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THE LONG TERM CONSEQUENCES OF SPECIFIC LANGUAGE
DISABILITIES: THE SECONDARY SCHOOL YEARS

Nancy Le Sanders Royal

A dissertation submitted in partial fulfillment
of the requirements for the degree of

Doctor of Education
University of San Diego
January 1987

Dissertation Committee

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DISABILITIES: THE SECONDARY SCHOOL YEARS

NANCY LE SANDERS ROYAL
University of San Diego

1987

Director: Susan M. Zgliczynski, Ph.D.

This research was directed toward the consequences of specific language disabilities on students during their secondary school years. The subjects were secondary students who had been identified as having the characteristics of specific language disabilities (SLD or developmental dyslexia) and who received remedial instruction while in elementary school. Remedial treatment utilized the Slingerland Adaptation of the Orton-Gillingham MultiSensory Approach to Language Arts with instruction given within regular education classrooms. These students were compared with a randomly selected cohort comparison group who were not known to have language learning problems.

Major findings included:

A higher percentage of the SLD group (81.4%) remained within the local school system than did the comparison group which had 72.1% of its subjects listed on local school records. School district data indicated that 91.6% of the listed SLD students and 88.9% of the listed comparison group students were currently active students.

Academic success of the specific language disability group exceeded expectations. The majority of the SLD group were maintaining grade point averages and standardized achievement test scores within the average or above average range. Differences between the grade point averages of the SLD group and the comparison group were not significant. The standardized test scores of the SLD group remained significantly below those of the non-SLD comparison group. Above average stanine scores were achieved in reading by 24.9% of the SLD group. Another 51.9% of the SLD group maintained stanine scores in the average range.

Little or no differences were observed between groups in regard to attitudes toward school, time spent on homework, participation in athletics or other extra-curricular and peer group activities. Higher educational aspirations and vocational goals were similar for both groups.

The researcher concluded that in spite of specific language disabilities the majority of these students were finding success during their secondary school years. This research provides strong support for the use of intervention programs with specific language disability students and the efficacy of the Slingerland Adaptation of the Orton-Gillingham MultiSensory Approach to Language Arts.

DEDICATION

This study is lovingly dedicated to Beth H. Slingerland and John S. Slingerland whose devotion to the education of specific language disability children has enriched thousands of lives.

ACKNOWLEDGMENTS

This study could not have been accomplished without the efforts and cooperation of many people. I am especially appreciative of the wonderful support given by my husband Rig, and my children--Shawna, Rob, Jim and Patti, through the years of my graduate study. Their patience and encouragement have been invaluable.

I am grateful to a large number of colleagues for their assistance in collecting data for this study. Dr. Les Six of the Chula Vista City School District has been most helpful in retrieving the data from the elementary school records. The cooperation of the Sweetwater Union High School District was vital to this study. A number of the Sweetwater District's professional staff assisted in collecting secondary school data. These included Dr. James Doyle, Dr. John Calvert, Phyllis Todd, Robert Hunt, Barbara Harris, Jerry LaRussa, Nancy Robinson, Michael Johnson, Dr. Jeff Schaffer, William Demos, David Noe, Delbert Walden, Elizabeth Lebron, Ron Williams, Genevieve Pietruszka, Russ Rogers, Dolores Mclean, and Laura Hall.

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Finally, I am most appreciative to the students and their parents who responded to my request for assistance. Their cooperation made this study possible. The letters which were received from many of the parents reinforced the importance of providing successful educational experiences for the dyslexic students.

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CHAPTER I

Statement of the Issue

Specific language disability (developmental dyslexia) and the side effects related to difficulty in reading and written expression skills in a literate world are very real problems--to the individual, to the educational institutions, and to society as a whole (Hunter & Harman, 1985).

It has been estimated that 2% to 30% of the population do not develop adequate reading and written language skills due to a specific language disability--also referred to as a specific reading disability or developmental dyslexia (Brutten, Richardson & Manget, 1973; Rawson, 1968, 1978; Thompson, 1966; deHirsch 1966; Brezeinski & Howard, 1971, Slingerland, 1979; Cantwell, 1981; Goldberg & Schiffman, 1983). The most frequently cited prevalence estimates suggest 10 to 15% of the population should be included in this category (HEW, 1969; Brutten, Richardson & Manget, 1973). The variance in the prevalence estimates is partially due to differences in the accepted definitions and parameters for inclusion set by individual researchers.

The word dyslexia is from the Greek language. Rawson (1975) has defined the word as dys meaning poor or inadequate and lexia meaning management of words with the combination "dyslexia referring to ineptitude with language skills." (p.232) Specific developmental dyslexia has been defined as follows:

One of the learning disabilities...

developmental dyslexia is a specific language learning disability characterized by a child's inability to learn to read adequately in spite of normal intelligence, normal sensory apparatus, and regular or conventional teaching methods. It is familial and predominantly but not exclusively male. The pathognomic signs are an inability to associate sound with the specific graphic symbols and difficulty in mastering the sequence of both written and spoken language. (Richardson 1981, p.21)

According to Slingerland (1978a) the individuals displaying the characteristics within the dyslexic or specific language disabilities (SLD) syndrome exhibit weaknesses in auditory (sound), visual (sight), or kinesthetic (automatic memory and feel of sequential movements) functions or in the integration between these sensory modalities which are involved in processing language. Slingerland (1979) describes some of the most

common characteristics as

1. Persistence in reading errors--omissions, substitutions, lack of phrasing, concept missed in the struggle with the mechanics of reading;
2. Persistence in spelling errors;
3. Difficulty in visual perception and memory; letter and word recognition, reversals, and transpositions (b-d, girl-gril);
4. Delay in language acquisition;
5. Difficulty in auditory processing, listening, sequencing, remembering what is heard, following directions, and self expression;
6. Directional confusion in time and space;
7. Labored and/or illegible handwriting;
8. Disorganization and lack of structure in oral and/or written language." (Slingerland 1979, p.3)

Slingerland (1978a) concludes that the SLD students have difficulty in perceiving words as wholes, making automatic auditory-visual-kinesthetic associations, and in learning the language skills when taught by conventional educational methods. These difficulties present great challenges to the schools--in methodology, time, organization, and fiscal resources.

While the problem with literacy in the SLD (dyslexia) student is recognized, very little is known about the long-term consequences of this problem. Even less is known

about the long-term effects of remedial programs. There is a lack of research data to indicate that the SLD students are able to obtain and maintain the skills which will enable them to function adequately after leaving the remedial support system or whether recidivism occurs.

Purpose of the Study

This study was focused on the consequences of specific language disabilities on a group of students who were identified and who received remedial instruction in a regular education program during their elementary school years. The purpose was to investigate the students' ability to cope and/or succeed in the secondary school system, that is, to determine the academic and social status of the student with specific language problems.

Students' ability to cope and/or succeed in the secondary school system involves both academic and effective factors. Success cannot be measured by only academic criteria. Personal and social adjustment are also important tasks at this stage of development, and this aspect of the consequences of dyslexia is in need of further study. In this study the following issues were addressed: persistence (remaining in school), current school placement, program choices, achievement records, activity choices, extra-curricular activities, employment and future aspirations. Information acquired enhances our

understanding of the status of SLD students in the secondary schools and provides some insight about the long-term effects of language learning differences and instructional experiences at both elementary and secondary levels.

Hypotheses

Specific hypotheses were related to school persistence, current school placement, academic achievement and social adjustment. The preliminary review of the literature revealed a questionable prognosis for students exhibiting language learning disabilities. The few positive studies (Rawson, 1968; Major-Kingsley, 1983; and Finucci, Gottfredson & Childs, 1983) studied students from private schools as their target groups. There were indications that the consequences of specific language disabilities may be different for this group than it is for the multi-cultural, multi-lingual, multi-ethnic, dual sex groups found in the public school system.

It was assumed that the Slingerland intervention program would lead to positive experiences within the school. Thus, we suggested that the target group would do better in regard to persistence (remaining in school) than if they had not received this intervention. It was anticipated that the target group would have a level of persistence equal to or greater than that of the comparison

group. The nature of the specific language disability would indicate that the target group would continue to have some degree of difficulty in the academic subjects which demand a high degree of language competence such as reading, English, social studies, history, and foreign languages. Performance of the target group in the performing arts, creative arts and mechanical skills (shops) was anticipated as being equal to or greater than that of the comparison group. The overall grade point average of the target group was anticipated to be lower than the grade point average for the comparison group. It was further anticipated that a smaller proportion of the target group than the comparison group would be planning for higher-educational experiences.

The following specific hypotheses were studied:

HA₁: The proportion of target group members demonstrating school persistence will be equal to or greater than the proportion of comparison group members demonstrating school persistence.

Persistence was defined as remaining within the school system until graduation or receiving a certificate resulting from proficiency testing.

HA₂: The average academic achievement levels of the target group will be less than that of the comparison group as measured by the teacher assigned grade point averages.

- HA₃: The average academic achievement levels of the target group will be less than that of the comparison group as measured by a standardized achievement test. (California Test of Basic Skills.)
- HO₄: There will be no difference in the proportions of the target group students and the comparison group students that pass the proficiency examinations.
- HO₅: There will be no difference between the proportions of the target group and the comparison group who are planning for higher-educational experiences.

In an attempt to study the affective aspects of the long-term effects of specific language disabilities, the study examined some descriptive data (self-report questionnaires). The following exploratory questions were addressed in addition to the hypotheses previously stated.

1. Is there a significant difference in the vocational goals of the target subjects and their cohort comparison group subjects?
2. Is there a significant difference in the extra-curricular activities of the target subjects and their cohort comparison group subjects?

3. Is there a significant difference in time spent on homework between the target subjects and their cohort comparison group subjects?
4. Is there a significant difference in attitudes toward school between the target subjects and their cohort comparison group subjects?

Limitations and Assumptions

A major limitation of this study was that not all students had formal intelligence testing. Each had been individually assessed by teacher judgment and examiner judgment. It would also have been helpful if full testing batteries had been acquired at the time of entrance in the program. This was not possible due to the organization within regular education. Past achievement information was available.

A limitation existed due to the confusion of terms within the literature. Very few studies were limited to the area of specific language disability or dyslexia. Many studies grouped this condition with the more general field of learning disabilities. Of particular concern was the fact that many studies were not clear as to which sub-groups they might have included or excluded and were not always specific in regard to methods of identification and other demographic data.

Some contamination of the cohort group may have existed as the major school in this project provided

Slingerland instruction at 1st grade level for students who appeared to be at risk for language learning problems.

It was assumed that the student who experienced specific language disabilities in the elementary grades would still have specific language disabilities in secondary school. While a portion of the research was optimistic in regard to progress, it did not suggest that the processing difficulties have been ameliorated. It would have been naive to have believed that the students would function as "normally" learning students.

Intervention and remedial programs attempt to help the student develop strategies for learning which will allow the students to cope and compensate for learning differences. The students with the characteristics of specific language disabilities must employ many strategies for achievement. It was hoped that they had developed the coping mechanisms necessary for success in secondary school.

A limitation on this study was the high degree of mobility in the community within which this study was conducted. An important aspect of this study was the cooperation of the secondary school district in allowing access to data.

Definition of Terms

Specific Learning Disabilities:

A disorder in one or more of the basic psychological processes involved in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, or of environmental, cultural, or economic disadvantage. [PL 94-142, 121a 5(9), 1975].

Specific Developmental Dyslexia:

- (1) A disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence, and socio-cultural opportunity. It is dependent upon fundamental cognitive disabilities which are frequently of constitutional origin. (World Federation of Neurology, Critchley, 1970, p.1)
- (2) Developmental dyslexia is a learning disability which initially shows itself by difficulty in learning to read, and later by erratic spelling

and by lack of facility in manipulating written as opposed to spoken words. The condition is cognitive in essence, and usually genetically determined. It is not due to intellectual inadequacy, or to lack of socio-cultural opportunity, to emotional factors, or to any known structural brain defect. It probably represents a specific maturational defect which tends to lessen as the child grows older, and is capable of considerable improvement, especially when appropriate remedial help is afforded at the earliest opportunity. (Critchley and Critchley, 1978) (Critchley, 1981, p.1)

Specific Language Disabilities (SLD):

The term preferred by many educators in discussing dyslexia. SLD is one of the learning disabilities. According to Slingerland (1978) SLD students do not have low ability and learning disabilities per-se; as their learning difficulties are not of a global nature but are specific to language processing. Slingerland has suggested that the ability to perceive, retain and recall language symbols is distorted in an SLD child. Visual symbols and auditory sounds fail to stay in their correct relationships with each other causing words to not be easily recognized or recalled.

The terms specific language disability, SLD, dyslexia and specific developmental dyslexia are often used interchangeably in the literature. Additionally, discussions of specific learning disabilities sometimes (but not always) refer to the same group of characteristics.

Cohort Group:

This term refers to groups who have experienced similar life experiences. In this study the cohort group refers to control group of students with similar ethnic, social-economic, and sex who were in the same grade of the same school at the same time as the research group.

Constructed Control Group:

A group formed artificially in which the experimenter attempts to identify and measure a group of potential controls comparable in essential respects to the experimental group.

Aggregate matching:

The overall distribution on each of the matching variables are made to correspond for the experimental and control groups rather than attempting to match individuals.

Persistence:

In this study the term persistence refers to continuing in school--not "dropping-out" before receiving a diploma of graduation or a certificate of proficiency.

Orton-Gillingham Multi-Sensory Approach:

A sequential, simultaneous multi-sensory, alphabetic based approach which is usually used in tutorial situations with students having difficulty in developing language skills by the conventional instructional methods.

Slingerland Multi-Sensory Approach to Language Arts:

A developmental, simultaneous multi-sensory, alphabetic, total language approach which has been adapted from the work of Orton, Gillingham and Stillman for use with groups of SLD students in classrooms.

Significance for Educational Leadership

It was anticipated that this information would extend our knowledge and understanding of the effects of schools and the use of intervention/remedial programs with students having the characteristics of specific language disabilities. The information obtained from this study should assist educational leaders in making informed decisions regarding the policy level allocation of resources and curriculum development which will increase the effectiveness of future educational programs.

Summary

Today's society places great demands on the individual for functional reading and written expression skills. Developing these literacy skills is often difficult for the

student with the characteristics of developmental dyslexia, specific language disabilities or specific learning disabilities. Regardless of the label chosen to represent these language learning differences, it must be acknowledged that the difficulty is one which challenges individuals, schools and society in general.

At present much of the research has been directed towards developing a clearer understanding of the subtypes of dyslexia and attempting to agree on definitions. Little attention has been focused on the long-term consequences of language learning differences or the effects of remedial programs. The intent of this study was to follow-up a group of students who had been identified as SLD and had received remedial instruction in regular education classrooms while attending elementary school. Interest was focused on the students' ability to cope and/or succeed in the secondary school system. Specific hypotheses were directed to

- (A) school persistence
- (B) academic achievement as reflected by
 - (1) grade point averages
 - (2) standardized achievement tests
 - (3) passing district proficiency tests and
- (C) social adjustment as reflected by
 - (1) involvement in peer group activities and
 - (2) attitude toward school.

Future aspirations were explored in regard to educational and vocational goals. Comparisons were made between the target group and a cohort group who had not been identified as having learning problems.

CHAPTER II

Review of the Literature

Prevalence of Problem

The acknowledgment of illiteracy as a prominent social and educational problem has been well documented in the literature. Brutton, Richardson and Manget (1973) reported 7.5 million children in the United States with learning disabilities which include reading as a major problem. Enfield (1976) suggested that 11% of the citizens of the United States would be considered functionally illiterate if the criterion was a fourth grade reading level. The National Reading Council indicated that as many as 18.5 million Americans, 13% of the population, lacked the reading ability necessary for functioning independently (Brezeinski and Howard, 1971). This deficit in a skill vital to living independently creates severe social and life adjustment problems which affect all members of society. The accompanying loss of social and economic productivity (Danenhower, 1972; Hunter & Harman, 1985), waste of intellectual resources and accompanying emotional trauma (Rome, 1971; Matejcek, 1971; Holte, 1973; Rawson,

1974; Hogenson, 1974, 1978; Eisenberg, 1975; Bernstein & Rulo, 1976), demands the study of any and all variables related to illiteracy.

The view that many of those suffering this difficulty with literacy fall within the syndrome known as specific language disability or developmental dyslexia is also documented. The general consensus is that approximately 10-15% (H.E.W., 1969) of the population exhibit these language learning differences. According to Duane (1974):

Degrees of relative impairment may occur which will be included by some data collectors and rejected by others... Figures range from five to fifteen percent... Even if one accepts the lower figure of five percent [this would be] a greater health problem than the combined occurrence of mental retardation, cerebral palsy and epilepsy. (p.34).

