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Examining Factors That Affect Graduation Rates For Pennsylvania Students With Disabilities in Three Intermediate Unit Areas

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EXAMINING FACTORS THAT AFFECT GRADUATION RATES FOR

PENNSYLVANIA STUDENTS WITH DISABILITIES IN THREE

INTERMEDIATE UNIT AREAS

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Abstract

The purpose of this study was to examine graduation rates of students with

disabilities and factors that may have affected those rates. More specifically, this

study compared intermediate unit and county-level data for students with

disabilities in districts in 10 counties of Pennsylvania. Correlations were

examined between the graduation rates of the students with disabilities in these

counties and socioeconomic factors of poverty rate, median household income,

and the percentage of students in the counties who were economically

disadvantaged. In addition, graduation rates of students with disabilities for these

same counties were examined in comparison to the results of their 11th grade

PSSA scores. Finally, student specific data was examined for those students with

disabilities of specific learning disability, emotional disturbance, mental

retardation, and autism. This examination focused on relationships between their

graduation status and the factors of disability, type of service, type of support, and

least restrictive environment. The specific group of participants included in this

study included those students with disabilities in 10 counties of Pennsylvania who

started 9th grade in 2001-2002 and completed their education four years later. The

findings of the study indicated that the 10 counties chosen were statistically

similar in their socioeconomic status as well as their graduation rates. In addition,

the rate at which students with disabilities scored in the proficient or advanced

levels of the PSSA were also statistically similar throughout the 10 counties. Of

the four factors examined (disability, type of service, type of support, and least

restrictive environment), students with specific learning disabilities educated

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through itinerant or resource services in learning support programs were most likely to graduate. The least restrictive environment did not make a significant difference in the graduation rates. However, even with the significant results found in the study, students with disabilities were more likely to have slightly lower graduation rates than their non-disabled peers.

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DEDICATION

This work of educational research is dedicated to those students, with mild disabilities, who have experienced the struggles of attempting to fit into the educational system that is often beyond their means, and have managed, by their sheer determination, to come out on top.

CHAPTER I

INTRODUCTION

Introduction

The No Child Left Behind Act (NCLB) of 2002 indicated that the goal of

education was for all students to be proficient in reading and math by 2014.

Included in the definition of all students were those students who are limited-

English proficient, economically disadvantaged, of different ethnicities, students

with disabilities, and migrant students. Although all the subgroups of students

present challenges to the schools (Dunn, Chambers, & Rabren, 2004), students

with disabilities are protected under another federal law, Individuals with

Disabilities Education Act (IDEA). This law mandates all students with all levels

of disabilities be educated in public schools to the maximum extent appropriate

(Secs. 3000.550-300.556). Therefore, all students needing to be proficient would

now include students with cognitive deficiencies of severe mental retardation,

autism, and multiple disabilities, as well as students with learning deficiencies of

learning disabilities, emotional disturbance, and mild forms of mental retardation

and autism. In addition, students with physical disabilities, speech and language,

vision, or hearing difficulties will also be included in this group.

When reporting NCLB information to the federal government, states must

report categories of school attendance, assessment participation, graduation rates,

drop out rates, and actual assessment results. The purpose for these reporting

categories is to provide a check and balance system by which all students are truly

being included in the assessments from the subgroup categories as well as the

general population. As the mandates for achievement levels are becoming more stringent, more and more studies (Barton, 2005; Dorn, 2003: Greene & Winter, 2002; PPC, 2005) are being conducted regarding graduation rates and drop out rates.

How hard can it be to determine graduation rates for a school, district, state, or nation? On the surface it would seem to be an easy matter to determine. In reality, it becomes much more difficult when adding in some relevant factors. One factor is a national definition of graduation rate explained in the No Child Left Behind (NCLB, 2002) as "The percentage of students who graduate from secondary school with a regular diploma in the standard number of years)" [Sec 1111(b)(2)(C)(vi)]. This authorization concludes by giving states permission to develop their own definition. Other factors include determining graduation rates based on a four-year diploma or as many years as is necessary; accepting or not accepting the General Education Development (GED); counting or not counting students who quit school and then return; determining how to count students who move away; using a group or cohort, longitudinal approach compared to a year by year approach; and, using all diplomas conferred by a state as compared to only using a regular academic diploma. All of these factors feed into the definitions used by individual states. Since no standard definition is used across states, comparing one state's graduation rate to another does not provide as much information as if you were comparing items using the same definition.

Graduation rates for students with disabilities take on more factors. Does the individual disability affect the rate at which a student graduates? With all the

various definitions of graduation rate, does the definition used interfere with the rate for certain disability categories? Does the type of service or how much time a student spends with special education services compared to the time they spend with general education services affect their rate of graduation? Does the state offer different diploma options for students with disabilities and are these diplomas counted in the state graduation rate? Does the student need more than four years of high school to complete a standard course of study and is this extended time counted in the state graduation rate?   The questions are numerous.

Some authors (Bandalos, 2004, Barton, 2005) have indicated that using one federally developed graduation rate for all fifty states in the United States would allow for greater accuracy in comparisons between states. It would eliminate states attempting to report results that are higher rates than actually exist for students with disabilities as well as the general population of students (Hall, 2005). It would allow states to truly look at their rates of graduation for all students on an equal basis and develop programs to address graduation rate difficulties, if they exist. In developing those programs to increase graduation rates for all students, including students with disabilities, a common graduation rate definition would allow the focus to truly rest upon the best practices that might work in all states and not just in states that have similar graduation rate definitions. Some authors believe that schools or districts are "creative in reporting why students were no longer enrolled" (Barton, p. 7). Hall (2005) reported, "rates are misleading in some places and missing altogether in others" (p. 2). One reason for the misleading or missing information is this difference in

how states calculate their graduation rates (Hall, 2005: NASSP, 2005). When working with students with disabilities, having a variety of graduation rate definitions adds a factor that could be eliminated with a common graduation rate definition.

Central Theme

As early as the seventeenth century, schools have been educating students in the United States (Microsoft, 2005). First private tutors and private schools that catered to families of wealth were the recipients of this education. Thomas Jefferson was the first politician to suggest creating a public school system that educated all children (Thattai, n.d.). Since that time, states have been raising the compulsory age of school attendance from just grammar schools to include high school education. Most states now require students to remain in school until age 16 (Thattai, n.d.).

Since early in the twentieth century educators, politicians, and business people have been interested in how many students actually graduate at the end of their schooling (Dorn, 2003). Tied to that question is the partner question of what happens to the students that do not graduate (Greene, 2002). When the Elementary and Secondary Education Act was reauthorized and became known as No Child Left Behind, graduation rates became a mandated part of the accountability reporting that states and school districts need to supply.

The fear on the part of the lawmakers drafting the law was that as schools attempted to increase their achievement levels for students, low achieving

students, including students with disabilities, would be encouraged to end their

formal relationship with a school in order to not have a negative affect on the

achievement rates (Swanson, 2003). The check and balance built into the law for

helping all students achieve is to ask districts to report their assessment

participation rate and to report their graduation rate. In this manner, school

districts would provide the data that keeps all students, including students with

disabilities, in school until they graduate or report that they left and why.

Assessments

When NCLB first became law. information was gathered on the types of

assessments used to document a student's preparedness for graduation. (Council

of Chief State School Officers, n.d.) Districts and states were using portfolios,

performance-based assessments, long-term graduation projects, and many

physical, project-oriented methods of assessing educational growth as well as

standardized, norm-referenced assessments. As the mandates of NCLB are being

realized, states have felt the need to move away from the time-consuming and

costly, performance-based assessments such as portfolios and projects, to use

more time-efficient, and financially-efficient, standardized, norm and

criterion–referenced paper and pencil assessments (Doherty, 2003). Their

justifications center around the need for increased assessment and speed in getting

results from the assessments in order to prepare adequately for the next

assessment. Initially, many states assessed students, once in elementary school,

once in middle school, and once in high school. Typically, the pattern was 3rd or

5th grade, 8th grade, and either 10th or 11th grades for assessment years (CCSSO, n.d.). Now, many of the states assess students in most of elementary and middle school and then at least once again in high school (CCSSO, n.d.). Where these assessments were once the guide for educational practices of the schools, now assessment results are used to report AYP (adequate yearly progress) (Kornhaber, 2004). Due to all the changes that are occurring around this issue of assessments, there is little empirical data to support what type of assessment will bring about the result of increasing all students, including students with disabilities, to proficiency by 2014.

In addition to the changes in assessment formats, assessment for students with disabilities is also changing. Initially, only students with the most severe disabilities were excluded from the general accountability assessments and permitted to take an alternate assessment based at their functional levels (Boehner, 2004). As recently as April 2005, the US Department of Education announced that states were able to develop modified standards of academic achievement and use alternate assessments based on these modified standards for students who have persistent academic disabilities who are served under the IDEA. These students' scores will be included in AYP results for the district and only two percent of the total assessed population may be included in this group. This new provision is designed for those students whose disabilities will keep them from reaching grade-level achievement in the same timeframe as their grade appropriate peers but who still make significant progress in the educational setting. Introduced in April 2005, states have until the 2006-2007 school year to

develop new modified standards and assessments if they choose to use this provision.

As research is beginning to develop on graduation rates, so is research beginning to explore a connection between mandatory accountability assessments and those same graduation rates (Darling-Hammond, 2005). With the infancy of these mandates, extensive research does not exist.

Statement of the Problem

Recent studies have focused on the fact that one-third of our student population in the United States is not graduating from high school (Barton, 2005). As the federal government begins to look at the accountability information provided from the states, outside groups are also looking at this public information and realizing that although NCLB is designed to keep all students in school until they graduate, thirty percent of those students are not graduating.

Disaggregating students into subgroups is built into NCLB. These categories include, Gender (Male and Female), Ethnicity (White, Black, Latino-Hispanic, Asian, Native American, and Multiracial), Students with Disabilities, Economically Disadvantaged, Students with Limited English Proficiency and Migrant students. From the evidence provided in educational research, specific groups of students struggle more than others with achieving academically (Orfield, Losen, Wald & Swanson, 2004; Swanson, 2002; Swanson & Chaplin, 2003).

Typically, when graduation rates are reported, they are reported for a school, entire district, or even state. However when this happens, the subgroups' scores are embedded in the total. This act of embedding the scores of the subgroups may not bring attention to the fact that a specific subgroup is not getting the attention it needs, or it may not bring attention to the fact that the entire score is decreased due to including the scores of a specific subgroup.

The federal government specifically protected these subgroups by mandating their results be disaggregated or separated. In this way, the schools cannot miss that a group of students is struggling and is not getting the attention it needs. Now, when school districts and states report their graduation results to the federal government, they are reported for the whole class, but also disaggregated into the above mentioned subgroups.

One subgroup of those students that have lower graduation rates is students with disabilities. Given that these students come to education with cognitive barriers to learning, researchers in the field of education have been attracted to studying how their assessment information and graduation rates would be affected by the NCLB mandates (Guy, Shin, Lee & Thurlow, 1999; Kaznowski, 2004). The concern then is if there are specialized factors that affect the graduation rate for students with disabilities? Does the disability play a role? Is the socio-economic status of the region of the state a factor in lower graduation rates? Does it make a difference if the student spends more or less time with their non-disabled peers when looking at accountability information? These questions guided the development of the purpose of this study.

Purpose, Questions, and Hypotheses

As a teacher of students with disabilities for nearly three decades, this researcher has been very interested in how the students she taught or similar students would fare within the framework of No Child Left Behind. One of this researcher's first prognostications was that most students with mild disabilities would be quitting school before graduating rather than deal with the mandated requirements of meeting proficiency on state assessments. When a study was found during the summer of 2005 reporting the declining graduation rates for all students in Pennsylvania, this researcher had a personal conversation with the author of the study (R. E. Feir, personal communication, July 5, 2005) and discovered that his research did not disaggregate students with disabilities. Nor did that research focus on factors that led to the declining rates. However, the fact that it was built on national studies that also showed declining graduation rates began to form the basis for this study.

The purpose of this study is to examine graduation rates of students with disabilities and factors that affect those rates. More specifically, this study compares intermediate unit and county-level data for students with disabilities in districts in 10 counties of Pennsylvania. Correlations were examined between the graduation rates of the students with disabilities in these counties and socioeconomic factors of poverty rate, median household income, and the percentage of students in the counties who were economically disadvantaged. In addition, graduation rates of students with disabilities for these same counties

were examined in comparison to the results of their 11th grade PSSA scores. Finally, student specific data was examined for those students with disabilities of specific learning disability, emotional disturbance, mental retardation, and autism. This examination focused on relationships between their graduation status and the factors of disability, type of service, type of support, and least restrictive environment. The specific group of participants included in this study included those students with disabilities in 10 counties of Pennsylvania who started 9th grade in 2001-2002 and completed their education four years later.

The data collected begins in the researcher's area of education in the three counties of Intermediate Unit 1. To provide for additional data, comparable Intermediate Unit areas were chosen that are similar in poverty rates, median household incomes, percentage of students who are economically disadvantaged, and percentages of students with disabilities. The focus for questions one, two, and three will be on all students with all disabilities within 10 designated counties. The focus for question four will be on those students, within the same 10 counties, who interact within the regular school classes and setting. These students will fall in the categories of emotional disturbance, mild mental retardation, specific learning disabilities, and autism. The first three questions will use district information provided through the Special Education Data Report and demography maps provided by the Fannie Mae Foundation, while the fourth question will use student specific information from the Penn State Data Center.

As reported in Pennsylvania's State Report Card, the graduation rate for all students in Pennsylvania graduating in May or June 2005 was 88%. The

graduation rate for the subgroup of students with disabilities in Pennsylvania in the same year was 82%, using the NCES (National Center on Education Statistics) formula detailed in Chapter 2. It is expected that the graduation rate for students with disabilities will be equal to or lower than the state graduation rate (Swanson, 2003). Students with disabilities, by definition, do not achieve at the same rate as students without disabilities (Kaznowski, 2004; Swanson, 2003). Although they do make progress and do achieve, it often takes them longer to reach academic goals. This fact was included in the reason the U. S. Department of Education made a new provision last year to allow states to further modify their academic standards for an additional two percent of their student population rather than the original one percent (Boehner, 2004).

Found below are the research questions for the study and the researcher's hypotheses for which information will be gathered and analyzed. As has been stated above, the focus is on students with disabilities in Pennsylvania and the factors that might affect their graduation rates.

1. What is the 2004-2005 graduation rate for all students with disabilities in the Intermediate Unit 1 counties of Fayette, Greene, and Washington? There are two sub-questions. (a) How does the graduation rate differ among the three counties? (b) What is the relationship between the graduation rate of all students with disabilities in Intermediate Unit 1 and the socioeconomic status of a school, as measured by poverty rate, median household income, and the percentage of economically disadvantaged students?

Hypothesis: Based on the percentage of economically disadvantaged

students in each county (Fayette = 45%, Greene = 42%, and Washington = 28%)

and based on Barton's (2005) research that socioeconomic status affects

graduation rates, it follows that these three counties would rank in their

graduation rates the same as their socioeconomic status (NASSP, 2005).

Therefore, students with disabilities will have graduation rates ranked from lowest

to highest in Fayette, Greene, and Washington Counties respectively.

With poverty rate reported at approximately 20% and a median household

income between $9,300.00 and $27,000.00 Fayette County is among the most

impoverished counties in Pennsylvania (Fannie Mae Foundation, 2006). Greene

County fares slightly better with a poverty rate at approximately 16% and a

median household income between $27,000.00 and $30,000.00 (Fannie Mae

Foundation, 2006). Washington County with more industry and greater access to

the city of Pittsburgh has a poverty rate at approximately 8% and a median

household income between $37,000.00 and $39,000.00 (Fannie Mae Foundation,

2006).

2. What are the 2004-2005 graduation rates for all students with disabilities

    in the counties of Intermediate Unit 6 (Venango, Forest, Clarion,

    Clearfield, and Jefferson Counties) and Intermediate Unit 10 (Clearfield,

    Centre, and Clinton Counties)? There are two sub-questions. (a) How do

    the graduation rates differ among the counties and compared to the

    counties of Intermediate Unit 1 (Fayette, Greene, and Washington

    Counties)? (b) What is the relationship between the graduation rate of all

students with disabilities in Intermediate Units 6 and 10 and the socioeconomic status of a school, as measured by poverty rate, median household income, and the percentage of economically disadvantaged students?

Hypothesis: Based again on socioeconomic status reported through the Fannie Mae Foundation in 2006, students in the counties of Intermediate Unit 1 (Washington, Greene, and Fayette Counties) will have comparable graduation rates to those counties in Intermediate Unit 6 and Intermediate Unit 10.

To find areas of the state that were socio-economically comparable to the counties within Intermediate Unit 1, county poverty rate and median household incomes maps were obtained from www.dataplace.org. Counties were compared on these two variables, poverty rate and median household income, until comparable counties were found. Then, using the Intermediate Unit map for Pennsylvania, counties were grouped according to Intermediate Units to find areas of the state that were socio-economically comparable. In addition, percentages of students who are considered economically disadvantaged were obtained from the school district report cards once the counties were chosen. Intermediate Unit areas used for comparison in poverty and median household income are Riverview IU 6 comprised of Venango, Forest, Clarion, Clearfield (Dubois Area School District), and Jefferson Counties, and Central IU 10 comprised of Clearfield, Centre, and Clinton Counties.

Regarding poverty rate within the IU 6 counties, Jefferson is 10%, Venango is 12%, Forest is 16% Clearfield is 10%, and Clarion is 16%. Regarding median

household income within the IU 6 counties, Forest ranges between $9,500.00 and $27,000.00, Clarion and Clearfield range between $27,000.00 and $29,000.00, Jefferson ranges between $29,000.00 and $31,500.00, and Venango ranges between $32,000.00 and $33.000.00. The percentage of students who are economically disadvantaged shows Clarion and Jefferson are 30%, Venango is 36%, Clearfield is 42% and Forest is 44%.

Within the IU 10 counties the poverty rates range from 10% in Clearfield to 12% in Clinton to 16% in Centre Counties. Median household income ranges from $27,000.00 and $29,000.00 in Clearfield and Clinton Counties to $29,000.00 and $31,500.00 in Centre County. The rate of economically disadvantaged ranges from 23% in Centre County to 37% in Clinton County and 42% in Clearfield County.

3. What is the relationship between the 2004-2005 graduation rates and the 11th grade reading and math PSSA scores for districts in Intermediate Units 1, 6, and 10? There is one sub-question. (a) What are the differences in relationships between graduation rates and PSSA scores across the counties?

Hypothesis: There will be a significant positive relationship between graduation rates and PSSA scores. Districts with higher graduation rates will have higher PSSA scores and conversely districts with lower graduation rates will have lower PSSA scores.

Students with disabilities are scoring basic and below basic in both reading and math with more consistency than in the proficient or advanced range

according to the PSSA results released from Pennsylvania (Penn Data School Report Cards, 04-05). All students taking the PSSA, including all subgroups, during the 2004-2005 school year were working toward a proficiency rate of at least 45% in math 54% in reading. Students with disabilities were more consistently below that proficient level than were above it. Kaznowski (2004) claims that when standardized assessment results consistently tell students that they are not meeting the expectations of the school, these students are at risk of dropping out, taking longer to complete their graduation requirement, or choosing to complete their education in a non-traditional manner. All of these choices will have a negative affect on the graduation rate.

4. Using student-level data from high schools in the fifty-four districts, the research question is: How is the 2004-2005 graduation rate for all students with mild cognitive or emotional disabilities (learning disabled, emotionally disturbed, mentally retardation, and autistic) affected by their disability, their type of service (itinerant, resource, part-time, or full-time), their type of support (Learning Support, Emotional Support), and their least restrictive environment (percentage of time spent outside the regular classroom)? There is one sub-question. (a) How do the districts, counties, and intermediate units compare regarding the influence of these four factors on the graduation rates?

Hypothesis: The disabilities, type of service, type of support, and least restrictive environment in question for this study will have an affect on graduation rates.

Students with Emotional Disturbance, Specific Learning Disabilities, Mild

Mental Retardation, or Autism are functioning at different rates of success within

the general population of students. However, the type of disability does play a

part in their graduation rate (GAO-03-773). Students with emotional disturbances

are likely to have dropout rates twice as high as students in other disability

categories. However, all students with disabilities are included in the category of

students who are considered at-risk and this group as a whole, struggles with

graduating from high school (Dunn et al., 2004). According to the GAO report,

students with disabilities acquired graduation rates of approximately 67% during

the years from 1998 through 2001 (p 11).

The type of service or amount of time spent receiving instruction in a

special education classroom, will have an affect on graduation rates in

conjunction to the severity of the disability. Students with milder disabilities will

be expected to spend more of their time receiving instruction within the general

education classroom. This will allow them the opportunity to have access to the

specific information included on the state accountability assessments. Due to the

pace and structure of the general education environment, students with less severe

disabilities will be challenged by the curriculum in this general education setting.

Although modifications will be made to meet the needs of the students, the higher

expectations still make it a challenge for students with milder disabilities to meet

the graduation requirements for the schools (Kaznowski, 2004). Students with

more significant disabilities will need the support of the special education

classroom to meet their needs for modification of curriculum to address their

learning needs and this will help their completion of high school requirements, increasing their graduation rates. Students not in a program of support that fits their individual needs will flounder and possibly become at risk of dropping out as a result of their needs not being met.

The four research questions listed above will examine intermediate unit, county, district, and student specific data for students with disabilities in 54 school districts in 10 counties of Pennsylvania. The data gathered will be analyzed to determine if the factors have some or any affect on the graduation rates or the PSSA scores for students with disabilities within the districts. The anticipated outcome will be a determination of what factors need to be the focus of future intervention in order to increase the graduation rates and increase the PSSA scores for students with disabilities in the state of Pennsylvania.

Definitions of Terms

For the purposes of this study, the following definitions apply:

1.   Assessments

      a. Norm-referenced assessments – The results of the assessment are
          reported in comparison to other people who took the same test.

      b. Criterion-referenced assessments – The results of the assessment
          are reported in comparison to pre-determined criteria, not against
          other people.

2.   Disabilities – Areas defined in Pennsylvania's Chapter 14 as
      categories needing specialized instruction within the general
      educational programming.

      a. Mental retardation – Significantly subaverage general intellectual
          functioning, existing concurrently with deficits in adaptive
          behavior and manifested during the developmental period that
          adversely affects a child's educational performance.

          i. Mild Mental Retardation – Students in the upper range of
              subaverage general intellectual functioning category.

      b. Specific Learning Disability – A disorder in one or more of the
          basic psychological processes involved in understanding or in
          using language, spoken or written, that may manifest itself in the
          imperfect ability to listen, think, speak, read, write, spell, or to do
          mathematical calculations, including conditions such as perceptual

disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

c. Emotional Disturbance – 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: (A) An inability to learn that cannot be explained by intellectual, sensory, or health factors. (B) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers. (C) Inappropriate types of behavior or feelings under normal circumstances. (D) A general pervasive mood of unhappiness or depression. (E) A tendency to develop physical symptoms or fears associated with personal or school problems.

d. Autism – A developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3, that adversely affects a child's educational performance.

3. Economically Disadvantaged – In Pennsylvania, this is based upon free and reduced breakfast and lunch information. In this study, economically disadvantaged serves as one of three proxies for socioeconomic status.

4. Exclusions – One percent of the total school district population with the most severe disabilities (mental retardation, medical fragility,

severe autism) who are excluded from the PSSA and permitted to take the alternative assessment, PASA.

5.   Individual Education Plan (IEP) – A contract written at least one time each year for a student with disabilities that outlines their educational programming for that year.

6.   Inclusion – Students with disabilities are educated with their general education peers with supports from special education personnel or with modifications and accommodations.

7.   Graduation rate – For the data used in this study, Pennsylvania used the NCES synthetic formula for graduation rates. It uses the graduates (2004-2005) in the numerator. The graduates plus the 12th grade dropouts (2004-2005), 11th grade dropouts (2003-2004), 10th grade dropouts (2002-2003), and 9th grade dropouts (2001-2002) are used in the denominator.

