of grapheme-to-phoneme correspondence rules.

(5) If we accept the premise that in learning to read, as in learning to speak a language, the essential learning takes place subconsciously through innate abilities, then, we can conclude that it is less important to teach the learner "reading skills" than to provide him with the opportunity to learn to read through practice. In other words, a person learns to read by reading.

The language/reading relationship. The following conclusions were drawn from existing knowledge on the relationship of reading to language:

(6) From an extensive review of the research literature we can conclude that for low-SES children there is a strong positive correlation between oral language proficiency and reading achievement. The
results of the study which was conducted for this dissertation can now be added to the literature as another piece of evidence which supports this correlational relationship between language and reading.

(7) If we accept the premise that written language and oral language are parallel and reciprocal linguistic processes, then, we can conclude that reading can be defined as constructing meaning from a visual representation of the surface structure of language, similar in every respect to comprehending speech in which meaning is constructed from an auditory representation of the same underlying language structure.

(8) If we accept the above conclusion as true, then, we can also conclude that learning to read is similar to learning to comprehend speech, except for the fact that in most cases the person learning to read already knows the language. Therefore, if the person learning to read has linguistic competence in the language (knows the language), that person not only, only needs to break the alternate visual code but also can use his knowledge of the language to help break the visual code.

(9) If we then accept the premise that the strategies which are used to break the language code, spoken or written, are innate and beyond present comprehension, then, we can conclude that given the opportunity, motivation, and a functional need, children will learn to read as naturally as they learned to speak. Thus, the reading teacher's role changes from teaching to motivator and facilitator in helping children learn to read.
(10) If we accept the premise that even though oral and written language share the same basic linguistic structure, they do differ in some respects. (The difference of present concern is that through cultural evolution written language has become more refined, elaborated, explicit, and situation independent.) And if we accept the premise that the difference of present concern has come about because of cultural intervention, that even though the potential for the change was inherent in language itself, the change was not, then, we can conclude that children's ability to comprehend written language will vary depending on their experience with explicit, situation-independent language.

Therefore, it seems reasonable that those children who do not have adequate competency in situation-independent language, the language of books, will have the most difficulty learning to read with comprehension under a phonics approach for the following reason: Since they do not have the competency in situation-independent language to use it as a facilitator in breaking the visual code, they rely heavily on knowledge of sound-symbol correspondence rules. Thus, in the reading process itself, they often merely translate the visual symbols to sound without extracting meaning. They are thus easily deceived into believing that decoding symbol to sound is reading, nothing more. The fact that many teachers also believe the child is reading because all the physical manifestations are there aggravates the situation. Thus, by using the phonics approach to teaching reading, the initial handicap of language inadequacy in learning to read is compounded.
The language/reading relationship and socioeconomic status. The following conclusions were made as a result of an investigation of the interrelationship between socioeconomic status and the language/reading relationship:

(11) If we accept the premise that, generally speaking, the language of low-SES children is at a preliterate stage of development when they start learning to read, if we accept the premise that, generally speaking, the language of middle-class children is at a cognitive/academic stage of language proficiency when they start learning to read, if we accept the premise that storybook reading promotes the development of language from the preliterate level to the cognitive/academic level of proficiency, and if we accept the premise that storybook reading is a common practice in middle-class homes and relatively absent in low-SES homes, then, we can conclude that a lack of the storybook reading experience is a cause of the inadequately developed language of many children from homes of low-SES. Inadequate language development due to this cause can be prevented by insuring that children from low-SES homes have had the storybook reading experience either at home, or in pre-school, or in school (in the first grade if necessary) before formal reading instruction begins. The inadequate language proficiency can be overcome even if formal reading instruction has begun (regardless of when) by insuring that the storybook reading event (or similar experience) is a major and integral part of the reading program. To follow Smith's (1978:129) advice, if children cannot read then someone should read to them and for them until they can read.
(12) If we accept the premise that practice is necessary to develop proficiency in reading, and if we accept the premise that there needs to be motivation for sustained practice, and if we accept the premise that the desire to know how to read because of an interest in books is a strong motivating factor, then, we can conclude that a strong desire to read is an important precondition to learning how to read and an essential motivating factor in the practice which is necessary to become a proficient and life-long reader.

