

RATE OF GRADUATION AMONG STUDENTS WITH HISTORIES OF SPECIFIC
LANGUAGE IMPAIRMENT

by

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ABSTRACT

The rate of graduation among students with histories of specific language impairment (SLI) was investigated by comparing the target population to matched, nondisabled peers. Data regarding the graduation outcomes for 176 matched pairs of students, over a five-year period, were analyzed to determine if a significant difference in achievement of a high school diploma was observable between the two groups of students. In addition, the study addressed the variables of socioeconomic status and attendance rate as related to graduation rate. For students with histories of specific language impairment, model of service delivery was also examined with regard to graduation rate. Finally, the relationship between the number of years a student was enrolled in language therapy and achievement of a high school diploma was explored.

The Chi-square test for goodness of fit was utilized to compare the graduation and dropout rates of students with histories of SLI to state department of education normative data. Analysis of the data suggested that significantly more students with histories of SLI left school, however, a significantly higher than expected number also received a high school diploma. The Chi-square test for independence was used to compare the graduation rates of students with histories of SLI to the rates of their nondisabled peers. A significant difference was observed between the two groups of students with dropout rate being significantly lower for nondisabled peers. The variables of socioeconomic status and attendance rate did not yield significant results as related to graduation outcomes for the students in this study. For students with histories of SLI, model of

service delivery and number of years that the student received services were each weakly correlated to graduation outcome.

The results presented in the current study offer implications for appropriate service delivery to adolescents with histories of SLI. Recommendations for reducing high school dropout among students with histories of SLI were discussed.

To Marko and Mario

May you always experience the thrill of learning something new.

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LIST OF ABBREVIATIONS

ASHA: The American Speech-Language-Hearing Association

IDEA: The Individuals with Disabilities Education Act of 1997

I.E.P: Individualized Education Plan

GED: General Education Development (Often referred to as *high school equivalency*)

SES: Socioeconomic Status

SLI: Specific Language Impairment

CHAPTER I INTRODUCTION

Background and Significance

Specific language impairment in children has been described in the literature throughout the last twenty years (Plante, 1998; Tallal, Lallman, Stark, & Mellits, 1981). Specific language impairment (SLI) refers to a “developmental language disorder that occurs in the absence of mental retardation, hearing loss, motor disorder, socioemotional dysfunction, or frank neurological deficit” (Plante, 1998, p.2). During the 2002-2003 school year 35,231 students received services in the Florida public schools under the educational category of *language impaired*, (Bureau of Education Information and Accountability Services, 2003). The number of students served in Florida under this eligibility category has increased by approximately 1000 students annually for each of the last three school years (Bureau of Education Information and Accountability Services, 2001, 2002, 2003).

Traditionally, public school language therapy services for children with specific language impairment have targeted children in the elementary grades. In 1996, Beitchman and Brownlie reported that the long-term outcome for children with language impairment was not well documented and at that time, there were no methodologically sound studies on outcome beyond early adolescence. Kenn Apel (1999), fellow of the American Speech-Language Hearing Association (ASHA), has appealed to speech-language pathologists to begin to recognize the needs of older students with language impairments whom he classifies as “the least served and least written about by professionals in our field” (p.229).

Statement of the Purpose

While language intervention during the early years of schooling has proven beneficial to many students, the impact of specific language impairment appears to remain throughout a student's educational career (Friel-Patti, 1999). The current study examined the outcomes for high school seniors, with histories of specific language impairment, who have received language therapy services through the public schools in Collier County, Florida. Outcomes were measured in terms of high school graduation rates, dropout rates, and the rate of remaining in high school beyond the fourth academic year. Variables studied in this investigation included (a) model of service delivery, (b) active or inactive program status, (c) number of years spent in the therapy program, (d) socioeconomic status and (e) attendance rates.

Questions of the Study

Specific language impairment presents a student with deficits in the underlying skills necessary for academic success such as listening, speaking, reading, and writing (Schuele & Hadley, 1999). This study addressed a series of questions:

- (1) Do students with histories of specific language impairment graduate at a rate that is significantly different from that of nondisabled peers?
- (2) If a difference in graduation rate is observed, is socioeconomic status also a contributing factor in high school graduation rate or type of diploma earned?
- (3) If a difference in graduation rate is observed, is attendance rate also a contributing factor in high school graduation rate or type of diploma earned?

- (4) For students with histories of specific language impairment, does service delivery model influence whether a student will receive a standard diploma, special diploma, remain in high school beyond four years, or dropout?
- (6) For students with a history of specific language impairment, is there a relationship between duration of active therapy (in years) and whether a student will receive a standard diploma, a special diploma, or dropout?

Definition of Terms

For the purpose of clarification, the following definitions of terms will be used throughout this study.

Certificate of Completion: A certificate awarded to students who have completed the minimum number of credits for high school completion, but who have failed to pass the required proficiency examinations.

Dropout: The act of leaving school voluntarily prior to meeting graduation requirements.

Exceptional Student Education (ESE): Florida's specialized educational program, provided in accordance with local, state, and federal educational law, for students who as a result of a disability or academic giftedness can not be appropriately served in the general curriculum without modifications or accommodations.

Graduation: Having completed the State of Florida criteria for a high school diploma.

Nondisabled/Nonhandicapped peer: A student similar in age to his classmates who has not been diagnosed as having a disability or handicapping condition.

Outcome: The benefit derived by a program participant.

Service Delivery Model: The manner in which speech-language therapy services are delivered including the frequency of intervention (daily, weekly, monthly).

Special Diploma: A diploma (usually with two options for attainment) available to students in exceptional student education programs who meet the minimum standards for graduation established for exceptional students by the state department of education.

Specific Language Impairment (SLI): A language-based communication disorder, determined by diagnostic criteria, which has the potential to impact the academic functioning of students with this diagnosis.

Standard Diploma: The diploma awarded to students upon completion of the minimal requirements for high school graduation as established by the state department of education.

Student with a History of Specific Language Impairment: a student previously meeting eligibility criteria and who was served in the Exceptional Student Education program under the category of *language impaired* and who has had no other documented co-existing handicapping condition such as learning disability, hearing impairment, mental retardation, or emotional disturbance.

Assumptions and Limitations

Among the assumptions of this study was that service delivery was consistent in quality across all Collier County high schools. Uncontrolled variables such as differences in treatment techniques and student motivation may have contributed to the results. Education and experience levels of the speech-language pathologists serving students varied across settings. Of the eight therapists who had treated the students in this study, six held the American Speech-Language Hearing Association (ASHA) Certificate of Clinical Competence (CCC-SLP). The remaining therapist held a bachelor's degree in speech and language and a master's degree in special education. It is assumed that all students received quality services to meet their educational needs, as mandated by state and federal educational law.

A limitation of the proposed study was its scope of subjects. The subject pool included only those students who were actually admitted to 12th grade. Students may have been excluded from this study who left school prior to the 12th grade. In addition, the initial severity levels of students with histories of language impairment was not addressed as a variable in this study.

Additionally, this study was conducted using students from one medium-sized (approximately 35,000 students) school district in Southwest Florida. Such a limitation should be considered when generalizing the results of this study to other school districts.

Methodology

Research Design

This study was implemented following a causal-comparative research design. Pair-wise matching of participants was used to limit the influence of extraneous variables such as gender, ethnicity, and school attended.

Population

The data utilized in this study were collected from the total database of students enrolled in 12th grade for the academic years 1998-1999, through 2002-2003 at public high schools in the District of Collier County (CCPS) using the school system's electronic databases: TERMS and Data Warehouse. Students attending both traditional and alternative public high schools were included in the study. Alternative settings included teenage parenting programs, out of school suspension programs, and juvenile justice programs. Initially, students with histories of specific language impairment were identified from enrollment data and then categorized as either active (still receiving language therapy) or dismissed from programming. Students manifesting any co-existing disability such as mental retardation, hearing impairment, or learning disability were excluded from this study.