8.   LRE – Least Restrictive Environment – The amount of time a student spends receiving instruction outside of the general education classroom.

9.   Mainstream – Students with disabilities are educated with their general education peers with little or no support from special education personnel, modifications, or accommodations.

10.   Median Household Income - The median is the *middle number* present in a set of data when the incomes of all households are arranged in an

order of highest to lowest. In this study, median household income serves as one of three proxies for socioeconomic status.

11. Performance Targets – As the state moves toward meeting the accountability requirement of No Child Left Behind, Pennsylvania has established performance targets for the schools to meet in order to show Adequate Yearly Progress. The targets vary for Reading and Math.

12. Poverty Rate - The poverty rate is defined as the percentage of the population whose family income falls below an absolute level, the poverty line. In this study, poverty rate serves as one of three proxies for socioeconomic status.

13. PSSA levels of achievement

    a. Advanced - Superior academic performance indicating an in-depth understanding and exemplary display of the skills included in Pennsylvania's Academic Standards.

    b. Proficient - Satisfactory academic performance indicating a solid display of the skills included in Pennsylvania's Academic Standards.

    c. Basic - Marginal academic performance, work approaching, but not yet reaching, satisfactory performance, indicating partial understanding and limited display of the skills included in Pennsylvania's Academic Standards.

d. Below Basic - Inadequate academic performance that indicates little understanding and minimal display of the skills included in Pennsylvania's Academic Standards.

14. Socioeconomic Status – Pennsylvania's definition is the percentage of students who are considered to be economically disadvantaged who are taking the PSSA in a given school. In this study, socioeconomic status is defined using poverty rates, median household income, and economically disadvantaged.

15. Students with disabilities – Students who have physical and/or cognitive disabilities as recognized by Chapter 14 of the Pennsylvania School Code. Those disabilities included in this study are: Autism, Emotional Disturbance, Hearing Impairment / Deafness, Mental Retardation, Multiple Disabilities, Orthopedic Impairment, Other Health Impairment, Specific Learning Disability, Speech or Language Impairment, Traumatic Brain Injury, and Visual Impairment/ Blindness.

16. Type of service – The portion of a school day a student with disabilities spends receiving special education services.

a. Itinerant – General education classroom instruction for most of the school day, with special education services and programs provided by special education personnel inside or outside of the general education class for part of the school day.

b. Resource – General education classroom instruction for most of the school day, with special education services and programs provided by special education personnel in a separate room for part of the school day.

c. Part-time – Special education services and programs outside the general education classroom but in a regular school for most of the school day, with some instruction in the general education classroom for part of the school day.

d. Full-time – Special education classes provided for the entire school day, with opportunities for participation in nonacademic and extracurricular activities to the maximum extent appropriate, which may be located in or outside of a regular school.

17. Type of support – The type of program where the student with disability receives special education instruction. It does not have to relate directly to their disability, but rather is a program designed to meet the individual needs of the student. Examples include Learning Support, Emotional Support, Autistic Support, Life Skills Support, and Multiple Disability Support.

CHAPTER II

REVIEW OF LITERATURE

Introduction

In August 1981 Secretary of Education Bell created the National

Commission on Excellence in Education (NCEE). The purpose of the

commission was to prepare a report on the quality of education in America. In

April 1983, the commission presented A Nation at Risk: The Imperative for

Educational Reform (NCEE, 1983), to Secretary Bell and the American people.

The impetus for creating the commission came from the widespread public

perception that something was seriously wrong with the educational system. The

commission was given six specific guidelines within which it should do its

research: (a) assessing the quality of teaching and learning in public and private

schools, colleges and universities; (b) comparing American education to that of

other advanced nations; (c) studying the relationship between college admission

needs and high school achievement; (d) identifying educational programs that

produce notable student success in college; (e) assessing the extent to which

major social changes have affected student achievement; and (f) defining

problems we need to face and overcome in order to pursue excellence in

education in America.

The results of the commission's study were separated into four sections

(NCEE, 1983): content, expectations, time, and teaching. The content

conclusions found that American curricula had been "homogenized, diluted, and

diffused" (NCEE, 1983, Findings Regarding Content) to the point that there was

no longer a central purpose to education. The commission termed American

education a "smorgasbord" (NCEE, 1983, Findings Regarding Content) of

choices presented to students. They found that 30% more students were choosing

general track courses and avoiding the more rigorous academic classes. The

findings in regard to expectations found students doing less homework and

earning higher grades. The time spent in mathematics and science courses was

about one-third that found in other advanced nations. The graduation

requirements were diminished to the point that 50% of the required graduation

credits could come from electives rather than required courses. During the time

the commission did their study, three disturbing findings came from the research.

These revealed American students spent much less time on schoolwork than other

nations, the time they did spend on class work and homework was often used

ineffectively, and schools were not doing enough to increase students' study

skills. All of these factors would be heightened when considering students with

disabilities. The findings regarding teachers found many teachers came from the

bottom quarter of graduating high school and college students. Teacher

preparation courses were seriously lacking in content courses. Teacher salaries

were low enough that most teachers had to supplement their salaries with a

second job. Teacher shortages were extensive in mathematics and science areas

(NCEE, 1983).

The recommendations from the commission (NCEE, 1983) suggested that

graduation requirements be strengthened, and all students be required to complete

a core of subject matter in order to graduate. This core subject matter would

include English, mathematics, science, social studies, computer science, and foreign language. Colleges and universities were encouraged to raise the admission standards in order to push high schools to raise the graduation standards. Schools were encouraged to devote more time to actual teaching and learning and consider lengthening the school day or school year. Initial recommendations for teachers included raising the graduation standards for teacher preparatory programs and increasing teacher salaries to competitive levels. Also recommended was lengthening the work year for teachers beyond the student year to include professional development time. Finally, the use of master teachers to design teacher preparation programs and to work with new teachers was recommended as a means of sharing the veteran knowledge with the upcoming teachers. The recommendations went even further to suggest that citizens hold educators and elected officials responsible for achieving these suggested reforms.

The Center for Education Reform (1998) encapsulated what followed these recommendations (www.edreform.com/pubs/then&now.htm). General findings showed an increase in twelfth grade math and science achievement among industrialized nations. However, one-fifth of the adult population still could not draft a letter. In 1994, 25% of the 12th graders scored below basic in the National Assessment of Educational Progress (www.schoolmatters.com). Eighty percent of all public four-year colleges offered remedial courses. Regarding content, the number of high school college preparatory courses increased from 9% in 1982 to 39% in 1994. Up from 14%, 39% of the high

school graduates were now taking more rigorous coursework in English, math, social studies, and science. In the area of expectations, 1996 found 64% of high school seniors doing less than one hour of homework a night compared to 66% in 1983. By 1998, 38 states had drafted academic standards in English, math, science, and social studies and 34 states were using standards-based assessments for math and English. This was a significant increase from 1983 when education was seen as lowering the educational standards for all. The time studies showed American students spending 20 less days in school each year compared to their international peers as well as receiving half as much instruction in core academic subjects. A Nation at Risk had brought public education to the forefront of American attention. At the time of these findings, information was not gathered specifically regarding the subgroups of students that are considered under federal laws today.

Almost 20 years after A Nation at Risk was published, on January 8, 2002, President George W. Bush reauthorized The Elementary and Secondary Education Act and created what has been termed the No Child Left Behind Act (NCLB). The overriding principle of this act was to bring all public school students in the United States to the level of proficiency in academically challenging coursework. The intent of the law was to increase accountability from the states so that results were shown for all students. At the same time, each state had the flexibility to determine their definition of proficiency and their academically challenging curriculum. If school districts were not meeting the needs of students, the law also provided options for the parents of the affected

students that allowed them to be educated in other districts or receive tutoring for their children within their district. A further emphasis was placed on using educational tools that were research-based and had been proven to increase students' skills. This legislation brought even greater national attention toward public education than did A Nation at Risk in 1983. When this new law was authorized, the current subgroups of students, including students with disabilities, came into focus as being part of all students needing to achieve.

With this legislation came the increased focus on higher achievement levels for all students in American public schools. This achievement is to be met through: assessing all students in grades three through eight and once between grades 10 and 12 in reading and math; certifying that core academic teachers are certified and highly qualified in their subject areas; assessing students in science once between grades three and five, once between grades six and nine, and once between grades 10 and 12; providing public school choice and supplemental services in schools that are not making adequate yearly progress; and bringing all students, including all subgroups of students, to the level of proficiency by 2014.

In order to assure that all students are being included in the assessments, certain achievement targets are required for reporting. In 2005, these targets include (a) school attendance of 90% or an increase from previous years, (b) a graduation rate of 80% or any improvement over previous years; meeting the achievement targets for all students (45% in math and 54% in reading), and (c) at least 95% of all participants taking the test during the testing window (http://www.paayp.com/). The reporting of these targets has increased the focus

on public education, as well as a more recent focus on graduation requirements and rates in view of the greater accountability required for schools. Currently, the estimate is that one-third of our nation's students are not graduating from high school. The methodology for determining this estimate varies as much as the results produced. The definitions of who is considered a graduate also varies from state to state, creating even more confusion on this topic. The report includes total school and district percentages and disaggregated percentages for each subgroup. The subgroups of students are to reach the same goals as every other student in public schools. One of these subgroups is the focus of this study. Students with disabilities are highlighted as a group of students who must meet the same high achievement targets as their peers without disabilities. The following literature review will highlight students with disabilities, their impact of adequate yearly progress on graduation rates, information on national accountability requirements, state achievement assessments, graduation rates, and high school reform efforts.

Special Education

Students with disabilities have seen vast improvements in terms of their educational opportunities during the last forty years. Prior to 1975, students with severe disabilities were generally institutionalized. Students with mild mental retardation were segregated from their peers and taught a more functional curriculum designed to increase their abilities to socialize, work, and live in their community. Students who were not severe enough for institutionalization or

segregated programs were kept in the general education programs with no

supports or services or even recognition that they had learning problems.

Disabilities, such as Specific Learning Disabilities and Emotional Disturbance

were not recognized at that time.

A change in education.

P.L.94-142 became a law in 1975. It was the first national law to protect

students with disabilities in the United States. Entitled Education for All

Handicapped Children and later known as Individuals with Disabilities Education

Act (IDEA), the law provided that all students with disabilities are given a free

and appropriate public education (FAPE). For the first time in American

education, all students were welcomed into public schools for free. This changed

the face of American education (MacMillan, Keogh & Jones, 1986). Prior to

P.L.94-142 the term "education" gave the connotation of academic programs

(MacMillan, et al., 1986). Following the passing of this new law in 1975,

"education" came to include the daily living skills of grooming, toileting, self-

help skills, and feeding. Providing a free, appropriate education in the least

restrictive environment became the focus of all special education. In addition,

Individualized Education Programs (IEPs) were now mandated for each child

needing special education services. This plan outlined the specific individual

goals and objectives that each child needed to gain as much as possible from the

educational programs provided.

Prior to 1975, the programs in existence within the schools dealt almost

exclusively with mild levels of mental retardation (McLeskey, 2004). The

students were segregated from the general population and taught a more functional curriculum. Since the passage of P.L. 94-142, the emphasis of the educational program for all students with disabilities is to integrate them to the greatest extent possible with their general education peers in the least restrictive environment. To address the needs of the students now diagnosed with disabilities, several programs came into existence (MacMillan et al., 1986). Programs for Trainable Mentally Retarded, Educable Mentally Retarded, Severe and Profoundly Retarded, Learning Disabled, Emotionally Disturbed, and Physically Handicapped were the major programs addressing students' needs within the school setting. Since those early days, labels and programs have changed and evolved to now include programs for Learning Support, Life Skills Support, Multiple Disabilities Support, Physical Support, Emotional Support, Autistic Support, as well as Speech, Vision, and Hearing Support. Within this myriad of services, it is believed that all students with disabilities are having their needs met.

Within the population of students with disabilities there is a wide variation of characteristics. However, approximately 90% of all students with disabilities fall into one of four categories: speech and language impairment, emotional disturbance, mental retardation, and specific learning disabilities (Heubert & Hauser, 1999). To address the issue of least restrictive environment (LRE) or including students with disabilities into the general education classroom (IDEA 97, Part B, 300.551), several options now exist. The most inclusive, integrated setting is that of full-inclusion. In this setting the students spend most if not all of

their day in the general education classroom. If they need to receive part or all of their instruction in a support classroom, they may be served through part-time or full-time services. If their needs are greater and need more intense instruction and/or therapy, they may move into a center-based program or a program segregated from the general population of students in a public or private separate facility designed to meet the needs of students from several districts in one setting.

The discussion of whether it is more beneficial to educate students with disabilities in regular education or in their special education classrooms has continued since 1975 when P.L.94-142 became a law. In Pennsylvania, the Gaskins lawsuit (Gaskins vs. PA, 9-16-05) again mandates, as does IDEA, that all students with disabilities be educated in the general education classroom to the maximum extent appropriate. This does not advise that all students with disabilities be put into regular classes without discussion regarding what is appropriate for their individual education program. It mandates that IEP teams discuss what is appropriate for each individual student.

In a western high school Kimberly Kaznowski (2004) conducted a study comparing slow learners who were in special education and slow learners who were not in special education. Three of the factors used in her study to compare the groups of students were: grades in reading and math; achievement scores used in the school district; and, the proficiency exam used in preparation for graduation. The patterns that emerged showed higher academic grades for the special education group with lower achievement scores for the same group.

Kaznowski's conclusion found that either these students were receiving inflated academic grades or the coursework and assessments for the coursework were less rigorous than their non-disabled peers were receiving in the regular classroom. Her concerns surrounded the emotional letdown of receiving passing grades and then not being proficient on the achievement tests. However, due to having an IEP, the special education group would receive an adjusted diploma based on their IEP, while the non-disabled group, who may not meet the proficiency requirement, will not receive a diploma. Since few of the students in either group were found to be proficient on the exit exam, the non-disabled group was seen to be at a disadvantage in terms of a diploma. However, in terms of slow learners in general, neither special education services nor regular education services were seen to be beneficial for either group. Least restrictive environment became a "moot point" (Kaznowski, 2004, p. 11).

Educational assessments for students with disabilities.

Students are enrolled into special education services after a series of events. For students with milder disabilities, the teachers or families may notice a child struggling academically or behaviorally and after introducing several interventions throughout the school day finally request a psychological or psychiatric evaluation to determine if the student has a disability. Once it is determined that a disability exists and that the student would benefit from specially designed instruction, an IEP is written to design an educational program that best meets the needs of the student in the least restrictive environment. For students with more severe disabilities, they are generally diagnosed before school

age, and with the passage of IDEA, are admitted into one of the educational programs, upon entrance to the school, that will meet their needs. This process has not changed since the law was passed in 1975.

When parents or teachers refer a child to be evaluated to determine if they would benefit from special education services, a variety of assessments may be performed.   These assessments will begin with an intelligence test and possibly a test of adaptive behavior. It will most likely follow with an achievement test. If emotional or behavioral issues are involved the assessments might also include a behavior scale, personality inventory, or a psychiatric exam. If the student is reaching the age of high school and consideration is being given to what the child will do after high school, an interest survey or aptitude test might be included in the evaluation.

The first intelligence test measured, "the ability to succeed in school work and similar academic tasks" (Aiken, 1988, p. 485), and was developed by Alfred Binet and Theodore Simon. They were commissioned by the Parisian minister of public instruction in 1904 to develop a method of measuring if students would not benefit from instruction in regular school programs. This first test published in 1905 assessed students on their ability to judge, understand, and reason through an individually administered test. Intelligence tests have remained similar to this original one throughout the twentieth century and into the twenty-first.

If a student is suspected of meeting the definition of mental retardation, "a person significantly below average in intellectual functioning, indicated by low IQ scores and poor adaptability to the environment" (Aiken, 1988, p. 488),

adaptive behavior scales are used to determine the extent to which an individual adapts and interacts appropriately with the environment in which they live, work, and play. Once this has been determined, achievement tests, "measuring of an individual's degree of accomplishment or learning in a subject or task" (Aiken, 1988, p. 475), are used to determine the level at which the student is functioning in academic work. This information may show a student's area of strength or weakness in regards to their academic work.

If behavioral issues are the cause for the referral for special education services, several options are available to the team of people looking for answers. For the most severe behaviors the team may decide to have a psychiatric examination performed by a psychiatrist. In this exam, the psychiatrist is looking for a diagnosed psychiatric disorder that is identifiable by the characteristics related to the disorder. Examples of psychiatric disorders found in students are bipolar disorder, post-traumatic stress disorder, separation anxiety, as well as a host of other disorders. Upon the recommendation of the psychiatrist and the team of people looking for help for the student, the educational placement may take a student out of a less restrictive environment and into a more restrictive environment with counselors and social workers on hand to deal with the emotional issues that are interfering with the ability to learn.

For less severe behavioral issues, a personality inventory, "a self-report inventory or questionnaire consisting of statements concerned with personal characteristics and behaviors" (Aiken, 1988, p. 491) or a behavior scale completed by family members and educators close to the student, are completed

and analyzed looking for situations that are common and that might cause interference with the student's educational progress.

As students are entering high school or are reaching the age of sixteen, the educational concern becomes one of what educators are doing to prepare this student for life after high school. To address this issue it is paramount that the student's interests, aptitudes, and abilities are used to determine the best educational path for the child. An aptitude test, "a measure of a person's ability to profit from further training or experience in an occupation or skill" (Aiken, 1988, p. 476) will help students and their educational team decide if there is a need for a vocational-technical education or possible post-secondary training in a more hands-on field of employment. An interest inventory, "a test or checklist designed to assess an individual's preferences for certain activities or topics" (Aiken, 1988, p. 485) will help the student focus on in-school or extra-curricular activities that are of interest at that time and may lead to a vocation in the future.

All of these assessments may be part of an educational evaluation performed on a student to determine the best educational placement to meet the student's needs at a current time. For students meeting the definitions of the different disabilities included in IDEA, this formal evaluation may only occur once during their educational career followed by less-formal evaluations on a two or three year schedule depending on the disability. However, at any point that members of the student's educational team deem necessary, a formal evaluation may be requested no more than one time each school year.

Included in the assessments for students in special education programs are yearly updates of achievement levels and behavioral levels through classroom assessments and inventories. These may be administered individually or with a group depending on the mandates of the state and school district.

Accountability for students with disabilities.

When IDEA was reauthorized in 1997, it provided that a statement would be included in each student's IEP regarding the participation in state and district assessments. This was the first attempt to guarantee that students with disabilities who had previously been excluded from these assessments would now be included (Heubert & Hauser, 1999). The change was encouraged in order to promote high expectations for students and to hold school districts accountable for attending to their needs.

With the passage of NCLB in 2001, students with disabilities were also to be included in the assessments to determine adequate yearly progress within each state. With the achievement targets increasing to meet the NCLB requirements, schools are being encouraged to use quarterly benchmark assessments aligned to the state assessment to determine if the students are making progress toward the yearly achievement targets. One such assessment being used in Pennsylvania is the 4Sight Assessment Tool (PDE, 05-06) All students with disabilities, who are not in the most severely disabled 1% of the school population, are also included in these assessments. They are designed to determine if the students are making adequate yearly progress toward the PSSA (Pennsylvania State System of Assessment).

The testing of students with disabilities has not seen major changes over the course of the last forty years. The assessments are similar. The results of the assessments are aimed at providing an educational program for the student that addresses the needs that are interfering with making educational progress. The change that has occurred is the addition of assessments that address the NCLB mandates. These do not replace the assessments used for providing an adequate educational program. These NCLB mandated assessments are an addition to the mandated tests used for educational progress within the different programs.

Accountability

The No Child Left Behind Act of 2001 mandated that each state and each school district in the nation develop an accountability system so all students would be proficient on their state accountability assessments by 2014. This law also mandated that states develop state assessments based on their state academic standards to measure the achievement levels for the students. Within the law are subgroups for which adequate yearly progress data must be disaggregated.

Initially, there was only one subgroup of students that was exempt from the standard accountability testing. This was the1% of the district's student population with the most severe disabilities. This group of students is considered to have the most significant developmental needs. Their disability categories might include Multiple Disabilities, Mental Retardation, Autism, or a combination of the above. This 1% of students would still be assessed in the accountability system, but they would be permitted to take an alternate assessment based on

alternate standards. The research for the current study will focus on the students

with disabilities in a school district that are in the categories of Learning

Disabilities, Mild Mental Retardation, Emotional Disturbance, and Autism and

are maintained in the general education building. These students, unlike their

peers without disabilities, have cognitive differences that interfere with their

learning and yet are currently expected to participate in the same assessments.

Recently, recognition has been given to the fact that above the most severe

1% of the student population, there is another group of 2% of the total student

population that have disabilities that hinder them from functioning to the standard

set in each state or the nation

(www.ed.gov/policy/elsec/guid/raising/alt_assess.html, 2005). This group of

students might be those with mild levels of Mental Retardation or Autism,

Emotional Disturbance, or Specific Learning Disabilities. These students are

generally more than three or four grade levels below their age appropriate peers in

reading and/or math aptitudes. "This policy is for those students who are not

likely to reach grade-level achievement standards"

(www.ed.gov/policy/elsec/guid/raising/alt_assess.html, 2005). Taking an

assessment at grade level, as mandated by NCLB, was causing these students to

have increased incidents of non-compliance with school rules. Some of the non-

compliance issues were being absent from school, dropping out of school, and

becoming behavior problems. US Secretary of Education Spellings (2005) has

offered the concession, that students who need to learn at a slower pace than their

age-appropriate peers may take an assessment that is aligned to their individual

needs. "States will have additional alternatives and flexibility if they can show they are raising student achievement and closing the achievement gap" (Today's School Psychologist, 2005). In addition, this new concession will allow subgroups that are showing progress toward the mandated achievement levels to be excused from sanctions if they fall short of those levels. However, the degree of flexibility is not outlined or delineated. Since this is a new regulation, there is no information or data on how states are addressing this concept. States will have to develop modified achievement standards and improved alternate assessments to address the needs of the students who are not able to meet the current state adopted standards; agree to activities related to assessment, accountability, professional development; and, develop IEP team training to include more specific accommodations and modifications that will address the specific needs of the students with disabilities (www.ed.gov/policy/elsec/guid/raising/alt_assess.html, 2005). For the purposes of this study, the participants will include all students with disabilities. For the final question, a subset of the original sample will be used. This subset will include only those students who have emotional disturbance, specific learning disabilities, mild mental retardation, or autism who are receiving at least part of their education in the general education classrooms.

As the accountability assessments are being developed and fine-tuned to match the state standards, several organizations are keeping track of the assessments being used for all students. The Council of Chief State School Officers (CCSSO) is one of the organizations tracking assessments. As early as

2002 and 2003, CCSSO had lists of the assessments already used in each state in reading, mathematics, and science, as well as the grade levels at which the tests were being administered. The changes in state assessments explained below fall into two categories. First, some states were moving from the performance-based assessments of students' acquired knowledge to more time-efficient and less expensive paper and pencil assessments. The performance-based assessments included producing projects, portfolios, demonstrations, and more long-term synthesis of skills and knowledge. Though it may not have been the choice of assessment desired by the state administrators, the paper and pencil assessments produced results more quickly than performance based assessments and the teachers were able to analyze the results to guide classroom practices at a more efficient rate. There were two different types of paper and pencil assessments used. In some cases, the states shared their academic standards with the testing companies and the companies produced assessments based on those standards. In the other cases, school districts could purchase assessments that were nationally normed, such as the Terra Nova or ITBS (Iowa Test of Basic Skills).

Secondly, (CCSSO, n.d.) some states were merely increasing their testing from a varying sample of grades between kindergarten and twelfth grade to testing in all elementary and middle school grades, and again in high school. Some states saw the need to change both the type of assessment as well as the years tested. The examples are listed below. Information was not provided on the inclusion or exclusion of students with disabilities before NCLB, however, with the changes implemented after NCLB became law, the aforementioned

subgroups, including students with disabilities, were mandated to be included in all assessments.

