Chapter One
INTRODUCTION

High school English and reading were my first teaching assignments. During my third year of teaching, students identified with a disability were included in my general English class. I realized the discrepancy between the number of dropouts from special education versus general education. During my informal observation of the annual dropout rate from three Virginia high schools I noticed that the majority of drop outs were identified with a disability. During subsequent observations of a dropout prevention project I noted the same phenomenon. The seeds for this study were planted during those years.

Children with disabilities are for the most part well served and are guaranteed the right to a free appropriate public education by law. Before implementation of the law approximately one million children with disabilities were denied an education. However the report that accompanied The Individuals with Disabilities Act (IDEA) bill to the 105th Congress (1997) pointed out that despite the progress, the promise of the law was not fulfilled. Almost twice as many youths with disabilities drop out compared to students without disabilities. The U.S. Bureau of the Census (1995) reported the cohort dropout rate to be 13.3 percent for general education. Whereas the 19th Report for the 1994-95 school year implied the cohort dropout rate to be 28 percent for students identified with a disability (1997).

This introduction provides researchers and education policy makers with a description of the types of dropout rates, a survey of national dropout rates and a summary and discussion of recent reform efforts that appear to affect dropout rates. A survey of the related literature on dropouts is contained in Chapter Two, followed by the research methodology in Chapter Three. Chapter Three contains a description of analyses; sections detailing participants; instrumentation and sampling procedures; and measures; are also located in Chapter Three. The major findings are found in Chapter Four. Chapter Five contains a brief synopsis and implications of the findings and recommendations for school districts as well as future research recommendations.

Types of Dropout Rates

The literature on dropout rates tends to measure the rates according to three general types. The U.S. Department of Educational Research and Improvement (1996) identified the three types of dropout rates as:

(a) **status dropout rate** -- represents the proportion who are not enrolled in a school and have not completed school,
(b) **event dropout rate** -- applies to a group of students who leave school without completion in a single year, in other words the annual rate.
(c) **cohort rate** -- measures what happens to a single group of students over time.

National Drop Out Rates

Although the number of dropouts in general education is high, students with disabilities exit secondary education before graduation, program completion, or reaching the maximum age at an even higher rate than their nondisabled peers, according to the national cohort dropout rate.

Special Education Rates

The Primary source of information regarding youth with disabilities who drop out is The Annual Report to Congress on the Implementation of The Individuals with Disabilities Education Act, (U.S. Department of Education) which uses State-reported data required under section 618 (b) of the Individuals with Disabilities Act 105-17 (IDEA). The 12th-16th Annual Reports revealed that the cohort dropout rate for students with disabilities age 14 and older ranged from 22.4 percent to 27.4 percent for the school years 1987-1992 (U.S. Department of Education, 1990-1994). National totals for dropouts could not be computed for the 17th report (1992-93 school year) because of an optional reporting format.

In 1996 The 18th Annual Report to Congress calculated the event (a group who leaves without completion in a single year) drop out rate at 5.1 percent. As a cohort the same group of students with disabilities had a predicted drop out rate of 26 percent, which is similar to previous cohort rates reported in the 12th - 16th reports to Congress. National totals could not be computed for the 1992-93 school year because of the optional reporting format that contained a changed category as well as the previous category.

According to The 18th Annual Report to Congress (1996), the annual or event dropout rate for students at each age can be combined to estimate a cohort dropout rate (the percentage of students who will drop out over their entire high school career). The report predicted, using current trends, approximately 26 percent of the 1993-94 cohort of students with disabilities will drop out of school.

In 1997 The 19th Annual Report to Congress did not calculate the dropout rate. Instead the report calculated the numbers of students ages 17-21 (based on the total number of students ages 17-21) who graduated in 1994-95 as 28.4 percent. This was slightly higher than the 1993-94 graduation rate of 27.9 percent. They also reported the graduation rate as 71.8 percent as calculated by dividing all exiters ages 17-21 by those graduating with a diploma or a certificate of completion. The 71.8 percent graduation rate implies that 28.2 percent the students with disabilities ages 17-21 dropped out.

The 12th-16th Annual Report revealed that the cohort dropout rate for students with disabilities age 14 and older ranged from 22.4 percent to 27.4 percent for the school years 1987-1992. The cohort rate for the school years 1993-1995 was 26 and 28* percent respectively (U.S. Department Of Education, 1996 & 1997).
** The 1994-95 cohort rate did not include ages 14-16 as included previously (U.S. Department of Education, 1990-1994).*

General Education Rates

The primary source of national information about dropouts in general education is the National Center for Education Statistics (NCES) of the U.S. Department of Education. The National Center for Education Statistics: The Condition of Education 1996 reported an increase in the event drop out rate in general education (4.1 percent to 5.3 percent) since 1987. The rate was calculated on grades 10-12. The annual rates were as follows:

1987	4.1
1988	4.8
1989	4.5
1990	4.0
1991	4.0
1992	4.4
1993	4.5
1994	5.3

(U.S. Department of Education National Center for Education Statistics, 1996).

The National Center for Education Statistics categorized persons not enrolled in school who had not graduated from high school or received a General Equivalency Diploma (G.E.D.) as status dropouts. The status drop out rate among 16 to 24-years-old in general education has declined over the past 20 years according to the 1996 Pocket Report for the National Center for Education Statistics. The status drop out rate for

students from all racial groups combined in 1995 was 12 percent. However the drop out rate for Hispanic youth was 30 percent, compared to 12 percent for African American youth, and nine percent for Caucasian youth (Geddes, 1997).

Status dropout rates among 16-24 years old were as follows:

1987	12.7
1988	12.9
1989	12.6
1990	12.1
1991	12.5
*1992	11.0
*1993	11.0
*1994	10.5
*1995	12.0

* *Wording of the questionnaire was changed*

An annual or event dropout rate of five percent for students in grades 10-12 and a cohort dropout rate of 13.3 percent for youth ages 14-24 was reported by the Bureau of the Census (U.S. Department of Education, 1996).

Comparison of General and Special Education Dropout Rates

The most recent national event dropout rates from general education range from 5.3 percent in 1994 (U.S. Department of Education National Center for Education Statistics, 1996) to five percent from the U.S. Bureau of the Census (1995) as reported by the (U.S. Department of Education, 1996). For students with disabilities the cohort dropout rates ranged from 22.4 percent for the 1991-92 school year with an estimated 28 percent 1994-95 cohort rate (U.S. Department of Education, 1997). The U.S. Bureau of the Census (1995) which reported an annual event dropout rate of five percent for students in grades 10-12 was approximately the same event rate (5.1 percent) reported by The U.S. Department of Education (1996) for students with disabilities. However there was a discrepancy between the Census Bureau cohort dropout rate of 13.3 percent for youth ages 14-24 in general education and the 19th Report's implied cohort rate of 28 percent for students with disabilities. The data suggests that almost twice as many youth with disabilities drop out than youth from general education.

Overview of Reform Efforts

A review of reform efforts found educational reforms which appeared to affect dropouts. The reform efforts: Excellence in Education (U.S. Department of Education,

1983); America 2000: Educate America Act, 1994 (Pub. L. No, 103-227); School-to-work Opportunities Act (103rd Congress, 1994); Vocational Act of 1963 (Pub. L. No. 88-210) subsequently known as Carl D. Perkins Vocational Education and Applied Technology Act of 1990. (Pub. L. No. 101-392); The Education for All Handicapped Children Act of 1975 (Pub. L. No. 105-17) subsequently known as the Individuals with Disabilities Act (105-17) and The Rehabilitation Act of 1973 (Pub. L. No. 93-112) seem to affect drop out rates.

Excellence in Education

Since the 1983 report, The National Commission on Excellence in Education, A Nation at Risk: The Imperative for Education Reform, the nationwide focus has been centered on educational reform. This report described "excellence" as an increase in academic requirements. During the last two decades, we have witnessed an overabundance of proposals to restructure education. The main goal of these proposals has been to increase U.S. economic competitiveness.

The National Commission on Excellence in Education, A Nation at Risk: The Imperative for Education Reform, (1983) cited the poor performance of American students on International Assessments in Science and Math. Declining average scores on national achievement assessments and the limited amounts of math and science instruction received by students were areas targeted for reform. The commission recommended that three mathematics and three science courses be required for graduation from a secondary school.

America 2000: An Education Strategy

America 2000: Educate America Act (Pub. L. No. 103-227) was conceived at the Education Reform summit of 1989 and adopted by the governors to reduce the drop out rate.

According to America 2000, by the year 2000, the high school graduation rate will increase to at least 90% (Tally & Short, 1995). In addition "By the year 2000... every school in America will ensure that all students be prepared for ... further learning and productive employment in our modern economy". The Educate America Act (1994) also stresses the importance of productive employment. "By the year 2000... every adult... will possess the knowledge and skills necessary to compete in a global economy...."

School-to-Work Opportunities Act of 1994

The School-to-Work Opportunities Act of 1994 (STWOA) recommended an individual career plan for each student to prepare them for the acquisition of knowledge and skills necessary to compete in the global economy. (STWOA) emphasizes the importance of all students having a career plan (based on individual career interests) by at least 11th grade.

Vocational Education Act

Prior to the vocational act, public school vocational programs for occupational training were not available for the majority of students with disabilities. The education of students with disabilities in national vocational education programs began with the passage of the Vocational Education Act of 1963, Pub. L. No. 88-210 (signed by Lyndon B. Johnson on December 18, 1963). This bill, HR 4955, was introduced in the House of Representatives by Carl D. Perkins of Kentucky. The tragic death of President Kennedy, on November 22, 1963, came in the midst of the House of Representatives' conference proceedings regarding the act. Vocational education lost one of its strong supporters. President Kennedy requested a national study, followed the project into the legislative phase and stressed its significance to Congress.

The 1990 Carl D. Perkins Vocational and Applied Technology Act (Pub. L. No. 101-392) allocated 20 percent of the funding to students with disabilities. The new legislation included "recognition that 50 percent of high school graduates do not go on to postsecondary education." These graduates must be job-ready upon graduation and retrainable in the future. Improving American competitiveness by increasing the academic as well as occupational skills of its' workforce was the principal intent of the Perkins Act.

> *It is the purpose of this Act to make the United States more competitive in the world economy by developing more fully the academic and occupational skills of all segments of the population. This purpose will principally be achieved through concentrating resources on improving educational programs leading to academic and occupational skill competencies needed to work in a technologically advanced society (Carl D. Perkins Vocational Education and Applied Technology Act of 1990, Pub. L. N. 101-392).*

The Education for All Handicapped Children Act of 1975 and The Rehabilitation Act of 1973.

Further support for vocational education occurred with the passage of Pub. L. No. 94-142, the Education for All Handicapped Children Act of 1975; and Pub. L. No. 93-112, The Rehabilitation Act of 1973.

The Individuals with Disabilities Education Act (IDEA) Pub. L. No. 105-17, grounded in Pub. L. No. 94-142 was reauthorized on June 4, 1997, to include this change: "special attention must be given in the IEP to the student's success in general education and opportunities for participation in general education programs." IDEA Pub. L. No. 105-17 614 (d). In addition, IDEA mandated transition services.

> ***Transition services*** *means a coordinated set of activities for a student with a disability that:*
>
> *(A) is designed within an outcome-oriented process, which promotes movement from school to post-school activities, including post-secondary education, vocational training, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation;*
>
> *(B) is based upon the individual student's needs, taking into account the student's preferences and interests; and*
>
> *(C) includes instruction, related services, community experiences, the development of employment, and other post-school adult living objectives, and, when appropriate, acquisition of daily living skills and functional vocational evaluation* (IDEA Pub. L. No. 105-17 614 d).

Discussion of Reform Efforts

School completion for students with high incidence disabilities diverges from that of other groups. First, school completion for students with high incidence disabilities is made more complex by the **implementation** of mandated transition services and second by the **need** for such services. Transition services include vocational education, in-school work experience, and academic support courses.

Madeline Will (1984) defined the federal initiative called transition. According to Will the transition from school to work encompassed a broad spectrum of services and

experiences that lead to employment. Transition legislation addressed basic student needs for workforce preparation. This legislation helps students who do not benefit from the out-dated liberal arts curriculum developed for the elite during the early 19th century.

In a review of the literature, The National Assessment of Vocational Education found that the vocational education students who earned at least two credits in an occupationally specific field found jobs related to their training and had higher earnings and less unemployment over time than those with a more general background (U.S. Department of Education, National Center of Education Statistics, 1994). However although vocational education was a part of the transition services mandated by the Individuals with Disabilities Education Act (Pub. L. No. 105-17, 1997). A vocational program was not always available for students with disabilities (Lombard, Hazelton, & Neubert, 1992; Repetto, Tulbert, & Schwartz, 1993).

The trends in course taking. Wagner (1991c) examined vocational course-taking by students with high incidence disabilities and found a discrepancy between the benefits of vocational education and the lower rate of student participation.

Between 1982 and 1992 the average number of credits earned by high school graduates increased from 21.4 to 23.8 credits according to Tuma and Burns' (1996) analysis of four transcript data sets: High School and Beyond (1982 graduates); National assessment of Educational Progress 1987 High School Transcript Study; National Assessment of Educational Progress 1990 High School Transcript Study; and National Educational Longitudinal Study of 1988. This increase in credits included almost all academic courses. Vocational credits earned by graduates declined. Furthermore, the rate at which students concentrated in a vocational field declined over time. The trends in course taking were consistent with the goals of the "excellence" reform effort. Students completed more academic course work in 1992 than in 1982. At the same time vocational course taking decreased substantially between 1982 and 1992 (Tuma & Burns, 1996; Houser, 1996). In addition, Baker and Washburn (1992) found from 296 surveys that most Illinois high school administrators indicated that increased state graduation requirements influenced declining vocational enrollments.

However, from 1980 to 1989 44 states increased the number of credits (Carnegie Units) required in math and 39 increased the number of credits required in science as Blank and Dalkilic (1992) and Thurlow (1995) reported. Increased academic requirements are a

barrier placed between the high school student and the receipt of their diploma (Downing & Harrison, 1990 & Halloran & Simon, 1995).

The mandate for transition services for students with disabilities is in contrast to the "excellence" reform movement to increase academic requirements for graduation. During the last two decades an overabundance of proposals to restructure education have surfaced. Proponents for the academic curriculum maintained that all students be afforded the opportunity to acquire a precollege education. However they had not addressed the benefits of vocational education. They claimed that all students benefit from a curriculum designed as preparation for college.

Toch (1991) traced the "excellence" in education movement through 17 different reports. He found that few national reports on "excellence" have focused on educational reform for students with disabilities. The natural consequence of an increase in academic credits is a decrease in availability of vocational courses, support courses, and work experience courses. However, students with high incidence disabilities on a regular diploma track may need transition services such as support courses, work experience during school and vocational programs. When educational reform over generalizes, the unique needs of the individual do not get acknowledged. The "one size fits all" approach does not meet the diverse needs of everyone. One size never fits all, although it does fit most.

Hoerner (1996) proposed the development of an educational system that impartially prepares all students for productive lives regardless of their career choice. When student needs are not met (for example the lack of job training) they are more likely to lose interest and drop out. According to findings from a sample of 30,000 10th grade students from general education (Eckstrom, Goertz, Pollack, & Rock 1986), dropouts are less likely to display an interest in school or satisfaction with the direction of their education.

Greenan and Retish (1991) argue that schools must: (a) provide full and equitable access to all programs, and (b) place an emphasis on the student's career development as well as (c) the needs of the job market. Furthermore, Lynn Martin (former Secretary of Labor) contended that schools must teach with work in mind. She called this "contextual learning" or learning in context. The most effective way of learning is in the real environment (Secretary's Commission on Achieving Skills, 1991).

Examination of recent reforms detected contradictions.

The "excellence" reform paradigm (U.S. Department of Education, 1983) called for an increase in academic requirements which automatically decreased the availability of vocational courses, support courses and work experience courses. Diametrically opposing this reform paradigm was: The paradigm for job ready graduates School-to-Work Opportunities Act (Pub. L. No. 103-227, 1994); The Vocational Education Act (1963); The Individuals with Disabilities Act (Pub. L. No. 105-17, 1997) and The Rehabilitation Act of 1973.

The two paradigms emphasized increasing academic requirements vs. the education of job ready graduates. However, there has been a lack of agreement about which reform technique was best. A lack of agreement or polarization occurred when the policy makers possessed strong vision, but remained unaware of the interconnecting pieces of the educational puzzle. The lack of agreement or polarization is attributed to what Peter Senge (1991) calls "creative tension".

Statement of Problem

One of the most critical problems facing special education is completion of high school for students identified with high incidence disabilities (learning disabilities, emotional disturbance and mental retardation). A large number of high school students identified with high incidence disabilities leave before graduation, program completion, or reaching the maximum age as shown by several studies (deBettencourt et al. 1989: Wagner, 1991b; Bartnick & Parkay, 1991; Kortering, Haring & Klockers, 1992; Marder & D'Amico, 1992). In fact, the cohort drop out rates of students with disabilities ranged from 22.4 percent to 28.2 percent as reported by the 12th-19th annual reports to Congress (U.S. Department of Education, 1990-97). The 18th Annual Report to Congress (1996) reported a 5.1 percent event drop out rate for the 1993-1994 school year, but estimated a cohort drop out rate of 26 percent.

Currently, individuals at the greatest risk of lifelong economic problems are those with disabilities who have left school early as shown by Blackorby, Edgar, and Kortering (1991). Several studies found that dropouts are economically dependent on society. This is supported by the findings located in Table 1.

Table 1:
The Economic Dependence on Society by Dropouts

Finding	Author
-Reduced economic output	-Coley, 1995; Wagner 1991b, 1991c & Stitlington & Frank, 1993
-Greater risk of unemployment	-U.S. Department of Education. National Center for Educational Statistics, 1996; Bearden, Spencer & Moracco, 1989; Blackorby et al. 1991 Wagner, 1991b, 1991c & Stitlington & Frank 1993
-Impaired access to the preferred or high skill occupations	-Wagner, 1991b, 1991c & Stitlington & Frank, 1993
-Loss of public revenue	-Wagner, 1991b, 1991c & Stitlington & Frank 1993
-More disability revenue paid to dropouts	-LaPlante, 1993

A vicious never-ending cycle of lifelong economic problems is created by the dropout according to Noddings (1996). She argues that the effects of dropping out are passed on to future generations.

In response to the economic problems resulting from high school dropouts, **all** educational reform efforts need to address and accommodate student diversity. The demand for increased academic requirements as opposed to the need for transition services is in direct conflict with the needs of many students and the needs of our society.

Purpose of the Study

The purpose of this study was to test a conceptual framework **personal**, **family**, and **curriculum** variables related to the outcome variable, drop outs with high incidence disabilities. The **personal** variables included: age, attendance, gender and ethnicity. The

family variables included: parent's economic level, parent's educational level and one vs. two-parent households. The **curriculum** variables included: academic, vocational, support, and work experience.

The review of research literature on dropouts in general and in special education assisted in the development of the conceptual framework. During the research process an improved understanding of the relationship of the variables' to drop outs among students with high incidence disabilities was gained.

A review of literature found the following recent reform efforts which affect drop outs. The "excellence" reform movement (U.S. Department of Education, 1983) called for an increase in academic requirements that automatically decreased vocational, support and work experience courses. Conversely, the School to Work Opportunities Act (1994); the Vocational Education Act (1963); and the Individuals with Disabilities Act (PL 105-17 June 4, 1997) emphasized the education of job ready graduates.

Research Questions

Among students identified with high incidence disabilities what was the relationship of the personal variables: age, attendance, gender, and ethnicity to dropout status ?

What were the relationships among the family variables: parent's economic level, parent's educational level and one vs. two-parent households of students identified with high incidence disabilities?

Among students identified with high incidence disabilities what was the percentage of curriculum variables: academic credits, vocational credits, support credits, and work experience credits to dropout status?

Data Base

The most comprehensive data base of information about youth with disabilities is The National Longitudinal Transition Study (NLTS). Mandated by Congress in 1983 to assist in making national policy, the sample for the study began with a 1987 survey (wave 1) of more than 8,000 youths from the national population of secondary special education students. The same group was surveyed again in 1990-91 (wave 2). Using the NLTS

(1990 Wave 2) data set, the present study supported and extended findings of the majority of the theories on drop outs with high incidence disabilities.