Once the total number of subjects identified as having a history of specific language impairment was gathered and analyzed for demographic information, a pair-wise matching approach was used to match nondisabled peers to the students with histories of SLI according to the following criteria: (a) year entered into 12th grade, (b) school, (c) ethnicity, (d) gender, and

(e) socioeconomic status. Socioeconomic status was defined as eligible or ineligible for the free and reduced federal lunch program. One caution in using this method is that high school students may decline to return the eligibility forms that are used by schools to determine a student's status. Pairwise matching was used to reduce the effects of variables such as ethnicity, school, and gender, which may have contributed to the results. One hundred seventy-six pairs of students were identified for this study.

Instruments

After being obtained from an existing database of all Collier County public school students, school district data were analyzed using the *Statistical Package for the Social Sciences: Graduate Pack 11.0 for Windows* (SPSS, Inc., 2001). The district's electronic databases are referred to as *TERMS* and *Data Warehouse*.

Data Collection

Having received permission from the directors of Exceptional Student Education and the Office of Accountability and Staff and School Renewal, student data were obtained using FTE (full-time equivalency funding) reports for the years 1998-1999, 1999-2000, 2000-2001, 2001-2002, and 2002-2003 as reflected in the district's electronic databases. All 12th grade high school students whose sole area of disability was classified as *language impaired* were initially entered into a research database at the end of the 2002-2003 academic year, using the *Statistical Package for the Social Sciences: Graduate Pack 11.0 for Windows* (SPSS, Inc., 2001) after being obtained

from an existing database of all Collier County public school students. Exceptional Student Education archival files were accessed in cases of missing or conflicting data. The level of high school completion of each student was entered into the database according to the academic year for which the data were reported. To prevent student data from being inaccurately counted or analyzed as multiple cases, each student was entered into the database only once, according to the year that student entered 12th grade. Additional descriptors were then added for each case according to the following possible outcomes:

- (a) Graduated with standard diploma
- (b) Graduated with special diploma
- (c) Left school voluntarily (dropped out)
- (d) Continues to be enrolled in high school (includes alternative settings)
- (e) GED (General Education Development Test)
- (f) Other incompleteness (e.g. deceased, moved out of district)

The following variables were also coded and entered accordingly: (a) ethnicity, (b) gender, (c) free/reduced lunch eligibility, (d) attendance record (excellent, good, fair, poor) and (e) service delivery model (weekly session, daily class, or consultative). Service delivery model was determined according to the last or most recent model of therapy received by the student.

Utilizing the *Data Warehouse* and *TERMS* programs, matching nondisabled peers were then randomly identified and assigned, based on several criteria. Students were to match peers with histories of language impairment according to (a) ethnicity, (b) gender, (c) free/reduced lunch eligibility, and (d) school attended. The data were then analyzed utilizing statistical

procedures to determine if significant differences existed between the groups of students with histories of language impairment and their matched, nondisabled peers in terms of graduation rate. The above listed questions of the study were also addressed.

CHAPTER II REVIEW OF LITERATURE

Specific Language Impairment

Specific language impairment (SLI) is a communication disorder characterized by deficits in language comprehension, oral expression, and/or written expression. Specific language impairment has the potential to impact a student's academic, social, and/or vocational functioning (Larson & McKinley, 1995). The most recently published public records indicated that approximately 35,300 students currently receive services in the Florida public schools under the educational category of language impaired (Bureau of Information and Accountability Services, 2003).

According to *Special Programs and Procedures for Students with Disabilities*, compiled by the District School Board of Collier County, Florida (1999), a student above age five qualifies for services for a language disorder when:

the language scores on standardized tests are more than one standard deviation below the mean for the student's chronological age and at least one of the following is met: (a) There is a significant difference between language performance and nonverbal performance; or (b) There is a significant difference (as defined by the procedural manual of the standardized diagnostic instrument utilized) between receptive and expressive language scores; or (c) Two or more, but not all, of the components of the language system are moderately or severely impaired on a language severity rating scale (pp. 55-56).

Components of the language system include (a) syntax, or word order, (b) morphology, or units of meaning such as prefixes, suffixes, and root words, (c) semantics, or meaning (d) pragmatics, or functional, social use of language, and (e) phonology, or how speech sounds are combined to form meaningful units (Beitchman & Brownlie, 1996). *Receptive language* includes comprehension of verbal, written, and nonverbal communication while *expressive language* involves the ability to express meaningful messages in verbal, written, or nonverbal forms.

Academic Implications of Specific Language Impairment

Traditionally, public school language therapy services for children with specific language impairment have primarily targeted children in the elementary grades. Most texts on language development have historically cited research on early language development and generally concluded the topic without addressing development during preadolescence or adolescence (Nippold, 1988). With most of the research on normal language skills focusing on preadolescent language development, there has been less written on the topic of language disorders in older children as compared to linguistic issues involving younger children. Research has emerged, however, supporting significant cognitive and linguistic growth during adolescence, as part of normal development (Berk, 2001; Larson & McKinley, 2003; Nippold, 1988).

Several longitudinal studies have examined the impact of language impairment beyond childhood and into adolescence. (Aram, Ekelman, & Nation, 1984; Conti-Ramsden & Botting, 1999; Johnson, et. al., 1999; Stothard, Snowling, Bishop, Chipchase, & Kaplan, 1998). Overall,

the results have indicated that specific language impairment is a dynamic condition in which the manifesting characteristics of the disability change over time.

Specific manifestations of language impairment in older students have been described in the literature. The longitudinal studies (Conti-Ramsden & Botting, 1999; Johnson, et. al., 1999; Stothard, Snowling, Chipchase, & Kaplan, 1998) cite an array of symptoms including deficits in receptive and expressive vocabulary, syntax/grammar, and phonological awareness/decoding. Additional profiles of older students with specific language impairment have suggested long-term deficits in linguistic comprehension, verbal expression, and disabilities in reading and writing (Apel & Swank, 1999; Lewis, O'Donnell, Freebairn, & Taylor, 1998; Masterson & Perry, 1999; McKinley & Larson, 1990).

A study conducted in the United Kingdom by Snowling, Adams, Bishop, and Stothard (2001) examined long-range outcomes for students identified as having communication disorders in their preschool years. The study compared nonhandicapped peers, students with persistent communication disorders, and students whose communication disorders had been determined to have been resolved. While the group dismissed from therapy performed as well as nonhandicapped peers on national standardized exams, they obtained lower grades in core subject areas. The group with persistent communication disorders performed poorly on national exams and were less likely to pursue higher education. Many of the students with communication disorders, however, did not participate in standardized exams, and were encouraged to enroll in vocational education tracks.

Apel (1999) summarized the needs of older students demonstrating language-learning impairments as follows:

- (a) Language-learning impairments affect academic and social performance at *all* levels of education,
- (b) Early language-learning impairments often become compounded over time, and
- (c) It may never be too late for students to improve their language and learning skills (p. 229).

Public School Service Delivery to Secondary Age Students with Language Impairments
Service provision.

Federal educational law calls for provision of special education services, including speech-language pathology services, in the least restrictive and most appropriate environment (American Speech-Language-Hearing Association, 2000). The law also calls for a full continuum of services. *Full continuum* refers to the various models and frequencies of service delivery. All viable options, under educational law, are to be considered by the Individual Education Plan (I.E.P) team. The I.E.P. team, comprised of the special education student, his parents, and professionals familiar with the student, are to consider the unique needs and accommodations necessary for the student to receive a free and appropriate public education. The decision of appropriate service delivery includes the manner or model in which special services, including language therapy, should be delivered (Eger, 2001).

Various models of service delivery have been utilized in the provision of school-based therapy to students with specific language impairment. Pullout models involve the removal of students from the classroom to a therapy or resource room where they receive individual or small group instruction in communication skills (Nelson & Staskowski, 2001). This model originated in clinical and hospital settings where most of speech-language pathology training traditionally occurred (Kerrin, 1996). In a collaborative model, speech-language pathologists work together with educators in the context of the classroom setting. Traditionally, pullout or collaborative models of service delivery are often provided one to two times weekly for periods of 30 to 60 minutes.

Some school districts also offer a daily service delivery model of language therapy for adolescents. In this model, the speech-language pathologist is the primary instructor of a daily class for which students receive report card grades and if applicable, course credit (Larson & McKinley, 1995). In 1989, McKinley and Larson reported field test results for such a model. Positive outcomes included increased graduation rates for targeted students, subsequent employment, continuation of education beyond high school, or entry into military service. In addition, students, parents, and teachers reported program satisfaction rates above 90%.