Thirty-one of the states have changed little in regard to their mathematics assessments. Fourteen states have increased testing in grades that were not assessed previously. For example, in 2002-2003 Alaska used Benchmark Assessments in grades 3, 6, and 8 and the High School Graduation Qualifying Exam in grade 10. By 2004-2005 they were still using the previous tests in the same grades, but had increased their assessments to include Standards Based Assessments in grades 3 through 9 and the TerraNova CAT/6 in grades 5 and 7. Florida likewise added FCAT Mathematics SSS in grades 5 through 10 and the High School Competency Test in grade 11 in 2004-2005 to their original Florida Comprehensive Assessment Test for grades 3 through 10 (CCSSO, 2004).

Since 2002-2003 (CCSSO, 2004), 32 states have maintained their assessments for English/ Language Arts, while 12 states have increased their assessments, and five states have either decreased or changed their assessments. Georgia is one of the states that decreased its testing requirements by dropping the writing assessment in the last school year. New Mexico dropped its performance component of the New Mexico High School Competency Exam for grade 10. Maryland changed from administering the Maryland School Assessment in grades 3, 5, 8, and 10 to administering it in grades 3 through 8. Tennessee changed from using the Tennessee Achievement Test to using the Tennessee Comprehensive Assessment Program. California is one of the states that increased its testing. In 2002-2003 they administered the California Standards Tests in grades 2 through

11. In 2003-2004 they increased their assessments to the California Standard

Tests in grades 2 through 11, the California Achievement Test CAT/6 in grades 3

and 7, the California High School Exit Exam in grades 10 and 11, the California

English Language Development test in grades 2 through 12, and the California

High School Proficiency Exam in grade 10. These assessments did not change for

2004-2005.

The findings then show that more states are increasing the number of

grades at which they test and are adding new tests to their regimen. The total

number of tests administered in all states in 2003 was 88. Nineteen of those tests

were norm-referenced assessments and 62 were criterion-referenced. In 2005,

105 assessments were administered of which 24 were norm-referenced and 76

were criterion-referenced.

In addition, the CCSSO has conducted surveys of all the states'

accountability and indicator results (CCSSO, 2004). Using assessment

information from 2002 and 2003, each state's Department of Education gave

information on: the number of performance levels reported for student

assessments; the level to which data are disaggregated; the number of years of

data available; and, the grades at which data are reported for language arts and

math. These survey results include only one performance level in the District of

Columbia, North Carolina, Ohio, Oregon, Texas, and Vermont to a high of six

performance levels in Alabama and seven in Rhode Island. The majority of states

report on four performance levels (16 states) with seven states not reporting on

any performance levels. The disaggregated categories include subgroups defined

by race, gender, English Language Learners, Students with Disabilities, Educationally Disadvantaged, Migrant students, Title I, and Gifted. The grades in which data is reported ranges from two grades in Minnesota where only grades 3 and 5 were reported to a complete range of grades 2 through 12 in California.

State changes in assessments.

As the guidelines for NCLB are further delineated, states are making subtle changes in their assessments. Illinois has used the Prairie State Achievement Examination (PSAE) since at least 1999 (www.isbe.net/assessmetn/psae.html). Beginning in 2005, Illinois will only be assessing in reading, math, and science, those areas required for NCLB (www.isbe.net/assessment/psae.html). In the past Illinois, also assessed students in writing, social science, physical development/health, and fine arts. Due to the coming mandate of assessments in science, only grades 4, 7, and 11 will continue their science assessments. The Prairie State Achievement Exam consists of three separate components: an ISBE (Illinois State Board of Education) -developed science assessment; the ACT assessment including reading, English, mathematics, and science; and two WorkKeys assessments in Reading for Information and Applied Mathematics.

Michigan offers in-state students a merit award of $2,500.00 if they take the MEAP (Michigan Educational Assessment Program) tests in mathematics, reading, science, and writing and score Level 1 or 2 (Exceeded Michigan Standards or Met Michigan Standards, respectively). However, starting in 2005 if the students are deficient in some of their scores, they may still qualify for a merit

award by taking the WorkKeys assessments and scoring at designated levels.

Those levels are a score of 5 in Applied Math, a score of 5 in Reading for

Information, a score of 3 in Writing, and a score of 4 in Locating Information

(Michigan Department of Career Development, 2002). These WorkKeys

assessments help determine a person's ability to problem solve, follow directions,

and communicate in employment situations. The Michigan Department of

Education believes since the goal of education is to prepare all students, including

students with disabilities, for eventually entering the world of employment, using

the WorkKeys assessments provide essential information to students about their

abilities as employees. Those students who earn the Michigan Merit Award

through MEAP and WorkKeys may apply their award toward any vocational or

technical education program for post-secondary studies.

   NCLB criticism.

   As states develop and refine their accountability systems for NCLB,

researchers are also getting involved in the discussions. One researcher (Lane,

2004) found that the current climate of assessments is no longer measuring the

important aspects of student thinking and the development of such, but is now

focused on ensuring that an accountability system is in place. Lane attempts to

address four areas in her article: (a) backward movement in assessments; (b)

cognitive complexity of content standards and assessments; (c) ways to define

proficiency; and (d) relationships between large-scale assessments and

instruction. Lane finds that states are moving toward paper and pencil assessments

to address the need to assess each year. These assessments may have been

developed around the states' academic standards or the state may have chosen to purchase a nationally normed assessment. These assessments do provide yearly assessment data to be reported to the government. Maryland is an example of one state that has replaced performance-based tests with standardized assessments that are quick to administer and quick to score. This speed is critical in returning the results to the school on a yearly basis. Lane concludes that it is her attempt "only to highlight the changes that have been undertaken" (Lane, 2004, p. 7), not to suggest judgment of the assessments.

In addition, since the states set their own definition of "proficient", comparing one state to another can give a misleading picture of what is being accomplished. What is proficient in one state may not be proficient in another. In Nebraska, the educational leaders have moved into an accountability system led by teacher- made assessments. (Bandalos, 2004) Although the federal government approved their assessments, they did warn that the tests have to assess the same standards across the state. According to one report, (Bandalos, 2004) this could potentially pose a problem if the state does not have uniform standards for all public schools.

Lane (2004) further discusses the premise that standards-based reform was intended to guide instruction. The new climate of using quick-turnaround, paper and pencil assessments looks more like using instruction to teach the test rather than using the test to guide instruction.

Graduation Rates

In order to keep the focus of NCLB away from just increasing test scores, lawmakers built into the law the reporting of test participation and graduation rates. In this way, schools cannot encourage a given subgroup of students to be absent on test day in order to increase their scores, nor can they encourage a given subgroup of students to leave school altogether rather then affect the accountability scores. Students with disabilities, who may struggle daily with the rigor of general education courses, might have been a subgroup of students encouraged to be absent or to leave school. Due to these safeguards, there are now statistics on the numbers of students, including student from all subgroups that are entering high school and not finishing (Swanson, 2003). In light of NCLB and the accountability categories, there are recent studies (Orfield, et al., 2004; Swanson, 2002; and Barton, 2005) on the lack of increase in graduation rates and on what some states and school districts are attempting to do to correct the problems. There is little specific research on the mandated subgroups of students partially due to the relative newness of including all students in the assessments, but also due to the fact that the research on assessments included all students and often does not segregate the students from the specific subgroups. Students with disabilities, the topic of this research, are one of the mandated subgroups included in the statistics with all students.

Why do we calculate graduation rates? When secondary schools opened to all students in the 1950s, the purpose was to answer the growing industrial needs of society and to increase the standings of the United States in the world economy

(Microsoft Encarta Online Encyclopedia, 2005). We began calculating

graduation rates (NASSP, 2005) to see if we were meeting our goal of increasing

the percentage of graduates in the United States. During the 1970s, secondary

schooling became a rite of passage for teenagers as they prepared for post-

secondary experiences. If students were not graduating, understandably, they

could not be going on to post-secondary education and therefore were not meeting

the needs of our society. The calculations showed that approximately one-third of

our high school population (NASSP, 2005; Barton, 2005) were not graduating

from high school. At the same time, when compared with other industrialized

nations, American students were never ranked first or second and were often last

on student achievement tests. Scholastic Aptitude Test scores had shown a steady

decline from 1963 to 1980 (DeSchryver, Petrilli & Youssef, 1998). The average

verbal scores dropped more than 50 points, while the average math scores fell

almost 40 points. In public four-year colleges, the number of remedial math

courses increased by 72%, implying that students were not prepared for college

level math when graduating from high school. Of the courses required for

graduation from high school, student chosen electives made up at least half of

these credits. Given the option, students were not choosing academically

demanding courses, but were choosing personal service courses, like Bachelor

Living or Cooking. When President George H. W. Bush issued *A Nation at Risk*

in 1983 (National Commission on Excellence in Education, 1983), he established

a goal of 90 % completion rate for high school students by 2000. According to

the National Center for Education Statistics, the graduation rate in 2000 was 71%.

This rate excluded students receiving alternative diplomas (National Association of School Boards in Education, 2002). By 2002 only 17 states had reached this goal using the required calculations. In 2005, the reported national graduation rate averaged 66 %. Therefore, graduation rates are still a major factor as we look at the accountability for NCLB.

What is understood and interpreted from the graduation rates? With the understanding that lower graduation rates equate to higher drop out rates, the focus at times turns to drop out rates. Economically, students who drop out of high school earn less than students with a diploma. Students who drop out have a higher rate of being on public assistance than those that finish high school. In the past when an abundance of jobs existed for people who did not have a diploma, it was possible to live comfortably without graduating from high school. Now, however, today's jobs not only require a high school diploma to qualify for employment, but many jobs now require some level of post-secondary education. The high school diploma is now a requirement to function at the bare minimum in today's economy.

Calculating graduation rates.

Several different methods exist for calculating graduation rates. Graduation rates as defined under NCLB are "the percentage of students who graduate from secondary school with a regular diploma in the standard number of years" (NCLB, 2002). This does not allow for students receiving a GED (General Education Diploma) or for those that receive a regular diploma in more or less

than the standard years, or for those that due to other circumstances are not able to attain a regular diploma.

One method of calculating graduation rates tracks individual students from ninth grade through twelfth grade. It is called the Longitudinal Rate. This is the method used by 10 of the states including Arizona, Colorado, Florida, Hawaii, Michigan, New York, South Carolina, Tennessee, Texas, and Washington. Because it addresses individual students it is specific information, however, the labor-intensiveness of this tracking makes it almost impossible to keep accurate counts of the students (NASSP, 2005; Swanson & Chaplin, 2003). The formula for this rate reads

$$\text{LongRate}^{\text{long}} = \frac{R^{\text{long}}}{E^9 - L^9}$$

R^{long} represents the number of students entering high school in a given year who receive a regular diploma 4 years later. E^9 represents the cohort or group of students enrolled in ninth grade in a given year. L^9 represents the number of students from the original cohort who legitimately leave the original district as a result of moving, transferring, or death (Swanson & Chaplin, 2003).

The National Center on Education Statistics (NCES) (NASSP, 2005) rate is based on the count of high school completers minus dropouts over a four-year period. This is an easier method of determining graduation rates than tracking individual students. However, if dropout rates are not clearly defined it is hard to rely on this information. It also does not allow for students who drop out and then return to school later or enroll in a GED program. Twenty-nine of the states use

the NCES method, including: Alabama, Alaska, California, Connecticut, Delaware, District of Columbia, Georgia, Idaho, Iowa, Kansas, Kentucky, Maine, Maryland, Minnesota, Missouri, Montana, Nebraska, Nevada, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode, Island, South Dakota, Utah, Virginia, West Virginia, Wisconsin, and Wyoming. The formula for the NCES rate is:

$$\text{NCES Rate} = \frac{C}{C + D^{12} + D^{11} + D^{10} + D^{9}}$$

C represents the graduates (2004-2005) in the numerator. D represents the graduates plus the 12th grade dropouts (2004-2005), 11th grade dropouts (2003-2004), 10th grade dropouts (2002-2003), and 9th grade dropouts (2001-2002) are used in the denominator. (Swanson & Chaplin, 2003).

The Basic Completion Rate, used in Illinois, Massachusetts, Mississippi, and New Mexico, is based on the proportion of graduates in a given year to the number of students enrolled at an earlier time. This method for calculating graduation rates eliminates the individual tracking system, but can also be skewed by student mobility and by school policies for completing graduation requirements in more or less than the standard number of years (Swanson, 2003). This rate or ratio is:

$$\text{BCR} = \frac{G}{E^{9}}$$

G represents the count of students who graduated with a regular high school diploma during a given year. E^{9} represents the count of students enrolled in grade 9 at the beginning of their high school years (Swanson, 2003).

In addition to these methods, Greene and Forster (2003) described three possible methods for calculating graduation rates. The Current Population Survey asks participants to rate their own levels of education. This method is seen as not very reliable as participants may not be honest about their educational experiences. As participants are self-reporting they may consider themselves graduates if they completed school in five years or if they completed school through a GED. Both of these variables are not part of the NCLB definition for graduation rate, and in the case of the GED does not report on the work of public education.

As was seen earlier, the second method Greene and Forster share is when school districts or states track individual students over time. This is cumbersome to manage and labor intensive.

The third method, used by the USDOE, is to compare the number of diplomas issued with the seventeen year old population. This method has proven to produce highly reliable data. The Cumulative Promotion Index (CPI), inline with NCLB only counts graduates as those receiving a regular high school diploma. The formula for CPI is:

$$CPI = \frac{E^{10} * E^{11} * E^{12} * G}{E^{9} * E^{10} * E^{11} * E^{12}}$$

G represents the count of students who graduated with a regular high school diploma during a given year. E^{9}, E^{10}, E^{11}, and E^{12} represent the counts of students enrolled in grades 9, 10, 11, and 12 (respectively) at the beginning of the study period.

When Greene and Forster (2003) conducted their survey they used the Greene Method. His method relies on enrollment data and diploma counts collected by the USDOE's Common Core of Data (CCD). Enrollment data are more reliable than dropout rates and the CCD has strict guidelines for collecting the data to ensure its reliability. The graduation rate becomes a simple fraction with the numerator representing the number of graduates and the denominator representing the total number of students in that cohort.

As recently as July 2005, Governors from forty-five of the fifty states agreed to adopt a common formula for calculating the graduation rate (National Governors Association, 2005). Their method would divide the number of a state's graduates in a particular year by the number of students entering the ninth grade for the first time four years before, plus the difference between the number of students who transfer in and out over the same four years. The Governors agreed to this method in the hopes that state-to-state comparisons would show with some reliability what method is best for keeping students in school. As with all parts of NCLB, students with disabilities along with students from all other subgroups would be included in this graduation rate formula, or whatever formula their state adopts (Janofsky, 2005).

Of all the formulas available to use for determining graduation rates, Pennsylvania has chosen to use the NCES synthetic formula. This formula uses the graduates of a given year in the numerator. The graduates plus the dropouts in grades 9 through 12 are used in the denominator. This differs from the NCLB

graduation rate definition that looks at the percentage of students who graduate from secondary school with a regular diploma in the standard number of year.

Skewing graduation rates.

In order to meet the NCLB criteria, states are often taking a broad view on reporting their graduation rates (Hall 2005; The Education Trust, 2003). The reported graduation rates are much higher than independent studies have shown, making it appear that states are inflating their graduation rates. One such independent study found that one-third of our nation is not graduating from high school under the graduation rate definition of NCLB (Barton, 2005). Hall states, "The high school diploma represents the bare minimum requirement for successful participation in the workforce, the economy, and society as a whole" (2005, p.2). One-third of our nation is not meeting this bare minimum requirement.

The fact that one-third of our nation is not graduating from high school is the reason Greene & Forster (2003) refer to education as a leaking pipeline. The students pour in as children and are supposed to pour out twelve to thirteen years later. Unfortunately, along the way holes have developed in the pipe and students are leaking out. This results in much smaller numbers of students pouring out of the pipe at the end. The federal government officials have stated they will address this issue of graduation rates and address the issue of developing a standard method by which to calculate the graduation rate. At the time of the article, the authors saw little being directed toward this problem.

Hall (2005) prefers to calculate graduation rates by following a cohort of

students from the beginning to the end of high school. The primary problem with

this method is the availability of data and then accuracy of the reported data.

Without specific methods and guidelines the information is inconsistent.

Different methods of determining graduation rates consider dropouts only from

twelfth grade, ignoring those students who dropped out previous to twelfth grade.

Some states count GED and five-year high school students the same as four-year

completers. A recent study conducted in Pennsylvania (PPC, 2005) showed "a

significant gap" between those entering high school and those completing high

school four years later. However, the graduation rate, for Pennsylvania,

submitted to the United States Department of Education (USDOE) was 87.7 %.

This appears to be in direct conflict to the PPC results.

Factors affecting graduation rates.

If the graduates are considered to be completers as they complete their

high school experience and receive their diploma in four years, the students who

do not complete their high school experience with a diploma are considered non-

completers. These non-completers are those students that do not complete their

high school education in four years, drop out of school, or obtain their diploma or

GED in other ways.

Barton (2005) looks at factors that contribute to students being in this non-

completer group. They are affected by socioeconomic characteristics, the number

of parents living in the home, and a history of changing schools. In addition,

NASSP (2005) found that low tests scores as early as first grade, report card

grades, and retention rates were all reliable predictors of non-completers. All of these factors would include students with disabilities, as well as other subgroups. Thus, the emphasis of federal money was spent in the elementary schools for dropout prevention programs. However, with the new indicators that 25 % of the students who do not graduate are those students who failed ninth grade, NASSP (2005) would like to see money focus on intervention programs to keep these struggling students in school.

Kerr (2002) goes even further to say that 60% of students who dropped out of school failed at least 25% of their ninth grade classes. These ninth graders are unique in their stage of development and have been addressed and readdressed in the continuing discussion of whether they should be part of the middle school atmosphere or the high school environment. Due to their feelings of anonymity, less individual contact from the teachers, decreased sense of belonging, new rules, higher academic expectations, new social structure, and new instructional techniques this group of students have been pivotal in the discussion surrounding graduation rates.

Finn, Gerber, and Boyd-Zaharias (2005) found that academic achievement in elementary school was instrumental in predicting success in later years. The grades achieved in the kindergarten through third grade years were found to have a strong relationship with receiving a diploma at the end of high school. This relationship was similar for students of all ethnic backgrounds in the study and for all socio-economic categories. Another factor studied by Finn, Gerber, and Boyd-Zaharias was small class size in the early elementary grades. This factor also had

a strong relationship with receiving a diploma. In their study, the odds of receiving a high school diploma increased by nearly 80 % when the students were educated in small classes during kindergarten through third grade.

When a group of students with emotional and behavioral issues were studied the results showed that connecting with someone in the school and/or community helped the students to remain in school and become better advocates for their transition to post-secondary life (Sinclair, Christenson, and Thurlow, 2005). The students were those enrolled in two separate ninth grade cohorts who were identified with emotional and behavioral issues. The study provided a monitor who was able to monitor good decision making for the students in the study group. This advisor/advisee connection factor helped the students come to school on a more regular basis compared to their peers who did not have the same connection factor apparent in their schooling. The connection also helped the students to be more stabilized in their movement between schools and homes during their high school years. All of these factors have been related as causes for students to dropout or not graduate with their peers.

Students with disabilities being educated through the special education programs of various schools may be seen as protected from the risks of dropping out of high school due to the protections afforded them through their IEP and the federal IDEA law (Kaznowski, 2004). Since the expectation is that students with disabilities are already aided in their education through their IEP, this may be one reason there is little research available regarding students with disabilities and factors keeping them from graduating from high school. However, Dunn,

Chambers, and Rabren (2004) contend that dropout rates for students with mild disabilities are two times greater than those of their peers who do not have disabilities. They found four factors influential in drop out rates for students with disabilities: (a) disability status; (b) identification of a helpful class; (c) identification of a helpful person; and (d) belief that school was preparing them for the future. Dunn and her associates chose a group of 228 students with mental retardation or learning disabilities who had dropped out of high school and a similarly styled control group of students who received diplomas. The demographic information of the students and interview responses were used in their study. Through interview questions it was discovered the only 54% of the students who dropped out believed they had been prepared for life after high school. Whereas, 80% of the students who graduated felt they had been adequately prepared for post-secondary life. Clearly, the students who believed school was preparing them for their future remained in school at higher rates. Similar to the results found in the Sinclair et al. (2005) study that showed students were more likely to graduate who had a connection to school, Dunn et al. found that the students who did graduate felt they were cared about by their teachers and were taking classes that were helpful to them. The students who dropped out did not feel the caring of the teachers and did not see worth in the courses. Of specific interest, Dunn et al. found that the disability status of the students in the study was the most significant demographic factor. In fact, different from the research the authors found, showing students with all mild disabilities were at a greater risk of dropping out of high school, Dunn et al. (2004) found that students

with learning disabilities had a much higher rate of dropping out (.58) than students with mental retardation (.37).

The School Redesign Network at Stanford University published a report in 2005 (Multiple Measures Approaches to High School Graduation) showing how the design of high school graduation policies can affect teaching, learning, and student achievement. The report focuses on 27 states and compares the use of single assessment exit exams with multiple measures of meeting graduation requirements to assess the learning and achievement of students. One concern raised about the single assessment method is reduced graduation rates for African American and Latino students, English language learners, and students with disabilities. Another concern was reduced incentives to graduate for students already struggling in school, leading to increased drop out rates. New Jersey, Washington, and Pennsylvania are three states that have developed alternative methods for students who initially do not pass the state exit exams. New Jersey has developed an alternate assessment for students with severe disabilities. Washington has developed an alternate assessment for each area being assessed for any student who does not pass the initial state assessment. In Pennsylvania, students with severe disabilities may take an alternate assessment. Students with less severe disabilities in Pennsylvania are included in the mandatory assessments; however; if they do not pass the state assessment they have the option of graduating upon the completion of the goals within their IEP (School Redesign Network, 2005).

States that are utilizing or developing multiple methods of measuring learning and achievement are attempting to address the needs of students with disabilities who have different learning styles. In addition to the common accommodations of extended testing time, testing in a separate room, reading aloud the acceptable parts of the test, and alternate response formats, states are using portfolios, graduation projects, and culminating presentations to provide evidence of learning and achievement (School Redesign Network, 2005).

In July 2003, the U. S. General Accounting Office (GAO) prepared a report on postsecondary outcomes for students with disabilities (Bellis, 2003). Because the states receive federal money to assist students with disabilities in attaining their postsecondary goals, Congress wanted to know the proportion of students with disabilities who were graduating from high school. The state data used were from the conclusion of the 2000-01 school year. At that time, 70% of students with disabilities completed high school with either a standard or alternative diploma. Those completion rates varied from 45% to 83% depending on the disability of the student. Students with emotional disturbance had the lowest rate, with the highest rate found among students with hearing or vision impairments. At the time of this report, the use of exit exams did not appear to be a factor in the graduation rates.

Of the 300,000 students with disabilities who graduated in the spring of 2001, 61% were found to have specific learning disabilities, 14% had mental retardation, 13% were emotionally disturbed, and 12% were categorized as other disabilities. The students with mental retardation were 28% more likely to

receive an alternative diploma than a standard diploma. The students with

emotional disturbance were twice as likely to drop out of school than their peers

with other disabilities. In comparing the current rates with reported figures from

the 1997-98 school year, it was found that students with disabilities had a

graduation rate of 67% in 97-98 and only increased to 68% four years later. The

dropout rate for students with disabilities changed from 31% in 97-98 to 29% in

2000-01. The disability of the student was found to be significant in the variation

of graduation rates; however, there were still a significant number of students

with disabilities not graduating.