Estimates of incidence reflect the confusion raised by the difference in definitions, terms and parameters for inclusion used by investigators (Bryan & Bryan, 1975, Keogh, 1977, 1980; Ellis, 1984). The problems with differing definitions and criteria for inclusion have been cited by Pavlidis (1981) as factors which have confused research efforts and led to delayed identification and service to dyslexics. In reviewing the literature on learning disabilities, Keogh (1977) found estimates ranging

from 2% to 40% and suggested that the incidence figures are determined by definitional parameters which are determined by the investigator's perception of the problem, the screening system employed and the level of available services. Rutter (1978) has suggested that the impossibility of defining dyslexia in an acceptable way prevents attempts to estimate prevalence. Rutter believes, however, that estimates of the prevalence of specific reading or spelling retardation can be estimated if we specify the severity of retardation and age group of subjects. Geschwind (1985) discussed the lack of uniformity in the clinical presentation of dyslexia. Ellis (1984) points out that this is a "graded" disability and that a variance in criteria changes the percentage called dyslexic. Ellis suggested the "existence of varieties of developmental dyslexia with the attendant assumption of multiple cognitive causes" (p.108). Doehring (1984), Hicks & Spurgeon (1982), Satz & Morris (1981), Pirozzolo (1981), Mattis, French & Rapin (1975), Benton (1975), Boder (1973), and others have also suggested that dyslexia is not a unitary disorder. According to Rutter (1978) this is not a homogenous problem and he questions whether any finer subdivision is possible. This reservation is echoed by Doehring (1984) who states that to this time a widely accepted identification of subtypes has been unsuccessful.

Problems in Longitudinal Studies

There have been several longitudinal or follow-up studies on the long-term effects of dyslexia as well as the more global learning disabilities. Many of these studies treated the groups as one population. Keogh, Major, Omori, Gandara & Reid (1978, 1980) discussed the effect of different research methods which often preclude comparisons across the learning disabilities studies and assists in explaining the inconsistencies in the consequences of the condition. In the review of the literature by Keogh et al. (1978, 1980) the sample descriptions were found to often be diverse and unsystematic. The contradictory findings were due in part to variance in sample characteristics, sample selection, measures of achievement, and/or research methodologies as well as differing experiences and remedial strategies. Basic background information was often missing from the studies. Many of the studies were dissimilar in the nature of the learning problem and in the methods and procedures used for assessment. A variety of different interventions and remediations including no treatment have been included in the studies. These differences in remedial strategies were often not described or even named. Calfee (1984) noted that the research reports little or nothing about the student's instructional history. In their review of the

longitudinal research, Horn, O'Donnell, & Vitulano (1983) voiced the concern that

The differences in definitions whereas some studies define a learning disability as a discrepancy between either grade placement or reading level (e.g., Ackerman, Dykman & Peters, 1977a 1977b) Muehl & Forrell, 1973-74), or between chronological age and reading level (e.g., Lovell, Byrne, Richardson, 1963), without also indicating whether a discrepancy exists between I.Q. and reading level. (p.547)

Horn and his associates (1983) reviewed a number of studies in their research. They noted that academic achievement has often been measured by different criteria. Ackerman, Dykman, & Peters (1977a) and Preston & Yarrington (1967) looked at the number of grades repeated. The highest grade completed was considered the measure of success by Balow & Bloomquist (1965) and Rawson (1968), while achievement test scores were used by Ackerman et al. (1977a) and Frauenheim (1978). Some studies use word recognition to define reading ability while others are concerned with reading comprehension. This use of different criteria may result in different samples (Lovett, 1984).

The majority of studies that Horn et al. (1983) reviewed had been conducted with small groups of subjects

who received instruction with a variety of techniques in clinical settings. Caution should be used when attempting to generalize information gained from studies of clinically referred subjects to the broader population. Belmont & Belmont (1966) cautioned that learning disabled children seen at clinics may be different from other groups. Cerny (1976) suggested that clinic referred children may have a variety of other problems in addition to learning problems. Horn et al. (1983) reported that in 17 studies which used clinic-referred children, 70% reported unfavorable outcomes in contrast to 5 studies of school-referred children in which all 5 studies (100%) reported favorable outcomes.

Indications of Long-Term Consequences of Specific Language Disabilities

Many individuals have developed strategies for coping with and even excelling in spite of the symptoms of dyslexia. Thompson (1969) described a number of dyslexics who have been outstanding contributors to society including: Thomas A. Edison, Albert Einstein, Nils Bohr (physicist), Rodin, Woodrow Wilson, Harvey Cushing and Nelson Rockefeller. Others have been less fortunate: the lives of thousands of dyslexics have been altered by their difficulty with language skills (Critchley, 1970).

Some follow up studies indicate that most dyslexic students do improve, although they show slow progress. They often remain indifferent to reading and remain poor spellers (Rutter, 1978; Robinson & Smith, 1962; Balow & Bloomquist, 1965; Rawson, 1968; Yule, 1973; Kline & Kline, 1975). Robinson & Smith (1962) found some evidence to suggest that early intervention was associated with later "avid reading". Abbott & Frank (1975), Balow & Bloomquist (1965), Preston & Yarrington (1967), Robinson & Smith (1962), Rawson (1968), and Kline & Kline (1975) all reported positive results.

Severity of the learning disability appears to be a definite factor in the prognosis. The studies by Ackerman et al. (1977a, 1977b), Gottesman, Belmont, & Kaiminer (1975), and Koppitz (1976) all related initial and terminal achievements of identified groups of students whom they had followed from 4-6 years. The greatest improvements were made by students with initially higher scores (Gottesman et al., 1975). Ackerman et al. (1977b) reported that their studies suggested that children most severely disabled made less progress and, furthermore, more intensive treatment appeared to be ineffective.

Gottesman et al. (1975) suggested that the consequences may be different for students from advantaged backgrounds or for those who possess high intellectual ability as were studied by Rawson (1968) or Robinson &

Smith (1962) than for students from financially impoverished backgrounds or for those with lower levels of ability as were studied by Gottesman (1975). Social background has been found to be one of the most significant factors affecting the LD students' progress (Koppitz, 1971; Rutter, 1978). Rutter (1978) noted that difficulty with reading occurs in all socio-classes; however, the students from the disadvantaged groups made less progress. Rutter also suggested that the overt manifestations of the reading problems may occur more frequently in the under-privileged. Rutter hypothesized that family size may be a factor through its retarding effects on verbal and language development (Rutter, 1978).

One of the most positive studies was done by Rawson (1968). This involved a thirty year longitudinal study of 56 boys which included 36 dyslexic and 20 facile language subjects. The average dyslexic in her population had completed 6.0 years of college and graduate school as compared to the average of 5.4 years for the more facile group. In a later discussion Rawson (1981) noted that dyslexia "occasionally slowed them down a bit but did not stop them." (p.31) Because all of these students were of good intellectual status and were enrolled in a private school they could not be considered representative of the total population.

Kline & Kline (1975) studied the achievement of 210 dyslexic students. This included a group of 140 students who had received Orton-Gillingham instruction and a group of 76 students who had not received remedial instruction or who had received instruction in their home-schools. Kline and Kline reported that 95.7% of Orton-Gillingham treated group showed improved skills while 51.0% of the untreated or school treated group were rated as having improved academic skills. Kline and Kline also noted a relationship between good results and the length of time of treatment.

Levin, Zigmond & Birch (1985) conducted a retrospective study of 52 students who were recognized as having academic difficulties by the age of 9. They found that it had taken "about 4 1/2 years from identification to their enrollment in a special education program at approximately age 13" (p.3). Four years later it was found that 16 of these students were still enrolled in special education programs, seven had returned to regular classes, twenty-four had stopped attending school and 5 had left the city with no information on their current status. While the students had made impressive gains academically, the 51% school-leaving rate far exceeded the drop-out rate of 36% reported for that high school district.

The studies by Frauenheim (1978) and Frauenheim & Heckerl (1983) were not encouraging. In 1978 Frauenheim investigated the skills attainment in reading, spelling and

arithmetic for a group of 40 adult males who had been diagnosed as dyslexics. Remedial treatments were not reported. The results indicated severe residual learning problems in spite of much special education attention. Essentially the same learning difficulties existed at the time of the study as had existed at the time of diagnosis. In 1983 Frauenheim & Heckerl studied the status of eleven subjects from the 1978 study. These students were from the severe end of the dyslexic continuum. Eighty percent of this group of eleven had completed high school but still had quite pronounced deficits in reading and spelling. In spite of extensive remedial treatments, the patterns of skills' weaknesses and cognitive abilities "have remained remarkably consistent over a period of approximately seventeen years" (p.345). In general, marginal and poor progress was also reflected in the finding of Ackerman, Dykman & Peters (1977a, 1977b); Cerny (1976); Gottesman et al. (1975); Koppitz (1976); Lovell, Byrne & Richardson (1963); and Bluestein (1968). It should be pointed out that often these studies included some students with learning problems other than specific language disabilities.

Social-Emotional Factors

Practitioners in the field are well aware that problems in the area of self-concept, emotional well-being

and social relationships are often seen in addition to the difficulty with the language skills. Matejcek (1977) stated that:

About 2/3rds of the children suffering SLD have serious, usually secondary, emotional disturbances and problems--hyperactivity, impulsive behaviors, fears, aggressiveness, lack of self-confidence and feelings of inadequacy appear among those most listed (p.13).

According to Eisenberg (1975), "Every poor reader has psychological problems, although not all to the same degree or in the same kind." (p.220) Eisenberg related the "inevitability" of these difficulties to "the pivotal role of success at school for the self-concept of the child." (p.220) Rawson (1981) refers to Erickson's Stage IV in which the child is primarily concerned with the establishment of competence. Rawson states that

If [the student] comes into the clinical and remedial picture at one of the later ages the work of competence-building and its self-enhancing correlates must be done along with the support and growth of the later stages. (p.30)

Studies by Paget & Reynolds (1984), Margalit & Zak (1984), and Epstein, Cullinan, and Nieminen (1984), all support the concept of the "interrelatedness of self-esteem, academic achievement, and general anxiety in young

learning disabled students" (Patten, 1983, p.44). Patten (1983) suggests further that the low self-esteem may cause further difficulty in concentration, memory and problem-solving. Weiss (1984) suggests that the social cognition of learning disabled children may differ from that of the non-learning disabled students. These social-emotional factors need further investigation in regard to their prevalence and effect on the academic progress and life adjustment of the learning disabled student.

Life Adjustment in Adults

Major-Kingsley (1983) looked at various factors in the life adjustment of young adults who had experienced learning disabilities as children. Many continued to demonstrate the classic symptoms of dyslexia (transpositions etc.). A significant difference in the reading ability of the learning disabled population was still present. In spite of this difference the learning disabled group had devised strategies for coping and compensating. Major-Kingsley was especially interested in many of the qualitative aspects of life, and the study offers informative insights in this area. While the subjects had somewhat lower vocational and educational goals, 33% of the group anticipated receiving their B.A. degrees and 35% had expectations for entering graduate or professional study. These young learning disabled adults

were employed in similar kinds of jobs, had comparable vocational histories and similar social activities, and were leading happy, productive lives. Major-Kingsley concluded that the presence of a learning disability in childhood doesn't prevent one from becoming a successful young adult.

Gottfredson, Finucci & Childs (1983) completed a study of several hundred dyslexic men who received specialized, Orton-based instruction while attending the Gow School between the years of 1940 and 1977. They collected data on degree of severity of dyslexia, educational performance, degree level, intelligence, and social background in an attempt to assess how dyslexia affects occupational success. This group was compared to three other groups including (A) a control group of non-dyslexic men with similar S.E.S. factors, (B) the "average man" as determined by government figures and (C) a group composed of the experimental groups' own fathers. The experimental group was found to be quite successful, with a higher level of occupational success than the "average man." Higher socio-economic status and level of intelligence were considered to be factors in this success. The experimental group were not as successful as the control group or as the group composed of their fathers. They had received considerably less education than the control group. It was felt that dyslexia appeared to influence the educational level by

affecting reading comprehension and grades. Gottfredson et al. (1983) stated that "Even though dyslexics improve skills they usually fall far short of attaining the skills that would otherwise be expected of them" (p.28).

Gottfredson et al. (1983) suggest that the reading disabilities are fairly intractable. While improvement occurs, the problems persist; however, successful life adjustment can and does occur as the dyslexics learn to cope and compensate for disabilities. In their study Gottfredson et al. (1983) noted that 58 percent attained bachelor's degrees and 10 percent of that group had also earned a graduate degree. Fifty percent of those employed held management or administrative positions. Another 19 percent held professional and technical positions. In spite of the reading difficulties, more than half reported positive attitudes toward reading for pleasure and were actively utilizing the written news media (newspaper and magazines).

Rawson's (1968) long-term follow up study of dyslexic students who had received Orton-Gillingham instruction also reflected educational and professional success. Robinson & Smith (1962) found that the majority of their subjects had completed high school and many had gone on to college. Four of the subjects were either currently enrolled or had completed graduate and/or medical school. Robinson and Smith concluded that the students can be rehabilitated

educationally so as to fulfill their occupational ambitions.

The studies by Major-Kingsley (1983), Gottfredson et al. (1983), Rawson (1968), and Robinson & Smith (1962) reflect the ability of dyslexic students to lead successful lives in spite of reading disabilities. It should be noted that in each of these studies the subjects had received specialized instruction directed at developing strategies for coping with existing language learning problems.

Balow & Bloomquist (1965) described fair academic and occupational achievement but noted some attitudinal problems. In general, the subjects had only vague plans and goals for their future and did not feel that they were the masters of their own destinies.

Preston & Yarrington (1967) found that those not still in school had repeated more grades in contrast to the 16% of the population that normally repeat. The proportion of drop-outs did not differ significantly. While it appeared that educational and vocational progress had come more slowly, comparisons after a span of 8 years showed that the subjects in Preston & Yarrington's study had fulfilled educational and vocational roles comparable to those of their agemates. Almost as high a proportion of the LD subjects had gained admission to college and their unemployment/employment rates were normal.

Nature of the Intervention Program

The debate over the most appropriate method for instructing the dyslexic student continues. Should instruction be through the sight method, or should it be based upon phonics instruction? Should instruction "concentrate on developing the stronger modality, on remediating the weaker modality or on combining both approaches?" (Hicks, 1980). According to Hoffman (1977) and Hicks (1980) the learning process involves many sensory and integrative activities. This integration occurs both within the modality (intramodal integraton) and between modalities (intermodal integration). The research by Hicks (1980) indicated that

Children taught inter-and intra-modality (combined approach) should make the most progress because both integration systems are being developed. In addition, simultaneous auditory and visual teaching should aid perception of sensory input equivalence--a postulated area of difficulty (Hicks, 1980, p.185).

Lovitt and Hurburt (1974) found that "Systematic phonics instruction can affect a pupil's performance on selected phonics tasks" (p.62), but even more importantly they found that the pupil's oral reading performance improved with systematic phonics instruction although no

instruction was directed toward reading. Lovitt and Hurburt (1974) concluded that (A) the phonics skills must be defined, and (B) systematic teaching procedures must be followed. Instruction using the Slingerland Adaptation of the Orton-Gillingham Multi-Sensory Approach and the Palo Alto Method were used with different groups of students for a brief time each day. While both groups profited from the instruction, Lovitt and Hurburt did not attempt to compare the two systems.

In reviewing the Slingerland Approach Lesiak (1984) noted the following attributes:

- (A) A structured, carefully organized approach.
- (B) Teaches language arts in an integrated fashion.
- (C) Multisensory cues focus students' attention on the task.
- (D) Provides needed repetition and reinforcement.
- (E) Program is inexpensive.
- (F) Does not demand the use of certain books which allows the teacher to choose materials that meet the needs of students.

Lesiak (1984) questioned the structured reading techniques in the Slingerland Approach and suggested use of this procedure for only as long as the students need the structure. Lesiak (1984) summarized her review by highly recommending the use of the Slingerland Approach with elementary students who are experiencing difficulty

developing skills in reading and/or written expression "because of its structure of flexibility, the multisensory cues provided and specific procedures for teaching given." (p.13)

The Slingerland Approach

The Slingerland Adaptation of the Orton-Gillingham MultiSensory approach was developed to use with the dyslexic students in regular education classroom settings. This total language approach involves teaching strategies for developing skills in both expressive and receptive language. Integrated instruction and practice is given in oral language, reading comprehension, decoding, handwriting, encoding, spelling, organization of thought and written expression. Because it is an approach rather than a method or technique, it allows the teacher to provide for individual differences within students. The basic principles of this approach are:

1. Simultaneous multisensory presentation in which the student's strongest modalities are always used to reinforce and strengthen the weaker modalities.
2. Always teach through the intellect... never by rote memorization.
3. Begin with a single unit (of sight, sound or thought) and build to the more complex.

4. Insure a successful performance by the student through the structuring of learning experiences. (Slingerland, 1978; Ballesteros & Royal, 1981).

In this study the subjects were taught in regular education elementary classes which were limited to 26 students. Multi-sensory instruction was provided by specially trained classroom teachers who utilized the Slingerland Approach. This program did not receive special education funds from either the state or federal governments but was wholly funded within the local regular education budget.

Studies Related to Slingerland Intervention

Studies by East (1969), Wood (1975, 1976), Herman (1972), Gibson, Jones, Tyler & McElroy, (1973), and Anchorage Evaluation Staff (1983) have reported success for the SLD students when taught using the Slingerland Multi-Sensory Approach. The study by East (1969) followed one hundred students in a suburban Washington state city. Fifty children, identified as exhibiting the characteristics of specific language disability, received an intervention program utilizing the Slingerland Approach. Students all had average or high I.Q. scores.