The I.E.P. team may also recommend consultative therapy services. Consultative services include indirect services, such as consultation at least monthly with parents, teachers, and other professionals (District School Board of Collier County, 1999). Students are seen consultatively for short periods of time such as 5-45 minutes of monitoring a month.

Reductions in service at the secondary level.

The focus of speech-language pathology services in schools has emphasized early intervention and remediation of language disorders. The literature however, supports that the impact of specific language impairment may result in a disability that continues into adolescence (Aram, Ekelman, & Nation, 1984; Conti-Ramsden & Botting, 1999; Johnson, et. al., 1999; Stothard, Snowling, Bishop, Chipchase, & Kaplan, 1998). Larson & McKinley (2003) reported on attempted research regarding the practice of service delivery to adolescents with communication disorders. Inconsistency in data collection and reporting methods made it difficult for conclusions to be summarized from responses. A trend in the gross data, however, suggested that fewer adolescents were receiving services than were elementary students.

When secondary age students are reduced to minimal service delivery or dismissed from language therapy, there may be multiple factors that contribute to the decision. Models of language acquisition, which concluded that the majority of language development in children was completed by the early elementary years, may have resulted in professionals' lack of guidance in the language needs of students beyond age ten (Larson & McKinley, 1995). In addition, plateaus in student progress may be misinterpreted as a lack of potential for further progress, and thus as a reason for dismissal. Another reason for reduction in services involves administrative pressures to reduce the number of students served in middle and high schools due to a lack of resources. In some districts, secondary schools may be staffed as little as one half day per week by a speech-language pathologist (Larson & McKinley, 2003).

Delayed cognition and ongoing language deficits.

Students with specific language development often have difficulty with higher-level cognitive tasks such as conceptual development (Wiig & Secord, 1992). According to Piaget's theory of cognitive development (Berk, 2001; Khami & Lee, 1988), abstract reasoning is a characteristic of the developmental stage termed the *formal operational period*. Higher level thought processes, abstract reasoning, and conceptual development are necessary for the types of tasks required by standard middle school and high school curricula. According to Berk (2001), "abstract thought requires language-based systems of representation that do not stand for real things" such as the systems used in algebra and geometry and in tasks requiring "verbal reasoning about abstract concepts" (p. 371).

Additional language-based cognitive skills which developmentally emerge in adolescence include the use of symbol systems, hypothetical reasoning, and the abilities to work with ratios, proportions, and correlations (Khami & Lee, 1988). Students with language impairments may be delayed in functioning at higher-level cognitive and linguistic levels without continued intervention, modifications, or strategy instruction (Larson & McKinley, 1995).

Often, students with language impairments, upon reaching the 4th or 5th grades, are able to perform tasks requiring concrete cognitive and linguistic processing, such as the typical tasks that would be assessed during the elementary grades utilizing standardized tests of language development. As a result, many of these students may appear to be functioning at developmentally appropriate levels, and thus meet the criteria necessary for dismissal from therapy. Many students with histories of language impairment, however, may be delayed in the

development of abstract thought and face academic challenges upon entering the secondary grades as they are met with new academic demands. Larson and McKinley (1995, 2003) have contended that a certain group of students will continue to demonstrate a need for language therapy services and academic support into adolescence. Assessment and subsequent dismissal at the end of elementary school does not provide a safeguard that older students will continue to develop cognitively and linguistically in secondary school.

High School Graduation and Students with Disabilities

State and National Trends

Data have been collected and described on high school graduation and dropout rates for students manifesting a variety of disabilities. There has been sparse reporting, however, of graduation/dropout rates for students with specific language impairment. According to Bakken and Korterling (1999), in general, “students with disabilities graduate at a rate that is half that of their general education peers” (p.360). This projection may hold implications for students with communication impairments as well. A Canadian study examined the long-term outcomes of students with speech and language disorders (Johnson, 2001). Students with speech and language disorders were found to have nearly double the risk for dropout, arrest, and psychiatric disorders as their nondisabled peers. In addition, students with histories of specific language impairment have been found to be more likely to engage in antisocial behavior and substance abuse than nondisabled peers, possibly as a result of decreased verbal coping and mediation skills (Beitchman, et. al, 2001).

A study reported by the National Center for Educational Statistics (1999) examined *Students with Disabilities in Postsecondary Education: A Profile in Preparation, Participation, and Outcomes*. While specific language impairment was not a targeted category of this study, speech impairment, defined as having a speech disability or limitation, was examined. These students reflected about 10% of the population of 8th graders in 1998 identified as having a disability. By 1994, 87 % of these students had graduated high school. Of the remainder, 2.3 % received a GED (General Education Development) test credential or equivalent, 6 % were still working toward graduation or GED, and 4.7 % had dropped out.

The recent Office of Special Education and Rehabilitative Services findings presented in the *Twenty-fourth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act (2002)*, while grouping students with speech and language impairments into one category, did identify outcomes for students with communication impairments as an area of disability. In examining the number of students age 14 and older exiting special education programs, the following figures were released, as illustrated in Table 1.

Table 1

Number of Students Age 14 and Older Exiting Special Education Programs for Students with Speech or Language Impairments

	Received a diploma	Received a certificate	Reached maximum age	Exited program
United States	173,523	33,427	5,959	70,448
Florida	5,558	5,265	27	2,789

While only gross data were reported, these figures suggested that Florida students were nearly as likely to obtain a certificate as a diploma, differing from the trend in the national data. The term *certificate* refers to a certificate of completion, which is not recognized as a diploma or equivalent credential.

As part of the requirements of the Individual with Disabilities Education Act (IDEA) of 1997 (Office of Special Education and Rehabilitative Services, 2001) the Florida Department of Education released a report on educational benefit, educational environment, and prevalence for students with disabilities (Division of Public Schools and Community Education Bureau of Instructional Support and Community Services, 2002). Standard diploma rate, dropout rate, and

retention rate were reported. With the exception of students in education programs for the gifted, however, data for students in exceptional education programs were pooled under the category *students with disabilities*. The performance of students with specific language impairment was not specified in the report. As shown in Table 2, the report included profiles for statewide graduation and dropout rates for all public school exceptional education students in Florida for the last three school years.

Table 2

State of Florida Public School Graduation and Dropout Rates: Students with Disabilities

	1998-1999	1999-2000	2000-2001
Graduation rate	66%	56%	51%
Dropout rate	7%	6%	5%
Retention rate	Not reported	Not reported	6%

Similar data were reported for all exceptional education students in Collier County Public Schools, as illustrated in Table 3.

Table 3

Collier County Public School Graduation and Dropout Rates: Students with Disabilities

	1998-1999	1999-2000	2000-2001
Graduation rate	54%	55%	47%
Dropout rate	8%	7%	7%
Retention rate	Not reported	Not reported	7%

The state uses a cohort method to calculate graduation rate and tracks the percentage of students who graduate in four years. The calculation is designed to account for students who transfer out of the school population by removing them from the group of students (cohort) for which the school district is held responsible. “Likewise, students who transfer into the school population are added to the cohort by being included (at the time of their enrollment) in the count

of the class with which they are scheduled to graduate” (Education Information and Accountability Services, 2002, p. 1).

In comparison, according to the most recently published data on graduation rates, based on the enrollment year 2002-2003, the State of Florida reported a graduation rate of 69% for all students and a dropout rate of 3.1 % (Florida Department of Education, 2003a). The remainder of the students not accounted for by these two figures included students who obtained certificates of completion, who continued to be enrolled in some form of educational program sponsored by the local K-12 school district, who enrolled in a GED or adult education program, or who failed to enter school as expected, but who could not be verified as dropping out of school. Collier County reported a graduation rate of 68.2% and a dropout rate of 3.7% for the same period for all students.

Diploma Options

In Florida, for the years 1998-2003 the requirements for a standard diploma included (a) a passing scoring on the Florida Comprehensive Assessment Test (FCAT), (b) completion of high school algebra (c) a grade point average of 2.0 on a scale of 4.0, and (d) completion of at least 24 credits in approved coursework (Florida Department of Education, 1999). In addition, Collier County required 30 credits for a high school diploma. During the 2003 legislative session, however, revisions to these requirements were made including a reduction in the number of credits required and alternative methods of assessment for exceptional education students (Florida Department of Education, 2003).