Rylance (1997) re-examined data previously used in National

Longitudinal Transition Study of Special Education to determine predictors of

dropping out or graduation from high school for students with emotional

disturbance. The sample included 664 youth between the ages of 18 and 27 who

had a primary disability of serious emotional disturbance. Of the students in the

sample 50% dropped out of high school. This is more than twice as much as the

national average of 22% for all high school students. The factors that were found

to lead to dropping out were lower income families and lower functioning skills

of the students. The study theorized that the encouragement toward standards-

based education for all students was a contributing factor to the dropout rate

(Rylance, 1997). In addition, students, with emotional disturbance, who received

some courses in vocational education during their high school education were

more likely to graduate than those that received no vocational education. This

finding added a new predictor to the list of factors for dropping out. The students

with emotional disturbance who had no vocational classes during high school were more likely to drop out before graduation (Rylance, 1997)

The research is consistent in stating that as early as kindergarten and first grade, there are obvious factors that will affect whether students graduate or not. Knowing these factors has helped schools and states to begin developing programs to overcome these factors for students who do not have the skills or opportunities to overcome them on their own. Students with disabilities have historically had higher dropout rates than the general population (Harvey, 2001). Current data on students with disabilities indicate that this pattern of not graduating from high school is still a critical issue (Harvey, 2001). Following are some attempts to reform a system that is not meeting the needs of some students.

High School Reform

"If you always do what you have always done, you'll always get what you always got." This quote speaks directly to the message found in the article, *Reforming or transforming education,* (Teacher's Mind Resources, 2003). The basis of the article is that education has been mirroring the machine model since the early twentieth century. The author contends that since education has not been working for more years than it has been working, then education needs to be transformed, (changed), rather than reformed, (rearranged). Transformations totally change the appearance, character, and way of life of an existing being. In order for education to be viable in today's society it needs to be transformed to today's students and tomorrow's needs. In 2005, Hart and Winston conducted a

national survey for Educational Testing Service. In this study, they surveyed parents and educators asking for their thoughts on education today. Although there were definite differences between parents' views and educators' views, they were in agreement that schools need to change to meet the needs of today's society and that the government should be spending more money on making those changes available to all schools.

What are we doing to encourage students to stay in school and become completers? In order to serve these students we must first know who they are and why they are leaving school without a diploma. Only then can we develop programs to address their needs (Hall, 2005). Before looking at specifics about programming, the NASSP (2005) would like to see standard methods of calculating graduation rates, national tracking systems to keep track of all students, national definitions of completers and dropouts, and a determination if the requirements of NCLB have made diplomas and graduation unattainable for all students, including students with disabilities. According to the NASSP (2005), some of the programs that focused on meeting the needs of students who are at risk of dropping out, include variables addressing: alternatives to traditional automatic retention for classroom failure; alternate order for courses needed for graduation; alternative methods for completing high school; increased literacy programs; tutoring for make-up work and course content; increased counseling services; professional development; instructional technology; career education; and, workforce readiness. Before inventing the wheel again, we need to look at programs that have or are working and build from those successes (Barton, 2005).

The Talent Development High School was a model reform program based on student motivation and teacher commitment (Jordan, McPartland, Legters & Balfanz, 2000). It began in 1994 as a partnership between Johns Hopkins University Center for Research on the Education of Students Placed At Risk (CRESPAR) and Patterson High School in Baltimore. It has since grown to include high schools in fifteen different states. The model includes organizational and staff changes to promote positive learning environments for students, curricular changes to prepare all students for high-level courses, involvement of parents and community members, and professional development opportunities that will help the staff to support the necessary changes. Recently, MDRC conducted an independent, third party evaluation of the Talent Development model. The study focused on the first five high schools to use the Talent Development model in Philadelphia. The evaluation covered 20 cohorts of students from ninth grade up to four years of high school. The study used a comparative interrupted time series research design. The findings of the study showed substantial gains in attendance, credits earned, and promotion rates during the first year of high school. These strong impacts were consistent with the intent of the model to focus on the ninth grade year as a means to graduation. The positive results seen in ninth grade were continued throughout the four years of high school. However, the report does acknowledge that even with the substantial gains of many students there are still students leaking out of the pipe (Kemple, Herlihy & Smith, 2005).

Communities in Schools (CIS) continually shows an increased retention rate for participants as students are supported through counseling and tutoring (Adelman & Taylor, 1998). CIS is a national organization available in twenty-eight states. It is the nation's leading community-based organization directed at helping young people stay in school. CIS focuses its counseling and tutoring on the "Five Basics": a one-on-one relationship with a caring adult; a safe place to learn and grow; a healthy start and a healthy future; a marketable skill to use upon graduation; and a chance to give back to peers and community. Each local organization is designed around the local needs of the school students. The local community resources are accessed to meet the individual needs of the students. The purpose is to work hand in hand with the educators to help students who are at risk of dropping out of school, remain in school.

A program specific to the state of Maryland, Maryland's Tomorrow, showed successful rates of retention and graduation. The goal of the program is to improve achievement, attendance, and/or behavior of students who are at-risk of dropping out of high school. Maryland's Tomorrow is a year-round five year collaborative effort between Prince George's Workforce Services, Inc. and Prince George's County Public Schools. The objectives of the program included improving academic performance of students, improving daily attendance of students, decreasing the number of students suspended from school, increasing the graduation rate by decreasing the drop-out rate, and increasing the number of students positively involved in post-secondary education, training, or employment (Heckman & Lochner, 1999).

Project GRAD (Graduation Really Achieves Dreams) is a multi-intervention approach in urban schools that is showing success with graduation rates. It was founded in 1993 in Houston with Tenneco, Inc. The program combines proven or promising reforms together with the goals of increasing reading and math achievement scores, reducing dropout rates, and increasing participation in post-secondary programs. Partnering with Communities in Schools, Project GRAD has seen movement toward all their goals since it began (A Forum Brief, 2000).

The New York University Institute for Education and Social Policy did a study of communities that had organized to improve education. Comparing communities that organized to fight crime and drugs and protect their children, the Institute used this same premise to discover communities that had organized to fight for better educational opportunities for their children. There were eight organizations in New York City, Philadelphia, Miami, Milwaukee, Texas, Chicago, and Los Angeles. In some cases, they were able to remove from office an ineffective superintendent and set up a system of resources for families. In addition, increasing academic expectations have been a positive affect of the revitalization (Malm, n.d.).

In Ohio, the High School Transformation Initiative took large urban low-performing schools and created small high schools and learning communities. Through funding from various foundations, the students have been able to increase their engagement in school and increase their achievement levels and graduation rates.

William Daggett, a leader in educational transformation, suggests that when schools go about changing their structure and focus they typically address how the changes will be made, then move to what will be changed, and finally address why are we making the changes. In schools where changes have been successfully implemented the why question was addressed first so all parties involved in the change were involved in the understanding. Then these schools moved to what would be changed and finally to how the change or changes would be made. (Daggett, 2005) This follows the same thinking outlined above. If we are going to make changes in our educational system, we need to know why we are making the changes and what results we are hoping to achieve before jumping into how we are making the changes. Daggett contends that since society has changed so drastically in the last twenty years, schools need to change to keep pace with society. In order to keep this pace with society, schools need to take on an ever-changing attitude that is never stagnant, but constantly building off past successes. The answer to what needs to be changed, according to Daggett, is the level of literacy. Looking at the reading levels of ninth graders, the reading levels of their texts, and the reading levels they will need in the world of post-secondary education or employment will help determine what needs to be changed. In addition, the idea that once students have completed the majority of their credits they get to relax in their senior year has to disappear. Academically rigorous coursework needs to remain in place for the full four years of high school education. In addition, relevance needs to play a major part in the education of today's students. This "relevance can help create the conditions and motivation

needed for students to make the personal investment required for rigorous work and optimal learning" (Daggett, 2005). To imagine how it will be completed, start when one-third of your staff have captured the excitement for the change. Pull the second third into the planning by involving them directly in the plans. The final third will either come along or remain out of the plan, but will continue to function in the process. The process of change will include failure and redevelopment. "Failure in not a crime. Failure to learn from failure is a crime" (Daggett, 2005). Learning from mistakes and moving forward will accomplish school reform.

Pennsylvania's Project 720 is Pennsylvania's high school reform program. The project looks at strategies that have been successful and determines how to remove or go around the barriers standing between those promising strategies and success. Started in the 2004-2005 school year, Project 720 has increased from its original 41 school districts to 67 for the 2005-2006 school year (http://www.pde.state.pa.us/c_and_i/cwp/view.asp?Q=104289&A=3). The goals for this project are to: (a) ensure that every student graduates ready for college and career; (b) redesign school district policies and systems to strengthen the academic infrastructure and increase student achievement; (c) design and implement data-informed student advisory services; and (d) provide multiple pathways to prepare students for post-secondary success.

The above stated initiatives and programs have some common threads running throughout them. Focusing attention on ninth grade as the place to begin the task of encouraging increased graduation rates is a commonality. Using the

resources in the student's local community is mentioned in many scenarios. Decreasing the group size for instruction so there is a lower ratio of teacher to student interaction is seen in many cases. Focusing on literacy and reading remains the topic of conversation for most programs. The concept of transforming education into something new rather than just reforming education that has not worked for some students in the past is revisited in many discussions. This 'something new' in educational reform will be the sealer that fills the holes in the pipeline of education and keeps more students, including students from all subgroups, in school to be counted in the graduation rate rather than be counted as dropouts.

This literature review highlighted information on students with disabilities, national accountability requirements, state achievement tests, graduation rates, high school reform efforts, and factors affecting graduation rates. The purpose of this study is to examine graduation rates of students with disabilities and factors that might affect those rates. More specifically, this study will compare intermediate unit and county-level data for students with disabilities in districts in 10 counties of Pennsylvania. Correlations will be examined between the graduation rates of the students with disabilities in these districts and socioeconomic factors of poverty rate, median household income, and the percentage of students in the district who are economically disadvantaged. In addition, graduation rates of students with disabilities for these same districts and counties will be examined in comparison to the results of their 11th grade PSSA scores. Finally, student specific data will be examined for those students with

disabilities of specific learning disability, emotional disturbance, mental retardation, and autism. This examination will focus on relationships between their graduation status and the factors of type of disability, type of service, type of support, and least restrictive environment. The specific group of participants included in this study will include those students with disabilities in 10 counties of Pennsylvania who started 9th grade in 2001-2002 and completed their education four years later. The next chapter will look at how the study will be conducted.

CHAPTER III

RESEARCH METHODOLOGY

Introduction

The purpose of this study was to examine graduation rates of students with disabilities and factors that affected those rates. More specifically, this study compared intermediate unit and county-level data for students with disabilities in districts in 10 counties of Pennsylvania. Correlations were examined between the graduation rates of the students with disabilities in these counties and socioeconomic factors of poverty rate, median household income, and the percentage of students in the counties who were economically disadvantaged. In addition, graduation rates of students with disabilities for these same counties were examined in comparison to the results of their 11th grade PSSA scores. Finally, student specific data was examined for those students with disabilities of specific learning disability, emotional disturbance, mental retardation, and autism. This examination focused on relationships between their graduation status and the factors of disability, type of service, type of support, and least restrictive environment. The specific group of participants included in this study were those students with disabilities in 10 counties of Pennsylvania who started 9th grade in 2001-2002 and completed their education four years later.

The intent was not to make a comparison between students with disabilities and students without disabilities, but to focus on only the students with disabilities and factors that affected their graduation rate. The factors included in the study were specific disability category, the type of service and support they

received, the amount of time they spent in regular education classes, the economic status of their school, and finally a comparison to the PSSA scores for the group of students from a given school.

The research design of the study, the participants of the study, and the variables were included in this chapter. In addition, the data sources and the data analyses for each research question were included.

Design of Study

The research design was similar for three of the four research questions in this study. For these three questions, existing school-level data archived through the Pennsylvania Department of Education and the Penn State Data Center was examined. The first question examined the graduation rates of all students with disabilities in the districts of three counties of Pennsylvania, within Intermediate Unit 1. In addition, the factors surrounding socioeconomic status (poverty rate, median family income, and economic disadvantage) were examined to determine if they were significantly related to the graduation rates. The second research question incorporated the same design but focused on the districts in seven counties within Intermediate Units 6 and 10. For both research questions, the variables of graduation rates and socioeconomic factors were compared across districts and counties. The third question examined the same subgroup of students from the 10 counties in the previous two questions and examined the relationship between their 11th grade PSSA results and the graduation rates.

For these three research questions, the nature of the design was correlational. That is, to determine "whether, and to what degree, a statistical relationship exists between two or more variables" (Gay & Airasian, 2003, p. 11). School-level and county-level data was examined to determine the relationships among the graduation rates, socioeconomic factors (poverty rate, median household income, and economic disadvantage), and 11th grade PSSA scores.

The design for the fourth research question differs because of the use of student-level data within the same counties investigated in the previous three questions. The specific group of students studied in this question included those students with disabilities classified in four disability categories (emotional disturbance, specific learning disability, autism, mental retardation) that began 9th grade in the fall of 2001. One focus of this research question is to determine their status regarding graduation in the spring of 2005. Data available from Penn State Data Center indicated if the student is still in school, graduated with a diploma, received a GED, reached maximum age, dropped out, no longer needed special education, moved, or died. Other student-level information gathered included gender, ethnicity, home school, primary disability, type of PSSA participation, type of support, type of service, least restrictive environment, and residential status.

The research design appropriate for this question is causal-comparative. "In a causal-comparative study, the independent variable, or cause, has already occurred or cannot be manipulated so the researcher has no control over it" (Gay & Airisian, 2003, p. 11). Each student's status with regard to graduation at the end

of four years was examined. Then causal comparative analysis was used to determine if various factors had an affect on their status.

Participants

The first portion of this study focused on high school students with disabilities in 54 school districts in 10 counties of Pennsylvania who began 9th grade in the fall of 2001. Although two of the school districts, Keystone Central and Forest Area have two separate high schools, the data provided grouped the students together in one reporting group. Therefore, district-level data was gathered rather than specific school-level data for these two school districts. The counties involved include: Fayette, Greene, and Washington, in Intermediate Unit 1; Clarion, Clearfield, Forest, Jefferson, and Venango in Intermediate Unit 6; and, Centre, Clearfield, and Clinton in Intermediate Unit 10. One district, Dubois Area School District was located in Clearfield County, but was serviced by Intermediate Unit 6; while the rest of Clearfield County received services from Intermediate Unit 10. Therefore, the information for Clearfield County was reported in each Intermediate Unit. The initial three counties, Fayette, Washington, and Greene Counties were chosen due to the demographic familiarity of the researcher. The additional counties were chosen due to their comparable rural designation as well as their comparable poverty rate and median household income as reported by the Fannie Mae Foundation (2006). In addition, these counties were chosen due to their similar percentage of economically disadvantaged students within each school district (Pennsylvania Department of

Education, 2006) (see Table 1). The disability categories for the students

included sub-categories of deaf-blindness, hearing impairment, visual impairment,

traumatic brain injury, multiple disabilities, orthopedic impairment, other health

impairment, autism, emotional disturbance, mental retardation, specific learning

disability, and speech and language impairment. The majority of students with

disabilities were categorized in the latter five disabilities.

Table 1

County Socioeconomic Data

IU #	County	# HS	%SpEd	%Pov	Median income	%Econ dis.
1	Fayette	6	16	20	$9,500. - $27,000.	45
1	Greene	5	21	16	$27,000. - $29,000.	42
1	Washington	14	15	8	$37,000. - $39,000.	28
6	Clarion	7	15	16	$27,000. - $29,000.	30
6	Clearfield	1	15	10	$27,000. – $29,000.	31
6	Forest	2	20	16	$9,500. - $27,000.	44
6	Jefferson	3	17	10	$29,000. - $31,500.	30
6	Venango	5	20	12	$32,000. - $33,000.	36
10	Centre	4	14	16	$29,000. - $31,500.	23
10	Clearfield	8	16	10	$27,000. - $29,000.	42
10	Clinton	2	17	12	$27,000. - $29,000	37

Note. IU# represents the number of the respective Intermediate Unit, County represents the name of the county, #HS represents the number of high school in the county, %SpEd represents the percentage of students with disabilities in the county, %Pov represents the poverty rate for the county, Median Income represents the median household income for the county, %Econ Dis represents the percentage of students in the county who are economically disadvantaged.

The second portion of this study focused on a subgroup of the students with disabilities in the 10 counties of Pennsylvania listed above. The subgroup were those students that fall in one of the following four categories and who received their education in their home school within the same surroundings as their age-appropriate peers: specific learning disability, emotional disturbance, mental retardation, and autism. This was group of students with cognitive or emotional disabilities that were expected to take the Pennsylvania State System of Assessment (PSSA). The cohort of students examined entered 9th grade in the fall of 2001. It was determined from the data gathered if they were graduates in the spring of 2005. These dates were used, as they were the latest data that was readily available. If the students were not graduates, the data also provided their current status. Participants' identities were protected by the data coming to the researcher without individual names, identification numbers, social security numbers, or birthdates.

Variables and Data Sources

This section describes the specific variables investigated in this research study. Following approval from the Institutional Review Board as an exempt study, all data was obtained from existing data sources as indicated below. The graduation rates examined in Research Questions 1, 2, and 3 for each of the 54 districts in the 10 counties came from the Special Ed Data Reports. These reports were made available to the public through a link from the PDE website (http://ed.hbg.psu.edu/).   The information included in these reports came from the

individual districts throughout the commonwealth of Pennsylvania. Two times during the year the information from the Penn Data sheets was sent to the Penn State Data Center that managed the data and the information was then updated on the students with disabilities in the state. Included in each school district report were the total numbers of students with disabilities being served within each district as well as a comparison to the state information. The totals were disaggregated to provide a numerical picture of the services for students with disabilities within that district compared to the services that are provided throughout the entire state.

Three variables related to socioeconomic status were investigated for each high school in Research Questions 1, 2, and 3. First, county poverty rate statistics were gathered from the public site, www.dataplace.org. The maps available on this site were credited to the Fannie Mae Foundation, an organization focused on setting up community partnerships to provide affordable homeownership and housing (www.fanniemaefoundation.org). The poverty rate was defined as the percentage of the population whose family income fell below an absolute level, the poverty line. The poverty rate varied among the 10 counties from 8% in Washington County to 20% in Fayette County.

Median household income, the second variable, was gathered from the same website (www.dataplace.org). The median household income is the *middle number* present in a set of data when the incomes of all households are arranged in an order of highest to lowest. The majority of counties fell in the range of $27,000.00 to $29,000.00.

The third variable representing socioeconomic status is labeled

economically disadvantaged. Students who participated in the free and reduced

breakfast and lunch program were considered to be economically disadvantaged.

The percentage ranged from 23% in Centre County to 45% in Fayette County.

This information was gathered from the school district report cards available at

www.paayp.com. This web site may be accessed directly or is provided as a link

from the assessment pages of the Pennsylvania Department of Education (PDE)

website.

The final variable examined in Research Question 3 was the PSSA

achievement levels. For each high school, the math and reading 11th grade PSSA

results for the entire subgroup of students with disabilities were obtained through

the PDE website or directly at www.paayp.com. Specifically, the results identified

the percent of 11th grade students with Individual Education Programs (IEP) that

scored advanced, proficient, basic, or below basic on the PSSA for reading and

math.

As mentioned previously, Research Question 4 focused on a particular

subgroup of students with disabilities, which included students in the categories of

specific learning disabilities, emotional disturbance, mental retardation, and

autism. All data gathered for this question came from an existing data source that

is not available to the general public. In preparation for gaining permission to do

this study, the researcher contacted Pennsylvania Department of Education (PDE)

to get permission to have access to student-level data from the Penn State Data

Center. Written permission was given through an email to authorize this

researcher to gather the individual student data (J. Rissinger, personal

communication, July 13, 2006). The data received had no identifiers included

with the individual student information. For each student categorized in one of the

above four categories and who began 9th grade in the fall of 2001, the data

gathered included demographic information such as gender (male / female),

ethnicity (American Indian, Asian, Black, Hispanic, or White), the home district

of the student, and if the student is a resident of the district or not. Data was also

gathered on the primary disability (there are 12 categories included in the Chapter

14 regulations), type of support (there are nine types of support available through

Chapter 14), type of service (itinerant, resource, part-time, or full-time), and

ranges of time spent in special education classes (less than 21%, 21% - 60%, and

more than 60%). Additional data gathered included their level of participation in

the PSSA (no accommodations, with accommodations, PASA, or religious

exclusion) and exit reason (graduated in 2004-2005, received GED, maximum

age, dropped out, no longer needs special ed, moved, or deceased). It should be

noted that PSSA results were not available for individual students.

Data Analysis

   Research question one.

What is the 2004-2005 graduation rate for all students with disabilities in the

Intermediate Unit 1 counties of Fayette, Greene, and Washington? There are two

sub-questions. (a) How does the graduation rate differ between the three counties?

(b) What is the relationship between the graduation rate of all students with

disabilities in Intermediate Unit 1 and the socioeconomic status of a county, as measured by poverty rate, median household income, and the percentage of economically disadvantaged students?

Through the Special Ed Data Report provided from the Penn Data website available to the public, each school's yearly special education information was provided. In the data report, the graduation rate was reported for all students with disabilities aged 14 – 21 that have graduated from each high school in a given year. In this report, the graduation rate was defined as the number of graduates divided by the number of graduates, plus the number of students who received a GED, plus the number of dropouts, plus the number of students who reached maximum age, plus the number of students who died, times 100 (Grad Rate = #Grad / #Grad + #GED + #Drop + # MaxAge + # Died X 100). This definition was different from the state definition for graduation rate provided for the state report cards. The report card information utilized the state graduation rate definition of the graduates (2004-2005) in the numerator and the graduates plus the 12th grade dropouts (2004-2005), 11th grade dropouts (2003-2004), 10th grade dropouts (2002-2003), and 9th grade dropouts (2001-2002) were used in the denominator. For this research question, the graduation rate in 2004-2005 for each of the 25 districts in the three counties was obtained.

To answer the first sub-question, the average graduation rate for each of the three counties was obtained. A one-way Analysis of Variance was used to determine if there were average differences in the graduation rates across the three counties.

Answering the second sub-question required the use of Pearson correlation to examine whether there was a relationship between each of the factors of socioeconomic status and the graduation rates. In this study, the socioeconomic status of the districts was defined using three variables: poverty rate, median household income, and percentage of students who are considered to be economically disadvantaged. The magnitude and significance level for each Pearson correlation was interpreted within each county and across the three counties.

Research question two.

What are the 2004-2005 graduation rates for all students with disabilities in the counties of Intermediate Unit 6 (Venango, Clearfield, Forest, Clarion, and Jefferson Counties) and Intermediate Unit 10 (Clearfield, Centre, and Clinton Counties)? There are two sub-questions. (a) How do the graduation rates differ between the counties and compared to the counties of Intermediate Unit 1 (Fayette, Greene, and Washington Counties)? (b) What is the relationship between the graduation rate of all students with disabilities in Intermediate Units 6 and 10 and the socioeconomic status of a county, as measured by poverty rate, median household income, and the percentage of economically disadvantaged students?

Similar to Research Question one, the graduation rates in 2004-2005 for all high districts in the five counties of Intermediate Unit 6 and the three counties of Intermediate Unit 10 were obtained from the public Special Ed Data Reports

To answer the first sub-question, the average graduation rate for each of the eight counties was obtained. A one-way Analysis of Variance was conducted to examine whether there were differences across the counties in Intermediate Units 1, 6, and 10.

Answering the second sub-question required the use of Pearson correlations to determine if a relationship existed between each socioeconomic factor and the graduation rate. The socioeconomic status of districts was defined by three variables: poverty rate, median household income, and the percentage of economically disadvantaged students. The magnitude and significance level of each Pearson correlation was interpreted within each county and across counties and intermediate units.

Research question three.

What is the relationship between the 2004-2005 graduation rates and the 11th grade reading and math PSSA scores for counties in Intermediate Units 1, 6, and 10? There is one sub-question. (a) What are the differences in relationships between graduation rates and PSSA scores across the counties?

The District Report Cards found through the public PDE website included the percentage of eleventh graders with disabilities who scored at each of the levels of the PSSA Reading and Math assessments. These levels included Advanced, Proficient, Basic, and Below Basic. The percentage of students scoring at each of the four achievement levels (advanced, proficient, basic, and below basic) for each school was obtained. To answer the research question Pearson correlation coefficients were calculated to determine the relationship between

PSSA math results and graduation rates as well as PSSA reading results and graduation rates. The sub-question compared the magnitude and significance of the correlations across each of the intermediate unit areas, counties, and districts.