Children in the control group were matched as nearly as possible on the variables of sex, age and I.Q. Children in both groups received reading instruction based on the

basal reading program in use in that school system. Experimental students received extensive instruction utilizing the Slingerland Approach. At the end of the three year study it was found that the experimental group achieved at a higher level than the control group on the Metropolitan Achievement Test subtests of (1) Word Knowledge (2) Word Discrimination and (3) Reading Comprehension. This difference in achievement had been especially significant during the first two years of the experiment.

Wood (1975, 1976) evaluated the performance of 68 students in the 1975 study and 484 students in the 1976 study in a predominately middle-class suburban Texas town. Wood (1975, 1976) used a multiple linear regression approach to evaluate differences between experimental and control groups on the criterion measures of reading, spelling and language arts (S.R.A. Assessment Survey). The experimental groups, utilizing the Slingerland Approach, performed significantly better ($p < .001$) on each of the criterion measures.

Herman (1972) conducted a study with 16 reading clinic children over a period of 5 months in an urban university setting. This group contained 11 boys and 5 girls who were in the third and fourth grade. Results were presented in a case-study format reporting individual results. Overall findings indicated effective language development in the

areas of handwriting, spelling and reading for this group of children.

An evaluation of the "Simultaneous Multi-Sensory Instruction Program" (SMSI) in the Anchorage School District was reported by the assessment and Evaluation Staff in October, 1983. This study included achievement records and evaluations by parents and staff. A total of 39 classes containing 840 students were assessed. It was noted that the program was not standardized in the implementation of the Slingerland Approach or in the composition of students in the room (i.e., some rooms contained only students who had been identified as having specific language disabilities; other rooms were heterogeneous). No attempt was made in the study to control for differences in instruction, turnover or the effect of mixing screened and non-screened students. A control group was not used. The evaluation indicated that

- (A) The students in the SMSI program showed significant improvement in the phonetic analysis of words as measured by the Benchmark Spelling Test.
- (B) The SMSI group made gains in the average number of correct spelling words at all levels on the Morrison-Mccall Spelling Test; however, the gains were not significantly different.

- (C) SMSI students in grades 1-6 demonstrated significant gains in their ability to apply phonetic and word analysis skills on the Woodcock Reading Test. Significant differences were not demonstrated in grades 7-12.
- (D) Performance on copying tests showed an improvement of handwriting at all grades. The proportion of 3rd and 4th grade students showing handwriting improvement in grades 3 and 4 was relatively lower than was seen in these students' overall improvement.
- (E) Significant gains were demonstrated in all of the measured areas in writing a paragraph. These included the number of words, number of sentences, number of thought units, thematic maturity, capitalization and punctuation.
- (F) SMSI students were able to show a normal academic year of growth when compared to a national sample of non-language disabled students on the Stanford Achievement Test. They were slightly below the national average in both pre and post-tests.
- (G) SMSI students scored close to the average and showed a full year of academic growth on the Iowa Test of Basic Skills & Tests of Achievement and Proficiency. They did not generally improve their performance ranking.

- (H) Parent surveys often mentioned improvement in self-concept. When measured by the Piers-Harris Self Image Measures the students showed neither substantive gains nor losses. They were generally at or above the national average for both pre- and post-test periods with an overall patterns of stability.

Program evaluators concluded that

[The] students show gains in achievement on measures that closely relate to Slingerland instructional techniques. Gains on pre-post tests of actual spelling words, reading skills, and other basic academic skills show that students generally were able to make the academic gains expected for a school year, but no more. Student achievement was close to the national average but below the District average on the ITBS/TAP. (p.25)

Evaluation forms completed by teachers, parents and principals were supportive of the program.

McCulloch (1985) conducted an ex post facto comparative study of the reading, spelling and language arts achievement of two randomly selected groups of 4th grade students who had been identified as being specific language disabled through the use of the Slingerland Screening Tests. The analysis of normal curve equivalent

scores on the California Achievement Test for the experimental group, who had received intervention with the Slingerland Approach during a three year period, was compared with that of the control group, who received the traditional district educational program during the same period of time. The sample was considered homogeneous in spite of random selection as there is little diversity in socioeconomic and educational factors in this English speaking, predominantly blue-collar community. Results of this study showed that the experimental group (taught with the Slingerland Approach) scored significantly higher than the control group in reading and language. The experimental group also scored higher on Spelling than did the control group but these differences were not statistically significant. McCulloch suggested that the students would show increasing gains as they are taught by this approach for longer periods of time.

Wolf (1985) investigated the progress of 2nd grade students in a suburban, middle class community. Hypotheses were based on the independent variables of Slingerland instruction as compared to the conventional classroom instruction. The four groups included both specific language disability students and regular education students. Wolf concluded that the Slingerland instructional approach had produced significantly higher gain scores in language for both specific language

disability students and regular education students. The reading achievement scores indicated progress but were not statistically significant.

Casper (1983) studied first grade students in two elementary schools. The students had been identified at the end of kindergarten through the use of the Bender Gestalt and Slingerland Pre-Reading Screening Tests. Students in the experimental school received instruction utilizing the Slingerland approach. The students in the control school received the district's conventional classroom instruction. Findings were that the (CTBS) total reading score was slightly higher for the experimental school than for the control school, however, it was not statistically significant. Casper suggests that these results confirm the findings by East (1968) which suggested that one year of Slingerland instruction is not sufficient to bring student's academic performance up to the level of their peers.

As of this writing the unpublished study by Revelle (1974) on the egress of students instructed by the Slingerland Adaptation of Orton-Gillingham is the only study located which deals specifically with the question which this study wishes to address: the long term consequences of a specific language disability (dyslexia) on students who had been identified and received remedial instruction with the Slingerland Approach in regular

education while in elementary school. Revelle looked at the students' progress in junior high school. At that time she reported positive results with a maintenance of skills.

Discussion of The Slingerland Screening Procedures

Students in this study were identified through the use of the Slingerland Screening Procedures. The Slingerland Screening Procedures have been "lauded for attempting to provide information which is relevant to the kinds of instructional decisions teachers are required to make." (Burns & Burns, 1977) Reviewers have commented on the similarity of the test items to classroom tasks. The assessment is administered within realistic school situations which allows the teacher to view performance within a familiar context and assists in the process of relating test performance to classroom curriculum (Ansara, 1969; Proger, 1972; Burns & Burns, 1977; Rust & Wood, 1982). Ansara (1969) pointed out that the group screening under controlled environmental conditions allows the teacher to observe deviations within a peer group. Meyers (1983) has suggested that the variance of the tasks in regard to distractions and methods of response may be useful in providing information as to the manner in which the individual student is processing information.

A criticism of the Slingerland Screening Tests has been the absence of formal reliability and validity data

(Dinero, Donah, & Larson, 1979; Proger, 1972). In recent years continuing research has provided data which supports the validity and reliability of these tests (Oliphant, 1969; Kapelis, 1975; Burns & Burns, 1977; Dinero, Donah & Larson, 1979; Fulmer, 1980; Rust & Wood, 1982; Meyers, 1983; Keogh, Royal & Sears, 1986).

Validity

Predictive validity is the major concern in a screening test. Kapelis (1975) compared the predictive validity of the Slingerland Pre-Reading Screening Procedures, The Meeting Street School Screening Test and the accuracy of teachers' judgments in predicting end of the year reading achievement. The correlations for these three predictors were all in the moderate range. "The PRSP (Slingerland) was the most powerful predictor, correlating .66, .68 and .68 with Word Knowledge, Word Discrimination, and Reading respectively." (p.40) the correlations for the MSSST were .58, .64 and .62, while teacher forecast correlations with reading achievement scores were .46, .49 and .48. (p.40)

Oliphant (1969) found correlations of the Stanford Achievement Tests and the total Slingerland scores ranging from -.57 - .65. Oliphant concluded that the Slingerland Screening Tests are useful predictive instruments.

Proger (1972) reported that the Slingerland has face validity and measures modalities similar to those on the Illinois Test of Psycholinguistic Abilities (ITPA).

Dinero, Donah & Larson (1979) found the Slingerland tests to have discriminant validity when compared with a criterion battery of individually administered standardized tests. According to their research, Subtests I and VII of the Slingerland Test "forecast learning disability with 85% of the accuracy of the battery of individually administered standardized tests." (p.976). They cautioned that the restricted ranges of several of the Slingerland subtests weakened their predictive power.

Fulmer (1980) tested the predictive validity of the Slingerland procedures by correlating the Slingerland Tests with the Comprehensive Tests of Basic Skills (C.T.B.S.), teacher ratings and intelligence test scores. Fulmer stated that the study supported the ability of the Slingerland tests to detect difficulties in reading, spelling, handwriting, language and readiness skills. Additionally, Fulmer found that "the Slingerland Screening Tests exhibited only moderate correlations with measures of IQ, indicating that the trait being measured is not strongly related to intelligence." (p.13)

Meyers (1983) correlated performance on the Stanford Achievement Tests with the Slingerland Screening Tests. Upon obtaining correlation coefficients of .57 to .65,

Meyers concluded that the Slingerland Screening Tests were moderately useful as predictive instruments. Meyers also suggested that the Slingerland Screening Tests may provide a valuable tool in the assessment of information processing skills." (p.152)

Keogh, Royal & Sears (1986) compared predictions based on the Slingerland Pre-Reading screening Procedures at kindergarten level with the scores on first and second grade Stanford Achievement Tests and found the rank order of achievement categories had been accurately predicted with correlations ranging from .50 - .61 at first grade level and .52 - .62 at second grade level. Keogh et al. concluded that "Taken as a whole, these findings suggest the Slingerland Screening Procedures are valid predictors of school achievement in primary grades." (p.35) The scores on the Slingerland and the intelligence as established by the Draw-A-Person (DAP) were modestly though significantly related. Relationships between achievement tests and the DAP's were generally low.

Keogh, Royal, Daley & Pelland (1986) are currently studying the Stanford Achievement Scores of students in grades one through six who had been identified, through the use of the Slingerland Screening tests, as having specific language disabilities. To date, they have found that there appears to be a difference in the pattern of scores between the SLD group and their fellow regular education

classmates. By inference, this may suggest that the tests have identified a group that is different from the peer group. It has also been observed that there appears to be a difference between the SLD students' performance on language and math subtests, suggesting that the difference is related to language rather than to a global learning problem. Ansara (1969) also noted a difference in language and math subtest performance patterns in students who had been identified by the Slingerland Tests.

Reliability

Burns and Burns (1977) calculated percentile rank norms for 2272 students in grades K through 6. Significant mean sex differences were found indicating the need for separate tables of norms for boys and girls. Burns and Burns reported that "The split-half reliabilities which were obtained lend firm support to the notion that the tests are reliable." (p.11)

Fulmer (1980) reported three measures of reliability in her study of the Slingerland Screening Procedures. These included coefficients for the Pre-Reading (PSP) and Forms A, B, and D respectively:

	<u>PSP</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
(1) coefficient alpha reliability	.94	.94	.94	.96	.93
(2) test - retest reliability	.78	.71	.78	.85	.80
(3) inter-rater reliability	.78	.69	.78	.91	.83

According to Fulmer (1980) the standard errors of measurement were relatively small, which allowed a reasonable degree of precision in the estimation of the students' true scores.

Rust and Wood (1982) developed local norms for a total of 664 students in Tennessee. Test-retest reliability was calculated for 144 students. Noting the stability across a 26 month interval, Rust and Wood concluded that "The Slingerland tests appeared to be reliable and useful in locating children who may be in need of individual attention." (p.6)

Methods of Research

According to Horn et al. (1983) the methodologies used in the research include prospective techniques in which the investigators identifies learning disabled children and then studies consequent behaviors as they occur and retrospective diagnosis which is based on information the researcher gathers later in the subjects' lives. Ackerman, Dykman & Peters (1977b) employed a prospective design as they selected their subjects when they were in the 6th

grade. These students were then re-evaluated at age 14. A retrospective design was used by Major-Kingsley (1983).

Horn and his associates (1983) presented arguments and suggestions for appropriate control group within the studies. They suggested the random selection of a control group from the nondisabled children in the same classrooms as the learning disabled students. This would assist in forming a cohort group who would be similar in age, socio economic class, and with similar educational/life experiences with the major variable of difference being the learning problems.

Rossi, Freeman, and Wright (1979) have described a similar group which they refer to as a "constructed control group." When forming this group the evaluator attempts to identify subjects that are comparable in essential respects yielding similar demographic profiles. Rossi et al. (1979) found that it was neither efficient or necessary to use more than a few variables for selecting the constructed controls. In general the characteristics that influenced inclusion in the groups tended to be highly related. Characteristics they have suggested for devising these groups include the following:

Age

Sex

Ethnicity

Intellectual functioning

Educational attributes

Occupations

Socioeconomic status

Labor force participation

The constructed control groups may be formed either through individual or aggregate matching. While individual matching is preferred from a research viewpoint it employs more expense, is very time consuming and it is often difficult to maintain the control group. According to Rossi et al. (1979) it is generally a more practical and desirable procedure to select on the basis of group similarities. In aggregate matching the overall distribution on each variable is made to correspond for the experimental and control groups. Rossi et al. (1979) cited several successful studies which employed the constructed control groups.

Summary

The study by Major-Kingsley (1983) stimulates interest in the question of life adjustment during the adolescent years. Are there generalizations which can be made in this area? Follow-up studies have often concentrated on the adult population. Little information has been gathered on the plight of the students during their secondary school years. In their review of the published research, Keogh, Major, Reid, Gandara, & Omori (1978) found that most of the

focus of empirical literature had been on the six to twelve years age group. Relatively little systematic data was found on older children.

Longitudinal studies have focused on students who received remediation in private schools offering specialized programs, special education or clinics. Little is known about the long-term effects of specific language disability on students from diverse socio-economic and multi-ethnic populations who have received remediation within the regular education classrooms.

Further study of this secondary school age group is needed in an effort to understand the factors in the long-term effects of difficulty in developing the language skills. The issue of the effects of intervention and remediation need to be considered. Does it make a difference? If so, are there demographic differences influencing the effectiveness of the educational experiences? The identified population of specific language disabled students who received intervention with the Slingerland Multi-Sensory Approach during elementary years and are now students in the local secondary school district offers an opportunity for this study.

CHAPTER III

Methods and Procedures

This study investigated the educational status of students in secondary school who had been identified and treated for specific language disabilities (dyslexia) in regular education classrooms during elementary school years. Both quantitative and qualitative data were gathered for both the target and the cohort control groups. The quantitative information involved such factors as persistence and academic achievement. The qualitative information focused upon factors in the affective area dealing with goals and expectancies, use of leisure time and involvement in school extra-curricular activities. While not always appropriate for treatment with statistical procedures, this information is important for understanding the status of these students and will be useful for planning appropriate educational programs.

Phase I of the study involved a search of the records to determine the school status of 312 SLD students and 308 Cohort Comparison students. Total number of subjects in the search for school persistence was 697. Phase II

involved comparing the academic records of both groups. Grade-point averages and scores on the California Test of Basic Skills were utilized during this phase of the study. Information regarding the proficiency examinations was collected for a sub-group of this population. Phase III was a self-report survey regarding educational goals, vocational plans and extra-curricular activities.

Research Subjects

The subjects in this study were all public school students in an urban community located near the Mexican Border. The subjects were predominately lower to middle-class, however, both socio-economic and ethnic grouping were diverse. The 1984 racial Survey of the elementary district indicated that approximately 42% of the student population were Hispanic, 42.3% Anglo, 8.5% Filipino, 3.7% Black, 2.6% Asian or Pacific Islander, and .7% American Indian or Alaskan. The socio-economic and ethnic factors in this district are probably similar to many other districts in the southwest. Many of the students come from bilingual home environments. According to the Department of Research and Evaluation of California State Department of Education these factors can be considered to be representative of the state as a whole. (C. Fowler, personal communication, May, 1986).

The 29 schools in the elementary district serve the residents within an area of 100 square miles. Seven private schools are located within the district boundaries. Four of the district elementary schools offer the regular education Slingerland classes for students with the characteristics of specific language disabilities in addition to the district special education classes. Students from this elementary district are promoted into the 19 school secondary school district which serves four neighboring elementary districts.

Specific Language Disabilities Group (A)

The target subjects were students who had been identified as specific language disabled and who received Slingerland instruction in regular education classrooms while in the 5th or 6th grades in a suburban elementary school district. These were students who had demonstrated great difficulty in developing the language skills of reading, writing, and spelling at levels commensurate with their intellectual abilities during their elementary school years. Many, but not all, of the students had been considered for placement in the special education classes. Some students were receiving or had received special education assistance in addition to placement in the Slingerland program. In many cases their learning problems were not considered to be severe enough to warrant

special education placement under the district guidelines. For others, placement in this specialized regular education program was considered the most appropriate placement. The students' difficulty with the language skills problems were considered to be severe enough to warrant the students being bussed to the four schools with the Slingerland program. All of these students were identified by means of the Slingerland Screening Procedures before placement in the program. (Appendix A) A search of the records indicated a possible population of 312 SLD secondary school age students. All of these students were included in Phase I of the study which focused on school persistence.

Cohort Comparison Group (B)

A referent cohort comparison group was formed by a stratified random selection of 308 students with similar backgrounds and socio-economic status. These were regular education students of the same sex and grade level at time of identification in elementary school, who had attended the same elementary school as the SLD group. All of these students were included in Phase I of the study which focused on school persistence. Standardized reading and mathematic scores from tests administered during the students' 6th grade were available and included in the data for this study.