Limitations

Data base

The data which were collected in 1990 are dated, but no other longitudinal data base of comparable size exists for students with high incidence disabilities.

Subgroup definitions

Category definitions, assessment procedures, and guidelines for categorizing students vary between states and often between school districts. NLTS data can not be interpreted as generalizing to youth who had a particular disability but rather to youth who were categorized as having that disability by their school district (Javitz & Wagner, 1990). Furthermore the three subgroup definitions (learning disabilities, emotional disturbance and mental retardation) are broad and not broken down by severity, i.e. mental retardation as a broad definition includes mild/moderate mental retardation as well as severe mental retardation.

Measurement of credits

While many of the students were taking credits as commonly measured, some of the students with high incidence disabilities earned credits that may have been measured on a different scale than would be used for regular courses. A wide range of policies regarding course scheduling and credit policies are represented by the various districts (M. Wagner, personal communication, March 21, 1997).

Potential Bias

Potential bias associated with LEA nonparticipation. The participation rate in the main study was less than 50%. Comparison of nonparticipating LEAs with 1,600 LEAs from which they were sampled revealed no systematic differences across a wide range of variables. However, there is no assurance that nonparticipating LEAs did not differ systematically (Javitz & Wagner, 1990).

Potential bias associated with elimination of those youth who did not have consistent transcript data during their school career. Students identified with high incidence disabilities for whom consistent data were available have been systematically different from the population.

Potential bias associated with parent/guardian nonparticipation. From the 12,833 sampled youth, 6694 parent interviews were completed over the telephone instead of in-person. A substudy consisting of an in-person interview with 554 nonrespondents was conducted to determine the extent of nonresponse bias. This substudy showed no differences between the two populations (Javitz & Wagner, 1990).

Potential bias associated with inability to obtain school record abstracts and school program surveys. Students with and without abstracts appeared to differ primarily with respect to enrollment (it is easier to locate records of students who are currently enrolled) (Javitz & Wagner, 1990).

Potential bias associated with low frequency rates of variables. The ethnic variable contained only six percent Hispanic students identified with high incidence disabilities. LEA's with a higher incidence of Hispanic students would be systematically different than the current population.

Stratification. The NLTS data set was a stratified sample. The elimination step to create HIDS data set altered the original stratification of the sample.

Nonrespondents Students identified with high incidence disabilities for whom data were available could have been systematically different from the population, which included the nonrespondents (Javitz & Wagner, 1993).

Outcomes

The outcomes of this study are predicted to be:

-An increased understanding of how curriculum factors (academic credits, vocational credits, support credits, and work experience credits are related to drop out rates of students with high incidence disabilities.

-An increased understanding of how personal factors (age, attendance, gender, and ethnicity) are related to drop out rates among students with high incidence disabilities.

-An increased understanding of how family factors (economic status, parent's educational level and one vs. two-parent households) are related to drop out rates among students with high incidence disabilities.

Method

This study was designed to examine the relationship of **personal** variables: age, attendance, gender, and ethnicity; **family** variables: parents' economic level, parents' educational level and one vs. two-parent households and **curriculum** variables: academic courses, vocational courses, support courses and work experience courses to dropout status among students identified with a high incidence disability. The size of the correlation coefficient indicated the strength or weakness of the relationship between the variables.

Definitions of Terms

In order to better understand this study, the most commonly used terms are defined.

Dropouts - students with high incidence disabilities, defined by the NLTS data collection as those who did not earn a diploma or a certificate

Academic Credits - the number of Carnegie units required to receive various types of diplomas or certificates. Appendix B includes a list of credits included in this variable.

Vocational education - the use of regular or special education vocational classes to prepare students for the work force in home schools, vocational centers, or community colleges as part of the high school program. Appendix B includes a list of credits included in this variable.

Support credits- credits to support academic and/or vocational credits, i.e. special education for basic English or basic math and other academic instruction or resource courses. Appendix B includes a list of credits included in this variable.

Work Experience in School - includes programs that provide students part time work experience during school hours, i.e. cooperative education, and sheltered workshop. Appendix B includes a list of credits included in this variable.

Age - student's age in 1990 relative to grade

Attendance - average number of days youth was absent in a 2-semester year.

Ethnic Background - African-American (not Hispanic); White (not Hispanic);; and Other (American Indian or Alaskan Native - Asian or Pacific Islander)

Economic Level Of Household - the categories of the economic level of the head of the household are as follows:

under $12,000
$12,000 to $19,999
$20,000 to $24,999
$25,000 to $37,999
$38,000 to $50,000
over $50,000

High Incidence Disability - for the purpose of this study three of the four high incidence disabilities, as identified by The 19th Annual Report to Congress (1997) were included in the high incidence category. The three high incidence disabilities used were: learning disability (51.2 percent of the 13 disability categories); emotional disturbance (8.6 percent) and mental retardation (11.5 percent). Speech or language impairment, also a high incidence disability was not used for the current study of high incidence disabilities. Unlike the other high incidence disabilities students identified with a speech or language impairment can be "cured".

Summary

A large number of high school students with high incidence disabilities leave before graduation, program completion, or reaching the maximum age as shown by several studies (deBettencourt et al. 1989: Wagner, 1991b; Bartnick & Parkay, 1991; Kortering, Haring & Klockers, 1992; Marder & D'Amico, 1992). In fact the cohort of drop outs with disabilities ranged from 22.4 percent to 28.2 percent) when the national percentage of dropouts were compiled for The Annual Report to Congress (U.S. Department of Education, 1990-94, 1996).

Further analysis needs to be completed regarding the relationship of dropouts with high incidence disabilities to the variables: **personal** (age, attendance, gender, ethnicity); **family** (parents' economic level, parents' educational level and one vs. two-parent households); and **curriculum** (academic credits, vocational credits, support credits, and work experience). The Wave 2 data from the 1990 National Longitudinal Transition Study (NLTS) was used to compare the relationship of the factors and corresponding variables to the outcome variable (drop outs with high incidence disabilities).

Chapter II
REVIEW OF LITERATURE

Despite emphasis on equality, integration, and educational rights as guaranteed by legislation, one of the most critical problems facing special education today is the failure to achieve America's educational symbol of basic proficiency -- the high school diploma. This review was designed to provide researchers and educational policy makers with a brief outline of research findings related to the problem. Research findings were organized around a conceptual framework of the outcome variable (drop outs by students with high incidence disabilities) and **personal, family** and **curriculum** variables (Figure 2).

The significance of dropouts among students with disabilities was apparent when the national percentages of dropouts were compiled for The Annual Report to Congress (U.S. Department of Education, 1990-1994). However, The Annual Report to Congress (1996) calculated the event or annual dropout rate at 5.1 percent, but estimated a cohort (a group followed over a period of time) drop out rate of 26 percent.

Students with disabilities exited secondary education before graduation, program completion, or reaching the maximum age at a higher rate than their nondisabled peers (Bartnick & Parkay, 1991; deBettencourt et al. 1989: Kortering, Haring & Klockers, 1992; Marder & D'Amico, 1992; & Wagner, 1991b).

Drop Outs

General Education and Special Education

Investigations of dropout rates among students with disabilities as compared to students without disabilities were conducted by deBettencourt, Zigmond, and Thorton (1989), Kortering, Haring, and Klockars (1992) and Marder and D'Amico (1992). Univariate analyses and discriminant analyses were utilized by Kortering, Haring, and Klockars (1992). In their study of 213 students with disabilities and 100 students from the general population a high rate of students with learning disabilities were found to be status dropouts.

In addition, Marder and D'Amico (1992) examined cohorts from the National Longitudinal Survey of Youth (NLSY) and the National Longitudinal Transition Study (NLTS). In a comparison of transition outcomes Marder and D' Amico found that compared to non disabled individuals more students with disabilities drop out. Their descriptive analysis of 7,107 youth with disabilities aged 15-20 was drawn from the NLTS

data base and 11,000 youth for the general population was drawn from the National Longitudinal Survey of Youth (NLSY).

deBettencourt, Zigmond, and Thorton (1989) found event dropout rates were twice as high for students with learning disabilities as non disabled students when they conducted a descriptive study of 41 students with learning disabilities and 64 students from the general population. When comparing the data between the Census Bureau cohort dropout rate of 13.3 percent for youth ages 14-24 in general education and the 18th Report cohort rate of 26 percent for students with disabilities there was a discrepancy of 12.7 percent found between the cohort population. Thus reflecting that youth with disabilities drop out at a higher rate. Several other studies found that compared to non disabled youth, more students with disabilities dropped out (deBettencourt, Zigmond, & Thorton, 1989; Kortering, Haring, and Klockars, 1992 & Marder and D'Amico 1992).

Students with Disabilities

School exiting by students with disabilities, via avenues other than graduation is higher than dropout rates for general education as shown by Wagner (1991b), Bartnick and Parkay (1991), and the U.S. Department of Education for (1990-1994 & 1996-97). Wagner (1991b) reported in Youth with Disabilities: How are they doing? The First Comprehensive Report from the National Longitudinal Transition Study of Special Education Students that of a cohort of 8,000 students with disabilities that almost one-third of school exiters with disabilities dropped out of school (32%), a much higher drop out rate than for the general population. Bartnick and Parkay (1991) studied groups of gifted, mentally retarded, emotionally disturbed, and learning disabled students. They found in a multiple regression analysis of the dropout status of 8,800 10th grade students in the above mentioned groups, that learning disabled students were most likely to drop out.

The 12th-16th Annual Report to Congress revealed that the cohort dropout rate for students with disabilities age 14 and older ranged from 22.4 percent to 27.4 percent for the school years 1987-1992. The cohort rate for the school years 1993-1995 was 26 and 28 percent respectively. [The 1994-95 cohort rate did not include ages 14-16 as included previously (U.S. Department of Education, 1990-1994).]

Several studies indicate that the rates at which students with disabilities drop out of school are high (Bartnick and Parkay 1991; deBettencourt, Zigmond & Thorton, 1989;

Marder & D'Amico, 1992; Wagner, 1991b; & U.S. Department of Education, 1990-1994 & 1996-97).

Personal Variables

Age

Youth who have been retained in one or more grades are more likely to drop out than those who have not been retained. Repeating a grade was strongly correlated with dropping out according to Barro and Kolstad's (1987) study of 22,551 students. Roderick (1994) summarized trends in promotion policies to determined whether and how grade retention influenced graduation results in general education. Data was collected from graduates and dropouts in a cohort of 707 seventh graders from an urban school system in 1980-1981. Regression analysis found higher dropout rates of retained youth were 2.24 times higher than the nonretained youth.

Bearden, Spencer, and Moracco, (1989) found similar results from their survey of 400 dropouts. They found that 60 percent of the dropouts had been retained. However, almost one-fifth of drop outs were retained when NCES data was examined at the Educational Testing Service (ETS)(Coley, 1995). In addition, Butler-Nalin and Padillia (1989) found during their descriptive analysis of 8000 students with disabilities from the NLTS data base that the higher the age the greater the likelihood of dropping out. Wagner's (1991b) findings from the NLTS comprehensive analysis report of 1987 and 1989 found students ages 15 and 16 were less likely to dropout than those who were older.

Several studies indicate that students with and without disabilities are more likely to drop out due to increased age/grade retention (Barro & Kolstad, 1987; Bearden, Spencer, & Moracco, 1989; Butler-Nalin & Padillia, 1989; Coley, 1995; & Roderick, 1994).

Gender

When considering urban areas, two studies, one in New York City Public Schools and another involving Los Angeles, CA found males in general education were more likely to drop out than females. The first study conducted by The New York City Board of Education, (1994) tracked school completion in a cohort class of 63,130 New York City general education students who entered 9th grade in the fall of 1990 and were scheduled to graduate in June, 1994. More male than female dropouts were found. The second study by Joubert, Renfroe, and Weisbender (1986) involved a descriptive analysis of the 10,555 general education early exiters for 1983-84 in Los Angeles, CA. They found that twenty-

two percent more males than females were early exiters. This discrepancy between drop out and rates and gender is not restricted to large urban areas. In another study involving central America Sitlington and Frank (1993) in their investigation of a merged data set of two graduation classes in Iowa (1985 and 1986) found that males dropped out at a rate of 68 percent compared with a rate of 32 percent for females.

Furthermore, Sherman's (1987) observations of nine dropout prevention programs and a review of literature found that males drop out more often than females. Similar results were also found from a survey of 400 dropouts from general education by Bearden, Spencer, and Moracco (1989). In this study males were found to drop out at a rate of 63 percent. In addition Kolstad and Owings (1986) found that fifteen percent of males dropped out compared to thirteen percent of the females in their study of 1,951 to 2,528 cases from the High School and Beyond data, the cross-tabulations indicated that more males dropped out than females. Likewise Butler-Nalin and Padillia (1989) and Barber and McClellan (1987) found males drop out more often than females. However the NLTS comprehensive analysis report of 1987 and 1989 found no significant difference in the variation of dropout rates between males and females (Wagner, 1991b).

Males with or without disabilities are more likely to drop out than females as shown by numerous studies (Barber & McClellan, 1987; Bearden, Spencer, & Moracco, 1989; Butler-Nalin and Padillia, 1989; Joubert, Renfroe & Weisbender, 1986; Kolstad & Owings 1986; New York City Board of Education, 1994; Sherman 1987; & Sitlington & Frank, 1993). However Wagner (1991b) found that there was no difference between the dropout rates of males vs. females.

Attendance

The high absentee rate was most commonly cited reason for students dropping out according to a multivariate analysis of high school students in seventeen major districts (Barber & McClellan 1987). Similar results were found when Barrington and Hendricks (1989) compiled a list of characteristics thought to be predictive of high school non-completion in general education. Their study consisted of 32 nongraduates no longer in school and 24 nongraduates who were continuing to work on their diploma. Compared to 107 graduates, by 9th grade, dropouts could be predicted based on absences. Likewise, Eckstrom, Goertz, Pollock and Rock (1986) in a path analysis of 30,000 10th graders found that high absence rates related to dropping out.

In addition the effect of a dropout prevention program on school attendance and dropout rates on a random sample of 9th graders from six high schools was examined by Pearson and Banerji (1993). Data from the three years that the dropout prevention program was in place was compared to a sample of students in the year prior to the program. Significant positive results were found on school attendance and dropouts. Dropouts missed an average of 34 days per year and 38 percent had attendance problems according to the findings of Karpinski, Neubert and Graham (1992). Moreover using NCES data the researchers at the Policy Information Center of the Educational Testing Service (ETS) found at least one half of the dropouts missed 10 or more days (Coley, 1995).

Dropouts with disabilities also associated with absenteeism. Wagner (1991a) found in the study of school leaving (wave 1, NLTS) that absenteeism was a frequent precursor of early school leaving. Dropouts were absent an average of three weeks during the most recent school year. Wagner's 1989 study supported these findings as well. Furthermore Butler-Nalin and Padillia (1989) found in their descriptive study of 8,000 students with disabilities that the number of days absent (capped at 60) was significantly related to dropping out.

The higher number of days absent, the greater the likelihood of dropping out according to numerous studies (Barber & McClellan, 1987; Barrington & Hendricks, 1989; Butler-Nalin & Padillia, 1989; Coley 1995; Eckstrom, Goertz, Pollack & Rock, 1987; Karpinski, Neubert & Graham, 1992; Pearson & Banerji, 1993; & Wagner, 1991a).

Ethnicity

Dropout rates are consistently higher among minorities. The U.S. Department of Education National Center for Education Statistics (1996) reported that between 1987 and 1992, African American youth and Hispanic youth were more likely to drop out than were Caucasians. However, these two groups are not equal in their dropout rates. According to the 1996 Pocket Report for the National Center for Education Statistics (NCES), the drop out rate for Hispanic youth is 30 percent compared to 12 percent for African American youth and nine percent for Caucasian youth (Geddes, 1997).

McMillen's et al. (1993) findings for Caucasian youth were slightly lower than the (NCES) findings, however the findings for Hispanic and African American youth were similar. The study of school completion analyzed data for the percentage of event dropouts, status dropouts, and cohort dropouts. The cohort dropout rates were about 18

percent for Hispanics, 15 percent for African-American, 9.4 percent for Caucasians. The event and status dropout rates declined for African-Americans resulting in a narrowing of the racial differential over the two decades. Hispanic dropout rates, event and status, have remained high throughout the last twenty years. Shaw's (1982) study of 433 Caucasian females and 216 African American females found that 60 percent of Caucasian females dropped out compared to 87 percent of African American females.

Correspondingly Barro and Kolstad (1987) found African-Americans dropped out at an almost 40 percent higher rate than Caucasians. Hispanics dropped out at a 53 percent higher rate than Caucasians. Furthermore Kolstad and Owings (1986) found Hispanics and African Americans were less likely to return to complete High School than Caucasians, 30 percent and 33 percent respectively compared to Caucasians at 40 percent. Kolstad and Owings used the High School and Beyond data base to conduct this study. Youth from Hispanic families were more likely to be dropouts.

Similar results were found by the New York City Board of Education (1994) when they tracked school-completion in a cohort class of 63,130 general education students who entered 9th grade in the fall of 1990 and were scheduled to graduate in June, 1994. Hispanics, which made up one-third of the cohort, dropped out at a higher rate than did other ethnic groups. The report Dreams Deferred: High School Dropouts in the United States (Coley, 1995) also found Hispanic students more likely to drop out than African American youth or Caucasian youth. The highest drop out rate for an ethnic group was reported by Carter and Wilson's (1992) status report. The report completed in 1990 used the Census Bureau, Current Population Study and found that high school completion for Hispanic students was only 54.9 percent, which suggests a dropout rate of 45.1. Conversely, Butler-Nalin and Padillia (1989) found in a descriptive analysis of students with disabilities that ethnic background appeared unrelated to dropping out.

Drop out rates are high among Hispanic and African American ethnic groups according to several studies (Barro & Kolstad, 1987; Carter & Wilson, 1992; Coley, 1995; Geddes, 1997; Kolstad & Owings, 1986; McMillen et al. 1993; The New York City Board of Education, 1994; Shaw, 1982; & The U.S. Department of Education National Center for Education Statistics, 1996). However, Butler-Nalin and Padillia (1989) disagree. They found that ethnicity was not related to dropouts.

Family Variables

Economic Level

The U.S. Department of Education National Center for Education Statistics (1996) found that youth from low income families were more likely to drop out of school than their counterparts from middle and high income families. Likewise The Condition of Education 1996, reported that a larger number of dropouts were found in the low income category than in the middle or high income categories (The U.S. Department of Education National Center for Education Statistics, 1996). Studies conducted by Eckstrom et al. (1987) and Sherman (1987) found similar results. Eckstrom et al. (1987) found in an analysis of the High School and Beyond Study, that dropouts tend to come from low SES and one vs. two-parent households with less formal schooling. Sherman (1987) found in his review of literature and his site visits to dropout prevention programs, that dropouts in general education were disproportionately from families that were low in socioeconomic status.

A common reason for dropping out was the desire to help the family financially according to Bearden et al. (1989), Fine (1985) and Rumberger (1983). Bearden et al. (1989) described the dropout phenomenon from the students' point of view from interviews of 400 students. Fine found similar results from an ethnographic study of 45 dropouts and 350 graduates. Dropouts gave poverty as a reason for dropping out. Furthermore, Rumberger's (1983) study of dropouts, 14 to 21 years of age found that twenty percent of dropouts left school to assist the family financially.

Bearden et al. (1989), Fine (1985), The U.S. Department of Education National Center for Education Statistics (1996), Eckstrom et al. (1987), Shaw (1982), Sherman (1987) and Rumberger (1983) all agree that dropout rates are high among youth from low income families.

Educational Level

The higher the parents' educational level, the higher the likelihood that the youth will complete high school according to a study of 1128 completed by Borus and Carpenter (1983).

One vs. Two-parent Homes

With the breakdown of the nuclear family more students are living with families headed by one adult. These families are dependent on one income instead of two. Several

studies have found that a disproportionate number of students from single-parent households dropout. Eckstrom, Goertz, Pollack, and Rock's (1986) in a study of 30,000 10th graders found that students from single-parent households had an increased drop out rate compared to their peers in a two-parent household. Similar results were found by Borus and Carpenter (1983). Their study of 1128 youth, found an increased drop out rate of students from single-parent households. Likewise Barrington and Hendricks (1989) compared 51 dropouts and 24 nongraduates (continuing to work on a diploma) to 107 graduates. They also found that one vs. two-parent households had an increased drop out rate.