   Research question four.

Using student-level data from the high school in the fifty-four districts, the research question is: How is the 2004-2005 graduation rate for all students with mild cognitive or emotional disabilities (learning disabled, emotionally disturbed, mentally retardation, and autistic), in Intermediate Units 1, 6, and 10, affected by their disability, their type of service (itinerant, resource, part-time, or full-time), their type of support (Learning Support, Emotional Support), and their least restrictive environment (percentage of time spent outside the regular classroom)?

   Question four was the only question that utilized individual student data for specific groups of students with disabilities. Through causal-comparative methods potential relationships between a student's graduation rate and four specific factors were investigated. Access to the individual student data allowed the segregation of four distinct groups of students with disabilities. These four distinct groups are those students who have been diagnosed with Mental Retardation, Specific Learning Disabilities, Emotional Disturbance, and Autism who were educated in regular buildings with non-disabled students. Because the nature of these disability categories includes cognitive and emotional problems, these students struggled to achieve at the same rate as peers who do not have disabilities. However, within the framework of the PSSA, the students in these four disability categories took the same PSSA as their non-disabled peers.

Therefore, the focus of this question, at the specific student level, was to provide a picture of these students with disabilities compared to their non-disabled peers.

As a first step in the analysis, descriptive statistics was conducted. This included the percentages of students within each of the four disability categories, the four types of service categories, the two types of support categories, and the three least restrictive environment categories. These percentages were reported for each school in the counties and also at the aggregate county-level and intermediate unit level. The graduation rates were determined for each school by dividing the number of students with disabilities who graduated in 2004-2005 by the total number of students with disabilities who entered the school in the fall of 2001. This formula utilized the federal definition for graduation rates, "The percentage of students who graduate from secondary school with a regular diploma in the standard number of years" [Sec 1111(b)(2)(C)(vi)]. The students considered as graduates were those students who received their diploma in four years. Although there may be students who graduated in 2005 who returned to school after dropping out or completed their schooling in more than four years, utilizing the federal definition will provide a different view of the graduates in these 54 school districts when compared to what was reported from the Penn State Data Center or the school district report cards. If the number of students for a school was less than 10, the graduation rate for the county was determined.

To examine whether the first factor, disability, had significant effect on graduation rates, a chi square test of independence was used to compare the dichotomous graduation variable (did or did not graduate) with the categorical

disability variable which contained four categories (autism, emotional disturbance, mental retardation, and specific learning disability).

To examine whether the second factor, type of service, had a significant effect on graduation rates a chi square test of independence was used to compare the dichotomous graduation variable (did or did not graduate) with the categorical service variable which contained four categories (itinerant, resource, part-time, full-time).

To examine whether the third factor, type of support, had a significant effect on graduation rates a chi square test of independence was used to compare the dichotomous graduation variable (did or did not graduate) with the categorical support variable which contained two categories (emotional and learning).

To examine whether the fourth factor, least restrictive environment, had a significant effect on graduation rates a chi square test of independence was used to compare the dichotomous graduation variable (did or did not graduate) with the categorical least restrictive environment variable which contained three categories (less than 21% of the day outside of the regular ed classroom, 21% to 60% of the day outside of the regular ed classroom, and more than 60% of the day outside of the regular ed classroom). Depending on the size of the sample, the above chi square analyses was conducted at the school-level or the county-level.

Summary

This study analyzed existing data found in the publicly available District Report Cards and Special Education Data Reports for its first three research

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questions. These first three questions used school-level data due to its availability through archived information. The school-level data allowed comparisons to be made between districts, counties, and intermediate unit areas in Pennsylvania with regards to socioeconomic status and graduation rates.

The fourth question was more specific to individual students with restricted data provided from the Pennsylvania State Data Center. The factors of disability, type of service and support, and least restrictive environment were analyzed to determine what, if any, affect they had on the graduation rates of these students.

CHAPTER IV

RESULTS

Overview

This chapter will describe the data collected for each of the four research questions, the descriptive statistics related to each question, and the results from each question. Analyses are reported for each question individually. The purpose of this study is to examine graduation rates of students with disabilities and factors that affect those rates. More specifically, this study compares intermediate unit and county-level data for students with disabilities in districts in 10 counties of Pennsylvania. Correlations were examined between the graduation rates of the students with disabilities in these counties and socioeconomic factors of poverty rate, median household income, and the percentage of students in the counties who were economically disadvantaged. In addition, graduation rates of students with disabilities for these same counties were examined in comparison to the results of their 11th grade PSSA scores. Finally, student specific data was examined for those students with disabilities of specific learning disability, emotional disturbance, mental retardation, and autism. This examination focused on relationships between their graduation status and the factors of disability, type of service, type of support, and least restrictive environment. The specific group of participants included in this study included those students with disabilities in 10 counties of Pennsylvania who started 9th grade in 2001-2002 and completed their education four years later.

Question one examined county-level data for students with disabilities in three specific counties surrounding the researcher's home area. Question two examined similar data for seven other counties similar in socioeconomic status to the original three counties. Question three examined district level PSSA data for students with disabilities in all of the districts included in the study. Question four examined student level data for a specific subgroup of the original population.

Research Question One

What is the 2004-2005 graduation rate for all students with disabilities in the Intermediate Unit 1 counties of Fayette, Greene, and Washington? There are two sub-questions: (a) How does the graduation rate differ between the three counties? (b) What is the relationship between the graduation rate of all students with disabilities in Intermediate Unit 1 and the socioeconomic status of a county, as measured by poverty rate, median household income, and the percentage of economically disadvantaged students?

The graduation rates for all students with disabilities in Fayette, Greene, and Washington Counties are found in Table 2. The rates are reported from the Special Ed Data Report (SER) and from the School District Report Cards (DRC). The differences in the results are attributed to the differences in the formulas used to calculate the graduation rates.

$$\text{SER Grad Rate} = \frac{\#Grad}{\#Grad + \#GED + \#Drop + \# MaxAge + \# Died} \times 100$$

$$\text{DRC Grad Rate} = \frac{\text{Graduates (2004-2005)}}{\text{Graduates (2004-2005)} + 9 - 12\text{th grade dropouts}}$$

The SER graduation rate formula is used only to calculate graduation rates for students with disabilities and includes those students who may have received a GED or finished school through maximum age. The DRC formula is that used by the state to report Adequate Yearly Progress and does not include students completing their schooling through maximum age or obtaining a GED, but only those students who graduate with a regular diploma after meeting the school district requirements. For this reason, there are differences in the rates with the DRC rates being lower in all instances.

Table 2

Graduation Rates by County Within Intermediate Unit 1

	nRep / nDistricts	Disabilities	**SER**	nRep / nDistricts	Disabilities	**DRC**
Fayette	6 / 6	16%	100%	6 /6	16%	80%
Greene	5 / 5	21%	100%	4 /5	21%	85%
Washington	14 /14	15%	96%	13 / 14	15%	77%

Note. SER represents grad rate from Special Ed Data Report, DRC represents grad rate from School District Report Card, nRep / nDistricts represents the number of districts reporting information out of the total number of districts, Disabilities represents the percentage of students with disabilities according to the DRC.

Since the SER only applies to students with disabilities, all districts report information no matter how many students with disabilities are represented. The DRC report excludes information if there are less than 10 students in that

reporting category in a given district. For this reason, the DRC county graduation rates may not be based on results from all districts. The DRC report for this analysis did not provide information for one district in Greene County and for one district in Washington County. With that in mind, the graduation rate for students with disabilities in Intermediate Unit 1 was highest in Greene County with 85% and lowest in Washington County with 77%.   In addition, the percentage of students with disabilities within each county gives another view of the results. Greene County with the highest percentage of students with disabilities also had the highest graduation rate. Washington County with the lowest percentage of students with disabilities had the lowest graduation rate.

Sub-question a.

To answer sub-question (a): How does the graduation rate differ between the three counties, a one-way analysis of variance (ANOVA) was used to examine the differences in the mean graduation rates across the three counties of Intermediate Unit 1. When graduation rates from the SER were used, the 14 districts in Washington County yielded a mean of 95.86% with standard deviations of 6.515. However, for the other two counties (Greene and Fayette) there was no variance among the graduation rates (sd = .000). Therefore, an ANOVA could not be used to look for relationships in graduation rates from the SER.

Table 3 reports the descriptive statistics from the DRC graduation rates for the three counties of Intermediate Unit 1. Since one district in Greene County and

one district in Washington County had less than 10 students with disabilities, each of their county results are missing information from one district. Greene County had the highest minimum and maximum graduation rates of 74% and 100% respectively. Washington County had the lowest minimum graduation rate of 50% for students with disabilities. The assumption of homogeneity of variances was met with a significance level of .850, meaning that the variances in graduation rates for students with disabilities in the three counties of Intermediate Unit 1 were equal.

Table 3

Descriptive Statistics for DRC Graduation Rates for Counties in IU 1

	nRep / nDistricts	Disabilities	M	SD	Min	Max
Fayette	6 / 6	16%	79%	13	58%	92%
Greene	4 / 5	21%	84%	11	74%	100%
Washington	13 / 14	15%	76%	14	50%	100%

Note. nRep / nDist represents the number of districts reporting information out of the total number of districts, Disabilities represents the percentage of students with disabilities according to the DRC, M represents Mean, SD represents Standard Deviation, Min % represents the minimum graduation rate, Max % represents the maximum graduation rate.

The ANOVA is testing the null hypothesis that the county graduation rates are equal across the three counties. The DRC graduation rate results do not show a significant difference across the three counties of Intermediate Unit 1, $F (2,20) =$ .533, $p = .595$. The decision would be to fail to reject the null hypothesis because the F statistic falls within the bounds of the F critical region. Therefore, the graduation rates for students with disabilities in Intermediate Unit 1 are statistically similar across counties.

Sub-question b.

A Pearson Correlation was used to answer sub-question (b): What is the relationship between the graduation rate of all students with disabilities in Intermediate Unit 1 and the socioeconomic status of a district, as measured by

poverty rate, median household income, and the percentage of economically

disadvantaged students? The District Report Card (DRC) graduation rate results

were used for this sub-question as it was found in sub-question (a) that the SER

did not provide any deviation in rates. Two of the socioeconomic factors, poverty

rate and median household income, were only available in county statistics. The

percentage of students in each district who are economically disadvantaged was

given in the District Report Card for each district. In order to be consistent with

the information provided, county averages for economically disadvantaged are

reported in Table 4.

Table 4

Socioeconomic Factors and DRC Graduation Rate for Counties in IU 1

County	PovRate	MHI	EcoDis	DRC	Disabilities
Fayette	20%	$ 9,300 – 27,000	45%	80%	16%
Greene	16%	$27,000 – 30,000	42%	85%	21%
Washington	8%	$37,000 – 39,000	28%	77%	15%

Note. PovRate represents the county poverty rate as reported by the Fannie Mae Foundation, MHI represents the median household income as reported by the Fannie Mae Foundation, EcoDis represents the percentage of students who received free and reduced lunches in the counties, DRC represents the graduation rate as reported in the District Report Card, Disabilities represents the percentage of students with disabilities according to the DRC.

To examine the relationship between DRC Graduation Rates for students with disabilities in all districts within the three counties and the percentage of students who are economically disadvantaged from each district a Pearson Correlation was executed. The factor of economically disadvantaged was used due to it being the only factor of the three used to determine socioeconomic status that provided district level data. As in sub-question (a), only 23 of the 25 districts provided results, with the remaining two district having less than 10 students with disabilities.

The Pearson Correlation yielded no significant relationship between the DRC graduation rates of students with disabilities and the socioeconomic factor of percentage of economically disadvantaged students in each county in Intermediate Unit 1 ($r = -.244$, $p = .261$). Although the literature review

suggested students from a lower socioeconomic region would have lower

graduation rates, this correlation was not found within Intermediate Unit 1.

Due to the differences in the proportion of students with disabilities across

the districts the percentage of students with disabilities in each district was used to

weight the data in the correlation. Using the weighted data, a significant

relationship was now returned for the correlation, $(r = -.195, p < .001)$. This

negative relationship signifies that graduation rates will increase as economic

disadvantage decreases. This is the same relationship reported in the literature.

These results, although mirroring the literature results, still present a weak

correlation between graduation rates for students with disabilities and economic

disadvantage.

Research Question Two

What are the 2004-2005 graduation rates for all students with disabilities in the

counties of Intermediate Unit 6 (Venango, Forest, Clarion, Clearfield, and

Jefferson Counties) and Intermediate Unit 10 (Clearfield, Centre, and Clinton

Counties)? There are two sub-questions: (a) How do the graduation rates differ

between the counties and compared to the counties of Intermediate Unit 1

(Fayette, Greene, and Washington Counties)? (b) What is the relationship

between the graduation rate of all students with disabilities in Intermediate Units

6 and 10 and the socioeconomic status of a county, as measured by poverty rate,

median household income, and the percentage of economically disadvantaged

students?

It should be noted here that Clearfield County is split between IU 6 and 10. Therefore, the Clearfield County results for IU 6 will be determined by only one district. The Clearfield County results for IU 10 will contain the other 8 districts.

The graduation rates for all students with disabilities in the counties of Intermediate Units 6 and 10 are listed in Table 5. The rates are reported from the Special Ed Data Report (SER) and from the School District Report Cards (DRC). The differences in the results are attributed to the differences in the formulas (see research question one) used to calculate the graduation rates. The SER graduation rate formula is used only to calculate graduation rates for students with disabilities and includes those students who may have received a GED or finished school through maximum age. The DRC formula is that used by the state to report Adequate Yearly Progress and does not include students completing their schooling through maximum age or obtaining a GED, but only those students who graduate with a regular diploma after meeting the school district requirements. For this reason, there are differences in the rates with the DRC rates being lower in all but one instance.

Table 5

Graduation Rates by County Within IU 6 and 10

	nRep / nDistricts	Disabilities	**SER**	nRep / nDistrists	Disabilities	**DRC**
Clarion	7 / 7	15%	90%	4 / 7	15%	83%
Clearfield	1 / 1	15%	89%	1 / 1	15%	91%
Forest	1 / 1	20%	100%	0 / 1	20%	**
Jefferson	3 / 3	17%	94%	2 / 3	17%	84%
Venango	5 / 5	20%	88%	5 / 5	20%	74%
Centre	4 / 4	14%	96%	4 / 4	14%	90%
Clearfield	7 / 7	16%	81%	6 / 7	16%	82%
Clinton	1 / 1	17%	98%	1 / 1	17%	86%

Note. SER represents grad rates from Special Ed Data Report, DRC represents grad rates from School District Report Card, nRep / nDistricts represents the number of districts reporting information out of the total number of districts, Disabilities represents the percentage of students with disabilities according to the DRC, ** represents less than 10 students in category.

Since the SER only applies to students with disabilities, all districts report information no matter how many students with disabilities are represented. The DRC report excludes information if there are less than 10 students in that subgroup in a given district. For this reason, the DRC county graduation rates may not be based on results from all districts. The DRC report did not provide results for three districts in Clarion County, the one district in Forest County, one district in Jefferson County, and one district in Clearfield County. This becomes a factor for Forest County; although it reported 100% graduation rate with the SER,

there were less than 10 students with disabilities in the graduating class so no

results were reported for the DRC. Another factor to consider is how many

students with disabilities are represented in each school district. Centre County

having the lowest percentage of students with disabilities, 14%, had the highest

graduation rate on the DRC, with 90% and was almost the highest on the SER,

with 96%. Forest and Venango Counties had the highest percentage of students

with disabilities at 20%. Their graduation rates fluctuated from Forest reporting

100% with SER and not able to report for DRC, and Venango having nearly the

lowest graduation rate for students with disabilities on the SER, with 88%, and

the lowest on the DRC, with 74%.

Sub-question a.

To answer sub-question (a): How do the graduation rates differ between

the counties and compared to the counties of Intermediate Unit 1, a One-way

ANOVA was used to examine the differences in the mean graduation rates across

the counties of Intermediate Units 6 and 10. The descriptive statistics using the

SER results are below. The test of homogeneity of variances was not met for

either IU 6 or IU 10. More importantly, there is little variance between the

graduation rates within each county. Therefore, an ANOVA could not be run

using the SER graduation rates.

Table 6

Descriptive Statistics for SER Graduation Rates for IU 6 and 10

	nRep / nDistricts	Disabilities	M	SD	Min	Max
Clarion	7 / 7	15%	90%	13.90	67%	100%
Clearfield	1 / 1	15%	89%	--	89%	89%
Forest	1 / 1	20%	100%	--	100%	100%
Jefferson	3 / 3	17%	94%	6.03	88%	92%
Venango	5 / 5	20%	91%	9.80	67%	100%
Centre	4 / 4	14%	96%	3.10	93%	100%
Clearfield	7 / 7	16%	81%	24.18	33%	100%
Clinton	1 / 1	17%	98%	--	98%	98%

Note. nRep / nDist represents the number of districts reporting information out of the total number of districts, Disabilities represents the percentage of students with disabilities according to the DRC, M represents Mean, SD represents Standard Deviation, Min represents the minimum graduation rate, Max represents the maximum graduation rate.

Table 7 below reports the descriptive statistics from the DRC results for the seven counties of Intermediate Units 6 and 10. Since the one district in Forest County had less than 10 students with disabilities, there are no reported results. Three of the districts in Clarion County and one district in each of Jefferson and Clearfield Counties also had less than 10 students with disabilities, resulting in no reported results from these districts. Clinton County with only one district provided no variance in the scores. Clearfield County shared the lowest graduation rate for students with disabilities with Venango County at 60%. However, Clearfield County also reported the highest graduation rate of the seven

counties with 100%. Adding in the factor of percentage of students with

disabilities, Venango County had the highest percentage at 20%. Their graduation

results had a minimum of 60% and a maximum of 92%. The assumption of

homogeneity of variances was met for both Intermediate Unit areas with a

significance level of .268 for IU 6 and a significance level of .170 for IU 10,

meaning that the variances in graduation rates for students with disabilities in the

seven counties of Intermediate Units 6 and 10 were equal.

Table 7

Descriptive Statistics for DRC Graduation Rates for IU 6 and 10

	nRep / nDistricts	Disabilities	M	SD	Min	Max
Clarion	4 / 7	15%	83%	4	77%	85%
Clearfield	1 / 1	15%	91%	--	91%	91%
Forest	0 / 1	20%	--	--	--	--
Jefferson	2 / 3	17%	84%	12	75%	93%
Venango	5 / 5	20%	74%	11	60%	92%
Centre	4 / 4	14%	89%	7	78%	95%
Clearfield	6 / 7	16%	82%	15	60%	100%
Clinton	1 / 1	17%	86%	--	86%	86%

Note. nRep / nDistrists represents the number of districts reporting information out of the total number of districts, Disabilities represents the percentage of students with disabilities according to the DRC, M represents Mean, SD represents Standard Deviation, Min represents the minimum graduation rate, Max represents the maximum graduation rate.

The first ANOVA tests the null hypothesis that the county graduation rates are equal across the five counties of IU 6. Using the DRC graduation rates results for the five counties of Intermediate Unit 6 (Clarion, Clearfield, Forest, Jefferson, and Venango), the ANOVA does not show a significant difference in the rates among the counties, $F (3,8) = 1.202$, $p = .369$. The decision would be to fail to reject the null hypothesis because the F statistic falls within the bounds of the F critical region. The graduation rates for students with disabilities in Intermediate

Unit 6 are statistically similar. In Intermediate Unit 10, Clinton County has only one district and cannot be used in the ANOVA. This limits the groups to only Centre and Clinton Counties. The DRC graduation rates across the counties of Centre and Clearfield were not significantly different, $F(1,9) = .657$, $p = .438$. The decision would be to fail to reject the null hypothesis because the F statistic falls within the critical region.

Another ANOVA was performed to then compare the DRC results for Intermediate Units 1, 6, and 10. The SER results were not used for this comparison due to lack of variation in graduation rates. For the DRC results, the assumption of homogeneity was met with a significance of .729. Due to some districts having less than 10 students with disabilities, the reported results in Table 8 are not for all districts within each IU. IU 6 with the highest percentage of students with disabilities (18%) had only 11 of its 16 districts able to report results due to five of the district having less than 10 students in this subgroup. IU 10 with the lowest percentage of students with disabilities (16%) had a minimum graduation rate of 60% and a maximum graduation rate of 100%.

Table 8

Descriptive Statistics for DRC Graduation Rates for IU 1, 6, and 10

	nRep / nDistricts	Disabilities	M	SD	Min	Max
IU 1	23 / 25	17%	79%	13	50%	100%
IU 6	12 / 17	17%	80%	10	60%	93%
IU 10	11 / 12	17%	85%	12	60%	100%

Note. nRep / nDist represents the number of districts reporting information out of the total number of districts, Disabilities represents the percentage of students with disabilities according to the DRC, M represents Mean, SD represents Standard Deviation, Min represents the minimum graduation rate, Max represents the maximum graduation rate.

The ANOVA is testing the null hypothesis that the graduation rates are equal across the three intermediate units. The DRC graduation rates were not significantly different across the three intermediate units, $F(2,43) = .993$, $p = .379$. The decision would be to fail to reject the null hypothesis because the F statistic falls within the bounds of the F critical region. The graduation rates for students with disabilities across Intermediate Units 1, 6, and 10 are statistically similar.

Sub-question b.

A Pearson Correlation was used to answer sub-question (b): What is the relationship between the graduation rate of all students with disabilities in Intermediate Units 6 and 10 and the socioeconomic status of a district, as

measured by poverty rate, median household income, and the percentage of economically disadvantaged students?

The District Report Card (DRC) graduation rate results were used for this sub-question as it was found in sub-question a) that the Special Ed Data Report (SER) did not provide enough variance in rates. Two of the socioeconomic factors, poverty rate and median household income, were only available in county statistics. The percentage of students in each district who are economically disadvantaged was given in the District Report Card for each district. In order to be consistent with the information provided, county averages for economically disadvantaged are reported in Table 9.

Table 9

Socioeconomic Factors and DRC Graduation Rate for Counties in IU 6 and 10

County	PovRate	MHI	EcoDis	DRC	Disabilities
Clarion	16%	$27,000 – 29,000	30%	83%	15%
Clearfield	10%	$27,000 – 29,000	31%	91%	15%
Forest	16%	$ 9,500 – 27,000	44%	84%	20%
Jefferson	10%	$29,000 – 31,000	30%	74%	17%
Venango	12%	$32,000 – 33,000	36%	90%	20%
Centre	16%	$29,000 – 31,000	23%	83%	14%
Clearfield	10%	$27,000 – 29,000	42%	86%	16%
Clinton	12%	$27,000 – 29,000	37%	**	17%

Note. PovRate represents the county poverty rate as reported by the Fannie Mae Foundation, MHI represents the median household income as reported by the Fannie Mae Foundation, EcoDis represents the percentage of students who received free and reduced lunches in the counties, DRC represents the graduation rate as reported in the District Report Card, Disabilities represents the percentage of students with disabilities according to the DRC, ** represents less than 10 students in this subgroup.

     To examine the relationship between DRC Graduation Rates for students with disabilities in all districts within the eight counties and the percentage of students who are economically disadvantaged from each district a pearson correlation coefficient was calculated. The factor of economically disadvantaged was used due to it being the only variable of the three socioeconomic variables that provided district level data. As in sub-question (a), only 23 of the 29 districts

provided results, with the remaining six districts having less than 10 students with disabilities.

The Pearson Correlation yielded no significant relationship between the DRC graduation rates of students with disabilities and the socioeconomic factor of percentage of economically disadvantaged students in Intermediate Unit 6 (r = -.455, p = .138) and Intermediate Unit 10 (r = -.304, p = .363). Although the literature review suggested students from a lower socioeconomic region would have lower graduation rates, this correlation was not found within these two Intermediate Units.