In the state of Florida, a special diploma is awarded to any student who meets all special requirements of the district school board for certain special programs but is unable to meet the appropriate state minimum requirements for a standard diploma. The Florida Department of Education includes students served under the category of *language impaired* as eligible to graduate with a special diploma.

Socioeconomic Implications

Nationally, approximately 11% of young adults between the ages of 16 and 24 are without high school diplomas (National Center for Education Statistics, 1999). Dropout rates are higher for minorities and youth living in poverty. Students residing in poverty have been documented as being at risk for dropout, drug abuse, and involvement in gangs or criminal activity (National Center for Education Statistics, 1999; Powell-Cope & Eggert, 1994).

As the complexity of our national and global economies increases, the opportunities for students without at least a high school diploma are becoming sparse (Lanford & Cary, 2000). The difficulty for youth without at least a high school diploma in obtaining employment suggests a perpetuation of life in poverty. According to the National Center for Education Statistics (2002) persons with lower levels of education were more likely to be unemployed than those who had higher levels of education. About 64 % of 2000-2001 dropouts were employed while 36% percent of dropouts were unemployed. Among high school graduates who were not pursuing higher education, 81% were employed, with approximately 20% unemployed for the

same time period. Among those employed, an annual salary difference of \$10, 000 for males and \$5000 for females was noted between persons 25 years of age and older with high school diplomas and individuals of the same age without high school diplomas. Those without diplomas had lower incomes.

National and state reform efforts and legislation such as the Individuals with Disabilities Education Act of 1997 (IDEA) have increased the legal and ethical responsibilities of educators. Both special and regular education teachers are obligated to prepare students with disabilities for graduation and post-school outcomes including postsecondary education, vocational training, or the potential to be employed (Bakken & Kortering, 1999; Lanford & Cary, 2000).

School Attendance and Academic Success

A review of the literature suggests a detrimental academic impact for high school students with poor or inconsistent attendance. Absenteeism impacts a student's school performance, self-esteem and increases the risk of school dropout (DeKalb, 1999). A study involving student performance on the California High School Exit Exam concluded that a decrease in school attendance was significantly related to the number of sections passed on the exam (Garcia & Calhoun, 2002). In addition, a positive correlation has been suggested between number of days in attendance and grade point average, for high school students (Strickland, 1998).

With regard to students with learning disabilities, significantly lower grade point averages have been evidenced as compared to nondisabled peers, even though rates of absenteeism were similar. High rates of absenteeism appear to place students with disabilities at a greater risk for

decreased academic performance. (Heberling & Shaffer, 1995). Students with histories of SLI are likely to experience a similar risk, given the nature of their learning challenges.

A Need for Functional Outcome Measures

In 1975, Congress passed the Education for All Handicapped Children Education Act (P.L. 94-142). This groundbreaking legislation has undergone several revisions, the most current being the Individual with Disabilities Education Act (IDEA) Amendments of 1997 with current reauthorization now before Congress. This landmark law called for the free and appropriate public education of all children with disabilities and included as one of its goals that the effectiveness of these efforts be assessed and reported to the taxpaying public (Office of Special Education and Rehabilitative Services, 2001). Federal educational laws and policies have resulted in an increased focus on generating outcome data in the schools.

When examining program outcomes, the impacts, benefits, and changes to program participants should be considered (McNamara, 1999). The Florida Department of Education defines *educational benefit* as “the extent to which children benefit from their educational experience. Progression through and completion of school are dimensions of educational benefit as are post-school outcomes and indicators of consumer satisfaction”(Division of Public Schools and Community Education Bureau of Instructional Support and Community Services, 2002, p. 1).

Given the prevalence of students with specific language impairment along with documentation of the educational and social impacts of the disorder, the need to examine long-

term outcomes for these students has emerged. For at least the last decade, the American Speech-Language-Hearing Association (ASHA) has advocated for functional outcome measures for school-based speech-language therapy services in order to comply with legislation such as the Individual with Disabilities Education Act (IDEA) and to illustrate the effectiveness and value of speech-language pathology services provided to students with communication disorders (American Speech-Language Hearing Association, 1998). Jeri Logemann (1998), fellow of the American Speech-Language Hearing Association (ASHA) and past president expressed the need for such outcome measures and advocated for continued research regarding the long-term educational and ultimate vocational impact of childhood language impairment in order to measure “both the short-term and long-term impact of our interventions in the schools” (p. 243). ASHA has begun to collect and analyze data on functional outcomes for students in grades kindergarten through six, through the National Outcomes Measurement System (NOMS) but has not yet initiated formal data collection regarding outcomes for secondary students (American Speech-Language Hearing Association, 1998).

Summary

In this chapter, the handicapping condition of specific language impairment was explained followed by a brief discussion of the therapy services offered to public school students demonstrating specific language impairment. A variety of factors that may influence whether a student will successfully complete high school or dropout were presented. Among these are socioeconomic background and school attendance. In general, students with disabilities have

been judged to be at greater risk for dropout than their nondisabled peers. Students with specific language impairment represent a unique group of students confronting various challenges in obtaining a high school diploma. Limited research has been published or otherwise presented to date on the long term academic outcomes of students with histories of specific language impairment. It is the legal and ethical responsibility of educators to ensure that students with handicapping conditions are able to successfully transition from high school to adult life. Additional information is needed regarding students with specific language impairment and their abilities to successfully complete high school so that their academic, social, and vocational needs may be appropriately addressed.

CHAPTER III METHODOLOGY

Research Design

This study will be implemented following a causal-comparative research design. Pair-wise matching of participants will be used to limit the influence of extraneous variables including gender, ethnicity, and school attended.

Subjects

For the purpose of this study, a student previously meeting eligibility criteria, who was served in the Exceptional Student Education program under the category of *language impaired* and who had no other documented co-existing handicapping condition such as learning disability, hearing impairment, or mental retardation was used to define *student with history of language impairment*. The eligibility criteria cited in *Special Programs and Procedures for Students with Disabilities*, compiled by the District School Board of Collier County, Florida (1999) were utilized.

The data utilized in this study were collected from the total enrollment of students in 12th grade for the academic years 1998-1999, 1999-2000, 2000-2001, 2001-2002 and 2002-2003 at public high schools in the School District of Collier County (CCPS) using the school system's electronic databases (*TERMS* and *Data Warehouse*). Students with histories of specific language impairment were then identified and categorized as active or dismissed from programming.

According to school district procedure, to meet dismissal criteria, a student must have: (a) achieved all Individualized Education Plan (I.E.P.) goals and objectives, (b) achieved a standard score of less than 1.5 standard deviations below the norm, based on chronological age, on a standardized, global test of language development, or (c) have been judged clinically to have obtained maximum level of improvement. (District School Board of Collier County, 1999)

Once the total number of subjects with histories of specific language impairment was gathered and analyzed for demographic information, a pair-wise matching approach was used to match nondisabled peers to the students with histories of specific language impairment according to the following criteria: (a) year entered into 12th grade, (b) school, (c) ethnicity, (d) gender, and (e) socioeconomic status. Socioeconomic status was defined as qualifying/not qualifying for the federal free and reduced school lunch program. *Nondisabled peers* were defined as students having been at no time in their educational careers identified as eligible for Exceptional Student Education services (specialized education for students with disabilities) nor identified as non-English speaking or limited English proficient. Among the total number of students with histories of SLI, four were eliminated from the study, as no matching peers were available within their schools. The final research database contained 176 matched pairs of students.

The current student enrollment in Collier County public schools is approximately 40, 650. As reported on the district website, the demographics for all students in Collier County public schools during the 2002-2003 school year are represented in Table 4. (District School Board of Collier County, 2003a).

Table 4

Collier County Students: Demographic Information

Descriptor	Percentage of all students
Economically needy	47.4%
Male	51.4%
Female	48.6%
Caucasian	49.0%
Hispanic	37.0%
Black (African American)/	12.0%
Haitian	
Other ethnicity	2.0%

Although the Florida Legislature recently revised graduation requirements, including those for students with disabilities, (Florida Department of Education, 2003b) the requirements, which utilized the following criteria, would have been those in effect for the subjects seeking standard diplomas included in this study:

- (a) a passing scoring on the Florida Comprehensive Assessment Test (FCAT),
- (b) completion of high school algebra,

- (c) a grade point average of 2.0 on a scale of 4.0, and
- (d) completion of at least 24 credits (Collier County has required completion of 30 credits) in approved coursework (Florida Department of Education, 1999).