Additional studies also concur that a disproportionate number of dropouts come from single-parent households. One study of school completion by McMillen at al. (1993) found dropout rates high among youth from single-parent families. Another study by Sherman (1987) found that single-parent homes (headed by females dependent on one income instead of two) have a disproportionate number of dropouts. Furthermore Kortering, Haring and Klockers (1992) found 76 percent of dropouts vs. 53 percent of graduates lived in non intact families.

However, Butler-Nalin and Padillia (1989) in their descriptive analysis of 8,000 students with disabilities found no significant relationship between family configuration and drop outs. Although Butler-Nalin and Padillia (1989) found no significant relationship between family configuration and drop outs, Barrington and Hendricks (1989), Borus and Carpenter (1983), Eckstrom, Goertz, Pollack, and Rock (1986), Kortering, Haring and Klockers (1992), McMillen et al. (1993), and Sherman (1987) found that one vs. two-parent households are related to dropouts.

Curriculum Variables

Academic Requirements

Increased academic requirements, while necessary preparation for college, are not essential for the majority of our nation's students, as supported by the studies included in this section. In fact, the increased requirements appear to impede students in meeting their postsecondary goals.

Weber's (1986) discriminant function analysis of the High School and Beyond data, found that students enrolled in academic courses are more likely to drop out than those enrolled in vocational courses. Furthermore academic course work dominated

students with disabilities programs according to Wagner's (1993) analysis of NLTS data. Likewise Soderberg (1988) found in a study of 160 general education and special education teachers that dropouts were associated with increased academics. Students themselves identified academic anxiety as a reason for dropping out according to Liechtenstein (1993). In-depth case studies were conducted by Lichtenstein over two years with four young adults identified with learning disabilities who had dropped out of school.

Students spending more than half their time in academic courses preferred enrollment in vocational programs or work experience programs according to Newman (1993). Newman (1993) analyzed transcript information for 733 Hispanic students with disabilities from NLTS data. The result of increased graduation requirements was that some students left school because they felt that further academics would be anxiety provoking and humiliating.

Advanced Level Academic Courses. Southeastern Regional Vision for Education (1993) found in their comparison of course enrollment data that although enrollment in math and science courses has increased since 1982, less than fifty percent were enrolled in upper level courses. In another study, Hennes (1992) collected data on 89 percent of Colorado schools and discovered only 10 percent of grades 9-12 enrolled in advanced science. Finally, Gray and Huang (1991) compared transcripts of 2,098 high school graduates in 1982 and 1989 found that 23 percent of vocational graduates and 18 percent of students enrolled in business or agriculture did not progress beyond general math or science courses.

The findings of Newman (1993), Liechtenstein (1993), Soderberg (1988) and Weber (1986) lend support to the proposition that increased academics may decrease the likelihood that the student with disabilities will complete secondary school. Furthermore, several studies have found less than half of students enroll in advanced math or science courses (Southwestern Regional Vision for Education, 1993; Hennes 1992; and Gray and Huang 1991).

Vocational Education

Between 1982 and 1992 the average number of credits earned by high school graduates increased from 21.4 to 23.8 according to Tuma and Burns (1996) analysis of four transcript data sets: High School and Beyond; National assessment of Educational Progress 1987 High School Transcript Study; National Assessment of Educational

Progress 1990 High School Transcript Study; and National Educational Longitudinal Study of 1988. This increase in credits was accounted for almost entirely by increases in academic courses, from an average of 14.2 to 17.3 credits. Vocational credits earned by graduates declined from 4.6 to 3.8. Furthermore, the rate at which students concentrated in a vocational field declined over time. In 1982, 33.7 percent of all graduates had a concentration in a vocational area, but in 1992 the group of concentrators had declined to 24.4 percent of all graduates. The trends in course taking were consistent with the goals of the "excellence" reform effort. Students completed more academic course work in 1992 than in 1982. At the same time vocational course taking decreased substantially between 1982 and 1992 (Tuma & Burns 1996).

The National Center for Education Statistics reported in Vocational Education in the United States: The Early 1990s, that the average number of credits earned in occupationally specific coursework declined 14 percent from 1982 to 1992. During this time the average number of credits in general labor market preparation dropped 36 percent (Houser, 1996). Using regression analysis, Rasinski and Pedlow (1994) included class rank, attendance, and special program participation along with vocational course taking as predictors of dropout rates in their analysis of NELS data. When Rasinski and Pedlow removed the predictors, they found that each additional Carnegie unit of vocational credit in the first two years of high school reduced subsequent dropout rates.

Another study by Mertens, Seitz, and Cox (1982) conducted a regression analysis on data from the New Youth Cohort of the National Longitudinal Surveys of Labor Force Behavior (NLS Youth) and found that the more vocational courses students from general education took, the less likely they were to drop out of high school. Their study also found that participation in vocational education when combined with high school completion translated to lower unemployment rates. While a discriminant function analysis of the High School and Beyond data found that students enrolled in academic courses are more likely to drop out than those enrolled in vocational courses (Weber, 1986). Weber (1988) analyzed 2,000 status dropouts and 3,000 graduates with similar characteristics from the High School and Beyond database and found a positive correlation between enrollment in vocational courses and graduation.

Nevertheless, The National Longitudinal Transition Study of a cohort of special education students found that those who participated in secondary vocational education were more likely to be competitively employed than those who did not (Wagner, 1991b;

Wagner, 1991c). Students taking occupationally oriented vocational courses were less likely to drop out compared to students who were not taking such courses (8% vs. 12%) (Wagner, 1991b). Wagner's (1991d) results, from the analysis of NLTS data, indicated that students with disabilities who took vocational courses had a 2.7 percent lower dropout rate than those who did not take vocational courses. After she removed lower attendance and course failure (which may contribute to dropout rates) the difference increased from 2.7 to 7.9 percent. An analysis of variance in Karpinski, Neubert, and Graham's 1992 study of 86 rural students with high incidence disabilities also found curriculum related to dropping out. Graduates took 4 times as many vocational education courses and earned almost five times more vocational credits than dropouts.

Students with disabilities do not always have a full range of services and programs available as specified in vocational education legislation according to Lombard, Hazelton, and Neubert (1992) as found in their survey of a random selection of 100 of 502 secondary schools in Wisconsin. Lombard et al. (1992) found that only 48 percent of the 1062 students had any vocational goals listed on their Individual Education Programs (IEPs). Furthermore only 37 percent received any type of vocational assessment. In addition, Repetto, Tulbert, and Schwartz, (1993) found in their descriptive study of transition-related programming across Florida that many districts did not list vocational education as a transition option. Vocational programming that was accessible to individuals with disabilities was offered by 33 percent of the 67 districts.

Benz and Halpren (1993) investigated 107 students with disabilities and 131 students without disabilities from Nevada in a three year follow-along study. They found that a quarter of students with learning disabilities and a third of students with emotional disturbances received no school-related work experience or vocational education during their last year in high school. Furthermore, Newman (1993) completed descriptive analysis of the NLTS data collected on 733 Hispanic students with disabilities found that they were spending more than half their time in academic courses yet would prefer to be enrolled in vocational programs or work experience programs.

When surveyed students, parents and professionals of learning disabilities perceived a significantly higher level of need for job-related functional academics than exists currently. Karge, Patton, and Garza (1992) found in their survey of 36 students with learning disabilities and 37 teachers and parent facilitators that students and adults

overwhelmingly saw a need for employment support programs (91.9%). However the existence of such programs was low (28.2%).

Conflicting findings emerge from two studies of vocational education and its effect on dropouts in general education. The first study by Pittman and Chalker (1994) found that in general education dropouts and graduates did not differ in exposure to or participation in vocational education. Data was used from the High School and Beyond Study and 442 graduates and 442 dropouts were matched on gender, region of residence, reading comprehension, and SES. Additional graduates and dropouts were used (117 each). The second study conducted by Thorton and Zigmond (1988) investigated the effects of vocational education on students with disabilities. Thorton and Zigmond (1988) comparison of graduates with learning disabilities who completed skill centered vocational courses to non disabled peers, found that vocational education does not hold some students with learning disabilities in school.

It appears that vocational education helps increase school completion rates, according to Karpinski, Neubert, and Graham (1992), Mertens, Seitz, and Cox (1982), Rasinski and Pedlow (1994), Wagner (1991b, 1991c, 1991d) and Weber (1986, 1988). Although Thorton and Zigmond (1988) and Pittman and Chalker (1994) found some evidence to the contrary. It is interesting to note that a full range of vocational services are not always available, even though parents and students see the need for more vocational services (Lombard, Hazelton, and Neubert, 1992).

In School Work Experience

Conflicting data have been found to support the effects of in-school work experience in general education. Ruhm's (1994) regression analysis of the National Longitudinal Survey of Youth (1,149 high school students), found no harmful effects from teenage employment. The data was collected over a twelve year period starting in the 9th and 10th grade. Students who worked as seniors had an average yearly income of $20,300 vs. those that had not worked who had an average income of $16,000.

In contrast, Marsh (1991) found in an analysis of 10,613 students who participated in the study conducted by the Center for Educational Statistics (CES), that the number of hours worked during the sophomore year was significantly and positively related to dropping out, but not to transferring or graduating early.

Researchers were in agreement that students with disabilities benefit from work experience and consequently the dropout rates are lower. Participation in work experience programs lowers the drop out rate according to Wagner, Blackorby, and Hebbler's (1993) analysis of 4,828 students from the NLTS data. Heal and Rusch's (1994) analysis of NLTS data found students with more academics courses were less likely to be competitively employed immediately after leaving school. However this finding may imply that those students were enrolled in college. The study did not find that increased vocational coursework lead to a higher post school employment rate. In addition, Chadsey-Rusch, Rusch, and O'Reilly, (1991) found in their review of research related to outcomes in special education that students were most likely to be employed after leaving school if they had experienced paid employment while in school.

When surveyed, students, parents and professionals perceived a significantly higher level of need for job-related functional academics than exists currently. Karge, Patton, and Garza (1992) found in their survey of 36 students with learning disabilities and 37 teachers and parent facilitators that students and adults overwhelmingly saw a need for employment support programs (91.9%). Yet, the existence of such programs was low (28.2%). This is also supported by Newman's (1993) descriptive analysis of the NLTS data collected on 733 Hispanic students with disabilities. She found that they were spending more than half their time in academic courses yet would prefer to be enrolled in vocational programs or work experience programs.

Karpinski, Neubert, and Graham (1992) found that 90 percent of graduates held jobs during high school, compared to 59 percent of those who dropped out. The popular view expounds that work experience is related to increased likelihood of school completion. This view is strongly supported by Ruhm (1994), Chadsey-Rusch, Rusch, and O'Reilly (1991), Karpinski, Neubert, and Graham (1992) and Wagner, Blackorby, and Hebbler (1993). However, Marsh (1991) found the number of hours worked were positively related to dropping out.

Summary

School exiting by students with disabilities via avenues other than graduation is alarmingly high. Graduates with disabilities are more likely to be employed than their counterparts who dropped or aged out. The goal of public education must be to bring about educational reform that embraces diversity and accommodates students, thereby increasing high school completion.

The findings suggest that students affected by negative relationships to high school completion will also be impacted adversely by their increased age, higher absentee rates, ethnic background, lower educational attainment by the head of the household, one parent household, and lower socioeconomic status. Dropouts lead to unemployment, financial uncertainty and the potential to be an economic burden to society. The recommendations based on the findings of the analysis will be included in the closing chapter of this study.

CHAPTER III
METHODOLOGY

The National Longitudinal Transition Study (NLTS) is a comprehensive data base of information about youth with disabilities. The study was mandated by Congress in 1983, to be used to make national policy. Using the NLTS data set, the present study was undertaken to expand the research of students with high incidence disabilities who drop out.

Several variables were related to the drop out rate among students with high incidence disabilities. These variables were grouped as **personal**, **family**, and **curriculum** variables. When the three groups of variables were examined their relationship to high school dropouts with high incidence disabilities was better understood.

NLTS Database

The National Longitudinal Transition Study (NLTS) was used to compile the High Incidence Disabilities Study (HIDS) data base for the present study because NLTS provided the most comprehensive data base on youth with disabilities. Responding in part to the absence of information in regard to students with disabilities, Congress directed the Secretary of Education to conduct a longitudinal study (NLTS) of the progress of students with disabilities. NLTS information has been analyzed and used every year since its publication to write the annual report to congress. The data located in NLTS constitutes the most comprehensive information currently available on students with disabilities. This section provides a brief overview of the sampling procedure and the methods used to collect, organize and document the data.

Sampling Procedure

The sample for the study began with a 1987 survey (Wave 1) from the national population of secondary students age 13 to over 18 identified with a disability during the 1985-86 school year to ensure that sufficient numbers of youth across age and disability type were defined. The initial Wave 1 sample was comprised of 12,833 students identified with a disability These 12,833 students were surveyed again in 1990-91 (Wave 2).

NLTS identified 11 disability categories. The present study focused on high incidence disabilities (n = 4,613). These included: learning disabilities, 1,650; emotional

disturbance, 1,321 and mental retardation, 1,642, for a total sample of 4,613. Table 2 reflects a breakdown of the other disability classifications.

Table 2

Frequencies of "Other" Disabilities

Disability Category	n
Speech Impaired	893
Visually Impaired	1,318
Hard of Hearing	1,372
Deaf	1,275
Orthopedically Impaired	1,060
Other Health Impaired	1,005
Multiply Handicapped	1,132
Deaf/Blind	165
Total	8220

NLTS manuals provide several reasons for missing data, of the 12,833 youth who were sampled, 43 were later found to be deceased and 1,632 youth were eliminated due to lack of a parental consent form. For an additional 636 youth the location information was inaccurate. Only 10,518 youth out of the 12,833 sampled for Wave 2 were available for an interview. Of this group only 8,404 had sufficient data for analysis for Wave 1 -- Wave 2 contained 9,619 youth with sufficient data for analysis (Javitz & Wagner, 1993).

The amount of missing data for the group with high incidence disabilities was comparable to the whole sample missing data. Approximately 21 percent of the sample of youth with high incidence disabilities lacked parental consent, had inadequate location information, or were unavailable for an interview or had substantial missing data. The resulting NLTS data set was 3633 cases of youth with high incidence disabilities (Marder, Habina & Prince, 1992).

NLTS Method of Collection

The five collection components used for Wave 1 and 2 data collection included: 1). parent/youth telephone interview and mail questionnaires, 2). school transcripts, 3) school program content form 4). school program survey and 5). the school background survey.

The Wave 2 database documentation was organized according to files and collection components as reflected in table 3.

Table 3

Wave 2 Database Organization

Files	Collection Components
Parent 1	-**Parent/Youth Interview**/Questionnaire sections S, A, B/X, C/N, and D
Parent 2	-Parent/Youth Interview/Questionnaire sections E, F, G, I/L, J/M, and K/O
Schtran	-**School Transcript** Form (may include data from Wave 1 Student Record Abstract)
Schcont	-**School Program Content** Form
Schprog	-**Student's School Program** Survey
Schback	-**School Background Survey**
Allgrade	-Student Transcript Form and School Program Content Form
Combined	-Created variables from combined data sources (including data from Wave 1)

Creating the High Incidence Disability Database (HIDS)

This section provides information on the procedure used to create the HIDS. The current study focused in part on information from transcripts. The missing transcript data further reduced the sample size from 3633. From the NLTS sample the number of students from the High Incidence Disability Study (HIDS) database who had complete transcript data was 2173. In addition, students listed as ungraded as well as students not listed every year up to the year of exit were deleted. For example if a student was not assigned to a grade level and they had not exited school they were excluded. In addition students who were not listed every year up to the year of exit were eliminated. For example student number 003012 was listed in the freshman class and in the junior class, but was not listed for the tenth grade. This could imply that the student moved from the district and then returned. If the student's data skipped a year the student was eliminated from the sample. The steps to ensure consistent data up to year of exit and to delete students identified as ungraded was the final step for the HIDS database of 1149 students with high incidence disabilities, see table 4.

There were no significant differences between the 2173 sample and the 1149 sample when t-test and chi square comparisons were conducted for attendance, ethnicity, educational level, and economic level as reflected in Appendix F. There were significant differences between the samples for age, gender, one vs. two parent households, disability groups and dropouts vs. non dropouts. However due to the large size of the sample, small differences were detected as significant.

Table 4
Steps in the Formation of HIDS

- NLTS Students with High incidence disabilities	3633
- HIDS -- Students with Complete Transcript Data	2173
- HIDS -- Consistent Data up to Year of Exit with a Grade Level Assignment	1149

HIDS Variables

The variables were selected from the raw data files to create the HIDS database. Next they were merged from the different file locations. The dependent variable was dropouts and the independent variables included: age, attendance, gender, ethnicity, parent's economic level, parent's educational level, one or two- parent households, academic credits, vocational credits, support credits, and work experience credits. The HIDS variables were renamed and differ from the original names found in the NLTS "SAS" data tape.

The (HIDS) contained 1149 students with high incidence disabilities. From this group 335 or approximately 29 percent dropped out of high school. Table 5 displays the dropout rate by disability group.

Table 5

Frequencies for Overall Group & Dropout Group

	Disability			
	Learning Disability	Emotional Disturbance	Mental Retardation	Total
Overall Group	512	281	356	1149
Dropout Group	128	118	89	335
Dropout %	25%	42%	25%	29%

Description of the Variables

An indepth description of the file location, collection component, questions asked as well as the values for each variable are located in Appendix E.

Age. The youth's age in 1990 was determined from the parent/youth telephone interview and mail questionnaire. For the present study the age in 1990 was replaced with the students age for the year the information was collected. For example if the information was collected in 1987 then three years would be subtracted from the 1990 age. The age ranged from 14 to 24 years old for each school year 1985-90. The average age was 16 (see Appendix F). In addition, the median age of the sample was 16 years old (see Appendix I for frequencies).

Gender. The parent/youth telephone interview and mail questionnaire and school transcript data were used to report the youth's gender. As reflected in Appendix I, the HIDS database was comprised of 799 males and 348 females. The percentage of male students with high incidence disabilities comprised 70 percent of the HIDS sample. Females comprised 30 percent. The percentages of male vs. female in the sample was consistent with Wagner's (1991b) NLTS report.

Attendance. From the school transcript NLTS calculated a cumulative average number of days absent in a two semester year. The average number of days absent ranged from 0 to 172 as seen in Appendix G. Absenteeism in a two semester year was 19 days, as reflected in Appendix F.

Ethnicity. Data on youth ethnicity was reported from the parent/youth telephone interview and mail questionnaire. The HIDS database included four categories of ethnic

groups. The groups were African American, Caucasian, Hispanic and Other as reflected in Appendix I. The Caucasian group made up 72 percent or 713 of the database. African American comprised 20 percent of the group, while six percent were identified as Hispanic.

Economic level. The parent/youth telephone interview and mail questionnaire provided information on economic levels for the household. The economic levels range from under $12,000 to over $50,000. The approximate average income for the households of students with high incidence disabilities was $20,000 to $24.999 (see Appendix F). Appendix I displays the breakdown of income categories. An income of $20,000 to $24,999 was represented by 3. The means for household income revealed youth with high incidence disabilities came from homes with a mean household income notably above the mean poverty level. The mean poverty level was $12,674 for a family of four, reported by the U.S. Government Accounting Office (1993). The households of students with high incidence disabilities had a median income of 20,000 to 24,999 (see Appendix I for frequencies).

Educational level. The head of the household's highest year of education was determined from the data found in the parent/youth telephone interview and mail questionnaire. Educational level ranged from 11th grade to a graduate degree. The average educational level for the head of the household was high school completion, represented as "2" (see Appendix F). Of the 914 students with high incidence disabilities, 332 of the heads of the households completed 11th grade or less. The median level of education for the head of the household was high school (see Appendix I).

One vs. two-parent household. The parent/youth telephone interview and mail questionnaire provided information on whether the youth resided in a one or two parent household as reflected in Appendix I. Approximately 29 percent resided in one parent households and 71 percent resided in a two parent household.