Due to the differences in the proportions of students with disabilities across the districts the percentage of students with disabilities in each district was used to weight the data in the correlation. Using the weighted data, a significant relationship was now returned for the correlation, (IU 6, r = -.481, p < .001) (IU 10, r = -.275, p < .001). These negative relationships signify that graduation rates will increase as economic disadvantage decreases. This is the same relationship reported in the literature. These results, although mirroring the literature results, still present a moderate (IU 6) to weak correlation between graduation rates for students with disabilities and economic disadvantage.

Research Question Three

What is the relationship between the 2004-2005 graduation rates and the 11th grade reading and math PSSA scores for counties in Intermediate Units 1, 6, and

10? There is one sub-question: (a) What are the differences in relationships between graduation rates and PSSA scores across the counties?

Since the participants in this study would be graduating at the end of the 2004-2005 school year, their 11th grade (03-04) PSSA results were used for this question. For the purpose of this study, PSSA results are defined as the percentage of students with disabilities who scored within the proficient or advanced levels. These results are found on the District Report Card for each school district. As in all Adequate Yearly Progress reporting, if a subgroup has less than 10 students, the results are not reported. Intermediate Unit 1 reported results for 23 out of 25 districts. Intermediate Unit 6 reported results for 9 out of 17 districts. Intermediate Unit 10 reported results for 9 out of 12 districts. The descriptive statistics can be found in Table 10.

Table 10

Percentage of Students with Disabilities at Proficient or Advanced Levels on PSSA Math and Reading, DRC Graduation Rates, and Percentage of Students with Disabilities

	nRep / nDistricts	ProfAdv Math	ProfAdv Read	DRC	Disabilities
Fayette	6 / 6	9.0%	8.5%	80.0%	16.0%
Greene	3 / 5	2.7%	9.3%	85.0%	21.0%
Washington	13 / 14	6.8%	13.0%	77.0%	15.0%
Clarion	2 / 7	4.0%	0.0%	83.0%	15.0%
Clearfield	1 / 1	8.0%	8.0%	91.0%	15.0%
Forest	0 / 1	**	**	84.0%	20.0%
Jefferson	2 / 3	0.0%	3.5%	74.0%	17.0%
Venango	4 / 5	9.5%	9.5%	90.0%	20.0%
Centre	4 / 4	13.5%	16.5%	83.0%	14.0%
Clearfield	4 / 7	11.0%	16.0%	86.0%	16.0%
Clinton	1 / 1	2.0%	2.0%	**	17.0%

Note. nRep / nDistricts represents the number of districts reporting information out of the total number of districts, ProfAdvMath represents the percentage of students with disabilities scoring proficient and advanced in math, Prof/AdvRead represents the percentage of students with disabilities scoring proficient and advanced in reading, DRC represents the graduation rate as reported in the District Report Card, ** represents less than 10 students in this subgroup, Disabilities represents the percentage of students with disabilities according to the DRC.

A Pearson Correlation was used to discover if a relationship existed between the DRC graduation rates and proficient and advanced reading and math scores for the districts of Intermediate Unit 1. The IU 1 counties had an average graduation rate for students with disabilities of 81%. The results of the correlation yielded a significant relationship between DRC graduation rates and proficient and advanced PSSA reading scores (r = .487, p = .025). The results for proficient and advanced math were not significant (r = .292, p = .199). Therefore, increases in the percentage of students with disabilities scoring proficient or advanced in PSSA reading would result in increases in the graduation rate of students with disabilities. This relationship was not shown with the math scores.

Due to the differences in the proportions of students with disabilities across the districts, the percentage of students with disabilities within a district weighted the graduation rates for this question. The average percentage of students with disabilities in the Intermediate Unit 1 counties was 17%. This additional condition resulted in significant relationships between both proficient and advanced reading and math and DRC graduation rates (Reading, r = .418, p < .001, Math, r = .197, p < .001). Therefore, by taking the proportion of students with disabilities in the districts into account the relationship between PSSA scores and graduation rates is significant for reading and math. The average percentage of students with disabilities in Intermediate Unit 1 that scored advanced and proficient reading was 10. 27%. The average percentage of students with disabilities in Intermediate Unit 1 that scored advanced and proficient math was 6.17%.

A Pearson Correlation was used to discover if a relationship existed between the DRC graduation rates and proficient and advanced reading and math scores for the districts of Intermediate Unit 6. The IU 6 counties had an average graduation rate for students with disabilities of 84%. The results of the correlation yielded no significant results between DRC graduation rates and proficient and advanced math and reading (Reading, r = -.130, p = .759, Math, r = -.443, p = .272).

Due to the differences in the proportions of students with disabilities across the districts, the percentage of students with disabilities within a district weighted the graduation rates for this question. The average percentage of students with disabilities in the Intermediate Unit 6 counties was 17%. This additional condition resulted in significant relationships between both proficient and advanced reading and math and DRC graduation rates (Reading, r = -.180, p = .030, Math, r = -.481, p < .001). Therefore by taking the proportion of students with disabilities in the districts into account the relationship between PSSA scores and graduation rates is significant for reading and math. However, both results produced negative correlations showing that as PSSA math and reading scores increased, graduation rates would decrease. The average percentage of students with disabilities in Intermediate Unit 6 that scored advanced and proficient reading was 6.33%. The average percentage of student with disabilities in Intermediate Unit 6 that scored advanced and proficient math was 6.40%.

A Pearson Correlation was used to discover if a relationship existed between the DRC graduation rates and proficient and advanced reading and math

scores for the districts of Intermediate Unit 10. The IU 10 counties had an average graduation rate for students with disabilities of 85% with results reported for only Centre and Clearfield Counties. The results between DRC graduation rates and proficient and advanced reading and math were not significant (Reading, $r = .227$, $p = .556$, Math, $r = .381$, $p = .312$).

Due to the differences in the proportions of students with disabilities across the districts, the percentage of students with disabilities within a district weighted the graduation rates for this question. The average percentage of students with disabilities in the Intermediate Unit 10 counties was 16%. This additional condition resulted in significant relationships between proficient and advanced math and reading scores and DRC graduation rates (Math, $r = .350$, $p < .001$, Reading, $r = .188$, $p = .026$). Therefore, as in Intermediate Unit 1 and 6, by taking the proportion of students with disabilities in the districts into account, the relationship between PSSA scores and graduation rates is significant for reading and math. The average percentage of students with disabilities in Intermediate Unit 10 that scored advanced and proficient reading was 14.06%. The average percentage of students with disabilities in Intermediate Unit 10 that scored advanced and proficient math was 10.72%.

Sub-question a.

The descriptive statistics found in Table 10 and the results from the correlation analyses were used to answer sub-question (a): What are the

differences in relationships between graduation rates and PSSA scores across the counties?

As seen in Table 10, only four of the 11 counties were able to report advanced and proficient reading and math results for the subgroup of students with disabilities from all the districts in their counties. These counties were Fayette, Centre, Clearfield and Clinton Counties, with Clearfield in IU 6 and Clinton County having only one district. In the remainder of the counties, the results are reported on less than the full number of districts within each county. This discrepancy in district reporting reduced the validity and usefulness of county comparisons. However, comparisons across intermediate units would still be useful.

The correlation results for Intermediate Unit 1 showed a significant relationship between PSSA proficient and advanced reading scores and DRC graduation rates ($r = .487$, $p = .025$). This relationship was not found in the correlations for Intermediate Units 6 and 10 (IU6 $r = .130$, $p = .759$, IU10 $r = .227$, $p = .556$).

The correlation results for Intermediate Units 1, 6 and 10 did not show significant relationships between PSSA proficient and advanced math scores and DRC graduation rates (IU1 $r = .292$, $p = .199$, IU6 $r = -.443$, $p = .272$, IU10 $r = .381$, $p = .312$). The PSSA math scores for students with disabilities did not show a relationship toward graduation rates. One possible explanation for these non-significant results would be that achievement level data were used for the correlations rather than scaled scores.

Research Question Four

Using student-level data from the high schools in fifty-four school districts, the research question is: How is the 2004-2005 graduation rate for all students with mild cognitive or emotional disabilities (learning disabled, emotionally disturbed, mentally retardation, and autistic), in Intermediate Units 1, 6, and 10, affected by their disability, their type of service (itinerant, resource, part-time, or full-time), their type of support (Learning Support, Emotional Support), and their least restrictive environment (percentage of time spent outside the regular classroom)?

The sample size of students with mild cognitive or emotional disabilities from the 54 school districts within Intermediate Units 1, 6 and 10 was 1,309. These were the subgroup of the original participants that comprised a cohort of students who started ninth grade in 2001-2002. While reviewing the data regarding each participant some of the participants were eliminated from the sample. Reasons for eliminating participants included placements outside of the public school in detention centers, residential or non-residential centers where the students did not return to public school during the four years of the study. Other participants were placed in educational settings outside of the 10 counties involved in the study during the course of their high school education. In addition, several of the participants saw changes in their disability category during the four years of the study. In some cases, the categories changed to ones that were not part of the study, in other cases the changes involved only receiving services in a related service area (speech, vision, hearing) without the need for academic

support.   After the deletions of these participants, the resulting sample included 1112 participants from 54 school districts in the three Intermediate Unit areas.

Table 11 shows the demographic profiles of the final participants included in the study. The majority of participants were male (652); however, 151 did not have gender identified throughout the years of the study. These students with missing gender identification continued to be included in the results without being identified as male or female. All participants were identified with their ethnicity. From these 10 counties, the overwhelming majority was white, which matches the profile of the counties included in the study.

Table 11

Percentage of Students by Gender and Ethnicity

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Gender	n= 961	Ethnicity	n = 1112
Male	67.8%	American Indian	0.2%
Female	32.2%	Black	4.7%
		Hispanic	0.1%
		White	95.1%

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Tables 12 through 15 show the percentages of students within each category of the four independent variables during the four years of focus for this

study. The independent variables are type of disability, type of support in which the student receives their services, type of service provided to the student, and the least restrictive environment in which the student is educated. The disability category is the only independent variable that remained constant for the individual participants throughout the study. Although some participants did not remain active in the study due to dropping out, moving, leaving special education, or their data not being entered, the participants whose data was used for analysis kept their same disability throughout the four years. Type of service, type of support, and LRE changed for each participant with varying frequencies.

Since the study focuses on students with mild cognitive or emotional disabilities, the majority of the students in the 2001-2002 cohort, when they were in ninth grade (70.3%) had specific learning disabilities (Table 12). The groups of participants having mental retardation (17.2%) and emotional disturbance (12.1%) were very similar, with autism (.4%) being the smallest group. Over the course of the four years of the study, the proportion of students within each category was similar, with specific learning disabilities remaining the largest category. The valid number of participants was reduced throughout the study for reasons listed above. The exit types are delineated in Table 17

Table 12

Percentages of Students in the Four Disability Categories

Disability	2001-2002 (n = 1112)	2002-2003 (n = 961)	2003-2004 (n = 860)	2004-2005 (n = 694)
SLD	70.3	72.3	74.1	76.4
MR	17.2	17.3	16.0	14.1
ED	12.1	10.0	9.4	8.8
AU	0.4	0.4	0.5	0.7

Note. SLD represents Specific Learning Disability; MR represents Mental Retardation; ED represents Emotionally Disturbed; AU represents Autism.

As is seen in Table 13 below the majority of the students received their education in learning support programs (89.3%) in the various districts during the ninth grade year of the study (2001-2001). This percentage increased throughout the study, as the percentages in emotional support and autistic support decreased. For the same reasons listed above, some students were missing as each year progressed reducing the number of participants. As changes were made in the education programs for the participants, some moved into categories that were not part of this study. Therefore, their percentages are listed as NIS (not in study). These students may have changed to disabilities to Hearing Impaired, Speech and Language Impaired, or Mental Retardation receiving services in Life Skill Support programs. During the course of the four years of this study (2001-2002

through 2004-2005) 97% of the students remained in the same type of support

throughout the study period. Only 3% had a change in their support categories.

These changes may have occurred due to a change in districts, a change in the

classifications of the programs in the current district, or a change in the type of

support needed to address the student's needs.

Table 13

Percentages of Students by Three Support Categories

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Support	2001-2002 (n = 1112)	2002-2003 (n = 961)	2003-2004 (n = 860)	2004-2005 (n = 694)
LS	89.3	90.4	91.2	92.5
ES	10.4	8.7	7.9	7.1
AS	0.3	0.2	0.2	0.1
NIS		0.7	0.7	0.3

Note. LS represents Learning Support; ES represents Emotional Support; AS
represents Autistic Support; NIS represents participants not in specified study
categories.

Table 14 shows the comparisons between the types of service offered for

the study participants. In the first year of the study (2001-2002) when the students

were in ninth grade, the majority of participants received special education

services on a part-time (34.9%) or resource (33.7%) basis meaning that

approximately one-fourth to three-fourths of their day was spent receiving special

ed services. By the last year of the study (2004-2005) the majority of students were receiving itinerant services (42.7%) or resource services (38.8%). Part-time services were now provided for only 15.0% of the participants. Full-time services remained fairly constant across all four years of the study. Throughout the four years of the study (2001-2002 through 2004-2005) 57% of the total participants (1112) did not change service categories.

Table 14

Percentages of Students in Four Service Categories

Service	2001-2002 (n = 1112)	2002-2003 (n = 961)	2003-2004 (n = 860)	2004-2005 (n = 694)
It	28.4	32.2	34.4	42.7
Re	33.7	36.0	39.0	38.8
PT	34.9	28.0	21.9	15.0
FT	3.0	3.9	4.8	3.6

Note. It represents Itinerant Service; Re represents Resource Service; PT represents Part-time Service; FT represents Full-time Service.

Table 15 details the least restrictive environment categories. Those services were provided primarily (55.7%) within the special education class (21-60%) during the first year of the study (2001-2002). During the second and third years of the study, the percentages of students receiving their support primarily in special education classes decreased while the percentage of students receiving

their special education services primarily in the general education classes (<21%) increased. During the final year of the study, the focus of services shifted to receiving most of the education within the general education class (49.4%). As changes were made in the education programs for the participants, some moved into categories that were not part of this study. Therefore, their percentages are listed as NIS (not in study). Sixty-three percent of the participants remained in the same least restrictive environment category throughout the years of the study.

Table 15

Percentages of Students in Three Least Restrictive Environment Categories

LRE	2001-2002 (n = 1112)	2002-2003 (n = 961)	2003-2004 (n = 860)	2004-2005 (n = 694)
<21%	30.3	35.3	39.0	49.4
21 - 60%	55.7	53.1	50.8	43.4
>60%	14.0	11.1	9.1	6.1
NIS		0.5	1.1	1.1

Note. <21 represents less than 21% of the day in a support class; 21 – 60 represents between 21% and 60% of the day in a support class; >60 represents more than 60% of the day in a support class; NIS represents participants not in specified study categories.

Table 16 shows the percentages of the four independent variables (disability, type of support, type of service, and least restrictive environment) during the first year of the study in a comparative chart. These comparisons are

based on the 3 Intermediate Units in the study (1, 6, and 10). The largest

disability category for all three Intermediate Units is specific learning disability.

In addition, the majority of students received support through learning support

classes. Although the type of support fluctuated, most of the students during this

year received resource or itinerant services. And again most of the participants

received their services between 21% and 60% of the day in the special education

class.

Table 16

Percentages of Students by IU Within Each Independent Variable Category for

2001-2002

	IU1 (n = 545)	IU6 (n = 243)	IU10 (n = 324)	Total (N = 1112)
Disability				
SLD	59.6	77.0	83.3	70.3
MR	25.3	15.2	4.9	17.2
ED	14.9	7.4	10.8	12.1
AU	1.0	0.4	0.9	0.4
Support				
LS	84.2	94.2	94.1	89.3
ES	15.6	5.8	5.2	10.4
AS	0.2	none	0.6	0.3
Service				
It	24.2	35.0	30.6	28.4
Re	23.9	48.1	39.5	33.7
PT	48.3	14.4	27.8	34.9
FT	3.7	2.5	2.2	3.0

Table 16 (continued).

Percentages of Students by IU Within Each Independent Variable Category for

2001-2002

_____

LRE

<21	23.7	36.6	36.7	30.3
21-60	58.2	52.7	53.7	55.7
>60	18.2	10.7	9.6	14.0

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In order to determine the possibility of a relationship between disability,

type of support, type of service, and least restrictive environment and the

graduation rates for students with disabilities, the graduation statistics must be

gathered. Table 17 categorizes the methods by which a student can exit a program

for students with disabilities. According to the federal graduation rate definition,

only students who receive a standard diploma in a standard number of years are

considered to be graduates (56.0%). Therefore, the other categories in Table 17

are not considered graduates (44.0%). The reasons for exiting services for

students with disabilities were combined from the four years of the study into this

table. Those in the category of Not Graduated (4.0%) are participants who

received their GED, dropped out, or were deceased during the four years of the

study. Those listed as Missing (29.5%), are included in this category for several

reasons. When students at this time moved from district to district, they changed

identification numbers according to the district in which they lived. In this way, it was not possible to accurately track all students. In other cases, due to human error, students were dropped out of the system without a reason being given. In addition, since students with disabilities are entitled to their education until they are 21 years of age, it is possible that some of the students at the end of the four years of the study were still in school. In some cases, the students transferred into regions of the state outside of the study areas, so their demographic information was no longer provided. Those listed as Exited (10.5%) were students who were exited from needing special education services and their graduation status was unknown. For the purposes of determining the possibility of a relationship between the independent variables and graduation, the students who are exited will not be included in the analysis.

Table 17

Percentages of Exit Groups for Students with Disabilities

Reason	n	%	
Graduated	623	56.0	
Not Graduate	44	4.0	
Missing data	328	29.5	
Exited	117	10.5	
Total	1112	100.0	

The focus of question four is determining what effect, if any, the four independent variables (disability, type of support, type of service, and least restrictive environment) had on graduation rates. To determine this effect, chi-square tests of independence were conducted to examine the potential relationship between each independent variable in each year of the study. As is seen in the percentages presented above, the disability category remained constant for each participant throughout the study. The categories of types of support, service, and least restrictive environment changed for many of the participants.

Disability.

To determine if disability has an effect on graduation rates, two chi-square tests of independence were conducted. The first analysis was conducted between those students who graduated and those students who did not graduate in comparison to the 2001-2002 disability categories (specific learning disability,

mental retardation, and emotional disturbance). The second chi-square test was

conducted between the same three disability categories, but made comparisons

among those students who graduated, did not graduate, or had missing

information. The students who had missing information were described on a

previous page. This group of students was included in the second chi-square test

because they were included in the total number of original participants and there

was no information on whether they actually graduated or not. Tables 18 and 19

outline the findings of the chi-square tests. The category of autism was not

included in either test due to there being less than 10 participants (0.6%) in this

category.

Table 18

Cross-tabulation Results Between Disability and Exit Groups, Excluding Missing

Students

		SLD	MR	ED
Graduated	Observed	465.0	99.0	54.0
	Expected	465.8	98.0	54.1
	%	93.2%	94.3%	93.1%
Not graduate	Observed	34.0	6.0	4.0
	Expected	33.2	7.0	3.9
	%	6.8%	5.7%	6.9%
	Total	499.0	105.0	58.0
	%	100.0%	100.0%	100.0%

Note. SLD represents Specific Learning Disability, MR represents Mental
Retardation, ED represents Emotional Disturbance.

Table 19

Cross-tabulation Results Between Disability and Exit Groups, Including Missing

Students

		SLD	MR	ED
Graduated	Observed	465.0	99.0	54.0
	Expected	443.8	105.5	68.7
	%	65.4%	58.6%	49.1%
Not graduate	Observed	34.0	6.0	4.0
	Expected	31.6	7.5	4.9
	%	4.8%	3.6%	3.6%
Missing	Observed	212.0	64.0	52.0
	Expected	235.6	56.0	36.4
	%	29.8%	37.9%	47.3%
	Total	711.0	169.0	110.0
	%	100.0%	100.0%	100.0%

Note. SLD represents Specific Learning Disability, MR represents Mental
Retardation, ED represents Emotional Disturbance.

The chi-square test of independence did not show a significant relationship

$(x^2 (2) = .175, p = .916)$ between disability category and graduation when only

those students who did or did not graduate were included (Table 18). Whether a

student graduated or not was independent of the disability categories of specific

learning disability, mental retardation, and emotional disturbance. The

percentages of student who graduated for the three disability categories were

93.2%, 94.3%, and 93.1% respectively. However, when the students who had missing information were included in the analysis (Table 19), there was a significant relationship between disability and graduation (x^2 (4) = 15.332, p= .004). Now whether a student graduated, did not graduate, or had missing information was dependent upon the disability categories of specific learning disability, mental retardation, or emotional disturbance. The smallest percentage of missing data was for the students with specific learning disabilities (29.8%). The percentage of missing data increased for students with mental retardation (37.9%) and was highest for students with emotional disturbance (47.3%). That is, for nearly half of all students with emotional disturbance, their graduation status was missing for one of the reasons listed earlier. In each test, there was one cell, those students with emotional disturbance who did not graduate, which had less than five participants.

Type of support.

To determine if the type of support a student receives has an effect on graduation rates; two chi-square tests of independence were conducted. The first analysis was conducted between those students who graduated and those students who did not graduate in comparison to the 2001-2002 support categories (learning support and emotional support). The second chi-square test was conducted between the same two support categories, but made comparisons among those students who graduated, did not graduate, or had missing information. The students who had missing information were described on a previous page. This group of students was included in the second chi-square test because they were

included in the total number of original participants and there was no information

on whether they actually graduated or not. Tables 20 and 21 outline the findings

of the chi-square tests. The category of autistic support was not included in either

test due to the small frequencies in this category.

Table 20

Cross-tabulation Results Between Type of Support and Exit Groups, Excluding

Missing Students

		LS	ES
Graduated	Observed	573.0	47.0
	Expected	573.3	46.7
	%	93.3%	94.0%
Not graduate	Observed	41.0	3.0
	Expected	40.7	3.3
	%	6.7%	6.0%
	Total	614.0	50.0
	%	100.0%	100.0%

Note. LS represents learning support, ES represents emotional support.

Table 21

Cross-tabulation Results Between Type of Support and Exit Groups, Including

Missing Students

		LS	ES
Graduated	Observed	573.0	47.0
	Expected	561.9	58.1
	%	63.7%	50.5%
Not graduate	Observed	41.0	3.0
	Expected	39.9	4.1
	%	4.6%	3.2%
Missing	Observed	285.0	43.0
	Expected	297.3	30.8
	%	31.7%	46.2%
	Total	899.0	93.0
	%	100.0%	100.0%

Note. LS represents learning support, ES represents emotional support.

During the four years of this study, 97% of the participants remained in
the same type of support category. The chi-square test of independence for 2001-
2002 did not show a significant relationship (x^2 (1) = .034, p= .853) between type
of support and graduation when only those students who did or did not graduate
were included (Table 20). Whether a student graduated or not was independent of
the support categories of learning support or emotional support. The percentages

of students who graduated for the two support categories were 93.3% and 94.0%

respectively. However, when the students who had missing information were

included in the test (Table 21), there was a significant relationship between type

of support and graduation (x^2 (2) = 8.073, p= .018). With this added category,

whether a student graduated, did not graduate, or had missing information was

dependent upon the type of support in which they were receiving services. The

smallest percentage of missing data was for the learning support category

(31.7%). The emotional support category had the larger percentage of missing

data (46.2%). For nearly half of all students in emotional support, their

graduation status was missing for one of the reasons listed earlier. In each test,

there was one cell, those students receiving emotional support services that did

not graduate, which had less than five participants.

Since only 3% of the participants changed their type of support during the

four years of the study the sample size was too small to make valid conclusions

regarding these participants.

Type of service.

To determine if the type of service a student receives has an effect on

graduation rates; two chi-square tests of independence were conducted. The first

analysis was conducted between those students who graduated and those students

who did not graduate in comparison to the 2001-2002 service categories

(itinerant, resource, part-time, and full-time). The second chi-square test was

conducted between the same four service categories, but made comparisons

among those students who graduated, did not graduate, or had missing

information. The students who had missing information were described previously. This group of students was included in the second chi-square test because they were included in the total number of original participants and there was no information on whether they actually graduated or not. Tables 22 and 23 outline the findings of the chi-square tests.