Procedures

Instruments

School district data were analyzed using the *Statistical Package for the Social Sciences: Graduate Pack 11.0 for Windows* (SPSS, Inc. 2001) having been gathered from existing databases of all Collier County public school students. School district data were housed electronically in the *TERMS* and *Data Warehouse* databases.

Data Collection

Having received permission from the directors of Exceptional Student Education, the Office of Evaluation and Research, and the Office of Accountability and Staff and School Renewal, student data were obtained using FTE (full-time equivalency funding) reports for the years 1998-1999, 1999-2000, 2000-2001, 2001-2002, and 2002-2003 as reflected in the district's electronic databases. All 12th grade high school students with histories of language impairment were initially entered into a research database using a random case number assignment, at the end of the 2002-2003 academic year. Students manifesting any co-existing disability such as mental retardation, hearing impairment, or learning disability were excluded from this study. The

research database was assembled using the *Statistical Package for the Social Sciences: Graduate Pack 11.0 for Windows* (SPSS, Inc., 2001).

Exceptional Student Education (ESE) archival files and speech-language therapy schedules were accessed in cases of missing or conflicting data. The level of high school completion of each student was entered into the database according to the academic year for which the data were reported. To prevent student data from being inaccurately counted or analyzed as multiple cases, each student was entered into the database only once, according to the year that student entered 12th grade. Additional descriptors were then added for each case according to the following possible school outcomes:

- (a) Graduated with standard diploma
- (b) Graduated with special diploma
- (c) Left school voluntarily (dropped out)
- (d) Continues to be enrolled in high school (includes alternative settings)
- (e) GED (General Education Development Test)
- (f) Other incompleteness (e.g. deceased, moved out of district)

The following variables were also coded and entered accordingly: (a) ethnicity, (b) gender, (c) free/reduced lunch eligibility, (d) attendance record (rated as excellent, good, fair, or poor), (e) service delivery model (classified as weekly session, daily class, or consultative) and, (f) number of years enrolled in the language impaired program. Service delivery model was determined according to the last or most recent model of therapy received by the student.

For all students in the research database the following ranges were used to code attendance based on review of the student's last semester in attendance: excellent = 0 absences; good = 1-2 absences; fair = 3-4 absences; and poor = 5 or more absences. These values were determined using the district attendance policy as a guideline. Five or more unexcused absences in a semester will result in credit denial if the student also fails the midterm or final exam for the course (District School Board of Collier County, 2003b).

Utilizing the *Data Warehouse* and *TERMS* databases, matching nondisabled peers were then randomly identified by case numbers and assigned to the research database, based on several criteria. Students were to match language impaired peers according to (a) ethnicity, (b) gender, (c) free/reduced lunch eligibility, and (d) school attended. A match of high school attended was determined if the students attended the same high school for at least the last academic year.

Information was then coded and entered for each of the non-disabled peers according to the following possible school outcomes:

- (a) Graduated with standard diploma
- (b) Left school voluntarily (dropped out)
- (c) Continues to be enrolled in high school (includes alternative settings)
- (d) GED (General Education Development Test)
- (e) Other incompleteness (e.g. deceased, moved out of district)

There is no special diploma option available for students who are not enrolled in Exceptional Student Education Programs.

Variables

Subject descriptor variables included: (a) ethnicity, (b) gender, (c) school attended, (d) free/reduced lunch eligibility, and (e) attendance, and (f) graduation status. For students with histories of language impairment, the following variables were also entered: (a) therapy status (active/dismissed), (b) service delivery model (weekly session, daily class, or consultation) and (c) number of years enrolled in the language impaired program. For nondisabled peers, these variable fields were coded to reflect that the student never received Exceptional Student Education services.

Data Analysis

Data were entered into a research database utilizing the *Statistical Package for the Social Sciences: Graduate Pack 11.0 for Windows* (SPSS, 2001) for the purpose of analysis. Data were coded and sorted to analyze the characteristics of students with specific language impairment and nondisabled peers in relation to the study questions. Significance for all statistical measures was determined at the .05 level.

The Chi-square goodness of fit test was used to identify differences in expected graduation rate and actual graduation rate for students with histories of specific language impairment based on state and district graduation and dropout rates published by the Florida Department of Education (2003a).

The Chi-square test of independence was used to determine the difference in graduation rates for students in the study who had never received therapy (nondisabled peers), students who

continued to receive therapy in grade 12 (active), and students who had been dismissed from therapy prior to grade 12 (inactive). The relationships between attendance and graduation status, as well as free/reduced lunch status and graduation status, were also analyzed for all subjects. For students with histories of specific language impairment, the relationship between the number of years spent in therapy and graduation status was examined using the Spearman rank order coefficient. The relationship between service delivery model and graduation status was also analyzed, for students with histories of specific language impairment, using the Chi-square test of independence.

CHAPTER IV ANALYSIS OF DATA

Results as Related to Research Questions

A database was compiled consisting of data collected from the cases of students with histories of specific language impairment (SLI) and their matched, nondisabled peers. Among the students with histories of SLI, four were eliminated from the study, as no match was available among nondisabled peers. A final research database of 352 matched cases (176 pairs) was compiled for analysis. The cases represented students from eight high schools including two alternative school sites. Following the compiling of the research database, data were analyzed in response to the research questions of this study. Research data were analyzed using *Statistical Package for the Social Sciences: Graduate Pack 11.0 for Windows* (SPSS, 2001).

Question One

Do students with histories of (SLI) graduate at a rate that is significantly different from that of nondisabled peers? Two statistical methods were utilized to respond to this research question. First, a Chi-square goodness of fit test was used to identify differences in expected graduation rate and actual graduation rate for students with histories of SLI based on the district data for Collier County presented in *Graduation Rates by District* (Florida Department of Education, 2003a). A mean graduation rate value, for the academic years 1998-2003, of 65% was used as the expected rate. Expected rate for dropout was set at 3.5%. Retention rate (remaining in high school beyond the fourth year) was set at 31.5% based on the district profile and by subtracting

the sum of graduation rate and dropout rate from 100%. A significant difference was observed in the graduation, dropout, and retention rates for students in the study with histories of SLI as compared to the published district norms for all students in the School District of Collier County (Chi-square = 104.48, df 2, $p < .05$). Among the students with histories of SLI ($n = 176$), the observed number of students who received high school diplomas (regular, special, or GED) was 146 with an expected value of 114.4 (residual value = 31.6). Additionally, the observed number of students who dropped out or otherwise withdrew without completing school was 24 with an expected value of 6.2 (residual value = 17.8). For the same group, the actual number of students who continued in high school beyond the fourth year was 6 with an expected value of 55.4 (residual value = -49.4). This data is represented in tabular form in Table 5. Analysis of the data suggested that significantly more students with histories of SLI left school, however, a significantly higher than expected number also received some type of high school diploma (regular, special, or GED). Conversely, significantly fewer students with histories of SLI remained in school beyond the fourth year.

Table 5

Graduation Rates of Students with Histories of SLI as Compared to District Means

Graduation status	Observed	Expected	Residual
Earned a diploma ^a	146	114.4	31.6
Dropped out	24	6.2	17.8
Remained 5+ years	6	55.4	- 49.4

Note. Values represent numbers of cases.

^a Standard, special, or GED

The Chi-square test of independence was used as an additional measure to determine the difference in graduation rates for students in the study who had never received therapy (nondisabled peers, n = 176), students who continued to receive therapy in grade 12 (*active*, n = 59), and students who had been dismissed from therapy prior to grade 12 (*inactive*, n = 117). A significant difference in graduation rates, defined as “earned a diploma”, “withdrew from school”, and “remained in high school five or more years” was observed (Chi-square = 11.28, *df* 4, *p*.<.05). The cell that contributed most significantly to the observed difference (having a standardized residual with a value $\geq |2|$) was the rate of withdrawal from school for nondisabled peers. The actual count was 7 with an expected count of 15.5 and a standardized residual of -2.2.