Subjects in Three Phases of Study

All 312 specific language disabilities students students (Group A), and 308 stratified randomly chosen cohort comparison group students (Group B) were included in Phase I of the study which focused on school persistence.

The 385 students still attending district schools formed the subject pool for Phase II and Phase III of the study. As the focus of this study was an educational one the current data collected was directed at the academic and achievement status of this sampling of SLD and comparison group students.

Notification of Potential Subjects

When working with adolescents it is necessary to obtain parent permission. This is often a difficult task because one must rely on the parents to return the permission slips. Letters were sent to the parents of these students explaining the study and requesting permission to include their child in Phase III of the study. (Appendix B) Permission was received to include 80 SLD students, and 30 comparison group students. A total of 110 subjects were involved in Phase III.

Methods

This study included a survey of the current placement and status of language disabled subjects in grades 7

through 12. Their present status was viewed in comparison to cohort group subjects who were not known to be language disabled. Information was collected on demographic factors within the groups which might be possible influencing variables.

Major hypotheses were focused on the adjustment and success in the secondary school system as it was reflected by school persistence, academic grades, standardized test scores, passing proficiency tests, and participation in extra curricular activities. These hypotheses assisted in measuring any similarities or differences between the specific language disabled and cohort comparison groups.

Comparisons were made on the following specific indicators of educational and achievement status:

1. Persistence (enrollment vs. "dropping out")
2. Grade point averages
3. California Test of Basic Skills (CTBS) scores on Total Reading
4. California Test of Basic Skills (CTBS) scores on Total Math
5. Proficiency tests status

Background information was collected in the following areas:

1. Sex
2. Ethnicity
3. Social-economic status

4. Bilingual status
5. Achievement level in grade 6

Questionnaire

Phase II of the study involved the use of a self-report questionnaire with subgroups of students in both the target and cohort comparison groups. (Appendix C) This questionnaire requested information regarding:

1. Future educational plans
2. Career goals
3. Peer-group involvement
4. Attitudes toward school
5. Time spent on homework

Content validity of the questionnaire was established by submitting it to a panel of experts for their evaluation. This panel of experts consisted of a school psychologist, a professor of education and a school administrator. To control further for the lack of ambiguity within the questions, the instrument was also submitted for review to three parents. The questionnaire was tested with 6 students to determine the appropriateness of the vocabulary level, time needed for completion and reliability. Reliability was established through a test-retest method in which the instrument was administered twice to a group of six students with a time delay of two weeks.

Procedures

A list of subject names was prepared and assigned identification numbers. (This list is accessible only to the investigator.) The list was compared to the high school district attendance records to determine present addresses and school enrollment status in May, 1986. The reason for leaving the district was noted. The parents of students currently enrolled in the school district were sent a letter requesting their permission for their son or daughter to be included in this study. Students for whom the researcher had received parental permission for inclusion in the study were requested to fill out the questionnaire during the time period of June 2 - 11, 1986. The cooperation of the district permitted this questionnaire and explanation letter to be hand delivered to the previously identified students for completion on campus during the school day. This procedure provided for a more complete collection of data than reliance on postal services. Students absent during data collection received the questionnaire in the mail.

Information on grades, standardized test scores, proficiency tests, ethnicity, language status and socio-economic-status were retrieved from the computer files during the first week of June, 1986. This information obtained from school records and the self-report

questionnaire was compiled and analyzed in an effort to identify the importance of the variables.

This group information is available for use in curriculum planning by both the elementary and the high school districts. Information on individual students will not be released to school districts or other parties. All policies relative to individual privacy were strictly observed. The treatment of the study, subjects and all related information honored the criteria set down by the University Human Subjects Study Committee of the University of San Diego.

Data Analysis

The data was analyzed in several ways involving both inferential and descriptive statistics. Variants were analyzed separately to compare differences BETWEEN the status of the specific language disabled group and the comparison cohort group.

t-Tests were used to compare the collected grade point averages and standardized test scores. Inferential statistical procedures were needed to compare many of the other variables. Chi Square tests of Independence were used on each question item paired with each demographic variable.

Both qualitative and quantitative information were collected and analyzed. This information, taken as a

whole, yielded a comprehensive picture of the residual effects of specific language disabilities on students during their secondary school experiences.

The hypothesis were measured in the following ways:

HA₁: The proportion of target group members demonstrating school persistence will be equal to or greater than the proportion of comparison group demonstrating school persistence.

Persistence was defined as remaining within the school system until graduation or receiving a certificate resulting from proficiency testing. The names of members of both the target and cohort groups were submitted to the secondary school district. A computer search of their district records indicated whether each subject was enrolled in the school district. To a limited extent the district records also indicated the reason for the student leaving. Chi-Square Tests of Independence were used to analyze this information for both between groups and within group differences.

HA₂ The average academic achievement levels of the target group will be less than that of the comparison group as measured by the teacher assigned grade point averages (GPA).

A t-test was used to test this directional hypothesis.

HA₃ The average academic achievement levels of the target group will be less than that of the comparison group as measured by standardized test scores.

Reading and math scores from the California Tests of Basic Skills were studied. Because of the directionality of the hypothesis t-tests were used to test the results.

HA₄ There will be no statistically significant difference in the proportions of the target group and comparison group students that pass the proficiency examinations.

Chi-Square Tests of Independence were used to test this data.

HA₅ There will be no statistically significant difference in the proportions of the target group and comparison group who are planning for higher educational experiences.

Chi-Square Tests of independence were used to test this data in relation to each independent variable.

Phase III of the study involved an attempt to study some of the affective aspects of the long-term effects of specific language disabilities. The following exploratory questions were addressed in addition to the hypotheses previously stated.

1. Is there a significant difference in the vocational goals of the target subjects and their cohort comparison group subjects?
2. Is there a significant difference in the time spent on extra-curricular activities of the target subjects and their cohort comparison group subjects?
3. Is there a significant difference in the time spent on homework by the target subjects and their cohort comparison group subjects?
4. Is there a significant difference in attitudes toward school between the target subjects and their cohort comparison group subjects?

Innergroup analysis in regard to each hypothesis was completed through the use of Chi-square Tests of Independence.

CHAPTER IV

Research Findings

Description of Total Group

The original study group contained 620 subjects with a target group (identified as specific language disabled students) containing 312 subjects and a randomly selected cohort-comparison (non-language disabled) group of 308. The 380 males accounted for 61.29% of this sample population with the 240 females accounting for the remaining 38.7% of the total group population. The secondary school district attendance records listed 476 (76.5%) of these subjects as being present or past students. The district reports 385 (61.9%) of the original group as actively continuing in education in local schools. Information on the current status of the 144 students who were not named on district lists was not available. (District computer lists are purged every year for the majority of categories.) More specific information regarding the ethnicity, sex, and socio-economic status of this missing group will be addressed during the discussion of school persistence.

Socio-Economic-Status

Socio-economic-status estimates were based on the subjects' home schools. As is shown on Table 1 the majority were from lower to middle class neighborhoods. the socio-economic-status of this group is quite different from the groups studied by Rawson (1968), Gottfredson et al. (1983), and Major-Kingsley (1983).

Table 1

Socio-Economic-Status

Groups	N	Percentage
Lower	253	40.8
Middle	265	42.8
Lower-Upper	102	16.4

Reduced and free lunches were provided to some students based on known economic need. Information regarding reduced lunches showed that 13 of the subjects (2.1%) were receiving reduced lunch rates, 60 subjects (9.6%) were receiving free lunch. The remaining pupils were presumed to be receiving lunch at the regular price.

Ethnic Description

Ethnic information was based on information provided by the parents. The schools are not as well balanced as the figures might suggest. The majority of the students in some of the schools are Mexican/Hispanic or of one of the other minority groups. At this time 52.5% of the students are Anglo, 37.3% are Mexican or other Hispanic and 10.22% belong to other ethnic groupings. The diverse ethnic groupings for the subjects in this study are shown on Table 2.

Table 2

Ethnic Groups

Ethnic Groups	Frequency	Valid Percent
Amer. Indian-Alaskan	7	1.3
Asian	1	.2
Chinese	2	.4
Japanese	5	.9
Cambodian	1	.2
Vietnamese	2	.4
Other Asian	2	.4
Filipino	18	3.2
Black-NonHispanic	18	3.2
White-NonHispanic	291	52.5

Other White	2	.4
Hispanic	2	.4
Mexican	196	35.4
Cuban	2	.4
Central Amer.	1	.2
Other Hispanic	5	.9

Bilingual Description

Bilingual factors were estimated by using district data regarding the subject's home language. This yielded the following information

Table 3

Home Language of Study Subjects

Home Language	Frequency	Valid Percent
English	261	66.6
Spanish	118	30.1
Filipino-Taglog	10	2.6
Japanese	2	.5
Other	1	.3

Elementary Achievement Data

Standardized testing information was retrieved from the elementary school records. The stanine scores on the 6th grade Stanford Achievement Tests (SAT) for reading and math were used to provide baseline data. Testing with an Analysis of Variance procedure showed a significant difference at the $p < .0001$ level between the two groups' achievement on both reading and math tests. The means of both target and comparison groups are in the average stanine grouping (4,5,6). A priori knowledge of the students' language learning problems and the groups mean level of achievement at the end of 6th grade were the basis for the directional research hypotheses.

Table 4

Stanford Achievement Test Reading Totals -- Stanine Scores

Group	N	Mean	SD	Range
Total	609	4.9967	1.7881	1-9
Target	304	4.3980	1.6797	
Comparison	305	5.5934	1.6932	

Table 5

Analysis of Variance for SAT Read

Source	SS	DF	MS	F
Between Grps	217.5677	1	217.5677	76.4954***
Within Grps	1726.4257	607	2.8442	
Total	1943.9934	608		

*** p < .0001

Table 6

Stanford Achievement Tests Math Totals -- Stanine Scores

Group	N	Mean	SD	Range
Total	609	5.1741	1.8225	1-9
Target	304	4.8125	1.8494	
Comparison	305	5.5344	1.7243	

Table 7
Analysis of Variance for SAT-Math

Source	SS	DF	MS	F
Between Grps	79.3491	1	79.3491	24.8247***
Within Grps	1940.2010	607	3.1964	
Total	2019.5501	608		

 $p < .0001$

Current Research Findings

This research was directed toward the long term consequences of a specific language disability. Students who were identified as having these characteristics and who received remedial instruction while in elementary school were followed-up during the current secondary school year. The basic questions were "How are they doing? Are they able to maintain and continue to develop their skills once they leave the Slingerland program? Are they able to cope with the academic and social demands of the secondary school years?" While it was anticipated that language learning problems would persist, it was hoped that the students had developed learning strategies which would

assist them during this time. While not expecting these students to show higher quantitative scores, it was predicted that their achievement would be in an average or above range leading to high school graduation. To ascertain the present status, both qualitative and quantitative data were gathered. This data was categorized according to group membership, i.e., Target (specific language disabled) and Cohort Comparison groups (not specific language disabled students). Information on attitudes, involvement in peer group activities, time spent on homework, future goals and career expectancies were also collected. Each of these factors has been viewed in regard to demographic factors. While it was beyond the scope of this study to consider the demographic factors in depth, certain trends have been observed which suggest topics needing further study. These suggestions for future study are included in Chapter V.

Educational Persistence

HA₁: The proportion of target group members demonstrating school persistence will be equal to or greater than the proportion of the comparison group members demonstrating school persistence.

The original subjects list of 620 students was compared with the secondary school district attendance list. At this time it was found that 476 (76.8%) of the

named students remained on the school list. The proportion of the target group who remained as active students in the local school district greatly exceeded the proportion of the comparison group remaining as active students in the local school district. Two hundred seventeen (69.8%) of the target (SLD) were found to be active students as compared to the 168 (43.6%) comparison group members. This difference was statistically significant. ($p < .0002$)

Information was unavailable regarding the present status of the 144 (23.2%) unlisted students. With the exception of certain subgroups the secondary school list is purged of the names of students who have not "shown up" or moved. Names of those who are not presently in school due to (1) furlough, (2) institutionalization, (3) non-attendance, or (4) expulsion remain on records until the student's 18th birthday.

Table 8 demonstrates the study-group membership of the students listed on attendance records in local schools. Testing with Chi-Square showed these differences to be statistically significant at level $p < .0005$.

Table 8

Subjects Listed on Records of Local Secondary Schools

Group	Original N.	Present N.	%
Total Group	620	476	76.8
Target	312	254	81.4
Comparison	308	222	72.1

$p < .0005$

Table 9

Educational Persistence According to District Records

Group	No.	Persist	Non-Persist
Target	237	217 (91.6%)	20 (8.4%)
Comparison	189	168 (88.9%)	21 (11.1%)

Attention was given to the 144 students who did not appear on the school district attendance lists. While unable to obtain information as to their present status, it was possible to obtain some descriptive data concerning this group of students.

Table 10

Students Not Appearing on District Attendance Lists

Demographic Groups	Total N. %	Target N. %	Comparison N. %
Ethnic Groups			
Anglo	72 (50.0)	30 (51.7)	42 (48.8)
Hispanic	58 (40.3)	24 (41.4)	34 (39.5)
Other	14 (9.7)	4 (6.9)	10 (11.6)
Sex			
Male	91 (63.2)	36 (62.1)	55 (64.0)
Female	53 (36.8)	22 (37.9)	31 (36.0)
Socio-Economic-Status			
Low	54 (37.5)	24 (41.4)	30 (34.9)
Middle	79 (54.9)	27 (46.5)	52 (60.5)
Lower-Upper	11 (7.6)	7 (12.)	4 (4.6)

The group of 476 students currently listed on district records was then categorized into groups of those "continuing education" and those "not continuing education." A group of 385 students was found to be continuing education according to the secondary school records. Persistence information is demonstrated on Table 10. The percentage of the target group currently listed on

district records and actively continuing education in local secondary schools was higher than that of the comparison group but the difference was not statistically significant. This would support Preston & Yarrington's (1967) finding that the proportion of drop-outs did not differ significantly while differing from the study by Levin, Zigmond & Birch (1985) which noted a higher school-leaving rate for the language disabled students. When subgroups based on the demographic differences of ethnicity, sex, and socio-economic status were studied it was found the socio-economic-status made a significant difference at the level $p < .008$ for the language disabled group. This difference was not found to be statistically significant for the comparison group. Ethnicity and sexual differences were not statistically significant for either group.

Grade Point Averages

HA₂: The average academic achievement levels of the target group will be less than that of the comparison group as measured by at the teacher assigned grade point averages (GPA).

This directional hypothesis was formed due to the knowledge of the specific language disability target groups history of academic difficulty. The one-tailed t-Test was used to evaluate differences. Contrary to predictions a

minimal difference was found between the grade point averages of the language disabled target group and the non-language disabled comparison group. The language disabled group was maintaining a group mean score of 2.09. The non-language disabled group maintained a group mean of 2.19. This hypothesis had to be rejected as the differences were not significant.