Academic credits. Academic credits were determined from student's school transcripts for their most recent school year. If a student was reported to have taken any of the following kinds of courses they were coded as having taken an academic course: English/reading, mathematics, science, or social studies. An in-depth description is included in Appendix B. The reported academic credits ranged from 0 to 27 (see Appendix G). The average number of academic credits reported during the high school career by youth identified with high incidence disabilities was approximately 11 credits as seen in

Appendix H. Analysis of credits in the present study were calculated as a percentage of the overall total.

Vocational education. The variable indicating whether the student took vocational credits came from three sources: the school transcripts and the parent/youth telephone interview and mail questionnaire. The primary source was the school record. A student was coded as having a vocational education credit(s) if any credits were listed in vocational or home economics sections of the credit completed by the abstractor. Further information regarding vocational credits can be found in Appendix B. Vocational credits reported ranged from 0 to 20 (Appendix G). The average number of vocational credits earned during the high school career by youth identified with high incidence disabilities four to five credits as seen in Appendix H.

Support credits. The NLTS investigated whether the youth had received the following kinds of support: study skills, functional abilities, support for disabilities, and generic special education. The source of data for items regarding receipt of services were the school transcripts. Additional information can be found in Appendix B. The average number of support credits earned during the high school career by youth identified with high incidence disabilities was approximately 1/2 credit as seen in Appendix H.

Work credits. In school work experience credits were determined by school transcript data. The NLTS investigated whether the youth had received the following kinds of work experience during school: Career preparation and career exploration, work experience, cooperative education, employment skills, sheltered workshop, JTPA sorting, packaging and mailing. Additional information can be found in Appendix B. Reported work experience credits ranged from 0 to 12 (see Appendix G). The average number of work experience credits recorded during the high school career by youth identified with high incidence disabilities ranged from approximately 1/2 to one credit as seen in Appendix H.

Dropout status. An exiter's completion status was derived from the parent/youth telephone interview and mail questionnaires. Student transcript data and the Wave 2 (1990) School Program Content data were used as well. The parent/youth telephone interview and mail questionnaire allowed for the distinction between transferring out of a district or dropping out. The yes/no question regarding drop out status was asked.

Analysis

For all analysis in this study, youth were assigned to a primary disability category. Because the study relied on category assignments made by the school districts, the data should not be interpreted as a portrayal of an exact disability, but as a portrayal by the district, of youth who were categorized as having that disability. The dependent variable identified the drop out status of the student. The analysis examined the relationships and percentages of variables as they related to drop outs among students with high incidence disabilities. The outcome variable (dropouts) was assumed to be a function of all variables. The National Longitudinal Transition Study of Special Education Students (NLTS) Wave 2 database provided the information for the formation of the MDS data base.

A correlation analysis was used to indicate the strength or weakness of the relationship between the variables. The coefficient could range from +1.00 (indicating a perfectly positive relationship), 0 (no relationship), or -1.00 (a perfectly negative relationship) (Ary, Jacobs, & Razavieh, 1996). However, a percentage analysis was used to determine the relationship between dropouts and the curriculum variables. A t-test and a Chi square were conducted to determine sample differences.

Multivariate Analysis

Discriminant analysis was used to assess whether the continuous variables could, in combination, construct a linear discriminant function that would differentiate between students with high incidence disabilities who drop out of high school and those who don't. This assessment was based on whether a linear discriminant function composed of information from the nine independent variables could be employed to distinguish between dropouts and those who do not drop out. The independent variables were age, absences, parent's economic level, parent's educational level and one vs. two-parent households, academic credits, vocational credits, support credits and work experience credits.

The present study employed the direct method of discriminant analysis, which simultaneously employed all of the variables. However the direct method decreased the number of observations to 608. To increase this number the stepwise method of analysis was employed, where the variables were chosen to enter or leave the model according to the significance level of an F test from an analysis of covariance, where the variables already chosen act as covariates and the variable under consideration was the dependent variable. The stepwise method utilized only those variables that in isolation prove to differentiate between the two groups (dropout vs. non dropouts) at a statistically significant

level. Three variables were chosen to be eliminated, decreasing the model to six variables and 823 observations. The remaining variables were age, absences, academic credits, vocational credits, support credits and work experience credits. Both the direct as well as the stepwise method eliminated observations with missing data.

The function's first step was to solve for weights to use to combine all variable scores in order to conduct the function that differentiated between the two groups. The importance of each variable signified by the size of its standardized weighting coefficients were then multiplied by the respective group members to yield a group discriminant score for each respective group. The same coefficients were multiplied by the respective variable values for each individual case resulting in a discriminant score for each case. Individual cases were then classified into the group which had the closest discriminant scores.

Chapter 4
RESULTS

The purpose of this study was to examine **personal**, **family**, and **curriculum** variables among dropouts identified with high incidence disabilities. The review of research literature on dropouts from general and special education assisted in the selection of the variables.

The study examined the relationship of the outcome variable (**dropouts** with high incidence disabilities) to each of the following variables among students with high incidence disabilities. The **personal** variables included: age, attendance, gender and ethnicity. The **family** variables included: parent's economic level, parent's educational level and one vs. two-parent households. The **curriculum** variables included: academic, vocational, support, and work experience.

Synopsis of Findings

The cohort **dropout** rate of students with high incidence disabilities was 29 percent. When **age** was correlated with dropout, increased age was weakly associated with a higher likelihood of drop outs (+15, +18, +17). Age was correlated with dropout status and broken down by disability category. Each category: learning disabilities (0.15242), emotional disturbance (0.17810) and mental retardation (0.16896) was weakly associated with a higher likelihood of dropping out. Increased age was associated with a somewhat higher likelihood of dropping out. The discriminant function analysis found that the higher the age the lower the likelihood of dropping out according to the standardized value (.01931). However this finding was attributed to randomness due to the small standardized value. The correlation analysis indicated increased **absenteeism** was moderately associated with a higher likelihood of drop outs (+39, +39, +53). Each category: learning disabilities (0.39474), emotional disturbance (0.3921) and mental retardation (0.5262) was moderately associated with a higher likelihood of dropping out. Increased absenteeism was associated with a higher likelihood of dropping out. The discriminant analysis function demonstrated the lower absences the lower the likelihood dropping out according to the standardized value (-.35272). The relationship between **gender** and dropouts was not significant across any of the three categories of high incidence disabilities.

The analysis of **ethnicity** found African-Americans with learning disabilities were associated positively with drop outs (+09, +09, +07). Each category: learning disabilities (0.09289), emotional disturbance (0.09583) and mental retardation (0.07228) was weakly associated with a higher likelihood of dropping out. African-American students were associated with a higher likelihood of dropping out. The drop out rates for Caucasian youth were significantly lower than drop out rates for other groups (-12,-18, -15). Each category: learning disabilities (-0.12201), emotional disturbance (-0.17680) and mental retardation (-0.14607) was weakly associated with a higher likelihood of dropping out. Caucasian students were associated with a lower likelihood of dropouts.

Increased **economic level** was associated with a lower likelihood of drop outs across the three categories of high incidence disabilities (-10, -11, -19). Each category: learning disabilities (-0.10318), emotional disturbance (-0.11045) and mental retardation (-0.19133) was weakly associated with a higher likelihood of dropping out. Increased **educational level** (-15, -06, -20) and **households with two parents** (-12, -01, -13) was also associated with a lower likelihood of drop outs among students with learning disabilities or mental retardation. For educational level each category: learning disabilities (-0.14559), emotional disturbance (-0.06350) and mental retardation (-0.20026) was weakly associated with a higher likelihood of dropping out. For one versus two-parent households each category: learning disabilities (-0.12463), emotional disturbance (-0.01612) and mental retardation (-0.12613) was weakly associated with a higher likelihood of dropping out.

The percentage of academic credits relevant to the overall total of credits taken was 41 percent and vocational was 37 percent. Significantly fewer support and work experience credits were earned, with support being nine percent, and work experience credits at 12 percent (Appendix H, Tables 32-36). The frequencies and percentages reflected in Appendix H and Figure 3 indicate that dropouts took fewer credits. Similarly the discriminant function analysis found that the higher the number of credits the lower the likelihood of dropping out. However the correlation analysis revealed that increased academics for students identified with emotional disturbance and mental retardation had an increased likelihood of dropping out. Furthermore increased vocational credits for students identified with learning disabilities, emotional disturbance and mental retardation decreased the likelihood of dropping out. Increased support courses for students identified as learning disabled revealed an increased likelihood of dropping out.

Descriptive Statistics

Outcome Variable (Dropouts)

From the cumulative frequency the cohort drop out rate was determined to be 29.2 percent. The 29.2 percent rate was comparable to cohort drop out rates found by the U.S. Department of Education in its report to Congress, 1990-1994. Wagner, Blackorby and Hebbler's (1993) analyses of the NLTS (Wave 2 data) found similar results as well (cohort rate, 28.5 percent). The NLTS comprehensive analysis report of 1987 and 1989 found dropouts with disabilities at 32.5 percent (Wagner, 1991b) which is consistent with the 29.2 percent finding. The frequency count (table 6) of dropouts and graduates revealed that 335 of the sample of 1149 students with high incidence disabilities were drop outs. Out of the students who entered the survey in the ninth grade, the percentages of dropouts for specific grade levels were: 8.2% (9th), 5.5% (10th), 7.8% (11th), and 7.7% (12th), as shown in table six.

Table 6

Cumulative Frequency & Percent of Dropouts by Grade

Grade	Frequency	Percent	Cumulative Frequency	Cumulative Percent
9	94	8.2	94	8.2
10	63	5.5	157	13.7
11	90	7.8	247	21.5
12	88	7.7	335	29.2
13 *a*	814	70.8	1149	100.00

Note. *a* 13 counts the number of students who graduated or completed high school.

Personal Variables

Among dropouts identified with high incidence disabilities what was the relationship of the personal factors' corresponding variables (age, attendance, gender, and ethnicity)?

Age. The correlation of age with drop outs among students identified as: learning disabled 0.1524, (p = .0005); emotionally disturbed 0.1781 (p = .0027) and mentally retarded 0.1690 (p = .0014) revealed a weak, positive correlation, as seen in Table eight. To summarize, increased age was associated with a somewhat higher likelihood of drop outs. Contrary to this finding the discriminant function analysis found that the higher the

age the lower the likelihood of dropping out (.01931) see table seven. Note that .01931 was small indicting that this finding was attributed to randomness.

The previous research findings of Butler-Nalin and Padillia (1989) who completed an analysis of the NLTS (Wave 1) also found the older the student with disabilities, the lower the likelihood of drop outs -0.71; $\underline{p} < 0001$. Wagner's findings (1991b) from the NLTS comprehensive analysis report of 1987 and 1989 found students ages 15 or 16 were less likely to drop out than those who were older and nearing the age at which nondisabled students were graduating (5% vs. 13% or 14%; $\underline{p} < .001$). Furthermore several other studies indicate that students are more likely drop out with increased age (Barro & Kolstad, 1987; Bearden, Spencer, & Moracco, 1989; Coley, 1995; & Roderick, 1994).

Gender. The strength of the relationship between gender and the drop outs was not significant across any of the three categories of high incidence disabilities, as seen in table eight. This finding parallels Wagner's (1991b) finding. The review of research indicated males have a higher drop out rate than females (Barber & McClellan, 1987; Bearden, Spencer, & Moracco, 1989; Butler-Nalin & Padillia, 1989; Joubert, Renfroe & Weisbender, 1986; Kolstad & Owings, 1986; New York City Board of Education 1994; Sherman, 1987; & Sitlington & Frank, 1993) The present study found no significant difference (learning disability -0.03096 $\underline{p} = .4850$); (emotional disturbance -.00177 $p = .9764$); (mental retardation -0.01580 $p = .7668$).

The NLTS comprehensive analysis report of 1987 and 1989 found similar results among young people with disabilities. There was no significant difference in the variation of drop out rates (males 10.6 percent and females 9.9 percent) (Wagner, 1991b). However, the NLTS comprehensive analysis report of 1987 and 1989 found that among young people with disabilities, males outnumbered females by about two to one. The percentage of male students classified with learning disabilities was 73.4 of the sample. Male students identified with emotional disturbance mental retardation was 76.4 and 58.0 respectively (Wagner, 1991b).

Attendance. The correlation of absenteeism and drop outs among the subgroups, learning disabled, 0.3947 ($\underline{p} = .0001$); emotionally disturbed 0.3921 $\underline{p} = .0001$ and mentally retarded 0.5262 ($\underline{p} = .0001$) displayed a moderate, positive correlation as reflected in table eight. Increased absenteeism was associated with a higher likelihood of drop outs. The discriminant analysis function found the lower absences the lower the likelihood

dropping out (-.35272) as reflected in table seven. The finding was consistent with the findings from the NLTS (Wave 1) studies conducted by Wagner (1991a, 1991b). The NLTS (Wave 1) data revealed an average of 26 days absent during the last year of school for drop outs with disabilities compared to 14 days for school completers. The higher the number of days absent, the greater the likelihood of drop outs for students with disabilities (Barber & McClellan, 1987; Barrington & Hendricks, 1989; Butler-Nalin & Padillia, 1989; Coley, 1995; Eckstrom et al. 1987; and Karpinski et al. 1992. Pearson and Banerji (1993) and Wagner (1991a) found absenteeism to be related to drop outs as well.

Multivariate Analysis

The discriminant function analysis of the weighted the variables, academic credits, vocational credits and absences most heavily.

Table 7

Standardized Discriminant Function Coefficients

Variables	Standardized Value
Age	.01931
Attendance	-.35272

Note: The means on canonical variables was:
Nondropout .69733
Dropout -1.71404

Table 8

Correlation between Drop Outs and Personal Variables

Correlation
Probability
Number of Observations

Personal Variables	Learning Disability	Emotional Disturbance	Mental Retardation
Age	0.15242	0.17810	0.16896
	0.0005	0.0027	0.0014
	512	281	356
Absences	0.39474	0.3921	0.52618
	0.0001	0.0001	0.0001
	486	215	300
Gender	-0.03096	-0.00177	-0.01580
	0.4850	0.9764	0.7668
	511	281	355

Ethnicity. The correlation between ethnicity and drop outs was also studied; results are found in Table nine. Among the students identified with a learning disability who were African American, a weak, positive correlation to drop outs was displayed 0.0929 (p = .0356). The African-American subgroup was associated with a slightly higher likelihood

of drop outs. Ethnicity correlated with drop outs among students who were Caucasian with learning disabilities was -0.1220 (p = .0057). A weak negative correlation was also seen with: emotional disturbance, -0.1768 (p = .0029); and mental retardation, -0.14607 (p = 0.0058). Caucasian students were associated with a lower likelihood of drop outs. This finding was consistent with studies conducted by Barro and Kolstad (1987), Carter and Wilson (1992), Coley (1995), Geddes (1997), Kolstad and Owings (1986), McMillen et al. (1993), The New York City Board of Education (1994), and The U.S. Department of Education. National Center for Education Statistics (1996) These studies indicated African-Americans had a greater likelihood of drop outs than the Caucasian group.

Table 9

Correlation between Dropouts and Ethnicity

Correlation

Probability

Number of Observations

Personal Variables	Learning Disability	Emotional Disturbance	Mental Retardation
Ethnicity			
African Am	0.09289	0.09583	0.07228
	0.0356	0.1090	0.01736
	512	281	356
Caucasian	-0.12201	-0.17680	-0.14607
	0.0057	0.0029	0.0058
	512	281	356
Hispanic	0.05011	-0.03075	-0.02165
	0.2578	0.6078	0.6840
	512	281	356
Other	0.00070	0.05113	-0.07559
	0.9874	0.3932	0.1546
	512	281	356

Family

Among dropouts identified with high incidence disabilities what were the relationships of the family factors' corresponding variables (parent's economic level parent's educational level and one vs. two-parent households)?

Parents' economic level. A slight negative correlation was shown between economic level and drop outs among the students identified with a disability: learning disabled, -0.10318 (p = .0441); and mentally retarded -0.19133 (p = .0028), see Table 10. Increased economic level was associated with a lower likelihood of drop outs for students with learning disabilities or mental retardation. This finding was consistent with the findings of Bearden et al. (1989), Eckstrom et al. (1987), Fine (1985), Rumberger (1983), The U.S. Department of Education. National Center for Education Statistics (1996), and Sherman (1987). They found dropouts associated with decreased levels of income.

Parents' educational level. Educational level revealed a slight negative correlation to drop outs among: learning disabled -0.14559 p = .0027; and mentally retarded -0.2003 p = .0009, as referenced in table 10. The present study found increased educational level of the head of the household was associated with a lower likelihood of drop outs for students with learning disabilities or mental retardation, which supported the findings of Borus and Carpenter (1983).

One vs. two-parent households. The correlation of one or two parent households and drop outs among: students identified with learning disability and mental retardation -0.1246 (p = .0100); and -0.1261 (p = .0366) respectively, revealed a slight negative correlation as well (see Table 10). Two parent households were associated with a lower likelihood of drop outs among students identified with learning disabilities or mental retardation.

Barrington and Hendricks (1989), Borus and Carpenter (1983), Eckstrom et al. (1987); Kortering et al. (1992) McMillen et al. (1993); and Sherman (1987) found that one versus two-parent households had an increased dropout rate. Conversely, Butler-Nalin and Padillia (1989) in their analysis of NLTS Wave 1 data found no significant relationship between family configuration and drop outs.

Table 10

Correlation between Dropouts and Family Variables

Correlation

Probability

Number of Observations

Family Variables	Learning Disability	Emotional Disturbance	Mental Retardation
Economic Level	-0.10318	-0.11045	-0.19133
	0.0441	0.1131	0.0028
	381	207	242
Educational Level	-0.14559	-0.06350	-0.20026
	0.0027	0.3486	0.0009
	424	220	270
One vs. Two Parents	-0.12463	-0.01612	-0.12613
	0.0100	0.8095	0.0366
	426	226	275

Curriculum

What was the relationship of each of the curriculum variables: academic credits, vocational credits, support credits, and work experience credits to dropout status among students with high incidence disabilities?

Academic credits. The percentage of academic credits relevant to the overall total of credits taken was 65 percent (see Appendix H, Table 35). A correlation analysis of academic credits (proportional to all credits) among students with learning disabilities, emotional disturbance and mental retardation 0.0492 (p = .3087); 0.1387 (p = .0403); and 0.2606 (p = .0001) respectively, revealed a significant and moderately high negative correlation for students identified with emotional disturbance and mental retardation as reflected in Table 11. As academic credits increased for students identified with emotional disturbance and mental retardation, dropouts increased. The discriminant function analysis (raw credits, not proportional) found that the higher the number of academic credits the lower the likelihood of dropping out, as seen in Table 12. However the 82 percent hit rate could indicate randomness, as seen in Table 13. The hit rate classified the dropout group providing an accuracy rate of 82 percent. Newman (1993); Lichtenstein (1993); Soderberg (1988); and Weber (1986) found increased academics increased the likelihood of drop outs.

Refer to Appendix B for a complete inventory of courses listed as academic credits.

Vocational credits. The percentage of vocational credits relevant to the overall total of credits taken was 37 percent. A correlation analysis of vocational credits among students with learning disabilities, emotional disturbance and mental retardation -0.1906 ($p = .0001$); -0.2426 ($p = .0003$); and -0.2368 ($p = .0001$) respectively, revealed a significant and moderately high negative correlation as reflected in Table 11. The present study found that as vocational credits increase dropouts decrease. The discriminant function analysis (based on raw credits, not proportional) found that the higher the number of credits the lower the likelihood of dropping out, as seen in Table 12. However the 82 percent hit rate could indicate randomness as reflected in Table 13. The hit rate classified the dropout group providing an accuracy rate of 82 percent.

Vocational education helps increase school completion rates, according to Karpinski, Neubert, and Graham (1992), Mertens, Seitz, and Cox (1982), Rasinski and Pedlow (1994), Wagner (1991b, 1991c, 1991d) and Weber (1986, 1988) although Thorton and Zigmond (1988) and Pittman and Chalker (1994) found some evidence to the contrary. A full range of vocational services are not always available. Although parents and students see the need for more vocational services (Lombard, Hazelton, and Neubert, 1992). Refer to Appendix B for a complete inventory of courses listed as vocational credits.