These results suggested that significantly fewer nondisabled peers dropped out of school than did students with histories of SLI. These results are presented in percentage form in Tables 6-9.

Table 6

Graduation Rates of Students with Histories of SLI: Active and Inactive

Standard diploma ^a	Special diploma	Dropped out	Remained 5+ years
75.6%	7.4%	13.6%	3.4%

^aIncludes GED

Table 7

Graduation Rates of Students with Histories of SLI: Active in Therapy

Standard diploma ^a	Special diploma	Dropped out	Remained 5+ years
57.6%	22%	15.3%	5.1%

^aIncludes GED

Table 8

Graduation Rates of Students with Histories of SLI: Inactive in Therapy

Standard diploma ^a	Dropped out	Remained 5+ years
84.6%	12.8%	2.6%

^aIncludes GED

Table 9

Graduation Rates of Nondisabled Peers

Standard diploma ^a	Dropped out	Remained 5+ years
92 %	4 %	4 %

Question Two

If a difference in graduation rate is observed, is socioeconomic status also a contributing factor in high school graduation rate or type of diploma earned? The Chi-square test of independence was used to determine if a significant difference in graduation status (earned a

regular diploma, earned a special diploma, withdrew from school, continued beyond year four) was observed between students with histories of SLI ($n = 176$) eligible for free or reduced lunch and those who were ineligible. Results suggested no significant difference based on socioeconomic status for students with histories of SLI (Chi-square = 3.36, $df\ 3$, $p > .05$). An additional analysis of all students in the research base ($n = 352$) revealed no significant difference in graduation status (earned a diploma, withdrew from school, continued beyond year four) based on free or reduced lunch eligibility for students with histories of SLI as well as their nondisabled peers (Chi-square = 4.58, $df\ 3$, $p > .05$).

Question Three

If a difference in graduation rate is observed, is attendance rate also a contributing factor in high school graduation rate or type of diploma earned? The Chi-square test of independence was used to determine if a significant difference in graduation status (earned a regular diploma, earned a special diploma, withdrew from school, continued beyond year four) was observed among students whose attendance was rated as: “excellent” (no absences in a semester); good (one to two absences in a semester); fair (three to four absences in a semester); or poor (five or more absences in a semester). Results suggested no significant difference in graduation status among students with histories of SLI based on attendance rates ($n = 176$, Chi-square = 4.54, $df\ 6$, $p > .05$). Similarly, no significant difference was observed in graduation status (earned a diploma, withdrew from school, continued beyond year four) based on the attendance rates for all students ($n = 352$, Chi-square = 9.57, $df\ 6$, $p > .05$).

Question Four

For students with histories of specific language impairment, does service delivery model influence whether a student will receive a standard diploma, special diploma, remain in high school beyond four years, or dropout? The relationship between service delivery model and graduation status was analyzed using the Chi-square test of independence. A significant difference was noted among students who received various models of service delivery to address SLI in relation to their high school outcomes (Chi-square = 42.32, df 6, $p < .05$). These results should be interpreted with caution, however, as seven of the cells in the Chi-square analysis contained expected frequency counts below five. The Chi-square statistic (test of independence) compares observed frequencies to expected frequencies in determining whether a relationship exists between variables. Among the basic assumptions of the Chi-square statistic is that for $df \geq 2$, the expected frequency for each category is not less than five (Shavelson, 1998). For descriptive purposes, the percentage of students representing each category is presented in Table 10.

Table 10

Percentage of Students with Histories of SLI and Graduation Outcomes According to Service Delivery Model

	Standard diploma ^a	Special diploma	Withdrew	Remained 5+ years
Daily Services	41%	34%	17%	7%
Weekly Services	84%	2%	12%	2%
Monthly	71%	5%	19%	5%
Consultation				

Note. Values rounded to the nearest whole number.

^aIncludes GED.

A review of the percentages of students in each category suggested that while fewer students who received daily language therapy services as their most recent model of service delivery received fewer regular diplomas, a large number also received special diplomas (combined total = 75%).

To increase robustness of the Chi-square analysis, the variable representing graduation outcome as collapsed into two categories: *regular diploma* and *other outcome*. With no cells having expected frequencies below five, a significant relationship was noted between service delivery model and graduation outcome (Chi-square = 23, *df* 2, *p*<.01). The cells which contributed most significantly to this relationship (having standardized residual values $\geq |2|$)

were daily therapy students receiving regular diplomas (actual count = 12, expected count = 21.8, standardized residual = 12.1) along with daily therapy students obtaining other outcomes (actual count = 17, expected count = 7.2, standardized residual = 3.7). Analysis of the results suggested that fewer than expected students who received daily services received regular diplomas, having obtained other outcomes instead.

In addition, the relationship between model of service delivery and graduation status was examined using the Spearman rank order correlation. The Spearman rank order correlation was utilized to determine the magnitude and direction of a relationship between two variables using ordinal data (Shavelson, 1998). The variables representing *model of service delivery* and *graduation outcome* were recoded according to rank order. Model of service delivery was ranked on a continuum with *monthly consultation* ranked lowest (1), then weekly service (2) and finally, daily service (3). Graduation outcomes were then rank ordered as to most favorable: 4 = regular diploma, 3 = special diploma, 2 = remained in high school beyond year four, and 1=dropped out. Review of the results indicated a weak, positive relationship between model of service delivery and graduation outcome (Spearman rank order correlation coefficient = .194, r-squared = .038, $p < .05$). Only about 4% of the variance in graduation outcome, however was explained by model of service delivery.

Additional analysis was conducted using the Chi-square test of independence to determine if a significant difference was observable between students who continued to receive active therapy in 12th grade and those who had been previously dismissed from services with regard to graduation status. No significant difference was observed with graduation status having been

defined as “received a diploma”, “withdrew from school”, or “remained in high school beyond the fourth year” (Chi-square = 1.02, df 2, $p > .05$).

Question Five

For students with histories of specific language impairment, is there a relationship between duration of active therapy (in years) and whether a student will receive a standard diploma, a special diploma, or dropout? The relationship between the number of years spent in therapy and graduation status was examined using the Spearman rank order correlation. The Spearman rank order correlation was utilized to determine the magnitude and direction of a relationship between two variables using ordinal data (Shavelson, 1998). The various graduation outcomes were rank ordered as to most favorable: 4 = regular diploma, 3 = special diploma, 2 = remained in high school beyond year four, and 1 = dropped out.

Among the students with histories of SLI in this study, 33.5% continued to receive active services in 12th grade. The range of years spent in therapy was 1-13 years with a mean of 5.7 years. A weak, negative correlation was noted between the number of years a student received therapy and the type of graduation outcome achieved (Spearman rank order correlation coefficient = $-.271$, r -squared = $.073$, $p < .05$). As the number of years in therapy increased, the achievement of a standard diploma decreased. Only about 7.3% of the variance in graduation type for students with histories of SLI was explained, however, by number of years in language therapy.

CHAPTER V CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

Summary of Findings

The focus of the current study involved the educational outcomes for 12th grade students with histories of specific language impairment (SLI). Educational outcome was examined in terms of high school graduation, retention, or dropout. Results of the current study suggested that there was a significant difference between the graduation rates of students with SLI and what would be expected based on district norms. Additionally, when compared to peers within their own schools, and when matched according to ethnicity, gender, and socioeconomic status, the students with histories of SLI differed significantly from their peers. Analysis of the data suggested that significantly more students with histories of SLI left school, however, a significantly higher than expected number also received some type of high school diploma (regular, special, or GED). Conversely, significantly fewer students with histories of SLI remained in school beyond the fourth year. A relationship was also identified between model of service delivery and graduation status.

No significant relationship was noted between graduation status and socioeconomic status for students with histories of SLI or for all students combined. In addition, analysis of the relationship between attendance rate and graduation status among students with histories of SLI as well as among all students combined did not yield significant results.

Discussion

Graduation Rate

Among the findings of this study, was the suggestion that students with histories of SLI graduate at a rate that is significantly different from that expected from district norms. While sparse data have appeared in the literature, existing reports have indicated that students with histories of communication disorders are at greater risk for dropout or of obtaining a certificate of completion without a high school diploma (Horn, & Berkthold, 1999; Johnson, 2001; Office of Special Education Programs, 2002). The results of the current study support existing research which indicates that students with histories of SLI are at increased risk for dropping out of high school.