(13) If we accept the premise that many children, especially children from low-SES homes, do not have adequate language proficiency to be able to learn to read with comprehension or a keen interest in books when they enter school, and if we accept the premise that the language inadequacy and the lack of motivation to learn how to read is likely to be due to the absence of storybook reading in the preschool experiential background of these children, and if we accept the premise that the language inadequacy and lack of motivation to learn to read could easily be overcome by providing the storybook experience when these children enter school, then, we can conclude that it should be the responsibility of the school to provide this experience.

The language/reading relationship and bilingualism. The following conclusions were drawn as a result of a literature review of the interrelationship between bilingualism and language and reading:

(14) If we accept the premise that bilingual education, if the programs are educationally sound and properly implemented, can be effective in the education of minority language, low-SES children,
then, we can conclude that bilingual education should be offered to those children who have demonstrated that they do not have adequate language proficiency to learn to read with comprehension.

(15) If we accept the premise that cognitive/academic language proficiency (CALP) is a common underlying language proficiency in both languages of a bilingual and if we accept the premise that development of literacy in L2 (the second language - English here) is a function of the level of CALP in L1 (first language) at the time reading instruction in L2 begins, then, we can conclude that initial reading instruction for minority language, low-SES children who generally do not have a sufficiently developed CALP in either language should be in L1 (first language). It should be noted that "CALP" in this instance is used almost synonymously with "situation-independent" language. It should be remembered that conclusions 11 through 13 above are even more applicable when "minority language" is added to "low-SES" in describing the children of present concern.

Causal Model

The final and overarching conclusion which this researcher wants to make is that, based upon a review of the literature, there is not only a correlational relationship between level of language proficiency and reading achievement but that there is a direct causal relationship. Inadequately developed language is a major cause of underachievement in reading. The following factors may cause or prevent language from developing to an adequate level: (1) absence of preschool storybook
reading experience or similar experiences such as story-telling, (2) exclusive use of a "restricted linguistic code" (Bernstein, 1970) by parents and/or community, and (3) the initiation of formal reading instruction with a heavy emphasis on phonics before the language of the child is adequately developed.

Neither bilingualism nor poverty directly cause inadequate language development or the often consequent underachievement in reading. In fact, there is a wealth of evidence (the Canadian French Immersion programs, the bilingual children now and in the past who even excel in reading and academic achievement, the foreign students in our universities, and bilingual children throughout the world) which demonstrates that if a bilingual person has a sufficiently developed language, CALP, in his first language, he can have very limited oral language proficiency in his second language and be able to successfully learn to read, and to read with comprehension, in the second language. It does not matter in which language the bilingual child has adequate language proficiency (referred to here as CALP) because CALP is an underlying language proficiency which is common to both languages. The reason why there is such a high correlation between socioeconomic status and reading achievement is that low-SES children tend to come from a non-literate home environment in which not only do the members of the family not read, but they use a restricted linguistic code and so the language which they transmit to their children is situation-dependent or "preliterate" language.
Recommendations

Based on the above stated conclusions and proposed causal model, the following recommendations are made for additional research and specific recommendations are made to parents and educators.

Recommendations for Added Research

Following are recommendations for additional research:

1. That a follow-up study be made of the subjects of this study when they are in the fourth grade to determine the degree of correlation between their reading achievement at that time and their oral language proficiency at the beginning of the first grade.

2. That case studies of selected subjects of this study be made to include the three highest achievers and the three lowest achievers in reading, and to include Child 23Y and Child 28Z. Their out of school experiences, especially literacy experiences, should be examined more closely and for a longer period of time. Their academic achievement in general and their reading achievement in particular should be followed for several years.

3. That more research be done which compares the preschool experiential background of low-SES children with that of middle-class children. This could include ethnographic studies of the language which is used in the home, the literacy events which occur in the home, a record of the mothers' speech and action in "teaching" language to their infants, and what language is used when, with whom, and for what in homes in which one or both parents are bilingual.
4. That more research be done which compares the following two reading instruction approaches both in detailed description and in statistical analysis: (a) a traditional instructional approach to teaching reading which emphasizes phonics (b) with a natural or developmental approach to teaching reading in which there is actually no formal reading instruction.