Support Credits. Support credits refer to courses such as resource, basic English, basic math, or other special academic instruction and generic special education. Refer to Appendix B for a complete inventory of courses listed as support credits. Support credits comprised only nine percent of the overall credits taken. A correlation analysis of support credits among students with learning disabilities, emotional disturbance and mental retardation 01651 ($p = .0006$); 1085 ($p = .1095$); and -0.0618 ($p = .2916$) respectively, revealed a significant and weak negative correlation for students identified with learning disabilities as displayed in Table 11. The present study found that as support credits increase for students identified with learning disabilities dropouts increase. The discriminant function analysis (based on raw credits, not proportional) found that the higher the number of support credits the lower the likelihood of dropping out, as seen in Table 12. However the 82 percent hit rate could indicate randomness (see Table 13). The hit rate classified the dropout group providing an accuracy rate of 82 percent. The literature review found no research which examined the relationship of support credits to dropouts.

Research to investigate special education support credits and the relationship to drop outs needs to be conducted.

Work Experience Credits. Work credits comprised only 12 percent of the overall credits taken. A correlation analysis of work credits among students with learning disabilities, emotional disturbance and mental retardation -0.0495 (p = .3059); 0.0165 (p = .8078); and -0.0519 (p = .3758) respectively, revealed no significant correlation as reflected in Table 11. The discriminant function analysis found that the higher the number of credits the lower the likelihood of dropping out, as seen in Table 12. However the 82 percent hit rate could indicate randomness as reflected in Table 13.

Previous studies by Ruhm (1994); Karpinski, Neubert, and Graham (1992) and Wagner, Blackorby and Hebbler (1993) found similar results. Refer to Appendix B for a complete inventory of courses listed as work experience credits.

Table 11

Correlation between Dropouts and Curriculum Variables

Correlation
Probability
Number of Observations

Curriculum Variables	Learning Disability	Emotional Disturbance	Mental Retardation
Academic Credits	0.04920	0.13870	0.26059
	0.3087	0.0403	0.0001
	430	219	293
Vocational Credits	-0.19060	-0.24262	-0.23683
	0.0001	0.0003	0.0001
	430	219	293
Support Credits	0.16509	0.10845	-0.06182
	0.0006	0.1095	0.2916
	430	219	293
Work Experience Credits	0.04949	0.01654	-0.05193
	0.3059	0.8078	0.3758
	430	219	293

Multivariate Analysis

The discriminant function weighted the variables, academic credits, vocational credits and absences most heavily.

Table 12

Standardized Discriminant Function Coefficients

Variables	Standardized Value
Academic Credits	.69172
Vocational Credits	.46888
Support Credits	.20951
Work Experience Credits	.25747

Note: The means on canonical variables was:
Nondropout .69733
Dropout -1.71404

To evaluate the accuracy of the discriminant function, actual group membership was compared to predicted group membership.

Table 13

Classification Results

Group	Hits	Misses	Hit Rate
Dropout	197	43	82%
Nondropout	542	41	93%
Total	739	84	90%

The function correctly classified a large majority of the nondropout group and a near majority of the dropout group providing an overall accuracy rate of 90 percent, as reflected in Table 13. To evaluate the use of discriminant function by the number of correctly classified cases one must appreciate that there was a likelihood that the function would fit the sample of the present study better than some other sample.

A regression analysis was conducted to check for accuracy. The regression parameters were not the same because of the different models. However the analysis revealed the same information as the discriminant function analysis.

Limitations

Data base

The data which were collected in 1990 are dated, but no other longitudinal data base of comparable size exists for students with high incidence disabilities.

Subgroup definitions

Category definitions, assessment procedures, and guidelines for categorizing students vary between states and often between school districts. NLTS data can not be interpreted as generalizing to youth who had a particular disability but rather to youth who were categorized as having that disability by their school district (Javitz & Wagner, 1990). Furthermore the three subgroup definitions (learning disabilities, emotional disturbance and mental retardation) are broad and not broken down by severity, i.e. mental retardation as a broad definition may include mild/moderate mental retardation as well as severe mental retardation.

Measurement of credits

While many of the students were taking credits as commonly measured, some of the students with high incidence disabilities earned credits that may have been measured on a different scale than would be used for regular courses. A wide range of policies regarding course scheduling and credit policies are represented by the various districts (M. Wagner, personal communication, March 21, 1997).

Potential Bias

Potential bias associated with LEA nonparticipation. The participation rate in the main study was less than 50%. Comparison of nonparticipating LEAs with 1,600 LEAs from which they were sampled revealed no systematic differences across a wide range of variables. However, there is no assurance that nonparticipating LEAs did not differ systematically (Javitz & Wagner, 1990).

Potential bias associated with elimination of those youth who did not have consistent transcript data during their school career. Students identified with high incidence disabilities for whom consistent data were available have been systematically different from the population.

Potential bias associated with parent/guardian nonparticipation. From the 12,833 sampled youth, 6694 parent interviews were completed over the telephone instead of in-person. A substudy consisting of an in-person interview with 554 nonrespondents was conducted to determine the extent of nonresponse bias. This substudy showed no differences between the two populations (Javitz & Wagner, 1990).

Potential bias associated with inability to obtain school record abstracts and school program surveys. Students with and without abstracts appeared to differ primarily with respect to enrollment (it is easier to locate records of students who are currently enrolled) (Javitz & Wagner, 1990).

Potential bias associated with low frequency rates of variables. The ethnic variable contained only six percent Hispanic students identified with high incidence disabilities. LEAs with a higher incidence of Hispanic students would be systematically different than the current population.

Stratification. The NLTS data set was a stratified sample. The elimination step to create the DMDS data set altered the original stratification of the sample.

Nonrespondents Students identified with high incidence disabilities for whom data were available could have been systematically different from the population, which included the nonrespondents (Javitz & Wagner, 1993).

Chapter 5
CONCLUSIONS AND RECOMMENDATIONS

Implications of the findings are presented in this chapter along with recommendations for future research. As noted in chapter one, reform efforts beginning in 1963, encouraged job ready graduates. Conversely, the "excellence" movement to increase academics appeared to impede reform efforts to provide vocational courses, support courses and work experience courses for the potential dropout.

The study examined the outcome variable, (high school dropouts with high incidence disabilities) and the relationship to the following variables: **personal** (age, attendance, gender, and ethnicity); **family** (parents' economic level, parents' educational level, and one vs. two-parent households) and **curriculum** (academic credits, vocational credits, support credits, and work experience credits). The study examined the relationship of selected variables to drop outs, in order for the relationship to be better understood.

Personal Variables

Among dropouts identified with high incidence disabilities what was the relationship of the personal variables (age, attendance, gender, and ethnicity)?

Age. Increased age was weakly associated with a higher likelihood of drop outs.

learning disabled 0.1524, (p = .0005)

emotionally disturbed 0.1781 (p = .0027)

mentally retarded 0.1690 (p = .0014) (weak positive correlation)

This supports the previous findings of Barro and Kolstad (1987); Bearden et al. (1989); Butler-Nalin and Padillia (1989); Coley (1995); and Roderick (1994) who completed a similar descriptive analysis of the NLTS (Wave 1).

Contrary to the present finding the discriminant function analysis found the higher the age the lower the likelihood of dropping out (0.01931). However this small number indicates randomness.

Attendance. The mean range of absentee rates in a two semester year for students with high incidence disabilities was from 16 to 20 days. Increased absenteeism was moderately associated with a higher likelihood of drop outs.

learning disabled, 0.3947 (p = .0001)
emotionally disturbed 0.3921 (p = .0001)
mentally retarded 0.5262 (p = .0001) (moderate positive correlation)
Discriminant analysis function found the lower absences the lower the likelihood dropping out (-.35272)
This finding supported previous findings from the NLTS (Wave 1) studies conducted by Wagner (1991a) and Butler-Nalin and Padillia (1989). Studies by, Barrington and Hendricks (1989); Eckstrom, Goertz, Pollack and Rock (1987) and Pearson and Banerji (1993) found absenteeism to be related to drop outs as well.

Gender. The percentage of students with high incidence disabilities who were male was 70 percent of the sample and the percentage who were female was 30 percent of the sample. The relationship between gender and the drop out status was not significant across any of the three categories of high incidence disabilities. However, the studies by Barber and McClellan (1987); Bearden et al. (1989); Butler-Nalin and Padillia (1989); New York City Board of Education (1994); Joubert, Renfroe and Weisbender (1986); Kolstad and Owings (1986); Sherman (1987); Sitlington and Frank (1993) and Kolstad and Owings (1986) discovered that males drop out at a greater rate than females.

Ethnicity. African-Americans with learning disabilities were associated positively with drop outs.
African American with
learning disabilities 0.0929 (p = .0356) (weak positive correlation)
Caucasian with:
learning disabilities, -0.1220 (p = .0057)
emotional disturbance, -0.1768 (p = .0029)
mentally retarded, -0.14607 (p = 0.0058) (weak negative correlation)

The studies conducted by Barro and Kolstad (1987), Carter and Wilson (1992), Coley (1995), Geddes (1997), Kolstad and Owings (1986), McMillen et al. (1993), The New York City Board of Education (1994), and The U.S. Department of Education. National Center for Education Statistics(1996) found African-Americans had a greater likelihood of drop outs than the Caucasian group. However, Butler-Nalin and Padillia (1989) disagreed.

Family Variables

Among dropouts identified with high incidence disabilities what were the relationships of the family variables (parent's economic level, parent's educational level and one vs. two-parent households)?

Parent's Economic Level. The medium income for head of the household of students with high incidence disabilities was $20,000 to $24,999. Increased economic level was associated with a lower likelihood of dropping out.
learning disabled -0.10318
mentally retarded -0.19133
Dropouts were associated with decreased levels of income according to Bearden et al. (1989), Eckstrom et al. (1987), Fine (1985), Rumberger (1983), The U.S. Department of Education. National Center for Education Statistics (1996), and Sherman (1987). Youth with high incidence disabilities came from homes with a mean household income notably above the mean poverty level income of $12,674 for a family of four, reported by the U.S. Government Accounting Office (1993).

Parents' Educational Level. The median educational level for the head of the household of a student with high incidence disabilities was high school completion.
- Increased educational level of the head of the household was slightly associated with a lower likelihood of dropping out for students with learning disabilities or mental retardation. Increased educational level of the head of the household was associated with a lower likelihood of drop outs among students with learning disabilities or mental retardation.
learning disabled -0.1455 ($p = .0027$)
mentally retarded -0.2002 ($p = .0009$) (moderate negative correlation)

These findings supported the findings of Borus and Carpenter (1983).

One vs. Two Parent Households. Households with two parents were slightly associated with a lower likelihood of dropping out for students with learning disabilities or mental retardation.
learning disabled -0.11246 ($p = .0100$)
and mentally retarded -0.1261 ($p = .0366$) (slight negative correlation)

Barrington and Hendricks (1989), Borus and Carpenter (1983), Eckstrom et al. (1987); Kortering et al. (1992) McMillen et al. (1993); and Sherman (1987). Conversely, Butler-Nalin and Padillia (1989) in their analysis of NLTS Wave 1 data found no significant relationship between family configuration and drop outs.

Curriculum Variables

Among dropouts identified with high incidence disabilities what was the percentage of credits for the curriculum variables (academic credits, vocational credits, support credits, and work experience credits)?

Academic, Vocational , Support, and Work Credits. The percentage of academic credits relevant to the overall total of credits taken was 41 percent; vocational was 37 percent. The discriminant function analysis (based on raw credits, not proportional) found that the higher the number of credits the lower the likelihood of dropping out. However the correlation analysis revealed that increased academics for students identified with emotional disturbance and mental retardation had an increased likelihood of dropping out. Furthermore increased vocational credits for students identified with learning disabilities, emotional disturbance and mental retardation decreased the likelihood of dropping out. Newman (1993); Lichtenstein (1993); and Soderberg (1988) found increased academics increase the likelihood of drop outs. However, vocational education helps increase school completion rates, according to Karpinski, Neubert, and Graham (1992), Mertens, Seitz, and Cox (1982), Rasinski and Pedlow (1994), Wagner (1991b, 1991c, 1991d) and Weber (1986, 1988) although Thorton and Zigmond (1988) and Pittman and Chalker (1994) found some evidence to the contrary. It is interesting to note that a full range of vocational services are not always available, although parents and students see the need for more services (Lombard, Hazelton, and Neubert, 1992).

Significantly fewer support and work experience credits were earned, with support being nine percent, and work experience credits at 12 percent (see Appendix H). The frequencies and percentages reflected in Appendix H indicate that dropouts took fewer credits, which is not surprising since dropouts by nature have fewer credits. The correlation analysis based on each credit variable proportional to all credits found: as academic credits increase, dropouts increase for

students identified with emotional disturbance and mental retardation; as vocational credits increase for students identified with learning disabilities, emotional disturbance and mental retardation dropouts decrease, and as support credits increase for students with learning disabilities, dropouts increase. No significant correlation was found for work experience credits. The discriminant function analysis found that the higher the number of credits the lower the likelihood of dropping out.

Previous studies by Karpinski, Neubert, and Graham (1992); Ruhm (1994); and Wagner, Blackorby and Hebbler (1993) found that one or two work experience credits was related to significantly lower drop out rates for students with high incidence disabilities.

Conclusions

In order to move beyond current research we must overcome the limitations inherent in the NLTS data as well as the limitations inherent in the national data collection procedures. The most comprehensive data base of information about youth with disabilities is The National Longitudinal Transition Study (NLTS). Mandated by Congress in 1983, to assist in creating national policy, the NLTS is the only one of its kind in existence. However, as stated in chapter four, the data base has numerous limitations. However it affords us a look into the relationships between dropouts and personal, family and curriculum variables. As we emphasize inclusion for students with disabilities more research is needed to determine the role of support courses, i.e. resource classes. The question to be answered is, do support courses decrease the likelihood the student with disabilities will drop out? The review of literature reflected no research on the relationship between support credits and drop outs among students with disabilities. Research to investigate special education support and its relationship to drop outs needs to be conducted.

Data Collection and Reporting Deficiencies

During the study of previous research the lack of a consistent way to track dropouts across the nation was evident. For example the Council of the Great City Schools (CGCS) reported in 1994 that Chicago' dropout rate was 45 percent and New York City's was 15 percent. Both schools have similar demographics, high percentages of minorities and children living in poverty. It is not reasonable to believe that Chicago's dropout rate is three times higher than New York City's. The discrepancy could possibly be the result of

different definitions and measurement techniques. However some districts may create definitions and measurement techniques to hide bleak outcomes. Given the current movement of accountability and the pressure to "look good" LEA's might try to improve otherwise bleak outcomes. Of course it would stand to reason that school district reporting is often unreliable.

There are no consistent ways to track the dropout and data are inconsistently presented. For example many studies in the literature do not state wether the dropouts are a cohort dropout rate, an event dropout rate, or a status dropout rate. It would appear that a novice might tend to compare these differing dropout rates indiscriminately. Of course that would be like comparing apples to oranges, since the status rate would refer to all individuals residing in a community and the event rate might refer to a the rate for the 1996/97 school year.

Ideally researchers should be able to conduct secondary data analysis using state/national databases. Special studies such as the NLTS are: fixed duration studies; expensive and provide no comparable data on students without disabilities. Consistent and accurate state/national data for students with disabilities does not exist. McGrew, Thurlow and Spiegal's (1993) review of state and national data collection found significant exclusion of students identified with a disability from collection records. Furthermore, data documenting the numbers of students who were excluded was not available in most cases (McGrew, Spiegel, Thurlow, Ysseldyke, Bruininks, & Shriner, 1992). Vanderwood, McGrew and Ysseldyke (1998) found the identification of students with disabilities in state databases was inconsistent. One reason for the exclusion of students identified with disabilities is the LEA/SEA's desire to look good in comparison to other LEA/SEAs. The present system of gathering data on the dropout is cumbersome, however it still affords us a glimpse into the possible relationships between school reform efforts and their effect on dropout rates.

The Relationship of Curriculum to Dropout Rates

The Secretary of Labor, Lynn Martin contended that schools much teach with work in mind using "contextual learning" or learning in context. The present study supports the Secretary's general statement with the finding that as vocational credits increase, dropouts decrease. Education must be relevant and match the student's lifelong goals. Students who are receiving needed skills to reach career goals stay in school. According to Bishop (1995) if schools were to withdraw from occupational training, employers would become

the providers of training. Since employee training is expensive, most American companies would not readily offer training unless the government subsidized. The government could offer training, but it would be difficult to administer and more expensive than current school based training. In the absence of subsides for training, shortages of labor would occur and wages for occupations formerly learned in school would increase. Lacking occupational training, school exiters would find it more difficult to obtain work and would take lower wages. Some employers would exchange a less skilled worked for a more expensive worker and let the quality of the service or product suffer.

It is also important to note that as academic requirements increase, the student's ability to take vocational education decreases, increasing the likelihood of dropping out. The present study not only found that increased vocational credits decreased the likelihood of dropping out, but also found that increased academics for students identified with emotional disturbance and mental retardation increased the likelihood of dropping out.

Of major concern is the finding that as support credits increase for students identified with learning disabilities, dropouts increase. This finding could indicate that support courses for students identified with a learning disability need further consideration. Based on prior experience the greater the likelihood that a student is "on the way out" the greater the likelihood that the student would be placed in support courses. Rather one would hope that the support would be a component of the regular academic and vocational courses. Individual districts need to carefully consider the "excellence in education movement". To increase academic requirements is to decrease the availability of vocational credits. After all....

> *Improving educational results for children with disabilities is an essential element of our national policy of ensuring equality of opportunity, full participation, independent living, and economic self-sufficiency for individuals with disabilities.*

Presented by Mr. Goodling in the House of Representatives (January 7, 1997).

Observation of the relationship of **personal**, **family** and **curriculum** variables to dropouts with high incidence disabilities created an understanding that future reform policy should not be considered without extensive research. Despite advances in understanding the conditions associated with positive results for students with disabilities included in general education classrooms, substantial gaps continue to exist in our knowledge of how to best meet the needs of the individual with disabilities.

Recommendations

As a result of the findings established by the study the following recommendations are suggested:

Recommendations for School Districts

-To prevent potential dropouts, students evidencing patterns similar to students who drop out should be targeted for more intensive interventions tailored to the specific needs of the student.

- School districts must examine programs and availability of services within their own settings in order to implement strategies that make a difference to potential dropouts.

- To put intensive interventions in the IEP (individual education plan) to decrease dropout rates for students with high incidence disabilities. Special attention in the IEP to the student's success in general education and opportunities for participation in general education programs (614 (d)(1)(A) was mandated by IDEA, reauthorized June 4, 1997.

-Students with increased age, increased absenteeism, or African-American students with learning disabilities should have intensive interventions to prevent dropouts included in the IEP. The interventions should be individualized and decided by the IEP team.

- Students falling into lower income categories, lower educational attainment for the head of household or students from one parent households should have intensive interventions to prevent drop outs included in the IEP. The interventions should be determined on a case-by-case basis and decided by the IEP team.

Recommendations for State/National Data Managers

-Include all students with disabilities in state and national data collection. When the nature of the variable is not conducive to collection, data should be collected as to why.

-Set up a communication system between state/national data managers on the use of a common set of data gathering and reporting standards for students identified with and without disabilities.

-Develop a standard system to parallel the federal special education categories for state/national databases.

Recommendations for Future Research

- Ongoing research on the relationship between credits and drop outs with disabilities needs to be conducted. The literature review found few research articles which studied the association of work experience credits to drop outs with disabilities.

- Research on the relationship between support credits and school completion needs to be conducted. The literature review found little research which associated support credits with drop outs. Future research should focus on support credits and its relationship to drop outs with disabilities a gap in the literature.

References

America 2000: Educate America Act of 1994 (Pub. L. No. 103-227).

Ary, D., Jacobs, L. C., & Razavieh, A. (1996). Introduction to research in education. Orlando, FL: Harcourt Brace.

Baker, C., & Washburn, J.S. (1992). Trends in Illinois high school vocational enrollment: 1987-1992. Journal of Studies in Technical Careers, 14, 149-59.