Analysis of the data in the current study suggested that a significantly larger number of students with histories of SLI left school (14%), however, a significantly higher than expected number (83%) also received some type of high school diploma (regular, special, or GED). Conversely, significantly fewer students with histories of SLI remained in school beyond the fourth year (3%). Interestingly, the actual and expected graduation rates for nondisabled peers in this study also differed significantly from published norms (92% earned diplomas compared to the district average of 65%). Part of this discrepancy may lie in the method in which statistics on dropout and graduation are reported by school districts to the state education department.

The Florida Department of Education has issued several technical assistance papers in an attempt to increase the accuracy and consistency of reporting dropout rates throughout the state (Education Information and Accountability Services, 2001, 2002, 2003). According to Florida

statute, “the term high school dropout rate means the annual percentage calculated by dividing the number of students in grades 9-12 who were classified as dropouts by the total number of students in grades 9 through 12 in attendance at any time during the school year” (Education Information and Accountability Services, 2003, p. 10). Of specific concern has been the tracking and reporting of students who were expected to attend school but did not enter as expected for unknown reasons (DNE), migrant students, and students who enrolled in GED or adult education programs without having achieved a high school diploma (Education Information and Accountability Services, 2001). The withdrawal code DNE is used by districts as a temporary attendance code until the whereabouts of a student can be established. After all means for determining the status of a student have not provided additional information, the code remains DNE. The attendance code DNE is only changed to a code representing withdrawal for unknown reasons after all avenues to determine the student’s status have been exhausted, and with approval of the school district. The DNE status is of particular concern when students voluntarily stop attending high school, but are counseled into entering a GED or adult vocational education program. The student may fail to initiate the program, but will not be recorded as dropping out if his whereabouts cannot be established. Similarly, migrant students may leave the state or the country but if their whereabouts cannot be established, they are recorded as DNE. Often, the gap between graduation rate and dropout rate reported by individual districts is attributable to DNEs as these are not reported to the state as *dropouts* (Education Information and Accountability Services, 2002). For example, Collier County’s four-year graduation rate for 2002-2003 was 67.6% with a dropout rate of 3.6% (Education Information and Accountability Services, 2003).

The difference in these two figures represents students who continued on beyond the fifth year of high school and those recorded as DNE.

As a second measure of graduation rate among students with histories of SLI, students were compared to peers within the same school and matched according to ethnicity, gender, and socioeconomic status. A significant difference in graduation rates, defined as *earned a diploma*, *withdrew from school*, and *remained in high school five or more years* was observed. The strongest contributing factor to the difference in outcomes was that significantly fewer nondisabled peers dropped out of school.

The variables of socioeconomic status, and attendance rate did not appear to be significantly related to graduation outcomes for the students in the present study. A trend in the gross data, however suggested that students with poor attendance during the school year were often likely to enroll in summer school. Summer school is usually an option for high school students who have been denied credit during the regular school year. For the purpose of this study, attendance in summer school was not counted as additional time spent to complete high school, unless the summer session exceeded the second semester of the 12th grade year.

Model of Service Delivery

A review of the literature has suggested that SLI may be a disability that manifests itself well into adolescence and early adulthood (Aram, Ekelman, & Nation, 1984; Conti-Ramsden & Botting, 1999; Johnson, et. al., 1999; Stothard, Snowling, Bishop, Chipchase, & Kaplan, 1998).

It has also been suggested in the literature, that older students with communication disorders are less likely to receive services than younger students (Larson & McKinley, 1995, 2003). Federal educational law requires that a full continuum of services be available to meet a student's educational needs. *Full continuum* refers to the various models and frequencies of service delivery (American Speech-Language-Hearing Association, 2000).

Among the students in the present study, 75% of students who received daily language services as their most recent form of language therapy, obtained a high school diploma, either standard or special option and an additional 7% remained enrolled in school, working toward a diploma. Although data on initial severity of SLI was not available for individual students, the students requiring daily services may have presented greater academic challenges than those receiving other service delivery models. The I.E.P. teams may have recommended daily services in cases in which students faced greater challenges. Assuming that the students in the daily service delivery category presented more challenges than other students, a 75% diploma rate suggests that daily service delivery should be an available option in high schools for students needing an intensive level of support. These students may have had a higher incidence of dropout if the daily support had not been available. Additional qualitative research may provide information on the experiences of students in daily language therapy classes in relation to their completing or not completing high school.

Number of Years Services Were Received

Among the students with histories of SLI in this study, 33.5% continued to receive active services in 12th grade. The range of years spent in therapy was 1-13 years with a mean of 5.7 years. A weak negative relationship was noted between number of years spent in therapy and the achievement of a standard diploma. Additional factors such as initial severity level of the SLI and the components of language that were impacted (i.e. written language, auditory memory, vocabulary, auditory comprehension, etc.) were not retrievable from the data made available to the examiner. It may be hypothesized that initial severity level and number of years spent in therapy are related. The increase in research, based on functional outcomes, such as the American Speech-Language Hearing Association's National Outcomes Measurement System (NOMS) may assist in explaining this relationship (American Speech-Language Hearing Association, 1998).

A frequency analysis of the data suggested that more recent school years revealed higher numbers of students identified as either active or inactive in language therapy programming than did earlier years. This information is reflected in Table A11. While steady growth has occurred within the district for all high schools, it also appeared that the number of students being identified with SLI has also increased. This may have resulted from either increased awareness of the phenomenon of SLI among educational staff, or from more students presenting SLI residing in the district, or a combined factor. This trend should be followed in order to plan for appropriate service delivery to students exhibiting SLI.

Clinical Implications

The results of the current study suggest that students with histories of SLI are less likely than their nondisabled peers to obtain a standard high school diploma within four years. While only 58% of students with histories of SLI were able to obtain a standard diploma or GED, an additional 22% were able to obtain special option diplomas, yielding a combined graduation rate of 80%. This data may be useful in developing advising strategies for the students with histories of SLI who contemplate dropping out of school. Speech-language pathologists should work with educational teams to identify risk factors that may indicate that students still active in therapy during their high school years may be experiencing difficulty in obtaining a standard diploma. Sample rating scales, useful for choosing between diploma options, are available from the Florida Department of Education (1999). These rating scales address such student risk factors as discipline problems, resistance to attending school, and discussion of dropping out.

For students who demonstrate multiple risk factors, the special diploma option should be presented to them. Beginning with the year that a student turns 14 years of age, the I.E.P team must discuss diploma options with the student and parent or guardian (Florida Department of Education, 1999). A diploma option is selected beginning in 8th grade and is reviewed annually until the student no longer attends a public K-12 school. When a student reaches the age of 18, he may make choices regarding his education, including diploma option, independently of his parent or guardian. The I.E.P. team should make every attempt in assisting the student in selecting the appropriate diploma option, realizing that for some students with SLI, a special diploma option may prevent the student from dropping out.

The results of the current study suggested that nearly 16% of students, still receiving therapy for SLI in grade 12, withdrew from school while only 5% remained beyond the fourth year. While retention beyond year four does not greatly differ from that of nondisabled peers (4%), the dropout rate is of concern. In addition to counseling regarding the special option diploma, students may also be encouraged to continue into the fifth year instead of dropping out their senior year. In addition, as alternate forms of credit completion develop, students should be made aware of these options, particularly if alternate forms of credit completion match a student's strength (i.e. utilizing the visual modality over auditory). One such example is the Florida Virtual School, a statewide, internet-based public school offering online high school courses (Florida Virtual School, 2001).

Beginning with the 2003-2004 academic year, students who are actively enrolled in Exceptional Student Education programs, including students receiving services under the category *language impaired*, may demonstrate academic skills and proficiencies, as a requirement for graduation, through alternate forms of assessment. This option became available in April 2003, when *HB1739: Relating to Access to Postsecondary Education*, was signed into law (Florida Legislature, 2003). The I.E.P. team may determine that the Florida Comprehensive Assessment Test (FCAT) does not accurately measure a student's abilities. In addition, the student must have taken the FCAT at least once in tenth grade and once in eleventh grade with appropriate accommodations. A minimum number of high school credits must also have been obtained. This option should also be considered as part of the academic advisement process for students meeting the criteria.