Table 22

Cross-tabulation Results Between Type of Service and Exit Groups, Excluding

Missing Students

		IT	RE	PT	FT
Graduated	Observed	197.0	227.0	182.0	17.0
	Expected	196.1	228.8	181.2	16.8
	%	93.8%	92.7%	93.8%	94.4%
Not graduate	Observed	13.0	18.0	12.0	1.0
	Expected	13.9	16.2	12.8	1.2
	%	6.2%	7.3%	6.2%	5.6%
	Total	210.0	245.0	194.0	18.0
	%	100.0%	100.0%	100.0%	100.0%

Note. IT represents itinerant service, RE represents resource service, PT
represents part-time service, FT represents full-time service.

Table 23

Cross-tabulation Results Between Type of Service and Exit Groups, Including

Missing Students

		IT	RE	PT	FT
Graduated	Observed	197.0	227.0	182.0	17.0
	Expected	182.8	213.3	209.8	18.2
	%	67.5%	67.0%	54.3%	58.6%
Not graduate	Observed	13.0	18.0	12.0	1.0
	Expected	12.9	15.0	14.8	1.3
	%	4.5%	5.3%	3.6%	3.4%
Missing	Observed	82.0	94.0	141.0	11.0
	Expected	96.3	111.8	110.4	9.6
	%	28.1%	27.7%	42.1%	37.9%
	Total	292.0	339.0	335.0	29.0
	%	100.0%	100.0%	100.0%	100.0%

Note. IT represents itinerant service, RE represents resource service, PT
represents part-time service, FT represents full-time service.

The chi-square test of independence for 2001-2002 did not show a

significant relationship (x^2 (3) = .365, p= .947) between type of service and exit

groups when only those students who did or did not graduate were included

(Table 22). Whether a student graduated or not was independent of the service

categories of itinerant, resource, part-time, or full-time. The percentages of

students who graduated for the 4 service categories were 93.8%, 92.7%, 93.8%,

and 94.4% respectively. However, when the students who had missing information were included in the test (Table 23), there was a significant relationship between type of service and graduation ($x^2 (6) = 20.679$, p= .002). With this added category, whether a student graduated, did not graduate, or had missing information was dependent upon the type of service they were receiving. The smallest percentages of missing data were reported for the categories of resource (27.7%) and itinerant (28.1%) services. The percentage of missing data increased for full-time service (37.9%), with the highest being part-time (42.1%) service. The graduation status was missing for approximately one-third of all service categories. In each test, there was one cell, those students receiving full-time services that did not graduate, which had less than five participants.

Although 57% of the original 1112 participants did not change service categories during the four years of the study, another 43% did change categories. To determine if there was a significant relationship in these subsequent years, chi-square tests of independence were conducted separately by year between the four types of service (itinerant, resource, part-time and full-time) and the exit groups. The tests were conducted initially utilizing the exit groups of graduate or did not graduate and then were duplicated with the additional exit group of missing students. In each case, as in the case of the 2001-2002 results, the test with the exit groups of graduate or did not graduate were not significant (2002-2003 p= .123, 2003-2004 p = .435, 2004-2005 p = .332) while the results including the missing students were all significant (2002-2003 p= .000, 2003-2004 p= .001, 2004-2005 p= .007). See Appendix A.

Least restrictive environment.

To determine if the least restrictive environment (LRE) in which a student

receives services has an effect on graduation rates, two chi-square tests of

independence were conducted. The first analysis was conducted between those

students who graduated and those students who did not graduate in comparison to

the 2001-2002 LRE categories (less than 21%, between 21 – 60%, and more than

60%). The second chi-square test was conducted between the same three LRE

categories, but made comparisons among those students who graduated, did not

graduate, or had missing information. The students who had missing information

were described previously. This group of students was included in the second

chi-square test because they were included in the total number of original

participants and there was no information on whether they actually graduated or

not. Tables 24 and 25 outline the findings of the chi-square tests.

Table 24

Cross-tabulation Results Between LRE and Exit Groups, Excluding Missing

Students, 2001-2002

		<21%	21-60%	>60%
Graduated	Observed	206.0	330.0	87.0
	Expected	204.6	333.4	85.0
	%	94.1%	92.4%	95.6%
Not graduate	Observed	13.0	27.0	4.0
	Expected	14.4	23.6	6.0
	%	5.9%	7.6%	4.4%
	Total	219.0	357.0	91.0
	%	100.0%	100.0%	100.0%

Note. <21% represents less than 21 % of the day in special ed classes, 21-60%
represents 21% - 60% of the day in special ed classes, > 60% represents more
than 60% of the day in special ed classes.

Table 25

Cross-tabulation Results Between LRE and Exit Groups, Including Missing

Students

2001-2002		<21%	21-60%	>60%
Graduated	Observed	206.0	330.0	87.0
	Expected	194.7	341.2	87.0
	%	66.2%	60.6%	62.6%
Not graduate	Observed	13.0	27.0	4.0
	Expected	13.8	24.1	6.1
	%	4.2%	5.0%	2.9%
Missing	Observed	92.0	188.0	48.0
	Expected	102.5	179.7	45.8
	%	29.6%	34.5%	34.5%
	Total	311.0	545.0	139.0
	%	100.0%	100.0%	100.0%

Note. <21% represents less than 21 % of the day in special ed classes, 21-60%
represents 21% - 60% of the day in special ed classes, > 60% represents more
than 60% of the day in special ed classes.

The chi-square test of independence for 2001-2002 did not show a

significant relationship (x^2 (2) = 1.412, p= .494) between LRE and exit groups

when only those students who did or did not graduate were included (Table 24).

Whether a student graduated or not was independent of the LRE categories. The

percentages of students who graduated for the three categories were 94.1% (less

than 21%), 92.4% (21-60%), and 95.6% (more than 60%). When the students who had missing information were included in the test (Table 25), there still was not a significant relationship between LRE and graduation (x^2 (4) = 3.733, p= .443). With this added category, whether a student graduated, did not graduate, or had missing information was still independent of the environment in which they were receiving services (29.6% (less than 21%), 34.5% (21-60%), and 34.5% (more than 60%)). Therefore, missing data was distributed evenly across the three LRE categories.

Sixty-three percent of the participants remained in the same LRE category throughout the four years of the study. Thirty-seven percent of the participants changed LRE category throughout the study. Chi-square tests of independence were conducted for each of the subsequent years of the study between the three LRE categories (less than 21%, 21-60%, more than 60%) and the exit groups. The subsequent chi-square tests were conducted initially utilizing the exit groups of graduate or did not graduate and then were duplicated with the additional exit group of missing students. In 2002-2003, the pattern of significance was similar to tests conducted on other independent variables. When LRE was tested for independence on graduate or did not graduate, there was not a significant relationship (x^2 (2) = .652, p = .722). When the exit group of missing students was added, there was now a dependent relationship with LRE (x^2 (4) = 19.290, p = .001). In 2003-2004, the relationship between graduate and did not graduate was still independent of LRE (x^2 (2) = .944, p = .624). However, when the exit group of missing students was added to the test, there was a dependent relationship

revealed between LRE and the exit groups (x^2 (4) = 18.218, p = .001). In 2004-

2005, neither test showed a significant relationship between LRE and exit groups.

The LRE categories were independent of the exit groups of graduate or did not

graduate (x^2 (2) = .140, p = .932). The LRE categories were also independent of

the exit groups of graduate, did not graduate, and missing (x^2 (4) = 7.406, p =

.116). See Appendix B

Summary of Chi-square Analyses

There were no significant relationships among graduates and non-

graduates within the four disability categories, the two support categories, the four

service categories, and the three LRE categories. However, when including the

data for which graduation status is missing there were significant relationships.

Specifically percentages of missing data were higher for some categories within

each independent variable. Additionally, percentages of graduates were lowered

in the categories where there is more missing data. Regarding the disability

variable, students with specific learning disabilities graduated at the highest rate

(65.4%) compared to students with mental retardation (58.6%), and then

emotional disturbance (49.1%). When viewing the type of support, students

receiving their special education services through learning support now graduated

at a higher rate (63.7%) than those receiving emotional support services (50.5%).

Type of service displayed higher rates of graduation for those receiving itinerant

(67.5%) and resource (67.0%) services, compared to full-time (58.6%), and then

part-time services (54.3%). When viewing the least restrictive environment in

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which students receive their education, students in the special education

classroom less than 21% graduated at the highest rate (66.2%), followed by those

in the special education classroom more than 60% of their day (62.6%), and then

those receiving their education 21% - 60% of their day in the special education

classroom (60.6%). This data may emphasize the importance of accurate data

collection in order to predict accurate rates of graduation for students with

disabilities.

CHAPTER V

DISCUSSION

Introduction

       This study focused on graduation rates for students with disabilities and factors that may have affected those rates. In order to make the data manageable, the participants were limited to 10 counties in three intermediate unit areas of Pennsylvania. Following are discussions of the research questions and results of the study. Also included in this chapter you will find the limitations of this study and implications for further studies to be conducted.

       The purpose of this study is to examine graduation rates of students with disabilities and factors that affect those rates. More specifically, this study compares intermediate unit and county-level data for students with disabilities in districts in 10 counties of Pennsylvania. Correlations were examined between the graduation rates of the students with disabilities in these counties and socioeconomic factors of poverty rate, median household income, and the percentage of students in the counties who were economically disadvantaged. In addition, graduation rates of students with disabilities for these same counties were examined in comparison to the results of their 11th grade PSSA scores. Finally, student specific data was examined for those students with disabilities of specific learning disability, emotional disturbance, mental retardation, and autism. This examination focused on relationships between their graduation status and the factors of disability, type of service, type of support, and least restrictive environment. The specific group of participants included in this study included

those students with disabilities in 10 counties of Pennsylvania who started 9th

grade in 2001-2002 and completed their education four years later.

Discussion of Research Question One

What is the 2004-2005 graduation rate for all students with disabilities in the

Intermediate Unit 1 counties of Fayette, Greene, and Washington? There are two

sub-questions: (a) How does the graduation rate differ between the three counties?

(b) What is the relationship between the graduation rate of all students with

disabilities in Intermediate Unit 1 and the socioeconomic status of a county, as

measured by poverty rate, median household income, and the percentage of

economically disadvantaged students?

The graduation rate for students with disabilities in Intermediate Unit 1 for

2004-2005 was highest in Greene County with 85%, then Fayette County with

80%, and lowest in Washington County with 77% on the District Report Card

(DRC). This report used a graduation rate definition that is closest to that used

by the federal government and provided the greatest variance in the scores. In

addition, the factor, percentage of students with disabilities, provided another

view of the results. Greene County, with the highest percentage of students with

disabilities (21%) also had the highest graduation rate. Washington County with

the lowest percentage of students with disabilities (15%) had the lowest

graduation rate.

When graduation rates were compared among the three Intermediate Unit 1 counties of Fayette, Greene, and Washington, there was no significant difference (r = .533, p = .595) in their graduation rates.

The socioeconomic factors of poverty rate, median household income, and percentage of students who are economically disadvantaged were considered in the last part of research question one. Washington County had the lowest poverty rate (8%), the highest median household income ($37,000 – $39,000), the lowest rate of economic disadvantage (28%), and the lowest rate of students with disabilities (15%). However, they also had the lowest graduation rate for students with disabilities of the three counties (77%). Fayette County had the highest poverty rate (20%), the lowest median household income ($9,300 – $27,000), the highest rate of economic disadvantage (45%) and the second lowest rate of students with disabilities (16%). They also had the second highest rate of graduation (80%). Greene County fell in the middle for poverty rate (16%), median household income ($27,000 - $30,000), economic disadvantage (42%), and had the highest rate of students with disabilities (21%). Greene County also had the highest graduation rate for students with disabilities (85%).

The factor of economic disadvantage is defined through the DRC as the percentage of students who receive free or reduced lunch. Since this data, unlike the poverty rate and household income, was based on the population of students within a district, it was used to determine if a relationship existed between socioeconomic status and graduation rates. No significant relationships were found (r = -.244, p = .261) between economic disadvantage and graduation rates.

Due to the differences in student population among the districts within each county, the additional factor, the percentage of students with disabilities within each county was then used to weight the graduation data. This percentage attempted to equalize the differences in the student population by viewing student population through the factor of percentage of students with disabilities within each county. By weighting the graduation data using this percentage, there was now a significant, although weak relationship ($r = -.195$, $p < .001$), between economic disadvantage and graduation rates. This negative relationship found that as rates of economic disadvantage increased, graduation rates decreased, but only when considering the percentage of students with disabilities.

Barton (2005) and Rylance (1977) found that lower levels of socioeconomic status contributed to lower rates of graduation. This did not hold true for the three counties of Intermediate Unit 1. Washington County with the highest socioeconomic status of the three counties had the lowest graduation rate. The question might be asked how Greene County was able to produce higher graduation rates for students with disabilities. This researcher's hypothesis is that Greene County's culture is a very small town, family-oriented community. It is not unusual for families to look out for each other and work together for the good of the community. This culture may be the reason for Greene County's higher graduation rates. The community looks out for and helps the students through school. Both Fayette and Washington Counties are larger, more anonymous counties where students may not feel that connection to a caring person.

Discussion of Research Question Two

What are the 2004-2005 graduation rates for all students with disabilities in the counties of Intermediate Unit 6 (Venango, Forest, Clarion, Clearfield, and Jefferson Counties) and Intermediate Unit 10 (Clearfield, Centre, and Clinton Counties)? There are two sub-questions: (a) How do the graduation rates differ between the counties and compared to the counties of Intermediate Unit 1 (Fayette, Greene, and Washington Counties)? (b) What is the relationship between the graduation rate of all students with disabilities in Intermediate Units 6 and 10 and the socioeconomic status of a county, as measured by poverty rate, median household income, and the percentage of economically disadvantaged students?

Although there is some variance in the Special Ed Data Report regarding the graduation rates, to be consistent with the findings of Research Question One, the graduation results for the DRC were used for this question. In this report, for 2004-2005, Venango County had the lowest graduation rates for students with disabilities (74%) and Clearfield County in Intermediate Unit 6 had the highest (91%). However, Clearfield County in IU 6 consists only of one district, making a comparison questionable. The next highest graduation rate (90%) was reported in Centre County with four school districts.

Considering the factor, percentage of students with disabilities, Forest County and Venango County had the highest percentage of students with disabilities (20%). However, Forest County had less than 10 students with disabilities so no graduation data was given. Venango County reported the lowest

graduation rate for students with disabilities (74%). Centre County had the lowest

percentage of students with disabilities (14%) and the highest graduation rate

(90%). These results were just the opposite of what was reported in the counties

of Intermediate Unit 1.

Comparing the graduation rates among the counties of Intermediate Unit

6, between Intermediate Unit 10, and finally between all three intermediate units

did not show any significant results (IU6, p = .369, IU10, p = .438, all IUs, p =

.379). Although there were variances throughout the results, the overall view of

the graduation results are that the 54 districts are statistically similar in their

graduation rates for students with disabilities.

To determine if socioeconomic status was a factor in determining

graduation rates, the factor, economic disadvantage, was used for each of the

districts in Intermediate Units 6 and 10. Forest County was among the three

counties having a high poverty rate of 16%. Forest County also had the lowest

median household income ($9,500 - $27,000), the highest rate of economic

disadvantage (44%) and the highest percentage of students with disabilities

(20%). Their graduation rate for students with disabilities was the median rate for

the seven counties at 84%. Jefferson County was among three counties having a

low poverty rate of 10%. They also had the second highest median household

income ($29,000 - $31,000), the second lowest rate of economic disadvantage

(30%), and one of the second highest percentages of students with disabilities

(20%). However, Jefferson County's graduation rate for students with disabilities

was the lowest among these seven counties (74%). No correlation was reported

between economic disadvantage and graduation rates in Intermediate Unit 6 (r = -.455, p = .138) or in Intermediate Unit 10 (r = -.304, p = .363). This moderately strong relationship was not statistically significant due to the smallness of the sample size.

When the percentage of students with disabilities was included in the correlation information, there was now a negatively significant relationship between the percentage of students who are economically disadvantaged and graduation rates for IU 6 (r = -.481, p < .001) and IU 10 (r = -.275, p < .001). This negative relationship tends to mirror the literature suggesting that students with lower rates of economic disadvantage will have higher graduation rates (Rylance, 1977 and Barton, 2005).

Among the counties of Intermediate Units 6 and 10, there appear to be many variations on the rates of poverty, income, economic disadvantage, and students with disabilities. The statistical results of the correlations, including the factor of students with disabilities, produced the literature-expected results of a negative relationship. It is worth noting that among all three intermediate unit areas, the graduation rates and levels of socioeconomic status were statistically similar.

Discussion of Research Question Three

What is the relationship between the 2004-2005 graduation rates and the 11th grade reading and math PSSA scores for counties in Intermediate Units 1, 6, and

10? There is one sub-question: (a) What are the differences in relationships between graduation rates and PSSA scores across the counties?

In all three intermediate units used for this study, there were few if any significant results between proficient and advanced reading and math PSSA scores and graduation rates reported in the DRC. However, when including the condition, percentage of students with disabilities within each district, into the correlation, in all cases, a significant relationship resulted. When the percentage of students with disabilities was included, Intermediate Unit 1 showed a significant relationship between DRC graduation rates for students with disabilities and proficient and advanced reading ($r = .418$, $p < .001$) and math ($r = .197$, $p < .001$). The Intermediate Unit 1 districts showed a stronger relationship between graduation rates and the PSSA proficient and advanced reading scores than the math scores. Including the same factor of students with disabilities, Intermediate Unit 6 showed significant, but negative results between DRC graduation rates for students with disabilities and proficient and advanced reading ($r = -.180$, $p < .001$) and math ($r = -.481$, $p < .001$). Finally, Intermediate Unit 10 showed results similar to IU 1 when including the factor of the percentage of students with disabilities. There were now significant relationships between DRC graduation rates for students with disabilities and proficient and advanced reading ($r = .188$, $p = .030$) and math ($r = .350$, $p < .001$).

When looking at the sub-question for research question three: What are the differences in relationships between graduation rates and PSSA scores across the counties, the descriptive statistics provided the necessary information. As

prior information has described, the 10 counties included in this study are similar in socioeconomic factors of poverty rate, median household income, and percentage of students who are economically disadvantaged. In addition, research questions one and two have indicated that these counties and districts are also similar in their graduation rates. The same can be said for their PSSA results. By looking at the percentage of students with disabilities who scored in the proficient and advanced range, it is clear that in no case did more than 16.5% (Centre County) of the students with disabilities in any one county score proficient or advanced in reading. Centre County also had the highest percentage of students with disabilities scoring proficient or advanced in math (13.5%). In four of the counties (Greene, Clarion, Jefferson, and Clinton), less than 5% of the students with disabilities achieved a rating of proficient or advanced in math, while three counties (Clarion, Jefferson, and Clinton) had less than 5% of their students with disabilities scoring proficient or advanced in reading. One county (Forest) had less than 10 students with disabilities, therefore their results were not provided. However, the statistical analysis does support the premise that increasing the proficiency in PSSA math and reading scores for students with disabilities will increase their graduation rates. As these were the results for the 2003-2004 PSSA assessments and increased emphasis has been placed on assisting students with disabilities to score within the proficient range in past years, it is possible that more recent results would see an increased percentage of students with disabilities falling into the proficient and advanced ranges.

Kaznowski (2004) found in her research that students with disabilities

were achieving at rates as high as their non-disabled peers if not higher. She believed this resulted from students receiving accommodations that allowed them to maintain higher passing grades and graduating from high school through those accommodations. Although there are accommodations available for the PSSA, such as extended time or testing in a separate area, the test content cannot be modified to a student's instructional level like class content. This fact makes it very difficult for students with disabilities to maintain proficient and advanced ratings once the content of the assessment extends beyond their instructional levels. In recent legislative decisions (Spellings, 2005), it has been recommended that these students with disabilities who are struggling to achieve the proficient and advanced ratings in the state accountability assessments be given an alternate assessment. The infancy of this legislative decision has not allowed any guidelines to be provided at this time.

When examining correlations across all three Intermediate Units between DRC graduation rates and the PSSA proficient and advanced reading and math scores, only one significant relationship was found. That significant relationship was between DRC graduation rates and proficient and advanced PSSA reading scores. All other relationships were found to not be significant. This fact may be the result of using achievement scores rather than scaled scores. Scaled scores allow better comparisons across groups of students from different size districts. The scaled scores are adjusted to make up for the differences in the difficulty of questions and allow for comparisons across different forms of the same test.

Discussion of Research Question Four

Using student-level data from the high schools in fifty-four school districts, the research question is: How is the 2004-2005 graduation rate for all students with mild cognitive or emotional disabilities (learning disabled, emotionally disturbed, mentally retardation, and autistic), in Intermediate Units 1, 6, and 10, affected by their disability, their type of service (itinerant, resource, part-time, or full-time), their type of support (Learning Support, Emotional Support), and their least restrictive environment (percentage of time spent outside the regular classroom)?

Unlike the other three questions, research question four used student specific data supplied through the Pennsylvania Department of Education. It referenced a subset of the same students in questions one, two, and three, but rather than county or district information, focused on student-specific information. For research question four, only those students with mild emotional and cognitive disabilities were included in the database received from the state. The intent of this question was to determine if the factors of disability, type of service, type of support, or least restrictive environment affected the rates at which the students graduated. Due to the limited number of participants from several of the districts, district comparisons were not made in order to protect the identity of the students.

From the original group of participants (n = 1,309) several students were eliminated before any analyses were completed. Reasons for eliminating students included: 1) placements outside of the home district, 2) placements in detention centers, 3) placements in residential or non-residential private settings when the

student did not return to public education during the study, 4) placements in programs outside of the 10 counties included in the study, and 5) changes to disabilities not included in this question. The result of these eliminations reduced the sample size to 1112 students in the 54 districts included in this study.

Of these students the majority were male (58.6%) and were white (95.1%). The ethnicity mirrors the ethnic make-up of the counties included in the study.

The majority of students included for this question were identified as having a specific learning disability. Although the percentage decreased throughout the four years of the study, as student information was no longer supplied, this disability category remained the largest throughout. The statistics from the state would support the premise that specific learning disability is the most populated disability category. The categories of mental retardation and emotional disturbance were the middle categories and remained similar in their percentages throughout the study. These students with mental retardation were those with more mild forms of mental retardation receiving their education through learning support programs and taking the PSSA with their general education peers. The students with more severe levels of mental retardation were not included in this question. The category of autism was so small throughout the four years of the study, that the data was not included in most of the analyses.

Going along with the disability category, the majority of students were provided their education within the learning support programs rather then in emotional support. As students with disabilities are provided their education in

the educational program that will meet their needs, even students with emotional disturbance are often included in learning support programs.

The categories of type of service and least restrictive environment saw the most changes throughout the four years of the study. During 2001-2002, most of the students were receiving part-time services (34.9 %) compared to resource (33.7%) and itinerant (28.4%). In 2002-2003, the majority moved into resource (36.0%) compared to itinerant (32.2%) and part-time (28.0%). The majority remained highest for 2003-2004 in resource (39.0%), with itinerant (34.4%) and part-time (21.9%) remaining in their placements. By the final year of the study, 2004-2005, the majority of students were now receiving itinerant services (42.7%) compared to resource (38.8%) and part-time (15.0%).

Over the course of these four years, more and more emphasis was being placed on including students with disabilities in more classes with their general education peers. One reason for this is to provide more content within the curriculum focused on the PSSA assessments. Another reason for this movement to more inclusion with general education peers is to comply with the Individuals with Disabilities Education Act that mandates students with disabilities being educated with their non-disabled peers to the greatest extent possible. These movements are reflected in the percentages seen above.