Table 11

Grade Point Averages

Group	N	Mean	SD	Range
Target	215	2.09	.704	1.0-3.7
Comparison	166	2.19	.936	1.0-4.0

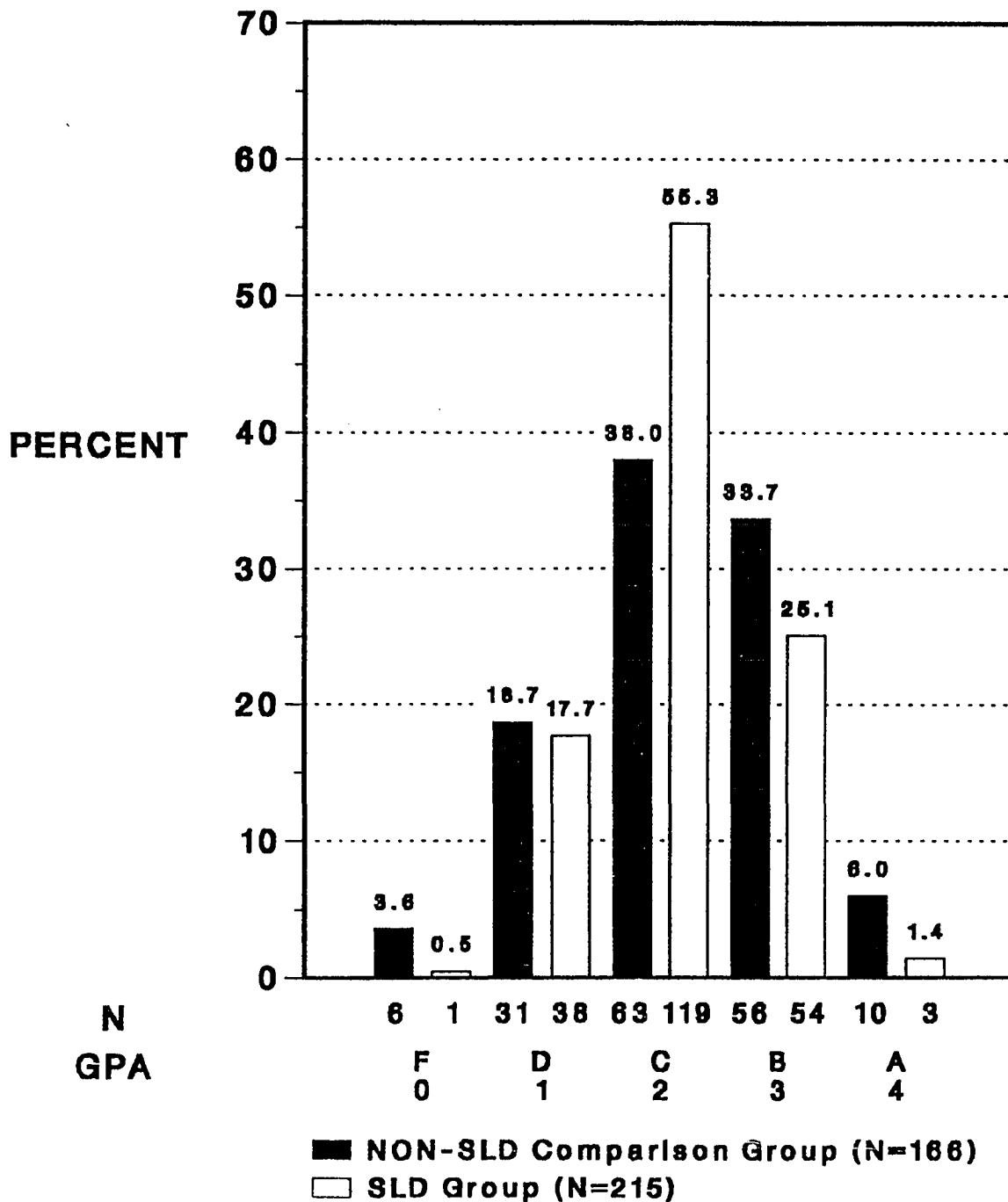
t , -1.21 p < .127

The variance in scores was quite large. An examination of the distribution of scores gives further insight into performance. It was found that 81.8% of the SLD group maintained grade point averages of C (2.0) or above. This exceeded the 77.7% of the non-SLD comparison group maintaining gpa's of C or above. A higher proportion of the comparison non-SLD group (39.7%) maintained averages in the A and B ranges as compared to the 26.5% of the SLD

group whose grade point averages fell in that range. It should be noted that the non-SLD comparison group also had a higher proportion of their students with averages in the D and F ranges with percentage scores of 22.3 of the non-SLD comparison group maintaining grade point averages in this below-average range. The SLD group had 18.2% of the students with grade point averages in the below-average range. Figure 1 gives a clear picture of this distribution.

FIGURE 1

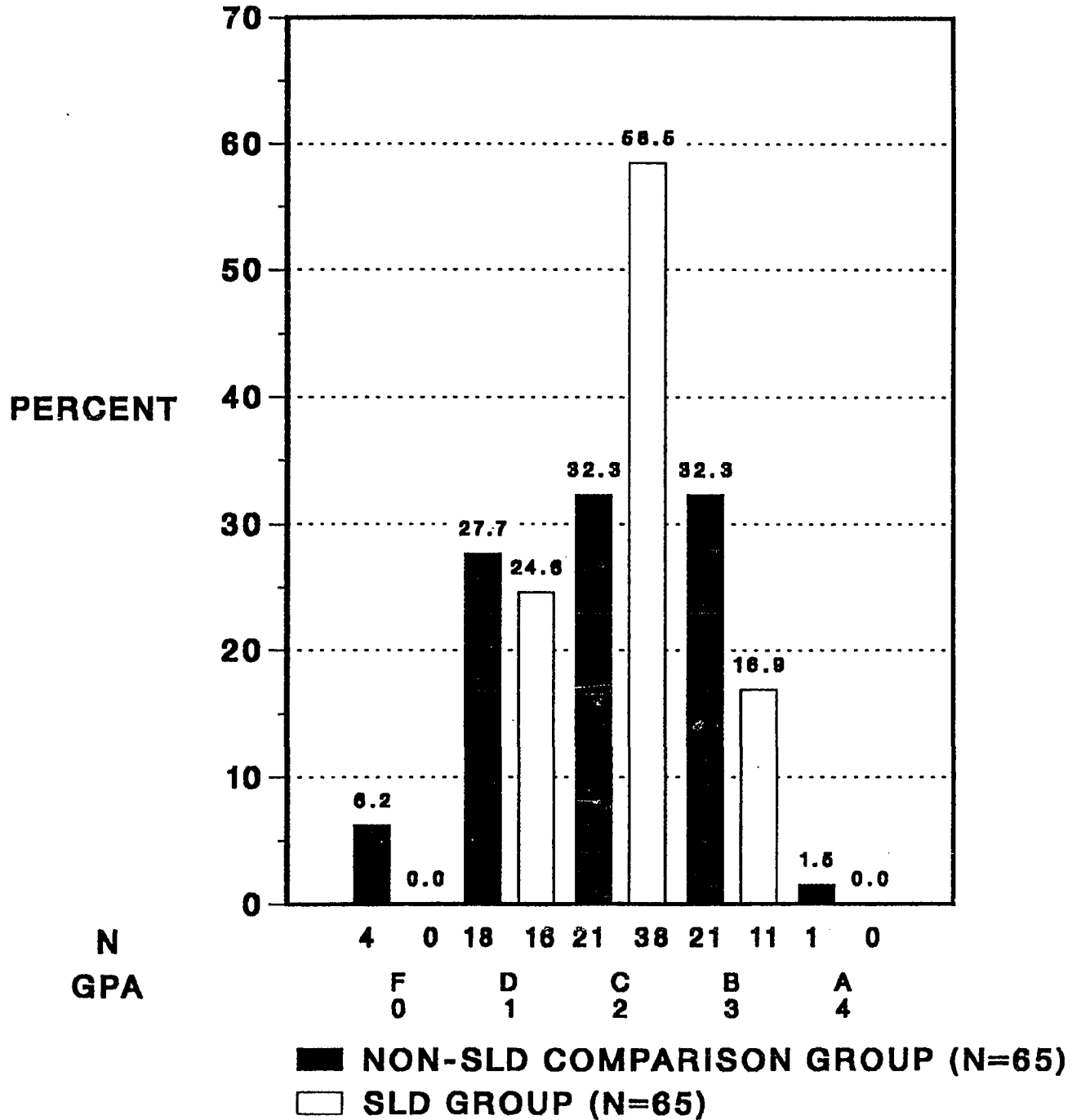
Grade Point Averages Total Groups



Examination of differences in grade point averages when controlling for ethnicity showed that 75.4% of the hispanic SLD group had grade point averages of C or above in contrast to the 66.1% of the non-SLD Hispanic group with grade point averages of C or above. Only 1 non-SLD Hispanic student had maintained an A (3.6-4.0) average. Four non-SLD Hispanic students had F (0-1.6) averages. None of the SLD Hispanic students had grade point averages in the A or F range. Figure 2 gives further information on the performance of the Hispanic students.

FIGURE 2

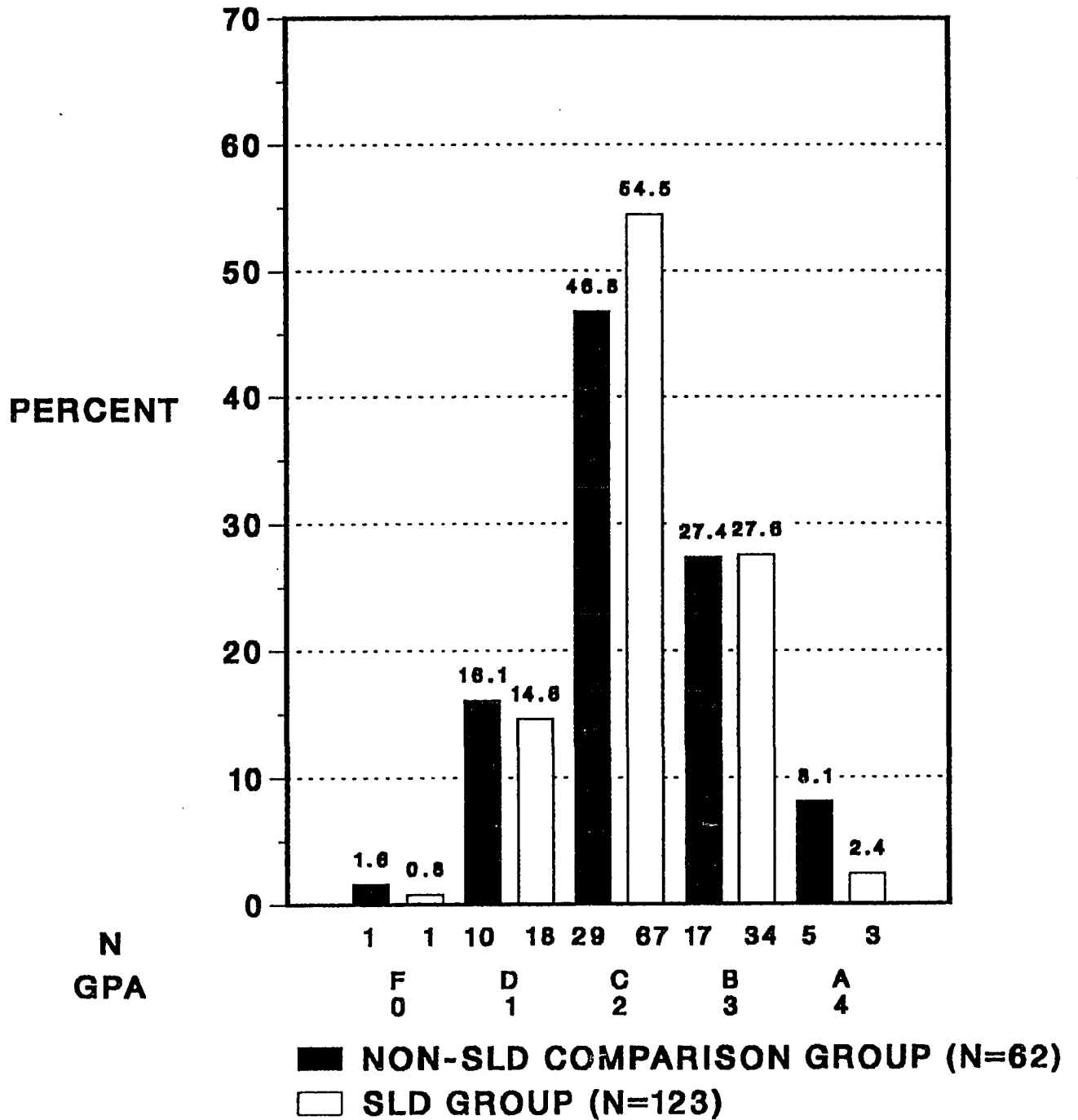
Grade Point Averages HISPANIC STUDENTS



The data showed that 84.5% of the Anglo SLD group had grade point averages of C or above. The proportion of the non-SLD comparison group maintaining gpa's of C or above was 72.3%. Figure 3 gives further information on the Anglo groups' performance.

FIGURE 3

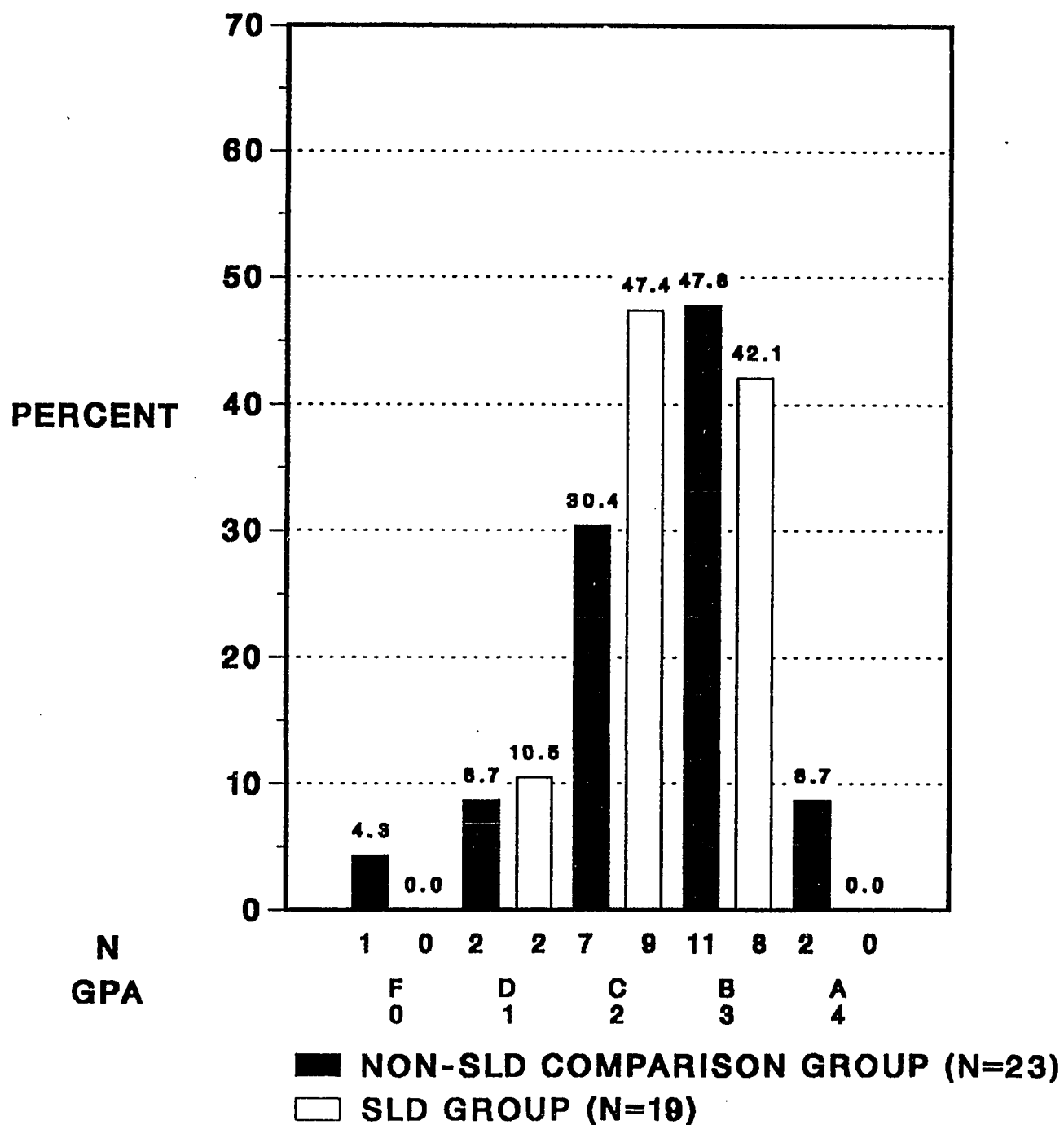
Grade Point Averages ANGLO STUDENTS



A breakdown of the scores of the "other" minorities showed smaller differences but a similar pattern of grade point averages. The 89.5% of the SLD group with grade point averages of C or above exceeded the 84.9% of the non-SLD comparison group. Figure 4 gives further information on these groups of students.

FIGURE 4

Grade Point Averages OTHER MINORITY STUDENTS



Attention is called to the socio-economic-status and bilingual factors which may have influenced achievement for both groups. Koppitz (1971) and Rutter (1978) have suggested socio-economic-status as being a significant factor influencing the learning disabled student's progress. Significant differences in grade point averages due to the socio-economic-status was found for the comparison group at the level $p < .05$. The significance level for the language disabled group was .086. While not statistically significant there are trends suggesting relationships between the grade point averages and the demographic variables of both ethnicity and sex.

The GPA's for the 26 grade 12 students remaining in the school system were also collected. These included 16 target group students and 10 comparison group students. A non-significant difference in grade point averages was found for the two groups. Table 12 describes this population and tests the differences between the groups.

Table 12

Grade Point Averages for 12th Grade Students

Group	N	Mean	SD	St.Err.
Target	16	2.375	.500	.125
Comparison	10	2.500	.707	.224

$$t = -0.49, p < .316$$

Standardized Achievement Tests

HA₃: The average academic achievement levels of the target group will be less than that of the comparison group as measured by a standardized achievement test.

(California Test of Basic Skills, CTBS).

Descriptive analysis for both total sample population and group performance are shown on Tables 13 and 14. Statistically significant differences were found ($p < .0001$) between the target and control groups on both reading and math when the differences were tested with the t-Test. It should be noted that the target group (SLD students) maintained mean scores above the 51st percentile in reading and the 52nd percentile in math. When examining the distribution of stanine scores of the language disabled group it was noted that the distribution approached a normal curve with 24.9 above average, 51.9% average and

23.2% below average stanine scores. Scores for the comparison group were positively skewed with 58.4% above average, 33.1% average, and 8.5% below average reading achievement.

Some trends were noted due to demographic differences. Statistically significant differences ($p < .009$) were seen in reading achievement due to ethnic differences for the comparison group but were not significant for the language disabled group. Socio-economic-status was a significant factor for the language disabled group at $p < .001$ and for the target group at $p < .05$. Differences in reading achievement due to sex were not significant for either group.

When examining math achievement statistically significant differences were noted at the $p < .05$ level due to socio-economic-status and ethnicity for the comparison group. These differences were not significant for the language disabled group.