In the analysis of graduation outcomes as related to therapy status (active, inactive/dismissed, nondisabled peer), a significant difference was noted among groups. The factor contributing greatest to the difference in outcomes was that significantly fewer nondisabled peers dropped out of school. While not a strong indicator statistically, a standardized residual of 1.5 was noted for students dismissed from therapy who withdrew from school. This translates to a dropout rate of nearly 13% for inactive students with histories of SLI as compared to 4% among students with no histories of SLI. In all, the results suggested that students dismissed from therapy are generally successful, achieving a graduation rate of nearly 85% after four years of high school. A 13% dropout rate warrants concern, however, for the monitoring of this population. These students, like their peers who continue to receive active services, should be monitored by the academic team for risk factors related to dropout or inability to complete diploma requirements. Unlike their peers who remain in therapy, these students do not have the options of a special diploma, standardized test modifications, or use of an alternate assessment. These students, however, may benefit from courses which offer instruction in study skills, learning styles, and/or test taking strategies offered either in or outside of school. On-line coursework may also be an option for some students. Cases of extreme concern should be brought before the educational team, and if appropriate, recommended for re-evaluation by the speech-language pathologist to determine if a language disability continues to impact academic performance. Referral to other professionals, such as psychologists, counselors, or physicians may be appropriate as well, depending on the at-risk behaviors demonstrated.

Recommendations for Future Research

Among the variables not considered in this study was initial severity level of the student. Using severity rating scales, additional research might include severity level in predicting the graduation outcomes for student with histories of SLI. In addition, as students with disabilities gain more options in working toward a diploma in the state of Florida, such as alternate assessment, or on-line coursework, additional information on how such options benefit students with SLI would assist in appropriate student advisement and counseling.

This study focused on 12th grade students with histories of SLI and their nondisabled peers over a five-year period within a medium-sized school district in Southwest Florida. It is recommended that this study be replicated in other Florida school districts as well as in other school districts within the United States, to determine if a trend in the data suggests implications for students with SLI with regard to graduation outcomes. In addition, a more in depth study would include data on students with histories of SLI who left school prior to entering 12th grade.

Additional information is needed regarding the state of service delivery to older students not only in Florida, but in other geographic regions as well. The number of students identified as *language impaired* has increased by approximately 1000 students annually in Florida for each of the last three school years (Bureau of Education Information and Accountability Services, 2001, 2002, 2003). At present, Collier County staffs each of its high schools with a full-time speech-language pathologist. Service delivery to older students, however, does not appear to be uniform across school districts. Additional research would compile information on the service delivery options available to older students within the state of Florida. Having obtained such information,

additional measures of functional outcome could be conducted for the various service delivery options across districts. Information on functional outcomes would assist in the planning of efficient speech-language programs including appropriate personnel allocation and adequate funding.

An additional area of study would be school-based speech-language pathologists' knowledge of and attitude toward the needs of the adolescent with SLI. Such information would assist school districts in assessing the need for professional development of speech-language pathologists with regard to this population. Likewise, qualitative research regarding the educational experiences of high school students with histories of SLI would assist professionals in appropriate program planning as well as lend insight as to how students' needs may best be meet.

Conclusion

Students with specific language impairment (SLI) represent a unique population. The term *specific language impairment* is often unfamiliar or unclear to educational professionals outside the field of speech-language pathology. The findings presented in this work have contributed to the limited research that has been previously presented in the literature regarding functional outcomes for students with SLI. As professionals, speech-language pathologists and educators are encouraged to advocate for the educational needs of students with SLI. In addition, students exhibiting SLI are encouraged to educate the professionals working with them on their unique

learning styles, and to advocate for their educational needs and the support necessary for successful transition to adult life.

APPENDIX A
DEMOGRAPHIC INFORMATION

Table A.11

Students with Histories of Specific Language Impairment (SLI) Per Each Academic Year

Academic year	Number of students (SLI)	Percentage of students in study
1998-1999	22	6.3%
1999-2000	60	17.0%
2000-2001	56	15.9%
2001-2002	102	29.0%
2002-2003	112	31.8%

Table A.12

Students with Histories of Specific Language Impairment (SLI) and Nondisabled Peers

Treatment history	Number of students	Percentage of students in study
Active in grade 12	59	16.8%
Dismissed from services	117	33.2%
Non-disabled peers (no treatment)	176	50.0%

Table A.13

Students in the Study Representing Various Ethnic Backgrounds

Ethnicity	Number of students	Percentage of students in study
Caucasian	134	38.1%
Hispanic	128	36.4%
African American or Haitian	90	25.6%

Table A.14

Students in the Study According to Socioeconomic Status (SES)

SES	Number of students	Percentage of students in study
Not eligible for free/reduced lunch	176	50%
Eligible for free/reduced lunch	176	50%
	61	

Table A.15

Students in the Study According to Gender

Gender	Number of students	Percentage of students in study
Female	174	49.4%
Male	178	50.6%

Table A.16

Schools Attended By Students in the Study

School code ^a	Number of students	Percentage of students in study
0051	6	1.7%
0151	72	20.5%
0261	86	24.4%
0271	94	26.7%
0311	28	8.0%
0392	56	15.9%
9008	6	1.7%
9017	4	1.1%

^aIndicates code assigned by District School Board of Collier County, Florida

APPENDIX B
IRB APPROVAL FORM



Office of Research

September 30, 2003

Amy J. Hadley
4666 Del Rio Lane
Bonita Springs, FL 34134

Dear Ms. Hadley:

With reference to your protocol entitled, "Rate of Graduation Among High School Students Exhibiting Specific Language Impairment," I am enclosing for your records the approved, executed document of the UCFIRB Form you had submitted to our office.

Please be advised that this approval is given for one year. Should there be any addendums or administrative changes to the already approved protocol, they must also be submitted to the Board. Changes should not be initiated until written IRB approval is received. Adverse events should be reported to the IRB as they occur. Further, should there be a need to extend this protocol, a renewal form must be submitted for approval at least one month prior to the anniversary date of the most recent approval and is the responsibility of the investigator (UCF).

Should you have any questions, please do not hesitate to call me at 823-2901.

Please accept our best wishes for the success of your endeavors.

Cordially,

A handwritten signature in cursive script, appearing to read 'Chris Grayson'.

Chris Grayson
Institutional Review Board (IRB)

Copies: Dr. Larry Holt
IRB File

**IRB COMMITTEE APPROVAL FORM
FOR UCF/OOR/IRB USE ONLY**


PI(s) Name: Amy J. Hadley

Title: Rate of Graduation Among High School Students Exhibiting Specific Language Impairment.

Check as applicable (optional):

-]Yes]No Have sufficient assurances been given to the committee to establish that the potential value of this research exceeds the risks involved?
-]Yes]No Written and oral presentations must be given to participating subjects (parents or guardians, if minors) informing them of the protocol, possible risks involved, the value of the research, and the right to withdraw at any time.
-]Yes]No A signed written consent must be obtained for each human subject participant.
-]Yes]No Are cooperating institutions involved? If yes, was there a sheet attached providing the name of the institutions, the number and status of participants, name of the involved official of the institution, telephone, and other pertinent information?

Committee Members:

- | | |
|--|----------------------------------|
| <input type="checkbox"/>] Contingent Approval
Dated: _____ | Dr. Theodore Angelopoulos: _____ |
| <input type="checkbox"/>] Final Approval
Dated: _____ | Ms. Sandra Browdy: _____ |
| | Dr. Jacqui Byers: _____ |
| | Dr. Ratna Chakrabarti: _____ |
| | Dr. Karen Dennis: _____ |
| | Dr. Barbara Fritzsche: _____ |
| | Dr. Robert Kennedy: _____ |
| | Dr. Gene Lee: _____ |
| | Ms. Gail McKinney: _____ |
| | Dr. Debra Reinhart: _____ |
| | Dr. Valerie Sims: _____ |
| | Dr. Bob Spina: _____ |
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- | | |
|--|---|
| <input checked="" type="checkbox"/>] Expedited
Dated: 18 August 2003 | Chair, IRB |
| <input type="checkbox"/>] Exempt
Dated: _____ | Signed: 
Dr. Sophia Dziegajewski |

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