The least restrictive environment in which the students received services saw the majority of students (55.7%) falling into the 21-60% within the special education setting in 2001-2002. This category remained the majority during 2002-2003 (53.1%) and 2003-2004 (50.8%). For the final year of the study, the

majority shifted to the majority of students (49.4%) receiving their education less than 21% of their day in the special education setting.

The reasons for this shift in where the students receive their education are the same ones listed for the changes in type of service. Providing their education in general education classrooms with their non-disabled peers is the trend affecting all students with disabilities at this time.

Of the subgroup of students (n=1112) included in the analyses, 623 or 56.0% were reported as graduated from the Special Ed Data Reporting (SER) information. 44 of the students (4.0%) did not graduate. This could be due to needing more than the four years of the study to complete their educational program. 328 students (29.5%) had missing data. As will be seen in the limitations of the study, this could be due to human error, or changing identification numbers when moving from one district to another, or moving out of the geographical areas of the study. Another 117 students (10.5%) had unknown results. These students exited the requirements of participation in the study and their graduation status was unknown.

When the analysis was completed for disability category, no significant relationship was found between those students who graduated or did not graduate and their disability. The observed results were very similar to the expected results. Over 90% of the students with specific learning disabilities, mental retardation, or emotional disturbance graduated. The students with missing data might still have been included in this study if their information was not missing; therefore, a further analysis was completed including the 328 students with missing data. Now

a significant relationship did exist between the category of disability, and whether or not a student graduated or did not graduate. Including this group of 328 students to the overall analysis allowed a more accurate view of how disability affects graduation. With the added information on the missing students, the category of specific learning disability had the highest graduation rate (65.4%), with students with mental retardation coming next (58.6%), and the lowest graduation rate being found for students with emotional disturbance (49.1%). Including the missing students gave a more realistic view of the graduation results.

Dunn, Chambers, and Rabren (2004) listed the type of disability as one of the factors affecting graduation rates for students with disabilities. Students with milder disabilities were reported to be two times more likely to drop out of school then to graduate. The graduation rates for the cohort of students with mild disabilities in this study would mirror that image. The largest disability category (specific learning disability) only graduated two-thirds of their students, while the other disabilities (mental retardation, emotional disturbance, and autism) graduated less than two-thirds of their students. In addition, the 328 students with missing information may well have been students that dropped out and were no longer included in the data. Including their information in the results may have resulted in even lower graduation rates.

The cross-tabulation results for the type of support in which a student receives their education, and whether or not they graduated, did not show a significant relationship. The observed frequencies were very similar to the

expected frequencies. More than 90% of the students in learning support or emotional support graduated from high school. Again the 328 students with missing data were included in a further analysis and now produced significant results. Now the students receiving their instructional program through a learning support program produced a higher rate of graduation (63.7%) than those in emotional support programs (50.5%). However, these rates still left more than one-third of the student population not graduating. Greene (2002) found this same number to be disturbing when researching graduation rates for the whole country. He stated in his research that although two-thirds of our students are graduating, that still leaves one-third of our students not graduating and found this to be disturbing.

Considering the dependent variable, type of service, did not produce significant relationships between the itinerant, resource, part-time, or full-time service and whether a student graduated or not. The expected frequencies were very similar to the observed frequencies. More than 90% of the students in each type of service graduated from high school. When the 328 students with missing information were added to the analysis for type of service, a significant relationship resulted. Including the students with missing information allowed a picture to develop showing students receiving itinerant services graduated at the highest rate (67.5%), with resource services following closely (67.0%). Students receiving instruction through full-time service had the next highest graduation rate (58.6%), followed by those students receiving part-time service (54.3%). All

categories produced graduation rates above 50%, but much lower than the originally reported results over 90%.

Two studies (Sinclair, Christenson, and Thurlow, 2005; Dunn, Chambers, and Rabren, 2004) found that students identifying a helpful person or class were more likely to graduate. Students receiving itinerant and resource services spent more of their days within the general education classes and were found in this study to have higher rates of graduation. The percentages of students receiving full-time and part-time services were only slightly less than itinerant and resource services. This appears to imply that as long as students are connecting with someone in the schools there is a greater chance of them graduating. However, even at these rates of graduation, one-third of the students with disabilities did not receive a diploma at the end of the four years.

The final dependent variable was least restrictive environment or how much of the time students are educated within the special education classroom. This variable is easily confused with the variable type of service. Where type of service refers to the amount of special education services a students with disabilities receives throughout their day, whether in the special education room or in the general education room, least restrictive environment refers to the amount of time students with disabilities are educated in the special education classroom only. The intent of the Individuals with Disabilities Education Act is to encourage teams to provide education to the maximum extent appropriate with non-disabled peers. This variable showed no relationship between the three LRE categories (less than 21% in special education, 21% - 60% in special education, or

more than 60% in special education) and whether or not a student graduated. Even when the category of missing students was included in the analysis, a dependent relationship was still not shown for the 2001-2002 results. For the supporters of inclusive education, this statistic would not support including more students in general education classes with their non-disabled peers.

Due to the fact that 37% of the students changed their LRE category during the course of the study, further analyses were conducted for the other years. In both 2002-2003 and 2003-2004, significant relationships were only shown when the missing student data was included. In the final year of the study 2004-2005, similar to the initial year of the study, no dependent relationship was found between LRE, and students who graduated, did not graduate, or had missing information.

This result alone would be a topic of further discussion. In Pennsylvania, where there is such emphasis currently on inclusion (Gaskins vs. PA, 9-16-05), and monitoring school districts for their levels of least restrictive environment, this study does not support the premise that providing more education for students with disabilities in general education classrooms leads to higher graduation rates. In addition, while students with disabilities are part of all the children protected under NCLB, now Education Secretary Spellings (2005) has concluded that students with mild disabilities may be challenged beyond their ability in taking a test based on grade level rather than instructional level. The results in this research study do not support including students with disabilities into as many general education classes as possible with the support of a special education

teacher. What this study does support is helping students with disabilities to be as independent as possible within the general education setting. In addition, this study supports that no matter where students with disabilities are receiving their education, what they need is someone to whom they can connect and develop a relationship (Sinclair, Christenson, and Thurlow, 2005; Dunn, Chambers, and Rabren 2004). This could be through an itinerant type of service where the student spends most of their time in the general education setting or it could be through a part-time or full-time type of service within the special education setting.

Limitations

The most likely limitation throughout this study is the factor of human error. The information provided to the Pennsylvania Department of Education and to the Penn State Data Center is generated through electronic or paper-copy formats by teachers or school district staff. Most of the information is generated one time during the year and may be amended at one later date in the year, but the frequency of changes within the programming for students with disabilities is not likely to be captured through this reporting procedure. As codes for the data change from year to year, updated code information must be supplied to the staff generating the reports. If the wrong codes are used, the data are not reliable. In addition, as students move from district to district, their legal documents may not always move with them, leaving the receiving district wondering about necessary information. This information may then be entered incorrectly on the data form. This factor of human error then shadows the results of this study.

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Another factor limiting the results of the study is the lack of a formal tracking system within the state. Although in the current school year (2006-2007) a formal tracking system has been implemented throughout Pennsylvania, at the time of the study this did not exist. Therefore, as students changed schools or even grades or buildings within a school, it was quite possible to change their identification code, making it difficult to track their progress through their high school years. This factor has been stated in research throughout the United States as a barrier to accurate graduation rate statistics.

In addition, the differences in the graduation rate definitions used between the District Report Cards and the Special Ed Data Report present another difficulty. The federal government has provided for each state to development their own graduation rate definition, and obviously within the state of Pennsylvania we have adopted two separate rates. This makes reporting graduation rate statistics difficult.

Limiting the study to similar socioeconomic regions of the state, and limiting the study to specific categories of students present further limitations. The socioeconomic status was decided by this researcher as a way to compare what is happening in districts similar to the region of the state in which she works. Different results may have been obtained if dissimilar socioeconomic regions had been used. Limiting the study to specific categories of students was also a researcher decision based on personal interests of students with whom she has worked.

These limitations pointed out above are similar to those limitations found in national studies. Human error, differences in graduation rate formulas, and similarities of participants are limitations that will lead into future research that might follow this study.

Discussion of Overall Findings

For 2004-2005, the state report card for Pennsylvania indicates the graduation rate for all students was 88%. The overall findings of the study indicate that using the graduation rate results from the District Report Cards shows students with disabilities in this study graduate at a rate of 82%, lower than all students within the commonwealth. The graduation rate for the students with disabilities in the 10 counties of this study had similar socioeconomic status and graduation rates. No one county graduated a more significant number of students with disabilities than the others counties. In fact, of the 10 counties included in the study, only Clearfield County in IU 6, made up of one district, had a graduation rate higher for students with disabilities (91%) than non-disabled students (87%). Of the 54 school districts in this study, eight had higher graduation rates for students with disabilities than the group of all students.

For those readers interested in the PSSA results in relationship to graduation rates, there are no significant relationships until the percentage of students with disabilities is factored into the analysis. When the percentage of students with disabilities within a district is included, then graduation rates for students with disabilities increase as their rate of proficiency increases on both the

reading and math assessments in the PSSA. Even with that being said, the percentages of students with disabilities scoring in the proficient or advanced levels are low.

For this researcher, the most significant findings were in research question four which focused on four dependent variables of disability, type of service, type of support, and least restrictive environment in relationship to graduation rates of students with disabilities. Utilizing individual student data for 1112 participants in the 10 counties of Intermediate Units 1, 6, and 10, the four variables were analyzed. From those 1112 participants, 328 were found to have missing data and were excluded from the initial analyses for the four dependent variables. By excluding those 328 students, dependent relationships were not found between graduation rates and any of the dependent variables. When those 328 students were included in the analyses, most of the dependent variables now produced significant relationships. Of the three disability categories (specific learning disability, mental retardation, and emotional disturbance) students with specific learning disabilities were more likely to graduate. Of the two support categories (learning and emotional support), students in learning support were more likely to graduate. Of the four service categories (itinerant, resource, part-time, and full-time), students receiving itinerant services were more likely to graduate. For the last variable (LRE), significant relationships were hard to find even including the students with missing data. The researcher's interpretation of this information suggest that the amount of time spent within the special education classroom is not a significant factor in whether or not a student with a disability graduates.

However, the disability, type of support, and type of service are significant

variables when considering graduation rates for students with disabilities.

Practical Applications

Greene and Forster (2003) called the educational system a leaking pipeline

in which students are poured into the pipe during Kindergarten and first grade and

then throughout their educational experience students just leak out of the pipe

leaving about two-thirds of the original students getting a diploma. The number of

participants (328) who began the study and ultimately were unidentifiable due to

missing information is a topic that is being addressed within the state of

Pennsylvania through the PA Secure ID program. This provides students with an

identification number that will move with the student throughout their educational

experience. Including these 328 participants in the final results with identifiable

information may have changed the results that were found in the study.

However, even identifying the students throughout their schooling, will

not erase the human error problem of providing inaccurate data. The district

personnel providing the data to the Penn State Data Center will need to be as

precise as possible for accurate graduation rate data to be gathered for students

with disabilities and any factors that might be affecting those rates. Sharing the

results of this study through networking meetings would be a practical method

used to notify districts of the reality of human error in reporting results for

students.

In addition, considering the fact that students with disabilities utilizing itinerant services (spending most of the their school day without support from special ed personnel) and considering the fact that least restrictive environment may or may not result in higher graduation rates, there needs to be more emphasis placed on the collaboration between special education and general education professionals on delivering education to students with disabilities in any setting. Administrators in the local schools need to be the leaders in this movement. As educators from all disciplines collaborate, windows of understanding are opened to learn the nuances of different disciplines. This allows the professionals to gain knowledge from each other, which in the end will benefit the all students, including students with disabilities. It is quite possible and most probable that students with different learning styles will benefit from utilizing some of the strategies presented by the special educators. It is also most probable that content area teachers will provide a more stable content education than their special education peers. Administrators are the key to this collaboration and sharing of ideas.

In 2005 at a meeting of the US Governors a graduation rate was agreed upon and recommended to the federal government in hopes that the 50 states would soon follow the same formula when calculating graduation rates. The fact that each state is currently permitted to establish their own definition of graduation makes calculations suspect and comparisons nearly impossible. Even within the state of Pennsylvania there is a discrepancy between how graduation rates are calculated for the Special Education Report and the District Report Card.

Establishing one common formula for calculating graduation rates would further ensure the accounting for each student.

Implications for Further Research

One of the most noteworthy topics in special education in Pennsylvania today is the Gaskins case which addresses including students with disabilities in the general education classes to the greatest extent possible to meet the needs of the students. The finding of this study indicating that the amount of time a student spends in the special education classroom has no affect on graduation rates is in direct conflict with the current thinking on inclusive education. Certainly further research will be needed to support the inclusion of students with disabilities in the general education classroom. Allowing for more specific student data that provides as little human error as possible might see a difference in the analysis results.

Using the dependent variables included in research question four and looking at individual PSSA scores would be enlightening. Individual PSSA scores are not readily available without district permission, so a more in-depth study would be able to locate individual scores for students with disabilities and look for relationships to disability, type of service, type of support, and LRE. Most specifically, a study addressing the rate of proficiency in PSSA math and reading scores for students with disabilities compared to their least restrictive environment would be critical information for the topic of adequate yearly progress and the LRE monitoring process.

Extending this study to various socioeconomic regions around the state would also give another view of services provided for students with disabilities. This researcher would be interested in knowing if higher socioeconomic status would result in higher graduation rates for students with disabilities or if those regions saw an increase in PSSA scores for students with disabilities. Merely changing the socioeconomic factor may result in completely different analysis results.

Including counties that have a wider ethnic diversity would give another interesting view of the research. The 10 counties included in this study included primarily one ethnic group. Moving to counties that present various ethnic groups would allow comparisons to be made based on other ethnicities in addition to other socioeconomic factors.

Continuing this current study with more recent results would also be revealing. This researcher has questioned several times throughout the process of the study if more recent data would show different trends in the results. In the same way, extending the disability categories or including alternative education settings in the results might produce an entirely different view of the research. In addition, the ethnic make-up of the counties chosen for this study limited the ability to view results based on ethnicity. This study remains a small, but significant, piece of the puzzle regarding educating students with disabilities in our public schools in Pennsylvania.

In the literature review, Dunn, Chambers, & Rabren (2004) were one of the studies that found students graduated at higher rates when they connected with

someone in the community or in the schools. This mentoring and caring

relationship would be another avenue to pursue in terms of graduation rates.

Looking specifically at students with milder disabilities that are in schools with

the general population and questioning if having that connection to a caring adult

will help to keep them in school and help them graduate.

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APPENDICES

APPENDIX A

Table A1

Cross-tabulation Results Between Type of Service and Exit Groups, Excluding

Missing Students

Table A2

Cross-tabulation Results Between Type of Service and Exit Groups, Including

Missing Students

Table A1

Cross-tabulation Results Between Type of Service and Exit Groups, Excluding

Missing Students

		IT	RE	PT	FT
2002-2003					
Graduated	Observed	220.0	219.0	152.0	13.0
	Expected	219.1	215.4	154.5	15.0
	%	34.1%	34.0%	23.6%	2.0%
Not graduate	Observed	14.0	11.0	13.0	3.0
	Expected	14.9	14.6	10.5	1.0
	%	2.2%	1.7%	2.0%	0.5%
	Total	234.0	230.0	165.0	16.0
	%	100.0%	100.0%	100.0%	100.0%
2003-2004					
Graduated	Observed	225.0	245.0	118.0	20.0
	Expected	228.4	240.7	118.9	20.0
	%	35.2%	38.3%	18.5%	3.1%
Not graduate	Observed	15.0	8.0	7.0	1.0
	Expected	11.6	12.3	6.1	1.0
	%	2.3%	1.3%	1.1%	0.2%
	Total	240.0	253.0	125.0	21.0
	%	100.0%	100.0%	100.0%	100.0%

Table A1 (continued).

Cross-tabulation Results Between Type of Service and Exit Groups, Excluding

Missing Students

2004-2005					
Graduated	Observed	261.0	236.0	81.0	19.0
	Expected	263.1	233.0	82.5	18.4
	%	42.4%	38.4%	13.2%	3.1%
Not graduate	Observed	10.0	4.0	4.0	0.0
	Expected	7.9	7.0	2.5	0.6
	%	1.6%	0.7%	0.7%	0.0%
	Total	271.0	240.0	85.0	19.0
	%	100.0%	100.0%	100.0%	100.0%

Note. IT represents itinerant service, RE represents resource service, PT represents part-time service, FT represents full-time service.

Table A2

Cross-tabulation Results Between Type of Service and Exit Groups, Including

Missing Students

		IT	RE	PT	FT
2002-2003					
Graduated	Observed	220.0	219.0	152.0	13.0
	Expected	201.1	215.0	164.2	23.7
	%	25.3%	25.2%	17.5%	1.5%
Not graduate	Observed	14.0	11.0	13.0	3.0
	Expected	13.7	14.6	11.1	1.6
	%	1.6%	1.3%	1.5%	0.3%
Missing	Observed	55.0	79.0	71.0	18.0
	Expected	74.2	79.4	60.6	8.7
	%	6.4%	9.1%	8.2%	2.1%
	Total	289.0	309.0	236.0	34.0
	%	100.0%	100.0%	100.0%	100.0%
2003-2004					
Graduated	Observed	225.0	245.0	118.0	20.0
	Expected	215.3	237.6	127.3	27.8
	%	28.6%	31.1%	15.0%	2.5%
Not graduate	Observed	15.0	8.0	7.0	1.0
	Expected	11.0	12.1	6.5	1.4
	%	1.9%	1.0%	0.9%	0.1%

Table A2 (continued).

Cross-tabulation Results Between Type of Service and Exit Groups, Including

Missing Students

2003-2004 (continued)

		IT	RE	PT	FT
Missing	Observed	39.0	55.0	40.0	15.0
	Expected	52.8	58.2	31.2	6.8
	%	4,9%	7.0%	5.1%	1.9%
	Total	279.0	308.0	165.0	36.0
	%	100.0%	100.0%	100.0%	100.0%
2004-2005					
Graduated	Observed	261.0	236.0	81.0	19.0
	Expected	256.5	229.7	90.3	20.6
	%	39.1%	35.3%	12.1%	2.8%
Not graduate	Observed	10.0	4.0	4.0	0.0
	Expected	7.7	6.9	2.7	0.6
	%	1.5%	0.6%	0.6%	0.0%
Missing	Observed	16.0	17.0	16.0	4.0
	Expected	22.8	20.4	8.0	1.8
	%	2.4%	2.5%	2.4%	0.6%
	Total	287.0	257.0	101.0	23.0
	%	100.0%	100.0%	100.0%	100.0%

Note. IT represents itinerant service, RE represents resource service, PT represents part-time service, FT represents full-time service.

APPENDIX B

Table B1

Cross-tabulation Results Between LRE and Exit Groups, Excluding Missing

Students

Table B2

Cross-tabulation Results Between LRE and Exit Groups, Including Missing

Students

Table B1

Cross-tabulation Results Between LRE and Exit Groups, Excluding Missing

Students

2002-2003		<21%	21-60%	>60%
Graduated	Observed	243.0	307.0	53.0
	Expected	242.0	306.7	54.4
	%	94.2%	93.9%	91.4%
Not graduate	Observed	15.0	20.0	5.0
	Expected	16.0	20.3	3.6
	%	5.8%	6.1%	8.6%
	Total	258.0	327.0	58.0
	%	100.0%	100.0%	100.0%
2003-2004		<21%	21-60%	>60%
Graduated	Observed	255.0	308.0	40.0
	Expected	256.3	305.8	41.0
	%	94.8%	96.0%	93.0%
Not graduate	Observed	14.0	13.0	3.0
	Expected	12.7	15.2	2.0
	%	5.2%	4.0%	7.0%
	Total	269.0	321.0	43.0
	%	100.0%	100.0%	100.0%

Table B1 (continued).

Cross-tabulation Results Between LRE and Exit Groups, Excluding Missing

Students

2004-2005		<21%	21-60%	>60%
Graduated	Observed	304.0	256.0	31.0
	Expected	304.7	255.2	31.1
	%	96.8%	97.3%	96.9%
Not graduate	Observed	10.0	7.0	1.0
	Expected	9.3	7.8	.9
	%	3.2%	2.7%	3.1%
	Total	314.0	263.0	32.0%
	%	100.0%	100.0%	100.0%

Note. <21% represents less than 21 % of the day in special ed classes, 21-60% represents 21% - 60% of the day in special ed classes, > 60% represents more than 60% of the day in special ed classes.

Table B2

Cross-tabulation Results Between LRE and Exit Groups, Including Missing

Students

2002-2003		<21%	21-60%	>60%
Graduated	Observed	243.0	307.0	53.0
	Expected	221.5	314.4	67.1
	%	76.7%	68.2%	55.2%
Not graduate	Observed	15.0	20.0	5.0
	Expected	14.7	20.9	4.4
	%	4.7%	4.4%	5.2%
Missing	Observed	59.0	123.0	38.0
	Expected	80.8	114.7	24.5
	%	26.8%	55.9%	17.3%
	Total	317.0	450.0	96.0
	%	100.0%	100.0%	100.0%
2003-2004		**<21%**	**21-60%**	**>60%**
Graduated	Observed	255.0	308.0	40.0
	Expected	240.7	311.2	51.1
	%	82.0%	76.6%	60.6%
Not graduate	Observed	14.0	13.0	3.0
	Expected	12.0	15.5	2.5
	%	4.5%	3.2%	4.5%

Table B2 (continued).

Cross-tabulation Results Between LRE and Exit Groups, Including Missing

Students

2003-2004 (continued).				
Missing	Observed	42.0	81.0	23.0
	Expected	58.3	75.3	12.4
	%	13.5%	20.1%	34.8%
	Total	311.0	402.0	66.0%
	%	100.0%	100.0%	100.0%
2004-2005		**<21%**	**21-60%**	**>60%**
Graduated	Observed	304.0	256.0	31.0
	Expected	296.8	260.2	34.0
	%	91.6%	88.0%	81.6%
Not graduate	Observed	10.0	7.0	1.0
	Expected	9.0	7.9	1.0
	%	3.0%	2.4%	2.6%
Missing	Observed	18.0	28.0	6.0
	Expected	26.1	22.9	3.0
	%	5.4%	9.6%	15.8%
	Total	332.0	291.0	38.0
	%	100.0%	100.0%	100.0%

Note. <21% represents less than 21 % of the day in special ed classes, 21-60% represents 21% - 60% of the day in special ed classes, > 60% represents more than 60% of the day in special ed classes.

APPENDIX C

Letter of Permission

Letter of Permission

"Rissinger, Jodi" <jrissinger@state.pa.us> on Thursday, July 13, 2006 at
      11:34 AM -0500 wrote:

Dear Linda,

      As per our conversation in February 2006, you will be able to use information from the Penn State Data Center in your upcoming dissertation study for Duquesne University. As this conversation took place with the participation of Sue Copella, from the data center, she is also aware of the requested information and agreed to its availability.

      As it was described to me, the purpose of your dissertation study is to discover factors that may have affected the graduate rates of students with disabilities in portions of Pennsylvania. As it is understood, you will need access to Penn Data information for students with specific disabilities who entered 9th grade in the fall of 2001 and would want to know if they graduated in the spring of 2005, for only 10 specific counties. If the students did not graduate in the spring of 2005, you would need to know their status in the spring of 2005, if that information is available.

      The specific disability categories are Autism, Emotional Disturbance, Mental Retardation, and Specific Learning Disabilities. The specific counties are Fayette, Greene, Washington, Clarion, Jefferson, Forest, Venango, Centre, Clearfield, and Clinton. The specific Penn Data information you have requested includes home district, service provider, gender, ethnic group, primary disability, planned participation in the PSSA/PASA, transition planning, related services, exit reason, type of support, type of service, LRE category, and residential status. This information will not include the name or identification number for any of the students. Complete confidentiality of the student data will be expected.

      Please consider this letter your permission to contact Sue Copella at the Penn State Data Center for access to the above stated data as soon as you have received permission from Duquesne University to do your study.