Table 13

CTBS Read Percentile Scores

Group	N	Mean	SD	Range
Total Group	536	63.974	33.216	0-99
Target	241	51.531	32.274	0-99
Comparison	295	74.139	30.445	0-99

$t(500.05) = -8.28, p < .0001$

Table 14

CTBS Math Percentile Scores

Group	N	Mean	SD	Range
Total Group	533	66.263	32.519	0-99
Target	239	52.7824	31.695	0-99
Comparison	294	77.2211	28.902	0-99

$t(487.56) = -9.21, p < .0001$

Another way of comparing scores on the standardized tests is to use stanine scores. The stanines are grouped

into below average (1,2,3), average (4,5,6), and above average (7,8,9) scores. Tables 15 and 16 demonstrate the groups standing when stanines are used as the units of measurement. While the groups' mean score differences remain highly statistically significant it can be seen that the target group is well within the average range. Direct comparisons cannot be made between the Stanford Achievement Test (SAT) and the California test of Basic Skills (CTBS), however it does give a basis for observation. Both groups scored in the average stanine range on the sixth grade SAT. Scores for both groups are slightly higher on the CTBS, which may be an artifact of the test. By inference, it would appear that the specific language disabled students are (at least) maintaining the skills which were developed in the elementary language program.

Table 15

CTBS Read Stanine Scores

Group	N	Mean	SD	St.Err.
Target	241	5.2267	2.337	.151
Comparison	295	6.9695	2.301	.134

$t(507.89) = -8.44, p < .0001$

Table 16
CTBS Math Stanine Scores

Group	N	Mean	SD	St.Err.
Target	238	5.3739	2.280	.148
Comparison	294	7.2007	2.179	.127

$$\underline{t} (603.77) = - 4.98, \underline{p} < .0001$$

Proficiency Examination

HO₄: There will be no difference in the proportions of the target group students and comparison group students that pass the proficiency examinations.

The proficiency examinations contain four sub-areas. They include: reading, math, language and writing. Each area contains several subtests. Students are first given the examinations in the 8th grade. They continue taking the examinations until the 12th grade. Proficiencies must be passed before a diploma is awarded.

Researching this question proved to be difficult due to the school district's reporting procedures. The district keeps records of passed and failed proficiencies but does not keep a record of the date at which the proficiencies were passed. The first comparison was made on a subgroup of 110 cross-grade level students. These 110

students were the subpopulation for whom we had received parental permission to administer the questionnaire. It should be remembered that this group may have been biased and may not have been representative of the population at large. At that time, 27.1% of the target group (N. = 85) and 39.5% of the comparison group (N. = 37) had passed all examinations. When tested with Chi-Square tests of Independence the differences were not statistically significant.

In an effort to gain more definitive information a comparison was made between groups of students who were then at the 12th grade level. Proficiency information was retrieved on the remaining 12th graders. These 26 are all of the students remaining from that age group in the original research population of 52 students. Information on the remaining 26 students is reported on Tables 17-21. One target group subject had not passed the proficiencies in reading and math. This student was at the Continuation School and was to graduate when he was able to pass these examinations in addition to fulfilling credit requirements. The remainder of the students in both groups had passed the examinations by the end of the 12th grade. It is impossible to report the success rate for the 26 students (from the original group) who are no longer within this school district. The 16 remaining SLD students would support Rawson (1981) when she spoke of the dyslexia

"slowing them down but not stopping them."

Table 17

Reading Proficiency Examination for 12th Grade Students

Group	N	N Passed	Percent
Total Group	26	25	96.2
Target Group	16	15	93.8
Comparison Group	10	10	100.0

Table 18

Math Proficiency Examination for 12th Grade Students

Group	N	N Passed	Percent
Total Group	26	25	96.2
Target Group	16	15	93.8
Comparison Group	10	10	100.0

Table 19

Language Proficiency Examinations for 12th Grade Students

Group	N	N Passed	Percent
Total Group	26	26	100.00
Target Group	16	16	100.00
Comparison Group	10	10	100.00

Table 20

Writing Proficiency Examinations for 12th Grade Students

Group	N	N Passed	Percent
Total Group	26	26	100.00
Target Group	16	16	100.00
Comparison Group	10	10	100.00

Table 21

All Proficiency Examinations for 12th Grade Students

Group	N	N Passed	Percent
Total Group	26	25	96.2
Target Group	16	15	93.8
Comparison	10	10	100.0

Higher Education Aspirations

H₀₅: There will be no difference between the proportions of the target group and the comparison group who are planning for higher-educational experiences.

Information on this issue was collected from self-report questionnaires. Higher Education Aspirations included Community Colleges, Universities, Business & Vocational Schools which would be entered following completion of high school. Higher education aspirations were reported by 84.2% of the target group and 86.2% of the comparison group. The differences were not statistically significant when tested by Chi-Square Tests of Independence. These findings support the findings of Major-Kingsley (1983), Gottfredson et al. (1983). Preston & Yarington (1967) and Rawson (1968). Preston & Yarington

subjects had gained admission to college as their peers. Rawson (1968) found that the dyslexic students in her population had completed an average of 6.0 years of college and graduated school as compared to the average of 5.4 years for their classmates.

Vocational Goals

Students' vocational goals were also addressed in the self-report questionnaires. As of June, 1986, the differences in the vocational goals of the two groups were not statistically significant as determined by testing with Chi-Square tests of Independence. There are, however, some observable trends. A considerably higher percentage of the target group subjects (18.9%) are contemplating entering creative and/or performing arts. This goal was expressed by only 4.9% of the comparison group. A higher percentage of the comparison group (50%) are planning "Professional" careers as compared to the 32.3% of the target group wishing to enter professional careers. This study strongly supports the findings of Major-Kingsley (1983) who found that 35% of the L.D. population she studied had plans to enter graduate or professional study. Table 22 gives further information on these vocational goals. Major-Kingsley (1983) found that, in general, the vocational goals of the learning disabled students were somewhat lower than the goals held by their peers. Preston & Yarrington

(1967) found that both educational and vocational goals had come more slowly but after a span of 8 years the subjects had fulfilled their goals at a level comparable to their agemates.

Table 22

Vocational Goals

Group	Professional	Technical	Service	Labor	Arts
Target N = 65	32.3	15.4	21.5	13.8	16.9
Comparison N = 24	50.0	20.8	16.7	8.3	4.2

Attitudes Toward School

Similar attitudes toward school were expressed by both groups. Differences were not statistically significant when tested by Chi-Square Tests of Independence. Attitudes were expressed on a five-point scale. It was noted that none of the Hispanic students expressed attitudes below fair (3). Likewise, none of the comparison girls expressed attitudes below fair (3). The small numbers involved in answering the questionnaire and the possible bias of the group prevent drawing conclusions as to any differences due

to cultural or sexual factors. Further study in regard to these differences would be useful. Higher percentages of the comparison group expressed extremes in attitudes (great or really dislike it). These findings differ from Balow & Bloomquist's (1965) observance of some attitudinal problems.

Table 23

Attitudes Toward School

Group	Great	Good	Fair	Poor	Dislike
Target N = 78	9.0	56.4	24.4	5.1	5.1
Comparison N = 27	18.5	48.1	18.5	3.7	11.1

Use of Leisure Time

Several different activities were compared when studying the use leisure time. This information was obtained through the use of the self-report questionnaires. The first activity addressed was the amount of time spent on homework. Similar amounts of time were reported by each group. Differences were not statistically significant. A higher percentage of the 79

target group students (13.9% vs. 7.1% of comparison group students) reported studying 2 hours per day while a higher percentage of the 28 comparison group students (14.3% vs. 5.1% of target group) reported studying more than 2 hours per day.

Reported participation in athletics was similar for both groups. The majority of the 83 target group members and 30 comparison group members responding to this portion of the questionnaire appear to be highly involved in some type of athletic activity.

A significant difference was not found between target and comparison groups in regard to the school related extra-curricular activities. Questionnaire responses reported 69.9% of the target-group members (N = 69) were involved in extra-curricular activities at least once per month and 30.4% reported being involved in these activities one or more times per week. Comparison group members (N = 29) reported being involved in extra-curricular activities at least once per month with 41.3% reporting involvement to be one or more times per week. The groups reported similar involvement in non-school related parties and peer-group activities. Major-Kingsley (1983) also found that the learning disabled subjects had similar social activities as their age-mates.

Employment

A non-significant difference was found between the number of target group and comparison group members who reported being employed. A slightly higher proportion of target group members (37.7%) reported holding jobs than the 31% of comparison groups members. Major-Kingsley also found the subjects in her study had similar vocational histories. Hogenson (1778) has described the ability to find and hold a job during adolescence as being a support system for some dyslexic individuals. He has suggested that this helps to assure the emerging adult that they will be able to meet future needs independently.

Comments Regarding School

An open-ended question asking if the student had any comments they would like to make concerning their school experience was included on the questionnaire which was answered by the subset of students. Questionnaires were received from 111 students. There was not a pattern of differences between the target and comparison group in regard to the answers. Twenty-nine students (26.1%) gave positive responses. Eight (7.2%) of the students gave neutral responses and ten students (9%) gave negative responses. Sixty-four students (57.6%) did not respond to this question. Several students talked about the work

getting more difficult, but they were managing to make good grades. Two students talked about needing more understanding about their learning problems by teachers and suggested more individualized assistance. Two students named their sixth grade teachers as having had the most impact on their ability to succeed in school. Two responses from comparison group students indicated that they would appreciate teachers who really cared about them as people, not just as grades or for their work. Other students complained about the lack of support and the impersonalization of teachers. Some target group students spoke gratefully of the assistance they had received. Two of the students resented having to be moved to two or more schools in order to receive specialized assistance. One of the most poignant was written by a high-ability 7th grade girl (target student) who stated that if it wasn't for all of the help she had received, she probably wouldn't be writing and reading today.

Summary

Comparisons were made between the target group of students (those identified as having characteristics of specific language disabilities) with a cohort comparison group who were not known to have language learning problems. Comparisons were made on persistence, academic

success, attitudes, employment, and the use of leisure time.

According to available records the target group showed a higher percentage of school persistence. School records are purged each year with the exception of "exclusions" and records of "non-attendance" which are maintained until the student is 18. We lack knowledge in regard to the status of the students who are not on the attendance records. Of those listed on the records 91.9% of the target group and 89.4% of the comparison group were continuing their education. Differences were not statistically significant. It was found that 69.55% of the original target group remained in the local school district. The comparison group records indicated that 54.19% of this group remained in local schools. The differences between these groups were statistically significant.

The academic success was contrary to the predictions that the achievement of the language disabled groups would be lower than that of the comparison group who were non-language disabled. Non-significant differences were found between target and comparison groups on grade point averages. Comparisons were made on the proportion of the groups who maintained GPA's at the level of C or above. It was found that 81.8% of the target (SLD) group had GPAs at the level C or above. The comparison group had a proportion of 77.5% with GPAs at the level C or above.

Grade point averages in the F range were maintained by 3.6% of the non-SLD comparison group as compared to only .5% of the SLD group. The language disabled group were, in fact, performing as well as the non language disabled group.

Significant differences remained on the percentile scores on standardized achievement tests. The specific language disabled group were able to maintain surprisingly high mean achievement scores at the 5th stanine level. The distribution of the grade-point averages indicated that many of the individuals in the targeted language disabled group were able to achieve at levels much above the expectancies for students who had displayed earlier language learning problems.

Little or no differences were observed between groups in regard to attitudes toward school, time spent on homework, participation in athletics or other extra-curricular activities. Similar numbers of social activities outside of school were reported by both groups.

Differences in the higher education aspirations and the vocational goals of the two groups were not significant. There were trends showing a higher proportion of the target group aspired to join the fields of Creative and/or Performing Arts while a higher proportion of the comparison groups planned professional careers.

Employment histories for the two groups were similar with a larger portion of the target group reporting being

employed. The differences were not statistically significant.

Discussion

This study attempted to explore the question of the long-term consequences of specific language disabilities (dyslexia) during the secondary school year. The group studied were students who had displayed the characteristics of specific language disabilities (dyslexia) while students in elementary school. These students had received remedial treatment in a special program within the regular education program. Students with these needs were grouped within regular education classes taught by teachers who had received specialized training in the use of the Slingerland Adaptation of the Orton-Gillingham Multi Sensory Approach to Language Arts. Class size was limited to 26 and each teacher was provided with a 3 hour aide. Classes in the two Title I schools also received 2 additional hours of aide time from the schools Title I program. The classes were located in 4 schools in a 29 school urban elementary school district. Transportation to these 4 centers was provided by district busses.

In order to have a baseline for evaluating the dyslexic students school persistence, academic performance, attitudes, and involvement in peer-group activities a non-language disabled cohort comparison group was formed. A

stratified randomly selected group was drawn from students in the same grade and same schools with similar socio-economic-status, ethnicity and bilingualism as the language disabled group. It was recognized that the non-languaged disabled group would have a better academic performance than would the language disabled population. The SLD students difficulty with academics had been the reason for their referral to the program. It has also been suggested (Levin, Zigmond & Birch, 1985) that this group might be inclined to demonstrate less school persistence due to their difficulty in acquiring language skills.

A review of the literature revealed follow-up studies which indicated both positive and negative findings. The studies by Frauenheim (1978) and Frauenheim and Herckl (1983) were especially pessimistic about the effects of intervention and remedial programs and the success of SLD individuals. Rawson, 1968; Robinson & Smith, 1962; Gottredson, et al., 1983; and Major-Kinglsey, 1983; presented more positive descriptions of the long range consequences of the language learning problems for the dyslexic individuals who had received educational intervention and remedial instruction. Of particular interest to this researcher was the question of the long range consequences when the SLD students had received educational intervention and remedial instruction in regular classroom environments which utilized the

Slingerland Adaptation of the Orton-Gillingham Multi Sensory Approach. Were the gains which had been seen during the intervention program sufficient to support these SLD students during their secondary school experiences or would recedivism occur allowing the SLD students to again face academic failure?

The first question addressed was that of school persistence. Were these SLD students still in school? If so, what percentage of the SLD group have remained in school in comparison to the non-language disabled group? It was hypothesized that the proportion of this group of SLD students who had received the educational intervention and remedial instruction would be equal to or greater than the proportion of the comparison group demonstrating school persistence. This hypothesis was validated by the research findings.

One hundred forty-four of the students in the study group could not be accounted for as they did not appear on the secondary school district records. It was interesting to note that the differences between the number of dyslexic students and comparison group students who remained listed as active students on the school records was statistically significant at the $p < .002$ level. Examination of the group of students whose names appeared on the school district lists confirmed that a higher proportion of the students within the SLD group were demonstrating school

persistence than were the proportion of comparison group students. The question of exactly what became of this group is of interest. A future study which would allow for closer tracking of the students would be helpful.

When comparing the proportions of group members who were actually listed as on the current school records it was found that 91.6% (N = 217) of the remaining 237 SLD students were active students. One hundred sixty eight (88.9%) of the remaining 189 comparison group members were active students.

It would be useful to consider some ways in which the intervention program may have contributed to the school persistence of this high risk group. A possible contributing factor might have been the academic skills and learning strategies which the student was able to acquire while in the elementary intervention program. A review of the elementary records indicated that the group mean academic achievement of these students at the end of the 6th grade was in the average range with stanine scores of 4.398 in reading and 4.813 in math as measured by the Stanford Achievement Tests. It would be hoped that one of the contributing factors would have been the better self-understanding by the students which this program attempted to promote. Another factor which probably contributed to this school persistence was the increased parent involvement with the educational process resulting from the

student's placement in this specialized program. A fourth contributing factor could be the Hawthorne effect due to the provision of a specialized program.

Hypotheses 2 and 3 dealt with academic achievement. It was anticipated that the non-SLD comparison group would have group mean scores which would exceed those of the SLD group on standardized achievement tests and grade point averages. The academic performance of the SLD group exceeded expectancies. The group means scores were within the average range for both grade point averages and achievement as measured by performance on standardized tests.

The SLD group was maintaining a group mean score of 2.09 or "C" grade point average. The comparison group's mean score was 2.19. A sizable proportion of both groups were from less advantaged backgrounds. Koppitz (1971) and Rutter (1978) have suggested that socio-economic-status (s.e.s.) is a significant factor influencing academic progress, particularly for the learning disabled student. This previous research led us to predict that the level of significance of difference due to s.e.s. factors would be higher for the SLD students. This was found to not be true in this study. The lower s.e.s. was a significant factor influencing the grade point averages of the SLD group at the level $p < .086$ and for the comparison group at the level $p < .05$. Information in this study indicated that there

were relationships between both ethnicity and sex with the grade point averages but that these relationships were not statistically significant. Differences between the grade point averages of the SLD group and the non-SLD comparison group were insignificant. A higher proportion of the SLD group (81.8%) were found to be maintaining grade point averages in the average to above average range (C or above). A grade point average of C or above was maintained by 77.7% of the non-SLD comparison group. A further examination of the distribution of scores showed that 39.7% of the non-SLD comparison group had grade point averages of A or B as compared to the 26.5% of the SLD group who were maintaining grade point averages in the A or B range. Of particular interest was the proportion of each group whose grade point average was F. One student out of the 215 SLD group (.5%) was shown to have a grade point average of F. In comparison, 6 students out of the 166 student non-SLD comparison group (3.6%) had grade point averages of F. A 1.0% higher proportion of the non-SLD comparison group was shown to have grade point averages of D. These differences in averages which fall below average to failing is very significant from a practical sense. The students who were the highest risk for failure were shown to have been brought up to a level of achievement which was higher than that of a number of their non-SLD cohort comparison group.