Barber, L., & McClellan, M. (1987). Looking at America's dropouts: Who are they? Phi Delta Kappan, 69, 264-267.

Barrington, B. L., & Hendricks, B. (1989). Differentiating characteristics of high school graduates, dropouts, and nongraduates. Journal of Educational Research, 82, 309-319.

Barro, S. M., & Kolstad, A. (1987). Who drops out of high school? Findings from high school and beyond (Contractor Report). Washington, DC: Center for Educational Statistics.

Bartnick, W. M., & Parkay, F. W. (1991). A comparative analysis of the "holding power" of general and exceptional education programs. RASE - Remedial and Special Education, 12, 17-22.

Bearden, L. J., Spencer, W. A., & Moracco, J. C. (1989). A study of high school dropouts. School Counselor, 37, 113-120.

Benz, R. M., & Halpren, A. S., (1993). Vocational & transition services needed and received by students with disabilities during their last year of high school. Career Development for Exceptional Individuals, 16, 197-211.

Bishop, J. H. (1995). Vocational education and at-risk youth in the United States. Vocational Training: European Journal, 6, 34-42.

Blackorby, J., Edgar, E., & Kortering, L. (1991). A third of our youth? A look at the problem of high school dropout among students with mild handicaps. The Journal Of Special Education, 25, 102-113.

Blackorby, J., & Wagner, M. (1996). Longitudinal postschool outcomes of youth with disabilities: Findings from the National Longitudinal Transition Study. Exceptional Children, 62, 399-413.

Blank, R., & Dalkilic, M. (1992). State polices of science and mathematics education. Washington, DC: State Education Assessment Center.

Boesel, D. Hudson, L. Deich, S. & Masten, C. (1994). National assessment of vocational education. Final report of congress. Volume II. Participation in and quality of vocational education. Washington, DC.; Office of Educational Research and Improvement.

Borus, M. E., & Carpenter, S. A. (1983). A note on the return of dropouts to high school. Youth and Society, 14, 501-507.

Butler-Nalin, N. P., & Padilla, C. (1989). Dropouts: The relationship of student characteristics, behaviors, and performance for special education students. Menlo Park, CA: SRI International.

Carl D. Perkins Vocational Education and Applied Technology Act of 1990, Pub. L. No. 101-392, S. 20, 2301 (1990) (Formerly titled Vocational Education Act of 1963, Pub. L. No. 88-210).

Carter, D. J., & Wilson, R. (1992). Minorities in higher education. Tenth annual status report, 1991. American Council on Education. Washington, DC: Office of Minorities in Higher Education.

Chadsey-Rusch, J., Rusch, F. R., & O'Reilly, M. F. (1991). Transition from school to integrated communities. Remedial and Special Education, 12, 23-33.

Clinchy, E. (1996). Reforming American education from the bottom to the top: Escaping academic captivity. Phi Delta Kappan, 78, 268-270.

Coley, R.J. (1995). Dreams deferred: High school dropouts in the United States. Princeton, NJ: Educational Testing Service, Policy Information Center.

Council of the Great City Schools (1994). Dropouts in the great city schools. Urban Indicator, 1-8.

deBettencourt, L.U., Zigmond, N., & Thornton, H. (1989). Follow-up of postsecondary-age rural learning disabled graduates and dropouts. Exceptional Children, 56, 40-49.

Downing, J., & Harrison, T. (1990). Dropout prevention a practical approach. School Counselor, 38, 67-74.

Eckstrom, R. B., Goertz, M. S., Pollack, J. M., & Rock, D. A. (1987). Who drops out of high school and why? Findings from a national study. Natriello, G. (ED.). In School dropout: Patterns and policies, New York: Teachers College Press.

Elksnin, N., & Elksnin, L. (1991). Facilitating the vocational success of students with mild handicaps: The need for job-related social skills training. The Journal for Vocational Special Needs Education, 13, 5-11.

Education of the Handicapped Act of 1975, Pub. L. No. 94-142, 20 U.S.C., 1401 (1975) (Subsequently renamed the Individuals with Disabilities Education Act P.L. 105-17).

Fine, M. (1985). Dropping out of high school: An inside look. Social Policy. 16, 43-50.

Geddes, C. (1997). National Center for Education Statistics: Mini Digest of Education Statistics 1996. Washington, D.C.: National Center for Education Statistics.

Goals 2000: Educate America Act. Pub. L. No. 103-227, 20 U. S. C. 5812 (1994).

Gray, K. C., & Huang, N. T. (1991). Quantity or quality: An analysis of the impact of increased graduation requirements on math and science courses completed by vocational education graduates in Pennsylvania. A statewide transition database: what's happening in Florida. Career Development for Exceptional Individuals. Journal of Vocational Education Research, 16, 37-50.

Greenan, J., & Retish, P. (1991). Schools and educational institutions in the year 2001. The Journal for Vocational Special Needs Education, 14, 29-32.

Halloran, W.D. & Simon, M. (1995). The transition services requirement: A federal perspective on issues, implications, and challenges. Journal for Vocational and Special Needs Education, 17, 94-97.

Heal, L. W. & Rusch, F. R. (1995). Predicting employment for students who leave special education high school programs. Exceptional Children.

Hennes, J. D. (1992). Colorado student enrollment in mathematics and science, fall 1991. A survey of enrollment of Colorado public school students, grades 7-12, in science, mathematics, and computer science sources. Denver, CO: Colorado State Department of Education.

Hoachlander, G. (1996). From data to information: New directions for the National Center for Education Statistics. Berkley, CA: MPR Associates.

Hoerner, J. L. (1996). Work-Based learning: The key to school-to-work transition for all students.

Houser, J. (1996). Findings from vocational education in the United States: The early 1990's. Washington, DC: National Center for Education Statistics.

Howell, D.C. (1995). Fundamental statistics for the behavioral sciences. Belmont, CA: Wadsworth.

IDEA Improvement Act of 1997, H. R. 5, 105th Congress., 1st Session. 672 (1997).

Individuals with Disabilities Education Act Amendments of 1990. Pub. L. No. 101-476, 20 U.S.C., 1400. (Authority: (40)(a)(19). (Formerly titled the Education of the Handicapped Act of 1975 Pub. L. No. 94-142).

Individuals with Disabilities Education Act Amendments of 1997, S. 216, 105th Congress., 1st Session. 101 (1997).

Individuals with Disabilities Education Act Amendments of 1997. Pub. L. No. 105-17, S. 717, (Formerly titled the Individuals with Disabilities Education Act of 1990, Pub. L. No. 101-476).

Javitz, H., & Wagner, M. (1990). The National Longitudinal Transition Study of special education students. Report on sample design and limitations, wave 1 (1987). Menlo Park, CA: SRI.

Javitz, H., & Wagner, M. (1993). Report on sample design, wave 2 (1990): A report from the National Longitudinal Transition Study of special education students. Menlo Park CA: SRI.

Joubert, L., Renfroe, B., & Weisbender, L. (1986). Early school exiters: High school students who left school before graduating, 1983-1984. (ERIC Document Reproduction Service No. 82).

Karge, B. D., Patton, P. L., & Garza, B. (1992). Transition services for youth with high incidence disabilities: Do they exist, are they needed? Career Development for Exceptional Individuals, 15, 47-68.

Karpinski, M. J., Neubert, D. A., & Graham, S. (1992). A follow-along study of postsecondary outcomes for graduates and dropouts with high incidence disabilities in a rural setting. Journal of Learning Disabilities, 25, 376-385.

Kaufman, P., & Bradby, D. (1992). Characteristics of at-risk students in Nels: 88. Washington, DC: U.S. Department of Education.

Kolstad, A., & Owings, J. A. (1986). High school dropouts who change their minds about school. Washington, DC: Office of Educational Research and Improvement.

Kominski, R., & Adams, A. (1992). Educational attainment in the United States. March 1991 & 1990. Suitland, MD: Bureau of the Census.

Kominski, R., & Adams, A. (1993). We the Americans: Our education. Suitland, MD: Bureau of the Census.

Kominski, R., & Adams, A. (1993). School enrollment -- Social and economic characteristics of students: October 1992. Suitland, MD: Bureau of the Census.

Kortering, L., Haring, N., & Klockars, A. (1992). The identification of high-school dropouts identified as learning disabled: evaluating the utility of a discriminate analysis function. Exceptional Children, 58, 422-435.

LaPlante, M. P. (1993). State estimates of disability in America. Disability statistics report 3. San Francisco, CA: Institute for Health and Aging.

Lichtenstein, S., (1993). Transition from school to adulthood: case studies of adults with learning disabilities who dropped out of school. Exceptional Children, 59, 336-47.

Lombard, R. C., Hazelkorn, M. N., & Neubert, D. A. (1992). A survey of accessibility to secondary vocational education programs and transition services for students with disabilities in Wisconsin. Career Development for Exceptional Individuals, 15, 179-188.

Marder, C. (1992). The National Longitudinal Transition Study of Special Education Students: report on procedures for the second wave of data collection (1990). Menlo Park, CA: SRI.

Marder, C. & D'Amico, R. (1992). How well are youth with disabilities really doing? A report from the National Longitudinal Transition Study of special education students. Menlo Park, CA: SRI.

Marder, C., Habina, K., & Prince, N. (1992). The National Longitudinal Transition Study of special education students: Report on procedures for the second wave of data collection (1990). Menlo Park, CA: SRI.

Marsh, H. W. (1991). Employment during high school: Character building or a subversion of academic goals? Sociology of Education, 64, 172-189.

McGrew, K.S., Algozzine, B., Spiegel, A. N., Thurlow, M. L., & Yssedye, J.E. (1993). The identification of people with disabilities in national databases: A failure to communicate. Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

McGrew, K.S., Spiegel, A. N., Thurlow, M. L., & Yssedyke, J.E., Bruininks, R.H. & Shriner, J.G. (1992). Outcomes for children and youth with disabilities: Secondary analysis of national data collection programs. Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

McMillen, M. M., Kaufman, P. Hausken, E. G., & Bradby, D. (1993). Dropout rates in the United States: 1992. Berkeley, CA: MPR Associates.

Mertens, D., Seitz, R. & Cox, L. (1982). Vocational education and the high school dropout. Columbus, OH: Ohio State University, National Center for Research in Vocational Education.

National Commission on excellence in education (1983). A nation at risk: The imperative for educational reform, Washington, DC: U.S. Department of Education.

National Education Goals Panel, (1994). The National education goals report. Volume one: State data. Washington, DC: U.S. Government Printing Office, Superintendent of Documents.

New York City Board of Education. (1994). The class of 1994. Longitudinal report. Brooklyn, N. Y.: Office of Educational Research.

Newman, L. (1993). Hispanic secondary school students with disabilities: How are they doing? Menlo Park, CA: SRI.

Noddings, N. (1996). Rethinking the benefits of the college-bound curriculum. Phi Delta Kappan, 78, 285-289.

Pearson, L. C., & Banerji, M. (1993). Effects of a ninth-grade dropout prevention program on student academic achievement, school attendance, and dropout rate. Journal of Experimental Education, 61, 247-256.

Pittman, R. B., & Chalker, D. M. (1994). Potential influence of participation in vocational courses on dropout rates in rural schools. High School Journal, 78, 19-27.

Pogrow, S. (1996). Reforming the wannabe reformers. Phi Delta Kappan, 77, 656-663.

Rasinski, K. A., & Pedlow, S. (1994). Transcripts to study the effectiveness of vocational education. Journal of Vocational Education Research, 19, 23-43.

Reaching the goals. Goal 2: High school completion. Technical report. (1993).Washington, DC: Office of Educational Research and Improvement.

Rehabilitation Act of 1973. Pub. L. No. 93-112, 29 U.S.C., 701.

Repetto, J. B., Tulbert, B. L. & Schwartz, S. E. (1993). A statewide transition database: What's happening in Florida. Career Development for Exceptional Individuals, 16, 27-38.

Roderick, M. (1994). Grade retention and school dropout: investigating the association. American Educational Research Journal; 31, 729-759.

Ruhm, C. J. (1994). The effects of high school work on future economic attainment. Washington, DC: Employment Policies. 1-36.

Rumberger, R. W. (1987). High school dropouts: A review of issues and evidence. Review of Educational Research, 57, 101-121.

Rumberger, R.W. (1983). Dropping out of high school: The influence of race, sex, and family background. American Educational Research Journal, 20, 201.

Sarason, S. B. (1990). The Predictable Failure of Educational Reform. San Francisco, CA: Josey-Bass. 31-38.

School-to-work Opportunities Act of 1994, Pub. L. No. 103-239, 20 U.S.C.A. C.A. 6101 et seq. (West 1996).

Senge, P. M. (1991). The Fifth Discipline: The Art and Practice of the Learning Organization (New York: Doubleday Currency.

Shaw, L.B. (1982). High school completion for young women: Effects of low income and living with a single parent. Journal of Family Issues, 3, 147-163.

Sherman, J. D. (1987). Dropping out of school: Executive summary. Pelavin Associates, Inc., Washington, DC. 121-124.

Shriner, J. G., & Pelavin Associates, Inc., Washington, D. C. 121-124. (1994). State special education outcomes, 1993: A report on state activities in the assessment of educational outcomes for students with disabilities. Alexandria, VA: National Association of State Directors of Special Education.

Simon, M., & Halloran, W. (1994). Community-based vocational education: Guidelines for complying with the fair labor standards act. 19, 52-60.

Sitlington, P. G., & Frank, L. S. (1993). Dropouts with learning disabilities: What happens to them? Learning Disabilities Research & Practice. 8, 244-252.

Southeastern Regional Vision for Education (SERVE). (1992). The need for improved mathematics and science education: Policy brief. (1993). Washington, DC: Office of Educational Research and Improvement.

Soderberg, L., Jr. (1988). Educators knowledge of the characteristics of high school dropouts. The High School Journal, 71, 108-119.

Thorton, H. S., & Zigmond, N. (1988). Secondary vocational training for learning disabled students and it's relationship to school completion status and post school outcomes. Illinois School Journal. 57, 37-51.

Thurlow, M. L. (1995). High school graduation requirements: What's happening for students with disabilities? Synthesis report 20. Minnesota University, Minneapolis colleges of education; National Association of State Directors of Special Education, Alexandria, VA; National center on educational outcomes, Minneapolis, MN: Saint Cloud State University, MN.

Toch, T. (1991). In name of excellence: The struggle to reform the nation's schools, why it's failing, and what should be done. Cary, N.C.: Oxford University Press Inc.

Tuma, J., & Burns, S. K. (1996). Trends in participation in secondary vocational education: 1982-1992. Statistical analysis report. Washington, DC: National Center for Education Statistics.

U.S. Department of Education. (1990). Twelfth annual report to congress on the implementation of the individuals with disabilities education act. Washington, DC: Office of Special Education and Rehabilitative Services, U. S. Department of Education.

U.S. Department of Education. (1991). Thirteenth annual report to congress on the implementation of the individuals with disabilities education act. Washington, DC: Office of Special Education and Rehabilitative Services, U. S. Department of Education.

U.S. Department of Education. (1992). Fourteenth annual report to congress on the implementation of the individuals with disabilities education act. Washington, DC: Office of Special Education and Rehabilitative Services, U. S. Department of Education.

U.S. Department of Education. (1993). Fifteenth annual report to congress on the implementation of the individuals with disabilities education act. Washington, DC: Office of Special Education and Rehabilitative Services, U. S. Department of Education.

U.S. Department of Education. (1994). Sixteenth annual report to congress on the implementation of the individuals with disabilities education act. Washington, DC: Office of Special Education and Rehabilitative Services, U. S. Department of Education.

U.S. Department of Education. (1995). Seventeenth annual report to congress on the implementation of the individuals with disabilities education act. Washington, DC: Office of Special Education and Rehabilitative Services, U. S. Department of Education.

U.S. Department of Education. (1996). Eighteenth annual report to congress on the implementation of the individuals with disabilities education act. Washington, DC: Office of Special Education and Rehabilitative Services, U. S. Department of Education.

U.S. Department of Education. (1997). Nineteenth annual report to congress on the implementation of the individuals with disabilities education act. Washington, DC: Office of Special Education and Rehabilitative Services, U. S. Department of Education.

U. S. Department of Education. National Center for Education Statistics. (1996). The condition of education 1996. Washington, DC: Author.

U. S. Department of Education. Office of Educational Research and Improvement. (1994). National assessment of vocational education. Final report to congress. Washington,
DC: Author.

U.S. Government Accounting Office. (1993, September). Transition from school to work: States are developing new strategies to prepare students for jobs. (GAO/HRD 93-139). Washington, DC: Author.

Valdes, K. (1993). The National Longitudinal Transition Study of special education students: Database documentation for the second wave of data collection (1990). Menlo Park, CA.: SRI International.

Vanderwood, M., McGrew, K.S., & Ysseldyke, J.E. (1998). Why we can't say much about students with disabilities and educational reform. Exceptional Children, 64, 359-370.

Vocational Education Act of 1963, Pub. L. No. 88-210. (1963).

Wagner, M. (1989). The transition experiences of youth with disabilities: A report from the National Longitudinal Study. Menlo Park, CA.: SRI International.

Wagner, M. (1991a). Dropouts with disabilities: What do we know? What can we do? A report from the National Longitudinal Transition Study of special education students. Menlo park, CA: SRI International.

Wagner, M. (1991b). Youth with disabilities: How are they doing? The first comprehensive report from the National Longitudinal Transition Study of special education students. Menlo park, CA: SRI International.

Wagner, M. (1991c). The benefits of secondary vocational educational for young people with disabilities: Findings From The National Longitudinal Transition Study of special education students, Menlo park, CA: SRI International.

Wagner, M. (1992). Being female -- A secondary disability? Gender differences in the transition experiences of young people with disabilities. Menlo Park, CA: SRI International 1-58.

Wagner, M. (1993). The transition experiences of young people with disabilities. a summary of findings from the National Longitudinal Transition Study of special education students. Menlo Park, CA: SRI International, 1-208.

Wagner, M., Blackorby, J., and Hebbeler, K. (1993). Beyond the report card: The multiple dimensions of secondary school performance of students with disabilities. A report from the National Longitudinal Transition Study of special education students. Menlo Park, CA: SRI International.

Walker, R. & Bunsen, T. D. (1995) After high school: The status of youth with emotional and behavioral disorders. Career Development for Exceptional Individuals 18, 97-107.

Weber, J.M. (1986). The role of vocational education decreasing the dropout rate. Columbus, Ohio: Ohio Sate University, National Center for Research in Vocational Education.

Weber, J.M. (1988). Dropout rates for students in different high school curricula -- another look. Journal of Vocational Education Research, 13, 35-49.

Will, M. (1984). OSERS programming for the transition of youth with disabilities: Bridges from school to working life. Washington, DC: Office of Special Education and Rehabilitative Services, U.S. Department of Education.

Appendix A

Key Definitions

Emotional disturbance - section 300.5 (8) of IDEA 105-17 defines serious emotional disturbance as: *a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance*

-an inability to learn that can not be explained by intellectual, sensory, or health factors;

-an inability to build or maintain satisfactory interpersonal relationships with peers and teachers;

-inappropriate types of behavior or feelings under normal circumstances;

-a general pervasive mood of unhappiness or depression; or

- attendance to develop physical symptoms or fears associated with personal or school problems.

The term includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have a serious emotional disturbance.

Learning disability - section 300.5 (9) of IDEA 105-17 defines learning disability as: *a disorder in one or more of the basic psychological processing involved in understanding or 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, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

Mental retardation - section 300. 5 (4) of IDEA 105-17 defines mental retardation as: *significantly sub average general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period that adversely affects a child's educational performance.*

The Education of the Handicapped Act Amendments (Pub.L. No. 94-142) was passed in 1975 to guarantee the rights of students in special education (Subsequently known as the Individuals with Disabilities Education Act of 1997 - Pub. L. No. 105-17). P. L. 94-142. The public law that ordered that "a free appropriate public education was available for all children identified with disabilities within the states receiving federal special education funds not later than Sept. 1, 1978.

Transition - section 1401 of IDEA 105-17 defines transition services as:

A coordinated set of activities for a student, designed within an outcome-oriented process, which promotes movement from school to post school activities, including post-secondary education, vocational training, integrated employment (including supported employment), continuing and adult education, adult services, independent living or community participation. The coordinated set of activities shall be based upon the individual student's needs, taking into account the student's preferences and interests and shall include instruction, and community experiences, the development of employment and other post-school adult living objectives, and when appropriate, acquisition of daily living skills and functional vocational evaluation.