5. That longitudinal research be conducted which compares (a) a preschool curriculum which emphasizes the teaching of reading readiness skills such as knowledge of the alphabet and sound-symbol correspondence rules with (b) a preschool curriculum in which all activity is centered around the reading of storybooks such as in Putnam's (1982) "literate environment." In comparing the two approaches, detailed description in ethnographic study should be accompanied by statistical data which provides objective evidence in support of one or the other approaches.

6. That exemplary, experimental bilingual education programs which are implemented with strict adherence to design be carefully followed and documented by research.

Recommendations to Educators

The following recommendations are made to educators:

1. That high-risk children be screened to insure that all children are at the equivalent of the BINAL, Level B in oral language proficiency before they begin learning to read in a formal reading program.
2. That a test of grammatical closure and a test of sentence imitation be used as accurate and valid measures of oral language proficiency which are quick and easy to administer and score.

3. That reading instruction be based on natural learning. That reading storybooks become an important and integral part of formal reading instruction. That the teaching of phonics be de-emphasized for those children with inadequately developed CALP, especially in the initial stages of reading instruction.

4. That pre-school programs for minority language, low-SES children, concentrate on intervention programs of oral language development in both languages.

5. That the curriculum of pre-school programs for minority language, low-SES children center around the reading of children's classic literature.

6. That for minority language, low-SES children initial reading instruction begin with the children's native language.

7. That special programs such as the following be set up to bring the storybook reading activity into the homes of the children of low-SES: (a) a Public Broadcasting television program which features a story-hour in which children's classic literature is read, (b) school programs in which older students (fourth through high school) go to homes, pre-schools, and day-care centers of low-SES children and read to them, (c) adult literacy programs in which the first and principal assignments of the adults would be to listen to pre-taped books with their children, talk about the books, and then read those same books.
to their children, and (d) programs in which a cassette player and books with cassette tapes are given to children of low-SES.

8. That school libraries be kept open evenings and week-ends and that they be equipped with listening centers in which books for different ages groups and in several languages, accompanied by audio cassette tapes, are available. That each evening there is a storyhour when stories are read and told.

**Recommendations to Parents**

The following recommendations are made to parents:

1. That parents read to their children from when they are infants and that they read to them often, daily if possible. That the storytime be accompanied by verbal interaction between the parent and child such as a discussion of the story and illustrations, and the expression of thoughts and incidents which the story brings to mind.

2. That parents who are bilingual use their primary and dominant language with their children with the expectation that their children will grow up speaking that language as their primary language. Parents should be discouraged from trying to "teach" their children to speak English if they themselves are not comfortable speaking it. That the parents also read books to their children which are written in their native language. If books are not available in that language then the parents or grandparents should tell traditional stories in that language. When the child is three or four years old he should start listening to stories which are written in English and discussed in his native language. It is strongly recommended that bilingual parents
use both languages naturally and do not translate from one language to the other or teach words in isolation.

3. That, if one parent speaks one language and the other parent speaks another language as a dominant language, each parent use his language exclusively with the child and expect the child to respond in that language. That each parent also read to the child from books which are written in the same language which is used for communication.

Concluding Recommendation

Above all, it is recommended that teachers, education administrators, and government officials in education consider the conclusions and recommendations of this dissertation when practicing their profession. The lives of not only the present generation of millions of children of low-SES, but also future generations are affected by the collective decisions of the teachers in the classroom who are in direct contact with the children, the school administrators who give direction and are responsible for implementing innovative programs, and the government officials who make national policy decisions in regard to education.

It is further recommended that all decision makers from the teachers in the classrooms to the highest government officials keep Jerome Bruner's (1983) words in mind. "In some way, our life as a nation depends both on cultivating high intelligence to keep our complex social order running, and preventing the formation of a permanently alienated, undereducated, unemployable 'under class' (p.196).
The above words of Jerome Bruner were probably read in Chapter One with a feeling of hopelessness. They should have now been read with a feeling of hope; for, perhaps a preventive solution to the problem of educating minority language children from homes of low socioeconomic status has been found.
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