Examination of achievement on standardized tests also gave reason for optimism regarding the language disabled groups future. As predicted, the academic achievement of the language disabled group remained significantly lower than that of the non-language disabled group.

The California Tests of Basic Skills was given throughout the secondary school district. The distribution of the reading stanine scores indicated that the majority of these SLD students were achieving at average or above average levels. The CTBS Reading distribution for the SLD group was as follows

Above Average -- Stanines 7,8,9	-- 24.9%
Average -- Stanines 4,5,6	-- 51.9%
Below Average -- Stanines 1,2,3	-- 23.2%

The group mean scores as reported in stanines for the SLD student were 5.2267 for reading and 5.3739 for math. The expected discrepancy between the reading and math scores was not found. The reason(s) for this unexpected finding can only be hypothesized. A very positive hypothesis would be that the language skills have been remediated to a point that this discrepancy no longer existed. A second possible reason could have been that the students may not have had as much exposure to math during their secondary school experiences due to program decisions. There is a possibility that this language disabled group may have included a subgroup such as was described by Rutter (1978) in which the students were able

to improve their initially lower status in language while not showing great differences in their initial math status. Consideration should also be given to this outcome as being an artifact of the achievement test.

When focusing on the 12th grade level it was found that only 26 subjects of the original 52 subject study group remained in the school. The 16 target group (SLD) students had maintained a group mean grade point average of 2.45. The 10 comparison group students remaining within the school district maintained a group mean grade point average of 2.68. This difference was not significant. A closer examination of this school-persistent group revealed that the two most severely disabled SLD students were among the remaining 12th graders. One of these two students was completing school through the vocational school program. The second student was at the continuation high school. The group was apparently able to maintain the academic skills they had acquired and to continue to apply successful learning strategies in new academic situations. Among the questions that should be considered are: "Do SLD students' academic scores show improvement if they are given enough time?", "What were the academic differences between this group who remained in school and the group who are no longer present?", "Do the students with lower grades leave school?", "Is there a difference in program choices which would result in different classes being taken?", and "Is maturity a factor?"

The fourth hypothesis stated that there would be no difference in the proportions of the target and comparison groups that passed the proficiency examination. It was difficult to make comparisons across grade levels as the district records only tell if all phases of the proficiencies have been passed, not the dates on which they were passed. When looking at the cross-grade data it was found the 27.1% of the target group and 39.5% of the comparison group students had passed all proficiencies. Further comparisons was made between the groups of students who were then at the 12th grade level. One target group subject had not passed the proficiencies in reading and math. This student was at the continuation school and was to graduate when he was able to pass these examinations in addition to fulfilling credit requirements. The remainder of the students in both groups had passed the examinations by the end of the 12th grade. It is impossible to report the success rate for the 26 students (SLD group N = 10, comparison group N = 16) who are no longer within this school district. The 16 remaining SLD students would support Rawson (1981) when she spoke of the dyslexia "slowing them down but not stopping them.

The fifth hypothesis addressed the issue of higher-education aspirations. Information on this issue was collected from the self-report questionnaires. Differences between the groups were not statistically significant.

Plans to continue their education beyond the high school level were stated by 84.2% of the target dyslexic group and 86.2% of the comparison group. These findings support the previous findings of Major-Kingslex (1983), Gottfredson, et al. (1983), Preston & Yarrington (1967) and Rawson (1968). These higher education aspirations may not have been realistic for some of the subjects. A ten year follow-up study on how many were able to actually continue their education would be helpful.

This study addressed some issues other than those stated in the hypothesis. These included vocational goals, attitudes toward school, time spent on homework, use of leisure time and employment. This information was also collected from the self-report questionnaires. Caution must be used in applying these findings to the general population because of the possible bias of the group due to differences between families which returned consent forms and those who did not return the forms. The number of SLD students (N = 80) taking part in this portion of the study was adequate. The number of comparison group members (N = 30) was small and may not have been representative of the population.

Many of the vocational goals stated by both groups of students appeared to be well thought out and fairly realistic. This, again, would be an item that would benefit from a longitudinal study. It was interesting to

note that a higher proportion of SLD student (18.9%) expressed interest in entering the areas of creative and/or performing arts. Only 4.9% of the comparison group expressed interest in the arts. Among the vocations most often mentioned by the SLD students were: architecture, art, acting, design, writing, computer related jobs, professional athletics, the services such as fire, police and forest ranger and jobs which would involve working with their hands such as construction, mechanics etc. In this particular study there were indications that more of the differences in vocational choices were due to sex than to language learning problems, ethnic or socio-economi-status factors. Professional careers were chosen by 50.% of the girls in the study. A wish to become a professional was indicated by only 25.5% of the boys.

Both study groups expressed similar attitudes toward school. The expressed attitudes of the SLD group tended to not be as extreme as those expressed by the comparison group. The majority of the SLD students rated school as being "good" (56.4%) or "fair" (24.4%). More of the comparison group rated school as being "great" (18.5%) than did the SLD group (9.0%). The comparison group (11.1%) also expressed more extreme dissatisfaction with the school experience than did the 5.1% of the SLD students. There were some trends noted which indicated that cultural factors may have influenced the response to this

question. None of the Hispanic students gave "poor" or "really dislike it" ratings. The reasons for these differences require further study.

Little or no differences were seen between the two groups in regard to time spent on homework, involvement in school extra-curricular activities, use of their leisure time and employment. This study reaffirms the findings by Major-Kingsley (1985) that the specific language disabled students are able to lead normal, successful lives if they are able to cope with the one area in which they differ from the other students... their difficulties in developing language skills. This research provides strong support for the use of intervention programs for SLD students and the efficacy of the Slingerland adaptation of the Orton-Gillingham MultiSensory Approach to Language Arts.

Discussion Summary

The information collected in this follow-up study involved students who were identified as having the characteristics of specific language disabilities (dyslexia) and who received specialized multi-sensory instruction while in elementary school gives an optimistic view of the future for SLD (SLD) students. It has shown that it was possible to provide a successful specialized, multi-sensory remedial language program within the confines of "regular education." This type of organization

permitted the public schools to provide a specialized educational program for a larger number of students at a much lower cost than was possible when these services had to be obtained through pull-out or tutorial programs. Extra costs per pupil for this program amounted to approximately \$385.00 per year. This was a minimal fee when it is recognized that a significantly larger percentage of these SLD students who received this remedial treatment remained in school than did the comparison group who did not have to contend with language learning problems. The costs to the individual who does not obtain a high school education are great - both in the loss of self-esteem and the difficulty of becoming financially independent. Society, as a whole, cannot afford to allow students to be illiterate in a literate world.

CHAPTER V

Summary

This research was directed toward the consequences of specific language disabilities (developmental dyslexia) during the secondary school years. The study was conducted with secondary students who had been identified as having the characteristics of specific language disabilities (dyslexia) and who had received remedial instruction while in elementary school. Remedial instruction was given in regular education classrooms which utilized the Slingerland Adaptation of Orton-Gillingham Multi-Sensory Approach to Language Arts. These all-day, self-contained classes were taught by specially trained teachers assisted by part-time aides. Each class had a maximum enrollment of 26 students. The students were bussed to one of the four elementary schools within the district which offered this program.

This SLD students were compared with a randomly selected cohort comparison group who were not known to have language learning problems. These students were selected

from a student pool with the same ethnicity, bilingualism and socio-economic background as the target SLD group.

The study was conducted in a suburban city located between San Diego and the Mexican border. The population was diverse in regard to socio-economic-status and ethnicity. Socio-economic-status ranged from low to upper middle class. A large proportion of the subjects were from lower middle class neighborhoods. Spanish was reported as the home language for 30.1% of the subjects. The ethnic groupings included 52.5% Anglo, 37.3 percent Mexican or Hispanic, 3.2% Filipino, 3.2% Black and 3.8% other. Comparisons were made on school persistence, academic success, attitudes, use of leisure time, higher education aspirations and vocational goals.

Data was collected from (1) elementary school records, (2) secondary school records, and (3) a student questionnaire developed by the researcher. Data was tested by means of t-Tests, One-Way Analysis of Variances and Chi Square Tests of Independence.

Research Findings

The original study group was composed of 622 subjects. A total of 476 students remained listed on the records of the local school system at the time of this study. It was not possible to determine the status of the missing 144 students. A higher proportion of the target

group (81.4%) remained listed with the local secondary school district than did the comparison group (72.1%). This difference was significant at $p < .005$.

Comparisons between groups of students for which the secondary district has records yielded a listing of 476 students with a group of 41 who had chosen not to continue their education. Using these figures, 91.6% (N. = 217) of the remaining 237 target group SLD students were active students thus demonstrating school persistence. One hundred sixty eight (88.9%) of the remaining 189 comparison group members were active students demonstrating school persistence. This difference was significant at $p < .002$.

In combining these two sets of figures it was found that 217 (69.8%) of the original 312 member target SLD group remained as active students in the local school district. A total of 168 (54.2%) of the original 308 member comparison group remained as active students in the local school district.

The academic success of the SLD students exceeded predictions. The group mean scores were within the average range for both grade point averages and achievement as measured by performance on standardized tests. Differences between the grade point averages of the SLD target group and the non-SLD comparison group were minimal and not statistically significant. The SLD group maintained a group mean grade point average of 2.093. The comparison

group mean grade point average was 2.198. While the grade point averages appeared to be similar, an examination of the distribution of scores showed that a higher proportion of the SLD students were maintaining grade point averages of "C" or above than were the non-SLD comparison group. It was also noted that a higher proportion of the non-SLD group (3.6%) had grade point averages of "F" in comparison to the .5% of the SLD group with "F" grade point averages. Significant differences were not found in the group mean grade point averages for the students at the 12th grade level.

Significant differences remained between target and comparison groups on standardized achievement tests scores. The performance by the SLD students on the California Test of Basic Skills yielded group mean stanine scores of 5.2267 in reading and 5.3739 in math. Both of these scores are well within the average range. A closer look at the distribution of the SLD students' reading scores showed that 24.9 percent of the dyslexic group had scored above average in stanines 7, 8, and 9. Average scores within the 4th, 5th and 6th stanines were achieved by 51.9% of this SLD group. Below average stanine scores were received by 23.2% of the group. This would indicate that at least 76.8% of the students were achieving at levels much higher than would have been anticipated when they were originally referred for remedial instruction.

Little or no differences were observed between groups in regard to attitudes toward school, time spent on homework, employment, participation in athletics or other extra-curricular activities.

Higher educational aspirations and vocational goals were similar for both groups. The major difference was that more of the comparison group aspired to enter the "Professions" while a higher percentage of the target group hope to enter the "Creative or Performing Arts." Minor differences were seen in the choice of service, labor, and technical occupations. More significant differences were seen due to sex than to specific language disabilities.

Conclusions

This study presented the opportunity to collect post treatment information on students who had great difficulty in developing the language skills of reading, writing, and spelling during their early school years. Their difficulties led them to be placed in the Slingerland program which consisted of self-contained classrooms taught by especially trained teachers within the confines of regular education. At the end of the sixth grade the groups' mean scores on achievement test were within the average range. The question remained as to whether they would be able to maintain these academic gains or whether recidivism would occur as they entered the secondary school

environment. The indications of this study would support the premise that they were able to maintain the skills developed by the end of the sixth grade and to apply the learning strategies in successive educational experiences.

An important issue was that of remaining in school. The level of school persistence of these specific language disabled students exceeds that of the comparison group of non-language disabled students. This was a group that could have been considered "at risk" for completion due to their early language learning difficulties. The reasons for this can only be hypothesized. Perhaps it was the understanding that they developed about themselves as they began to experience academic success. The development of skills and learning strategies for studying probably was a key issue. The high level of interest and cooperation of school personnel and parents in helping them find success could also be factors. A structured, developmental language program may have been especially important for those students with different pre-school experiences due to socio-economic-status, ethnic, cultural or home-language differences in addition to their specific language disabilities. Further study of the role of the demographic factors of s.e.s., sex, ethnic, and language factors is needed.

Academic findings indicated that the majority of the SLD students were achieving in the average to above average

range. The hypothesis that suggested that the grade point averages of the SLD students would be lower than the grade point averages of the non-SLD students was rejected as these differences were not found. Individually, many of the SLD students were maintaining grade point averages which were above the average range. As a group, a higher proportion of the SLD group (84.5%) maintained grade point averages of C or higher than did the non-SLD comparison group (72.3%). The non-SLD group had a higher proportion of A & B grade point averages, but also had a higher proportion of D and F grade point averages. When consideration is given to these student's initial problems the achievement of a group mean score in the 5th stanine on a standardized test is very good mean score. By the end of the 12th grade the majority of the group that remained in school were able to pass the proficiency examinations which are required for graduation. A longitudinal case study would be helpful in determining what role maturity and environmental factors play in the development of academic competence. Trends noted in this study indicated that both socio-economic-status and ethnic factors may influence grade point averages. These demographic factors require and deserve further study.

Similar involvement in peer-group activities was observed in both groups. The findings of this study would support the concept that these students compared favorably

with other students in their age group. Their one significant difference was found to be in the way with which they deal with the written language.

This study provides strong support for the use of intervention programs for SLD students within the elementary school setting and for the efficacy of the Slingerland Adaptation of the Orton-Gillingham Multi-Sensory Approach to Language Arts. It has shown tht it was possible to provide a successful, specialized, multi-sensory remedial language program within the confines of "regular education." It has provided an optimistic prognosis for the future of those SLD students who are involved in appropriate educational programs.

This research supports the conclusions of Major-Kingsley (1984) that in spite of language learning problems the majority of these students were finding success during their secondary school years.

Implications For Further Study

This study differed from the majority of the previous studies in regard to the socio-economic-status of the population which was studied. There is a need for further studies with this population giving consideration to the demographic factors of ethnicity, home-language, sex, and socio-economic factors. Trends seen in this study indicate there are strong relationships between these demographic

factors and the variables approached in this study. A study focusing on the effects of a sequential, multi-sensory language program with Hispanic students who are not known to have specific language disabilities would assist in curriculum planning.

There were also indications of the need for longitudinal case studies in regard to achievement differences at various grade levels. Differences were noted when comparing cross-grade scores with those of students in the 12th grade. The question that needs to be answered is if the student is gradually improving, or do the students with the most difficulty "drop-out" leaving only the students who have been more proficient all along? In order to better understand the problem of school persistence it would be necessary to track the students on a yearly basis--before the records are purged from the computer files.

Further information is needed in regard to the loss from the secondary district lists of a large number of students whom had been enrolled in the local elementary district. It is impossible to differentiate between the number of students who are continuing in school at another location and the number of students who no longer attend school. It is suggested that enclosing a letter in each subject's cumulative file requesting new school districts to supply information on the student's status would be

helpful in tracing those students who enroll in other school districts.

Much information could be collected and clarified if one were to conduct a smaller study involving students from one years' 6th graders. A yearly compilation of data regarding school persistence, academic achievement and use of leisure time would enhance our knowledge of consequences of specific language disabilities (dyslexia) upon the student during the secondary school years.

The use of an interview format rather than a self-reporting questionnaire would assist in acquiring more complete, accurate information. While using the questionnaire there was a tendency for the students to leave some of the questions unanswered. It would also allow the students the opportunity to discuss and clarify answers.

A follow-up 8 to 10 years hence would be useful in determining how many of these students were actually able to achieve their educational and vocational goals. This would greatly assist in or understanding of the long-term consequences of specific language disabilities (dyslexia).

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APPENDICES A

SLINGERLAND SCREENING PROCEDURES

Purpose

According to Slingerland (1970) the Slingerland Screening Procedures were developed to assist in identifying difficulties some children experience in processing the language symbols. Difficulty can lie within specific modalities -- visual, auditory or kinesthetic (the automatic sequential memory of the feel of movements as is needed in handwriting)--or in the integration of these functions.

Slingerland (1970) suggests that this information can be used in several ways including: (1) the identification of modality strengths and weaknesses which will assist in the informed selection of teaching methods and materials to be employed in instructions; (2) the identification of children who would benefit from placement with specially trained teachers using multi-sensory techniques; (3) the identification of children with slow or uneven perceptual-motor maturation thus enabling the modification of the curriculum by the classroom teacher; and (4) the identification of children who should be referred for further physiological and psychological evaluation.

Test Description

The Slingerland battery of tests consists of tasks similar to those which a student experiences in school. The child is required to recall groups of letters, words or numbers from both visual and auditory stimuli. Methods of responding vary within the different subtests. Sometimes the student is required to reproduce the stimulus material, at other times they merely locate and circle the correct response. The element of memory is introduced within a portion of the subtests while other subtests give the student a constant point of reference. Meyers (1983) has suggested that the variance of the tasks in regard to distractions and methods of response may be useful in providing information as to the manner in which the individual student is processing information.