Appendix B

Description of Credits

Academic credits

English (language arts, literature, reading lab, writing lab, writing skills, and other); communications (media, journalism, communications, library science, yearbook); Speech; general mathematics (basic math, basic math skills, consumer math, computer assisted math, math sequence courses) algebra; geometry; trigonometry; calculus; other mathematics (statistics, abacus, survey section math, and other); social sciences (history, geography, government, economics, political science, sociology, psychology, anthropology, law, international relations, area studies, women's studies, public affairs, free enterprise, behavioral science, civics, personal law); general science (multi-disciplinary approach, biological and physical combined); biology/life science (botany, zoology, ecology, physiology, marine biology); physical science; chemistry; physics; geology; earth science; other physical science (oceanography, aerospace, meteorology, astronomy, and marine management); science combined (environmental, earth/spa science, and biochemistry); language; business math (vocational math, occupational math, career math); business English; and business law. Liberal arts courses, philosophy/religion and physical education courses were not included in this dummy variable.

Vocational credits

Combined life skills-vocational preparation; Home economics (general includes domestic service); adult roles and functions independent living (life skills, daily living, consumer education, single survival, personal finance, community awareness, functional life); family relations (family health, parenthood, marriage); Interpersonal skills (personal awareness, behavioral skills); foods/nutrition (cooking); child care; child development; clothing (apparel and textiles, sewing); food production/management services (fast food, restaurant, meat cutting, and catering); home furnishing and equipment management, production and services (housing and interior design); institutional, home management (custodial, building/grounds maintenance, homemaker aid, hotel services, vocational homemaking); health occupations (allied heath - assist health professional with diagnostic, therapeutic, preventive, and rehabilitative services, geriatric aide and nurse's aide); business; accounting (bookkeeping, record keeping, banking/financial programs); secretarial (office management. shorthand, transcription, administrative support, office

machines, procedures, supervision, personnel, communications, office aide, office technology); typing; computer and information sciences (applications, computer literacy, computer graphics); computer programming; data processing (data entry, word processing, keyboarding); marketing and distribution (distributive education, salesmanship, marketing, retail environment and warehousing); consumer/personal services (cosmetology, dry cleaning, barbering, funeral); industrial arts/shop; electricity; electronics (energy and power); machine shop; technologies; manufacturing; construction (building, carpentry, masonry, tile setting, plumbing, electrical installation, electrical wiring, and painting); auto mechanics (auto body, mechanics, auto, aircraft, engines, and boat maintenance); mechanics/maintenance and repair (electrical, electronics, appliances, business machines, communications equipment, computer repair, industrial equipment, heating/air conditioning, refrigeration, stationary energy sources, power mechanics, technical home maintenance, repair of musical, shoes, clocks, and bicycles); drafting (architectural/engineering drawing, blueprint reading, mechanical drawing, computer assisted drawing); graphics (commercial art, printing, graphic art, and sign engraving); leather/upholstery; welding (metals, plastics, and jewelry making); woodworking/cabinetry; transportation and material moving (air, water, heavy vehicle operation, truck driving, and other equipment); engineering; communication technologies (mechanical, scientific, or technical aspects of communications); agriculture (horticulture, agribusiness, landscaping, floral); renewable natural resources (air, soil, water, land, fish, and wildlife); parks and recreation; military science (ROTC); protective services (police, fire, and security); and other vocational courses.

Support credits

Study skills (learning lab, basic skills); tutorial/resource room (instruction to support regular individualized classes, study or survival skills); functional abilities (day or half-day classes for special education students which include basic English and math skills and other academic instruction); handicap support (mobility training, speech therapy, audio/visual therapy, and listening skills); and generic special education (from Wave 1 student record abstract).

Work experience credits)

Career preparation and career exploration (introduction to vocations, career guidance, getting a job, occupational exploration program, short term unpaid work experiences, pre-vocational, job behaviors, safety and guidance); work experience, cooperative education, employment skills, general vocational instruction, job placement,

vocational cooperative program, paid and unpaid job training, sheltered workshop, JTPA; school and community service (teacher's aide, library aide, peer counseling, attendance assistant, and citizenship); assembly, manufacturing, mailing, sorting, packaging, and shredding paper.

Appendix C

Description of the NLTS Sampling Procedure

The National Longitudinal Transition Study (NLTS) was mandated by Congress in 1983 to provide information regarding the transition of youth with disabilities from secondary school to early adulthood. The Office of Special Education Programs (OSEP) of the U.S. Department of Education contracted SRI International to conduct the study, which began in 1987 (Marder, Habina, Prince, 1992).

Sampling Procedure

The participants from the original sample (Wave 1) included a stratified random sample of all students with disabilities attending U.S. secondary schools in 1985. Sampling was done in two stages: school sampling and student sampling. In sampling schools, 1,450 school districts that served students with disabilities at the 7th grade level or higher were identified. From these, 450 local education agencies (LEAs) were randomly selected to represent the strata of four regions of the country (i.e., Northeast, Southeast, Central and West/Southwest), with six size classifications (refers to student enrollment), and four levels of district poverty (Javitz & Wagner, 1993).

Of the 12,833 youth sampled, 43 were later found to be deceased. Of the remaining 12,786 -- 1,632 youth did not have a consent form returned by parent or guardian. Location information was inaccurate for 636 and SRI was unable to reach these youth. Parents or guardians of only 10,518 youth of the 12,933 sampled were available for interview. From Wave 1, a total of 8,404 youth had sufficient data for analysis.

Defining the Universe of Local Education Agencies (LEA)

Conferring with the Office of Special Education Programs (OSEP) and the National Center for Education Statistics (NCES), the universe was initially defined as all LEAs offering grade 7 or higher. Non operating LEAs were eliminated as well as vocational-technical "only" districts, supervisory unions, area educational agencies, interim districts, boards of county educational services, or other superordinate units, public agencies, Bureau of India Affairs schools, achievement centers, regional resource centers, private agencies, Texas Independent State School Districts (primarily correctional facilities or homes for delinquent youth) and LEAs from Puerto Rico, Guam and other territories.

Districts with fewer than ten students were also eliminated. From rosters, 12,833 students in grades 7-12 and ages 13-21 were selected and stratified into three age groups (13-15, 16-18, & over 18) for each of the 11 disability categories. The deaf blind category had fewer than 100 students (Wagner, 1991b).

Two categories of exceptions were:

1.) Four very large districts requested that they select the sample rather than send hundreds of pages of roster information. They first provided counts of special education students by disability and age (13-15, 17-18 and 19-21). From these counts, SRI determined the number in each sampling category and provided detailed instructions on how to select the sample.

2.) District staff from 28 LEAs concerned about violating students rights provided a roster with an ID number. SRI selected the sample and then informed the district of the ID numbers of students selected.

Youth in the hearing impaired and visually impaired categories attend state-operated schools and did not appear on the rosters. An additional stratum consisting of all 84 state-operated schools for deaf and blind were selected to obtain the needed representative sample of youth in these categories.

Contacts to districts and state-operated schools about obtaining roster information continued through June 1986. A list of selected students was selected and requests were made that the district provide parent names, addresses, and home telephone. Parents were later contacted to request their consent to participate in the study.

Creating The Sampling Frame

The sampling frame was created from a composite data base developed from the most current data from the public school universe file maintained by Quality Education Data (QED) and NCES tapes for 1980-81 ad 1981-82. When necessary, these data were supplemented with telephone calls to individual districts and states.

The sampling frame was created by:

- eliminating obvious errors from the tape (blank or duplicate records, no names, spelling errors, invalid codes and extreme outliers.

- Removing all nonoperating LEAs, supervisory unions, vocational-technical districts ad relevant public agencies.

- Including an LEA from QED and NCES data if:

1). the district identification number was on both sources or,

2). the number was on at least one source and verified by the later NCES 1981-82 tape and a telephone call.

- Checking for incorrect or changed district names and identification numbers when an LEA wasn't listed by all sources.

- Using NCES 1981-82 data when QED artificially merged K-8 ad 9-12 for mailing purposes.

- Checking to make sure that LEAs had the same identification number on different tapes.

To test the accuracy of the initial sampling frame of LEAs, it was matched with a list of LEAs submitted by seven states directly to SRI. There was a 99.75% match between the two. The initial sampling frame contained 13,975 LEAs. Approximately 5.7% of the districts no longer offered secondary-level instruction or had merged with other LEAs - the revised universe contained 13,180 LEAs.

Stratifying the Universe

The LEA universe was stratified by region, district size (enrollment) and a measure of district wealth.

Region. The region variable captures political differences in the organization of schools, the economic conditions under which they operate and the character of public concerns. For example, at the time the LEAs were selected, the "sunbelt" Southern states had growing enrollments and relatively healthy economies that were able to support various endeavors to improve education, whereas the declining industrial states of the northeast faced decreases in the resources for school improvement.

For the NLTS study, the regional classification variable used by the Department of Commerce, the Bureau of Economic Analysis, and the National Assessment of Educational Progress was adopted:

-Northeast -- Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island and Vermont.

-Southeast -- Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia and West Virginia.

-Central -- Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

-West/Southwest -- Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Washington, Wyoming, and Utah.

District Size (Enrollment). The district size stratification variable was initially a nine category scale. After examining the number of districts and proportions of studies accounted for in each of the nine categories, the categories were merged into six enrollment strata. The six strata were defined to be consistent with other research and homogeneous, yet distinct from other strata.

The principal strata were:

-Huge districts -- enrollment of 50,000 or greater

-Very large districts -- enrollment between 25,000 and 49,999

-Large districts -- enrollment between 10,000 and 24,999

-Medium-sized districts -- enrollment between 2,500 and 9,999

-Small districts -- enrollment between 500 and 2,499

-Very small districts -- enrollment fewer than 500

District/Community Wealth. To estimate the percentage of youth in a LEA who were below the poverty level, the ratio of students receiving Title I funds to the total student population in a LEA was used as a measure of district/community wealth and as an initial proxy for the amount of services available in the community surrounding the LEA.

-High -- Zero percent to four percent disadvantaged youth.

-Medium -- Five percent to nine percent.

-Low -- Ten percent to 19 percent.

-Very low -- Twenty percent and over.

Selecting LEAs for Inclusion in the Sample

The estimated number of LEAs offering grade seven or higher was corrected by eliminating the proportion of LEAs in each stratum found not to have grade seven or higher. The result was a reduction in the universe from 13,975 to 13,180.

SRI randomly selected a first-stage stratified sample of 1,600 LEAs (approximately 11% of the secondary LEA population) so that 1) all huge and very large districts were chosen, 2) a majority of the large districts, with enrollment between 10,000 and 25,000 were included; 3) the remaining sampled LEAs were distributed among the other strata in approximate proportion to the number of students contained in each. The effect was to ensure the selection of a very high proportion of larger districts and a lower proportion of smaller districts.

Chilton Research Services (CRS) conducted a survey of the first stage of 1,600 of the LEAs for SRI to determine the services available to special education students. The survey found that 47 LEAs no longer offered secondary education. In addition, four LEAs had merged with other districts and were no longer distinct entities, which left a sample of 1,549. Of these 1,450 responded and 99 either refused to participate or were not reached, for a response rate of 93.6%.

A second-stage sample of 450 LEAs was selected from the 1,450 respondents from stage one, using stratified random sampling procedures. Selected LEAs in each stratum was approximately proportional to the number of LEAs in stage one. Stage two refusals

were high; 132 districts of the original 450 districts refused to participate. A replacement sample representative of students nationwide in each disability category of 178 districts was selected. The selection was matched to districts who refused on each stratification variable.

Obtaining LEA Rosters of Secondary Special Education Students

The U.S. Department of Education sent letters to state special education directors of all 50 states (during the summer of 1985) describing the NLTS and requesting permission to contact sampled school districts about participation. Every state grated permission and in October 1985, SRI sent a letter to superintendents of 450 districts that were selected in the original sampling. The letter requested a roster of all special education students in grades 7-12 who were also ages 13-21, including students with disabilities for whom the district was financially responsible, even if the student did not attend a district school. The name of the student, type of disability (using 11 federal categories) the birth date of the student, grade level and the name of the school or agency that the student attended was also requested in the letter. The letter stated that SRI was an authorized representative of the U.S. Department of Education and that education agencies could release student information to SRI without violating Family Rights and Privacy Act (FERPA). Districts that did not respond within the first two weeks were sent a reminder letter and two weeks following the second letter, project staff called.

Youth in the hearing impaired and visually impaired categories attend state-operated schools and did not appear on the rosters. An additional stratum consisting of all 84 state-operated schools for deaf and blind were selected to obtain the needed representative sample of youth in these categories.

Appendix D

Method: NLTS Components and Data Collection Results, Wave 2

Wave 2 had five major components:

The parent/youth telephone interview and mail questionnaires. The parents/guardians of youth found in the sample, and in many cases the youth themselves were administered an interview by telephone during the fall/winter of 1990-91. The purpose of the interview was to obtain information on services received by youth and outcomes in the areas of employment, education, and independence. Many of the items in the interview were similar or identical to Wave 1 items from the parent interview. This enabled The NLTS to examine experiences of youth over time. If respondents were unable or unwilling to be interviewed by telephone, they were sent mail questionnaires containing selected items from the telephone interviews. There were three potential components to the Wave 2 parent/youth questionnaire:

Part one of the interview contained questions about the youth's receipt of services and ability to perform selected activities.

Part two of the interview contained questions that the youth had accurately responded to in the pretests. The youth was the desired respondent for Part two unless the adult respondent in Part one indicated that a disability or some other factor would prevent the youth from responding. In such cases the adult was the preferred respondent. Because of the variation in respondents, two versions of Part two were constructed. Part Two A Parent Continuation and Part Two B Youth Continuation. The two versions were almost identical except for perceptual questions asked of the youth with aspects of life such as jobs and living arrangements.

School transcripts. This component obtained transcript Information for youth who had attended secondary school since the 1986-87 school year. Youth who had left secondary school in 1986-87 or earlier were excluded from the transcript component because it was considered burdensome to access records for more than four years previously.

School program content form. Data regarding the student's school program in the most recent school year were abstracted by a current or former teacher from IEPs and recorded as the percentage of the student's instructional time that was spent in specific content areas.

School program survey. This survey was designed to be completed by teachers or counselors of youth enrolled in the 1990-91 school year. The survey was about academic background of youth and current in-class performance. The survey covered topics such as outside transition services, transition planning, parent involvement, and diagnostic test results. In-class performance items were organized into three sections so that the school staff member could describe the youth's performance in regular education academic classes, special education academic classes, and regular education vocational classes.

School background survey. The survey collected general information such as school population, ethnic composition, and type of school. One person was selected from each school to receive this survey when there was more than one youth from the study currently enrolled at the school.

Eligibility for Wave 2

All youth from Wave 1 were eligible for the Wave 2 sample except those:

-Who were deceased;

-Found during Wave 1 to be over the age limits for the study (13-21 years old in the 1985-86 school year);

-Whose parent/guardian refused to participate;

-*For whom there was no valid address or phone number; or

-*Between Wave 1 and Wave 2 the Parent/Guardian requested not to be contacted again.

* *Note: The lack of an address or phone number or parent/guardian request not to be contacted did not exclude youth from the transcript or school survey components.*

The results of the Wave 2 data collection are summarized in table 23.

Table 14
Wave 2 Data Collection Results

	Total	LD	ED	MR	Other
Number of youth sampled Wave 1 & 2 *a*	12,833	1,650	1,321	1,642	8,220
Total available for Wave 2, all components	9,619	1,329	913	1,391	5986
Sufficient Data Wave 1 *b*	8,404	1,190	779	1,204	5,231
Completed parent part 1 interviews	6,280	867	521	863	4,029
Completed telephone	5,828	813	480	784	3,751
Completed mail	452	54	41	79	278
Completed parent part 2A interviews	3,882	363	265	619	2,635
Completed telephone	3430	309	224	540	2,357
Completed mail	452	54	41	79	278

Table 15
Wave 2 Data Collection Results

	Total	LD	ED	MR	Other
Completed youth part 2B interviews	2,931	536	285	285	1,825
Completed telephone	2,584	528	282	266	1,508
Completed mail	347	8	3	19	317
Partially completed Parent 1 & 2A, or Youth interview	210	30	28	29	123
Parent part 3 interviews	473	57	34	87	295
Total available for interviews	8,660	1,189	824	1.212	5,435
School transcripts *c*	6210	943	560	920	3,787
Total transcripts available	5,851	766	488	832	3765
Completed school program content form *d*	433	4	11	95	353
School program survey	1,089	189	95	203	602
School background survey	6,712	932	563	946	4,271

a Of the 12,833 youth who were sampled, 43 were later found to be deceased. Of the remaining 12,786 youth who were eligible for the sample, the school districts that were contacted did not provide location information for 1,632 youth because the consent form was not returned by the parent or guardian. For an additional 636 youth the location information provided was inaccurate. Only 10,369 youth out of the 12.833 sampled were available for an interview for Wave 2 (Javitz & Wagner, 1993). However, only 9,619 were available for all components of Wave 2 (Marder, Habina & Prince, 1992).

b Youth who did not have a parent interview or a record abstract were eliminated because they did not have sufficient data.

c Transcripts for one or more school years. Some transcripts were from Wave 1.

d The school program content form only addressed the most recent school year of these youth.

Description of NLTS Sample

Available in Wave 2 were 10,369 participants, which is 80.2 percent of the original sample of 12,833 (Javitz & Wagner, 1993). However, only 9,619 were available for all components, which is 75 percent of the original sample (Marder, Habina & Prince, 1992). For the parent/youth interview the sample contained 7,023 participants, which is 54.7 percent of the original sample. The school transcripts component contained 6,210 participants, which was 48.4 percent of the original sample. The school program content form component contained 433 participants, which was 3.4 percent of the original sample. The school program survey component contained 1,089 participants, which was 8.5 percent of the original sample. The school background component contained 6,712 participants, which was 52.3 percent of the original sample (Javitz & Wagner, 1993).

Description of Collection Components (Marder, Habina & Prince, 1992)

This section provides an in-depth description of the Wave 2 collection components.

There were five collection components: 1). parent/youth telephone interview and mail questionnaires, 2). school transcripts, 3) school program content form 4). school program survey and 5). school background survey obtained the data. The data regarding school and district were best collected from school personnel, whereas data regarding nonschool related items, such as employment status, were best reported by parents or the youth in the sample.

Wave 2 Parent/Youth Interview by Telephone and Mail Questionnaires

The instrument had two main parts. The first part contained items related to school enrollment status, residential arrangements, receipt of services, and level of functioning. The second part covered employment, postsecondary schooling and independence level. The interview was divided into two parts because the desired respondent for each part was

different. Part 1 contained questions about the youth's ability to perform certain activities and receipt of services. If a parent/guardian or other appropriate adult was available, Part 1 was not administered -- in pretests, youth had not been found to be accurate reporters of service receipt, the desired respondent was an adult who was knowledgeable about the youth. Pretests youth were not accurate reporters of service receipt. Part one was never administered to the youth. If an adult was not available part one was not administered.

Part 2 did not contain questions that the youth had not been able to respond to accurately in pretests. In addition, Part 2 contained some perceptual questions, such as satisfaction on the job, for which only the youth could answer. Of course the youth was preferred as a respondent for Part 2 unless the Part 1 respondent reported that disability or other factor would prevent response. In these cases, the Part 1 respondent was the preferred respondent for Part 2.

Part one of the interview described services (occupational therapy, counseling, physical therapy, speech therapy, and vocational training) received by the student either inside or outside the school setting, but while still a student.

Information was obtained for youth in Wave 2 interviews/mail questionnaires for whom there had been no Wave 1 interview. An additional section including questions about ethnicity, household background, and assessments of the youth's functional abilities were included in part 3 to rectify this problem. Part 3 was administered to parents/guardians only because it asked for assessments of the youth's abilities.

School Transcripts

The sample included all eligible youth included as a wave 2 participant, who had attended secondary school since the 1986-87 school year and for whom information was available as to the name and location of the school. School exiters in 1986-87 or earlier were excluded from the transcript component because access of records for more than four years prior to 1986-87 was considered burdensome. An instruction sheet specified how to annotate the transcripts to provide additional data needed for NLTS. The five areas needing annotation involved marking all special education classes, explaining abbreviations, identifying courses that included school-sponsored work experience, specifying the grade level for each year, and entering absentee information. Because transcripts for currently enrolled youth would not be complete, the second page requested the youth's current courses.

School Survey Component Sample

The sample included all eligible youth included as a Wave 2 participant, who were currently in secondary school in the 1990-91 school year. This sample was specified for this component of the study because firsthand information on student performance was required for the teacher survey (it would be difficult to recall firsthand knowledge about students they were not currently teaching).

School program content form

A form was designed to summarize school programs that were not included on the transcript. Information regarding the student's school program in the most recent school year was recorded by a current or former teacher from IEPs and recorded as the percentage of the student's instructional time spent in each content area. The six areas were: 1) academics, life skills, 2) general vocational exploration, 3) specific vocational skills training and work experience, 4) nonacademic and 5) nonvocational activities, and 6) disability support services.

School program survey

The survey was designed to be completed by teachers or counselors of students enrolled during the 1990-91 school year. The survey asked about student academic background and current in-class performance, covering such topics as outside services, transition planning, parent involvement, and diagnostic test results. The performance was described in three sections: regular education academic classes, special education academic classes, and regular education vocational classes.

School background survey

Each school attended by the youth during the data collection received the survey. It contained information such as school population, ethnic composition, and type of school. When there was more than one youth enrolled, one data collector was selected to receive the survey.

The sample available in Wave 2 for any type of data collection was 9,619 participants, which is 75 percent of the original sample of 12,833. For the parent/youth interview, the sample contained 8,660 participants, which is 67 percent of the original sample. The sample for school records contained 5,851 participants, which is 46 percent

of the original unit - 959 of these were not included in the parent/youth interview group, which is seven percent of the original sample.

Combined data from multiple sources

The National Longitudinal Transition Study Of Special Education Students: Database Documentation for the Second Wave of Data Collection (1990) (Valdes, 1993) indicates that variables used in the NLTS study combined data from various components, but still had missing information. For example, determining whether a student was from a single parent household came from both Wave 1 and Wave 2 data bases. Wagner's analysis of issues related to combining data from various sources failed to provide evidence against maximizing the data by combining them from different sources when appropriate (Wagner, 1993).

Appendix E

Collection Questions and Collection Components

Table 16
NLTS Wave 2 Collection Questions and Collection Components

Variable & File Location	Question	Collection Component
Age Parent 1 Gender Schtran Combined	Youth's age Values: youth's age in 1990 Youth's gender Values: 1= Male 2 = Female	Parent/youth questionnaire Section s, Wave 1 & 2 Wave 1 Parent survey Wave 2 Parent/youth survey Transcript Data
Attendance	Cumulative: average number of days absent in a 2-semester year. Absent in grades 9-12. Absence overall (in all grades or ungraded). Values: Average number of days absent in a 2-semester school year.	Transcript data
Ethnicity Combined	What is youth's ethnic background? values: 1 = Black 2 = Caucasian 3 = Hispanic 4 = Other	Wave 1 Parent survey Wave 2 Parent/youth survey
Economic level Combined	Think of the income the household got in 1986 or 1990 from all sources before taxes. 1= under $12,000 2= $12,000-19,999 3= $20,000-24,999 4= $25,000-37,999 5= $38,000-50,000 6= over $50,000	Wave 1 Parent survey Wave 2 Parent/youth survey

Table 17

NLTS Wave 2 Collection Questions and Collection Components

Variable & File Location	Question	Collection Component
Parent's Educational level Combined	What is the highest year of grade (you/the head of household) finished in school? values: 1= 11th grade or less 2= high school 3= some college 4= 2 yrs. of college 5= 4 yrs. of college 6= some graduate work 7= graduate degree	Wave 1 Parent survey Wave 2 Parent/youth survey
One or two-parent household Combined	Is this a one-parent or a two-parent household? values: 1= one-parent 2= two-parent	Wave 1 Parent survey Wave 2 Parent/youth survey
Academic credits Schtran	What are the total number of credits for courses listed as academic credits? Appendix B contains a breakdown of these courses.	School transcript
Vocational credits Schtran	What are the total number of credits for courses listed as vocational credits? Appendix B contains a breakdown of these courses.	School transcript

Table 18

NLTS Wave 2 Collection Questions and Collection Components

Variable & File Location	Question	Collection Component
Support credits Schtran	What are the total number of credits for courses listed as support (special education) credits? Appendix B contains a breakdown of these courses.	School transcript
Work experience credits Schtran	What are the total number of credits for courses listed as work experience credits? Appendix B contains a breakdown of these courses.	School transcript
Dropouts Combined	Dropped out in 9th, 10th, 11th, or 12th grade Values: 0 = no 1 = yes	School transcript Wave 2 School Program Content Wave 1 Parent survey Wave 2 Parent/youth survey

Appendix F
T-tests and Chi Square

Table 19

T-test Comparison Between Transcripts (N = 2173) and HIDS (N = 1149)

Variable	N = 2173	N = 1149	t value	p value
Age				
Mean	16.37	16.10	-3.3328	0.0009
S D	1.244	0.928		
Attendance/	17.30	18.68	-1.5032	0.1330
Absences	18.93	20.44		
Education				
Mean	2.2484	2.1568	1.2572	0.2089
S D	1.451	1.491		
Economic				
Mean	3.530	3.582	-0.4774	0.6331
S D	2.092	2.188		

Table 20

Chi Square Comparison Between Transcripts (N = 2173) and HIDS (N = 1149)

Variable	Dropped from N = 2173	N = 1149	Chi Sq	p value
Gender			6.904	0.009
Male				
n	729	799		
%	71%	70%		
Female				
n	292	348		
%	29%	30%		
Ethnicity			2.565	.767
African Am	175	200		
n	22%	20%		
%				
Caucasian	557	713		
n	71%	72%		
%				
Hispanic	39	56		
n	5%	6%		
%				
Other	19	21		
n	2%	2%		
%				
# of Parents			6.904	0.009
One parent	259	269		
n	35%	29%		
%				
Two parents				
n	480	658		
%	65%	71%		

Table 21

Chi Square Comparison Between Transcripts (N = 2173) and HIDS (N = 1149)

Variable	Dropped from N = 2173	N = 1149	Chi Sq	p value
Disability			6.553	0.010
LD				
n	921	512		
%	42%	45%		
ED				
n	529	281		
%	24%	24%		
MR				
n	723	356		
%	33%	31%		
Non dropouts				
n	568	814		
%	78%	71%		
Dropouts				
n	157	335		
%	21%	29%		

Appendix G

Range of Variables

Table 22
Range of Variables

Variables	Theoretical Range	Actual Range
Age	1990 ages 18-29 1985 post calculation ages 13-24	14 to 24 yrs. old
Gender	Males = 1 Females = 2	Males =1 Females =2
Attendance	approximately 0 to 180 days	0 to 172 absences
Ethnicity	1 = African Amer. 2 = Caucasian 3 = Hispanic 4 = Other	1 to 4
Economic Level	1 = under $12,000 2 = $12,000-19,999 3 = $20,000-24,999 4 = $25,000-37,999 5 = $38,000-50,000 6 = over $50,000	1 to 6
One or two-parent households	1 = one-parent 2 = two-parent	1 to 2

Table 23

Range of Variables

	Theoretical Range	Actual Range
Educational Level	1 = 11th or less 2 = high school 3 = some college 4 = 2 yrs. college 5 = 4 yrs. college 6 = some grad. work 7 = graduate degree	1 to 7

Table 24

Range of Curriculum Variables

	Theoretical Range	Actual Range
-Academic credits	*e* approx. 0 to 30	0 to 27
-Vocational credits	*d* approx. 0 to 24	0 to 20
-Support credits	0 to 30 (based on academic range)	0 to 24
-Work credits	*f* 0 to 12	0 to 9
-Dropouts	Cohort rates 22 to 28 Annual Reports to Congress	29 percent

e The approximate maximum amount of academic credits would be 7 credits per school year, minus 2 physical education credits. Plus summer school credits (probably limited to 4).

d The approximate maximum amount of vocational credits would be 5 or 6 credits per school year. A student with a disability enrolled in a heavy concentration of vocational courses, would usually be enrolled in one or two support courses per year as well.

f If the student earned 3 credits each year the maximum would be 12 for 4 school years.

Appendix H

Number, Mean and Standard Deviation of Curriculum Variables

Table 25

The Number, Mean & Standard Deviation of Curriculum Variables

Number
Mean
Standard Deviation

Variable	Learning Disabilities	Emotional Disturbance	Mental Retardation
Academic Credits	486	260	336
	11.6	10.0	10.2
	4.9	5.8	5.4
Vocational Credits	476	253	325
	5.4	3.6	4.7
	3.7	3.3	3.5
Support Credits	486	260	336
	.54	.36	.55
	1.11	1.09	1.92
Work Credits	452	249	317
	.41	.39	.89
	.84	.81	1.52

Appendix I

Frequencies of Selected Independent Variables

Table 26

Frequency of Age

Age	LD	ED	MR	Total
13 to 15	128	91	52	271
16 to 18	376	189	295	860
19 and older	8	1	9	18
	512	281	356	1149

Table 27

Frequency of Absences

Number of Absences	LD	ED	MR	Total
0 to 10 days	198	83	152	433
11 to 20	123	57	74	254
21 to 30	53	29	28	110
31 to 40	34	21	22	77
41 to 50	12	11	9	32
51 to 60	5	6	3	14
61 to 90	5	6	7	18
91 to 120	3	1	5	9
121 to 172	2	1	0	3
Total	435	215	300	950

Table 28

The Frequency and Percent of the Gender of Students with High Incidence Disabilities

Frequency

Percent

Gender	LD	ED	MR	Total
Male	373	217	209	799
	32.52	18.92	18.22	69.66
Female	138	64	146	348
	12.03	5.58	12.73	30.34
Total	511	281	355	1147
	44.55	24.50	30.95	100.00

Table 29

Frequency of Disability by Age Among Males

	Disability			
Age	**L D**	**E D**	**M R**	**Total**
14	1	2	1	4
15	86	68	32	186
16	202	99	102	403
17	68	43	47	158
18	9	5	19	33
19	3	0	5	8
20	2	0	2	4
21	0	0	1	1
23	1	0	0	1
24	1	0	0	1
Total	373	217	209	799

Table 30

Frequency of Disability by Age Among Females

	Disability			
Age	**Learning Disability**	**Emotional Disturbance**	**Mental Retardation**	**Total**
14	1	1	0	2
15	40	20	19	79
16	78	33	72	183
17	18	8	44	70
18	1	1	10	12
19	0	1	1	2
Total	138	64	146	348

Table 31

The Frequency of the Ethnicity of Students with High Incidence Disabilities

Ethnicity	**LD**	**ED**	**MR**	**Total**
African Ame	72	43	85	200
Caucasian	349	179	185	713
Hispanic	23	14	19	56
Other	12	3	6	21
Total	456	239	295	990

Table 32

Frequency of the Economic Level of the Head of the Household

Economic Level	LD	ED	MR	Total
Under 12,000	72	51	73	196
12,000-19,999	85	46	64	195
20,000-24,999	29	14	20	63
25,000-37,999	100	100	47	200
38,000-50,000	66	22	28	116
over 50,000	29	21	10	60
Total	381	207	242	830

Table 33

Frequency of the Educational Level of the Head of the Household

Educational Level	LD	ED	MR	Total
-11th or less	129	69	134	332
-high school	172	71	90	333
-some college	54	43	17	114
-2 yrs. college	17	14	9	40
-4 yrs. college	24	10	14	48
-some graduate work	9	4	1	14
-graduate degree	19	9	5	33
Total	424	220	270	914

Table 34

Frequency of One vs. Two-parent Households

Frequency

Percent

One vs. two-parent households	LD	ED	MR	Total
One Parent	102	80	87	269
	11%	9%	9%	29%
Two Parents	324	146	188	658
	35%	16%	29%	71%
Total	426	226	275	927
	46%	25%	30%	100%

Table 35

Frequency & Percentage of Curriculum Variables Relative to the Total Curriculum

Type of Credit	LD	ED	MR	Total
Academic	465	233	308	1006
	41%	44%	40%	41%
Vocational	427	197	285	909
	37%	37%	37%	37%
Support	127	40	61	228
	11%	8%	8%	9%
Work	125	62	123	310
	11%	12%	16%	13%
Total	1144	532	777	2453
	100%	100%	100%	100%

Table 36

Frequency of Academic credits

Number of Academic credits	LD	ED	MR	Total
0	21	27	28	76
1 to 3	24	22	27	73
4 to 6	30	26	23	79
7 to 9	54	30	50	134
10 to 12	102	51	77	230
13 to 15	155	55	88	298
16 to 18	78	40	35	153
19 to 21	19	7	5	31
22 to 24	2	2	1	5
25 to 27	1	0	2	3
Total	486	260	336	1082

Table 37

Frequency of Vocational Credits

Number of Vocational credits	LD	ED	MR	Total
0	49	56	40	145
1 to 3	124	87	87	298
4 to 6	119	52	99	270
7 to 9	111	44	62	217
10 to 12	58	13	30	101
13 to 15	11	1	0	19
16 to 18	3	0	0	3
19 to 20	1	0	0	1
Total	476	253	325	1054

Table 38

Frequency of Support Credits

Support credits	LD	ED	MR	Total
0	359	220	275	854
1 to 3	107	33	46	186
4 to 6	19	6	9	34
7 to 9	1	1	3	5
10 to 12	0	0	2	2
24	0	0	1	1
Total	486	260	336	1082

Table 39

Frequency of Work Credits

Work credits	LD	ED	MR	Total
0	327	187	194	708
1 to 3	120	59	101	280
4 to 6	4	3	19	26
7 to 9	1	0	3	4
Total	452	249	317	1018

Vita

Teresa Whitt

55 Central Ave. Wellsboro, PA 16901

Education:

Post-Masters, Supervision and Administration of Special Education; Summer, 1992 until present; Ph.D. student - Virginia Polytechnic Institute and State University Blacksburg, VA. Dissertation defense completed April 22, 1998.
The Certificate of Advanced Graduate Study (Cags) Predoctoral program of study completed Spring, 1996.

Master of Education, Curriculum and Instruction (MAED) *with an emphasis in Reading* K-12, Virginia Polytechnic Institute and State University Blacksburg, VA. (Summer, 1991)

Bachelor of English (BA) Clinch Valley College of the University of Virginia; Wise, VA. Spring, 1981; Concentration: Secondary English, Education.

Licensure:

Virginia's State Teachers Postgraduate Professional

Endorsements:

Supervisor of Special Education, Instructional Supervisor, Reading Specialist K-12, Specific Learning Disabilities NK-12, English, and Speech Communication.

Professional Experience:

Radford University -- Assistant Professor, Middle School Education; Spring, 1998; Radford, VA 24142.

EDME 409 The Middle Learner -

Objective: To assist the prospective middle level teacher to construct in-depth knowledge and understanding of early adolescents as students. This knowledge and understanding includes the developmental characteristics and needs of early adolescents and provide a framework for examining the diversity of students in regard to their abilities and cultural background. Implications are drawn for developing appropriate learning environments to foster development.

EDME 410 Community: A Middle School Perspective -
Middle school educators are challenged to "create small communities for learning" which connect and empower teachers and students. Students study and practice community building through interdisciplinary teaming, advisor/advisee programs and parental involvement.

EDME 451 & 560 Student Teaching -
Clinical experience on one or more grade levels appropriate to the certification area; begins with observation and limited participation and culminates in assumption of full responsibility in the classroom. Special seminars regularly scheduled to enhance professional development of the student teacher.

Norfolk State Univrsity -- Adjunct Faculty; Spring, 1998;
Norfolk, VA.

UED 500H Cooperative Learning/Student Responsibility and Self Discipline (3 credits)
- Student accountability is fostered and strategies for patterns of student cooperation and on-task behavior are developed.
- Patterns of cooperative behavior techniques for classroom application are demonstrated and practiced.
- The concept of responsibility is developed on a personal level, with other people, and as part of a classroom and school community.

Gratz College -- Adjunct Faculty; May, 1998; April, 1998; March, 1998; February, 1998; August, 1997; June, 1997; April, 1997; January, 1997.
Melrose Park, PA.

A5226 Encouraging Student Responsibility and Self Discipline (3 credits)
Objective: To foster student accountability and develop patterns of student cooperation and on-task behavior.
- Patterns of cooperative behavior techniques for classroom application are demonstrated and practiced.
- The concept of responsibility is developed on a personal level, with other people, and as part of a classroom and school community.

July, 1997.
A5289 Styles of Teaching: Personality Type in the Classroom (3 credits)
Objective: The participant will be able to:
dentify/apply components of personality type to teaching situations.
-Understand all aspects of personality type, and how to fully utilize type while teaching.
-Enhance lessons using a variety of styles.
-Build a classroom climate that esteems all styles.

Caldwell College -- Adjunct Faculty, August. 1996, Caldwell, NJ.

ED544-424 Encouraging Student Responsibility and Self Discipline (3 credits)
Objective: To foster student accountability and develop patterns of student cooperation and on-task behavior.
- Patterns of cooperative behavior techniques for classroom application are demonstrated and practiced.
- The concept of responsibility is developed on the Intrapersonal, interpersonal, and group/organizational level.

Virginia Polytechnic Institute, Senior Graduate Research Assistant, August 1994 to December, 1996.

U.S. Department of Education -- Office of Special Education Programs, Internship, Washington, DC - Summer 1995.

Liberty High School, Bedford, VA -- August, 1990 until June 1994.
Coordinator of an Inclusive, dropout prevention project. The at-risk students included students identified as: emotionally disturbed, learning disabled, mentally retarded, autistic, physically disabled, as well as students identified with attention deficit and/or hyperactivity disorder and students from general education.
Teacher of developmental reading, learning disabilities, English, Content Area Reading.

Pulaski County High School Pulaski, Virginia -- August, 1988 until June, 1990
Teacher of developmental reading, English.
Assisted with curriculum development & computer operations/attendance and scheduling.

Charles City County High School, Ruthville, Virginia -- August, 1987 until June 1988.
Teacher of 8th grade Reading & 8th and 10th grade English.

Direct Experience with Students Classified with the Following Disabilities, or Health Impairments:

Specific Learning Disabilities, Serious Emotional Disturbance, Attention Deficit Hyperactivity Disorder, Visual Impairment, Hearing Impairment, Mental Retardation, Autism, and Speech Impairment.

Presentation Experience:

Department of Rehabilitation, Topic - School-to-work,
Virginia Beach, VA, Spring, 1997.

Department of Rehabilitation, Topic - Student Advocacy,
Roanoke, VA, Spring, 1996.

Dr. Bierman - Seminar, Secondary Curriculum; Topic - Curriculum for Alternative Education; Fall, 1993; Virginia Polytechnic Institute.

Virginia Council for Learning Disabilities Conference - Topic, Dropout Prevention; Spring, 1993; Williamsburg, VA.

Dr. Houck - Seminar, Teaching Students with Specific Learning Disabilities; Topic, Curriculum; Spring, 1993; Virginia Polytechnic Institute.

Department of Rehabilitation - Coalescence in Transition; Topic, Transition and School-to-work programs; 1993, Spring; Vocational Assessment and Transition Forum Charlottesville, VA.

Grant Experience:

Technical Assistance for Grant Workshop, for LEA Applicants for Secondary to Postschool Transition for Youth with Disabilities Incentive Grants - February 12, 1997.

Major Project at U.S. Department of Education - Unsolicited Grant - Responsibility included: review committee & teleconference, writing interagency agreement and final package. Total Grant $1,2000,000.

Publications:

Virginia English Bulletin; Fall, 1993; *Motivating Students to write Research Papers.*

Virginia English Bulletin; Fall, 1991; *Drawing to Learn: Imagery In Text.*

Membership in Professional Organizations:

Phi Delta Kappa, Fall 1995.

National Education Association, 1987 to 1995.

Council for Exceptional Children, 1994 to present.

Gamma Beta Phi Society, Virginia Polytechnic Institute, 1991 to present.