According to Slingerland (1970) the subtests should be examined for the pattern of performance they can reveal. Judgments about a student's performance should not be made on the basis of the total negative score alone. Error analysis and comparisons across the subtests yield the type of information useful in making educational strategy decisions. When using these procedures information regarding ability, achievement, task-performance behavior, opportunities for learning, and other pertinent information from home and school should be considered in order to develop a better understanding of the "total child."

For discussion purposes the Slingerland Screening Procedures can be divided into two test batteries. The Pre-Reading Screening Procedures are designed for administration to students before reading is introduced. Forms "A", "B", "C" and "D" are essentially the same tests with differing degrees of difficulty for use with various age groups. Suggestions regarding the appropriate form to be used with each grade level are given in the testing manual.

Description of Pre-Reading Screening

The twelve subtests in this battery yield a profile showing performance from both the visual and auditory stimulus. The subtests include:

Test 1 & 2 - VISUAL-VISUAL ASSOCIATION FOR MATCHINGS (SYMBOL LEVEL)

These tests involve the child's ability to discriminate between similar letter configurations in order to choose the one which matches the model. There is a constant point of reference. Test one involves one and two grapheme combinations. Test two involves three grapheme combinations.

Test 3 - VISUAL RECALL - VISUAL ASSOCIATION FOR MATCHING
(SYMBOL LEVEL)

During this task the child is shown a card bearing a drawing, letter or letter combination. After a brief distraction the child chooses the matching objects from four similar configurations. Alternative configurations contain reversals, inversions and distortions of the model.

Test 4 - VISUAL-KINESTHETIC MOTOR ASSOCIATION FOR COPYING,
NEAR POINT (SYMBOL LEVEL)

The student copies each of eight simple drawings in the space beside the model. There is a constant point of reference. Specific criteria are outlined for evaluation of these drawings.

Test 5 - AUDITORY RECALL - VISUAL ASSOCIATION FROM
DIRECTIONS (OBJECT LEVEL)

The child is given directions as to the marking of one of four pictures while the pictures are covered. After a few seconds distraction the cover is removed and the child marks the picture which depicts the action which has been previously described in the verbal directions.

Test 6 - AUDITORY RECALL - VISUAL ASSOCIATION OF LETTERS
(SYMBOL LEVEL)

A letter is named for the student while the letters are covered. When the letters are uncovered the child has 10 seconds to mark the correct letter from a selection of four letters.

Test 7 - VISUAL RECALL - KINESTHETIC/MOTOR ASSOCIATION
(FORMS)

This task requires the student to recall and reproduce simple line drawings which have been individually presented on cards. The models are withdrawn before the child begins drawing.

Test 8 - AUDITORY RECALL - VISUAL ASSOCIATION FROM STORIES
(OBJECT LEVEL)

Brief stories are read to the student. Following each story the student is asked a question which can be answered by marking one of four pictures. Test items include story details, inferences and sequencing.

Test 9 - VISUAL-KINESTHETIC/MOTOR ASSOCIATION FOR COPYING,
FAR POINT (SYMBOL LEVEL)

This test requires copying eight simple line drawings from a chart placed on the wall.

Test 10 - AUDITORY-AUDITORY RECALL FOR DISCRIMINATION
(SYMBOL LEVEL)

This complex test requires the student to (A) identify whether the three words pronounced by the examiner were the same or if the set included a similar but different word and (B) respond to the question of sameness or difference by marking their answer sheet with // or xx.

Test 11 - AUDITORY-VISUAL-KINESTHETIC/MOTOR ASSOCIATION
FROM DIRECTIONS (SYMBOL LEVEL)

The examiner names one of three letters which have been presented to the student. The correct letter is located and copied by the student. There is a constant point of reference.

Test 12 - AUDITORY RECALL - VISUAL ASSOCIATION FROM
PERCEPTION AND DISCRIMINATION (SYMBOL LEVEL)

Four objects are viewed and named for the student. The student then locates the object that begins with the consonant sound which is pronounced by the examiner.

Additional subtests are suggested for individual students who demonstrate difficulty with auditory stimulus tests. These include an ECHOLALIA test involving the students multiple oral repetition of a word or phrase. During this repetition the examiner notes distortions, substitutions, omissions, sequencing and general recall of the spoken word. The second of these individual tests involves the student RETELLING A STORY that has been related by the examiner. During the retelling the examiner notes sequencing, recall and articulation errors.

Slingerland (1970) has suggested that information gained from the screening procedures should be related to the two page teacher information sheet, information received from the family and general intellectual ability.

Description of Slingerland Screening Test Forms A, B, C,
& D

These test batteries are planned for use with children in the second semester of 1st grade through grade 6. Detailed information regarding the proper form for a particular age groups can be found in the test manual. Tests can be given in groups, however, the examiner should be sure that they are able to properly observe test behavior of each participant. Total testing time is approximately 1 hour.

Test 1 - COPYING FROM A FAR POINT

Copying tests require visual perception in association with a kinesthetic-motor response. In this subtest the student copies a chart which is placed on the wall. There is a constant point of reference.

Test 2 - COPYING FROM A NEAR POINT

Words printed in large type at the top of the page are copied on numbered lines. There is a constant point of reference.

Test 3 - VISUAL PERCEPTION AND MEMORY

Words, letters, and numbers shown to students on cards must be recalled after a brief distraction and visually discriminated from four similar configurations.

Test 4 - VISUAL DISCRIMINATION

This task requires discrimination between similar word configurations. Words are to be matched, requiring careful

discrimination which depends upon secure visual perception of symbol and letter sequence.

Test 5 - VISUAL MEMORY - KINESTHETIC/MOTOR INTEGRATION

This subtest requires visual perception memory in association with the kinesthetic memory of the "feel" of symbols and forms. It requires accurate visual recall of item which was seen on a card before the card was withdrawn and distraction provided. The student then reproduces the item.

Test 6 - AUDITORY RECALL - VISUAL/KINESTHETIC INTEGRATION

This subtest calls depends on auditory perception and recall being integrated with the corresponding visual and kinesthetic/motor associations. Groups of letters, numbers and words are dictated which are to be written by the student.

Test 7 - AUDITORY DISCRIMIANTION - VISUAL/KINESTHETIC INTEGRATION

The examiner pronounces the word for the student who discriminates and writes the letter which expresses the initial or final consonant sound. Form D also includes vowel discrimiantion. (phoneme-grapheme association)

Test 8 - AUDITORY - VISUAL INTEGRATION

This subtest is for auditory perception of words, numbers, or groups of letters and their association with the correct visual patterns. After the item is dictated the student locates the correct response. The

kinesthetic/motor task of writing is not required.

Test 9 - PERSONAL ORIENTATION --- (FORM D ONLY)

This subtest involves the student following oral directions for filling out a written form. It tests ability to understand the directions, organize the answers and respond with a written response.

The ECHOLALIA and RETELLING A STORY Tests are used with individual students. A brief test of USING THE CORRECT WORD IN CONTEXT gives further information as to the students use of language.

Appendix B

School of Education
University of San Diego
Alcala Park
San Diego, CA 92110

Dear Parents:

As a part of my doctoral dissertation I am involved in a study of the school adjustment of secondary students who may have been in the Slingerland program in the Chula Vista Elementary School District. I will be looking at: (1) remaining in school until graduation, (2) grade point averages, (3) citizenship point averages, (3) program choices, (4) results of proficiency tests, (5) involvement in school and community activities, (6) future plans, and (7) employment outside of school.

The enclosed questionnaire is being sent to many of these students and to an equal number of randomly chosen students who were not in the Slingerland program. Through the use of this questionnaire I am trying to get a better understanding of the viewpoints and needs of students.

Students will not be identified by name in this study. Information regarding individuals will not be released to the school district or to any other sources. Absolute confidentiality is assured.

May your son/daughter participate in this study? Any additional comments which you or your child would like to make will be welcomed.

Will you please help me by signing the enclosed consent form today? The information your son/daughter can supply is vital to the study. (I will not be able to complete this study until the questionnaires are returned.) An addressed, stamped envelope is enclosed.

Thank you for taking the time to assist in this study.

Sincerely,

Nancy L. Royal
Doctoral Candidate
University of San Diego

enc.

Appendix C

Departamento de Educacion
Universidad de San Diego
San Diego, CA 9110
Marzo 6, 1986

Estimados Padres de Familia:

Como parte de mi disertacion en mi doctorado me encuentro en estos momentos preparando un estudio sobre adaptaciones escolares de alumnos en educacion secundaria que pudieron haber estado en el programa Slingerland en la Primaria del Distrito de Chula Vista. Observare: (1) permanencia en la escuela hasta graduarse, (2) promedio de calificaciones, (3) promedio en conducta, (4) seleccion de programas, (5) resultados de examens, (6) participacion en actividades escolares y en la comunidad, (7) planes futuros y (8) empleo fuera de la escuela.

El cuestionario adjunto se le esta enviando a muchos de estos alumnos: a varios de los alumnos que estuvieron en el programa Slingerland en la Escuela Secundaria de Montgomery y a un numero igual de estudiantes escogidos al azar que no estuvieron en el programa Slingerland. Este cuestionario tiene por objeto ayudarme a lograr un mejor conocimiento de las necesidades y puntos de vista de los alumnos.

En este estudio los alumnos no seran identificados por su nombre. No se dara a conocer ninguna informacion acerca de estos alumnos ni a la escuela del distrito ni a ningun otro lugar. Les aseguramos que esto sera tratado confidencialmente.

Podria su hijo o hija participar en este estudio? Mucho les agradeceria su ayuda, firmando hoy mismo la forma de consentimiento que adjunto. La informacion que su hijo o hija pueda dar sera de suma importancia para el estudio. (no podre terminar el estudio hasta que los cuestionarios sean devueltos.) Cualquier comentario adicional que usted o su hijo quieran hacer, es bienvenido. Para su conveniencia estoy adjuntando un sobre que lleva direccion y estampilla.

Mucho les agradezco el tiempo que se han tomado en ayudarme con este estudio.

Sinceremente,

Nancy L, Royal
Aspirante a Doctorado
Universidad de San Diego

Appendix D

PARENTAL CONSENT FORM

I hereby give my consent for _____ to participate in the study being conducted by Nancy L. Royal on the school adjustment of secondary students. The Sweetwater Union High School District is authorized to release information for use in this study. I understand that information regarding individual students will remain confidential.

(Name of parent or guardian)

(date)

FORMA DE CONSENTIMIENTO DE LOS PADRES DE FAMILIA

Por la presente doy consentimiento a _____ para participar en el estudio que esta conduciendo Nancy L. Royal sobre la adaptacion del alumno de estudios secundarios. La Secundaria del Distrito de Sweetwater queda autorizada a facilitar la informacion necesaria para este estudio. Queda claro que la informacion respecto a cada uno de estos alumnos sera extrictamente confidencial.

(Nombre del padre o tutor)

(fecha)

Appendix E

School of Education
University of San Diego
Alcala Park
San Diego, CA 92110
November 21, 1985

Dear Student, former Student or Graduate:

As a part of my doctoral dissertation I am conducting a study of the school adjustment of secondary students who may have been in the Slingerland program in the Chula Vista Elementary School District. I will be looking at: (1) remaining in school until graduation, (2) grade point averages, (3) citizenship point averages, (3) program choices, (4) results of proficiency tests, (5) involvement in school and community activities, (6) future plans, and (7) employment outside of school.

The enclosed questionnaire is being sent to many of these students, and to an equal number of randomly chosen students who were not in the Slingerland program in elementary school. Through the use of this questionnaire I am trying to get a better understanding of the viewpoints, needs, and status of students. Your taking a few minutes to mark the questionnaire and write down any of your comments will be very helpful.

Students will not be identified by name in this study.
Information regarding individuals will not be released to the school district or to any other sources. Absolute confidentiality is assured.

Will you please help me by completing this questionnaire today? The information you can supply is vital to the study. (I will not be able to complete this study until the questionnaires are returned.) An addressed, stamped envelope is enclosed.

Thank you for taking the time to assist in this study.

Sincerely,

Nancy L. Royal
Doctoral Candidate
University of San Diego

enc.

Appendix F

NAME _____

YOUR NAME WILL BE REMOVED WHEN QUESTIONNAIRES ARE RECEIVED
AND A CODE NUMBER WILL BE ASSIGNED FOR RESEARCH PURPOSES

CODE NUMBER: _____

AGE; _____, BIRTHDATE: _____, SEX: MALE _____ FEMALE _____
GRADE: _____

1. SCHOOL STATUS

- A. _____ graduated
 B. _____ full time student
 C. _____ part time student (work-study program)
 D. _____ received diploma through proficiency test
 E. _____ no longer attending school - no diploma

2. PROGRAM IN SCHOOL

- A. _____ College Preparatory
 B. _____ Vocational
 C. _____ General
 D. _____ Honors
 E. _____ Performing Arts
 F. _____ Creative Arts
 G. _____ Business
 H. _____ Special Education
 Type: _____
 I. _____ Other
 Please Name _____

3. ARE/WERE YOU ENROLLED IN A "MAGNET" PROGRAM?

- A. _____ yes Please name _____
 B. _____ no

4. HAVE YOU PARTICIPATED IN ATHLETICS? ____ Yes ____ No

5. WHAT TYPE OF ORGANIZATION?

- A. _____ Varsity
 B. _____ Jr. Varsity
 C. _____ Intermural
 D. _____ Community
 E. _____ Organization (such as ASSA etc.)
 Approximate hours per week _____

6. PLEASE CHECK TYPES OF ATHLETIC ACTIVITIES

- A. _____ football
 B. _____ basketball
 C. _____ baseball
 D. _____ volleyball
 E. _____ tennis
- F. _____ water polo
 G. _____ swimming/diving
 H. _____ soccer
 I. _____ gymnastics, field
 _____ & track
 J. _____ other
 (Name) _____

7. IN WHAT OTHER ACTIVITIES HAVE YOU PARTICIPATED?

- A. _____ paper/yearbook
 B. _____ drama
 C. _____ choir
 D. _____ band
 E. _____ other Please name _____
 Approximate hours per week _____

8. HAVE YOU RECEIVED ANY ATHLETIC HONORS? PLEASE LIST

9. HAVE YOU RECEIVED ANY SPECIAL ACADEMIC HONORS?
PLEASE LIST.10. HAVE YOU RECEIVED ANY OTHER SPECIAL COMMUNITY HONORS?
PLEASE LIST.

11. HAVE YOU HELD ANY STUDENT BODY OFFICES. PLEASE LIST.

- A. _____ 7th _____
 B. _____ 8th _____
 C. _____ 9th _____
 D. _____ 10th _____
 E. _____ 11th _____
 F. _____ 12th _____

12. DO YOU NOW OR HAVE YOU BELONGED TO ANY SERVICE
OR SOCIAL CLUBS?

- A. _____ yes (Names) _____
 B. _____ no _____

When?

_____ 7th _____ 10th
 _____ 8th _____ 11th
 _____ 9th _____ 12th

Approximate hours per week _____

13. ON THE AVERAGE, HOW OFTEN DO/DID YOU GO TO SCHOOL ACTIVITIES (GAMES, DANCES ETC.)?

- A. _____ 1 time per month or less
 B. _____ 1 time per week
 C. _____ 2-3 times per week
 D. _____ 4-5 times per week
 E. _____ more than 5 times per week

14. ARE/WERE YOU INVOLVED IN CLUB, CHURCH OR OTHER ACTIVITIES OUTSIDE OF SCHOOL?

<u>Activity</u>	<u># of hours per week</u>	<u>Offices/honors</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

15. ON THE AVERAGE, HOW OFTEN DO YOU ATTEND PARTIES OR OTHER EVENTS WHICH ARE NOT "SCHOOL SPONSORED"?

- A. _____ 1 time per month or less
 B. _____ 1 time per week
 C. _____ 2-3 times per week
 D. _____ 4-5 times per week
 E. _____ 6-8 times per week
 F. _____ 8-10 times per week

16. HOW DO/DID YOU FEEL ABOUT SCHOOL?

- A. _____ Great
 B. _____ Good
 C. _____ Fair
 D. _____ Poor
 E. _____ Really dislike it

17. HOW MUCH TIME DO/DID YOU PUT INTO COMPLETING YOUR HOMEWORK?

- A. _____ 1/2 hour per day or less
 B. _____ 1 hour per day
 C. _____ 1 1/2 hours per day
 D. _____ 2 hours per day
 E. _____ more than 2 hours per day

18. ARE YOU EMPLOYED PART OR FULL TIME?

- A. _____ 7th _____ hours per week
 B. _____ 8th _____ hours per week
 C. _____ 9th _____ hours per week
 D. _____ 10th _____ hours per week
 E. _____ 11th _____ hours per week
 F. _____ 12th _____ hours per week

19. AS OF TODAY, WHAT ARE YOUR FUTURE PLANS?

A. _____ Community College

B. _____ College or University

C. _____ Business School

D. _____ Vocational School

E. _____ Get a job. Type of job: _____

F. _____ Armed Services

G. _____ Homemaker

H. _____ Other Please Name _____

20. AS OF TODAY, WHAT ARE YOUR CAREER GOALS OR PLANS FOR
FUTURE WORK?

21. DO YOU HAVE ANY GENERAL COMMENTS ABOUT YOUR ELEMENTARY
THROUGH HIGH-SCHOOL EXPERIENCES?

THANK YOU FOR YOUR ASSISTANCE!