ABSTRACT
MILLS, BRADLEY SCOTT. Predicting Graduation: An Examination of the Variables that Predict Graduation for Students with Emotional Disabilities. (Under the direction of Dr. Ed Sabornie)

Students with Emotional Disabilities (ED) graduate from high school at rates far below their peers. The completed study utilized archival data from former students’ special education folders and from a nondisabled comparison group to examine variables that had previously been studied in relation to graduation (e.g., repeating ninth grade, extracurricular participation) along with variables identified from the folders of the former students. The descriptive quantitative study identified variables that predicted graduation for individuals with ED and the differences between the variables for individuals with ED and the nondisabled group. The results indicated that GPA and extracurricular participation positively predicted graduation while the number of years spent in 9th grade negatively predicts graduation for both groups. Specifically for students with ED, student attendance at special education meetings was statistically significant for predicting graduation.

Keywords: Emotional Disability, Behavior Disorder, graduation rate, drop out, IEP, public school, attendance, special education, high school.
Predicting Graduation: An Examination of the Variables that Predict Graduation for Students with Emotional Disabilities

by:

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DEDICATION

This project is dedicated to my wife, Sarah Mills as well as my parents, Mark and Ida Mills.
BIOGRAPHY

Bradley Scott Mills was born in New Jersey on September 7, 1983. He grew up in several different Midwestern states, though Minnesota was where he completed the large majority of his education. Mr. Mills met his wife, Sarah Mills, as an undergraduate student at West Virginia Wesleyan College in 2004. They were married in 2006, while both were in graduate school. He completed his Bachelor of Arts in Secondary Education with a focus in Social Studies in 2005 before completing his Master of Education in Multi-Categorical Special Education from Fairmont State University in 2007. Mr. Mills has worked as a special education teacher in multiple high school settings since 2006. He has worked as an adjunct instructor for North Carolina State University since 2016. Mr. Mills entered the doctoral program in Curriculum and Instruction at North Carolina State University in 2013. His research interests include: students with behavior and emotional disabilities, graduation for students with disabilities, and effective strategies for students with ADHD.
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Chapter 1

For many Americans, high school is a time of fun and excitement filled with the promise of what the future might hold. It is a period in which children begin the emotional and intellectual change from kids to young adults. As the young adult passes through high school, plans are made for college, careers or the military and even though many people will change their plans during the ensuing years, the feeling that “all doors are open” is omnipresent. Unfortunately, for approximately one-half of all students who qualify for special education as having an Emotional Disability (ED), high school is a massive door slamming shut in the face of future opportunities (U.S. Department of Education, 2015a).

When a student with ED drops out of high school, it is often the end of his or her formal education and another stamp of failure written large on his or her resume. By dropping out, an already challenging life becomes even bleaker. As D’Amico and Blackorby (1992) found two years after leaving school, students with ED were employed only 41% of the time compared to a 59% employment rate for non-disabled students. Students who do not graduate from high school will earn approximately $200 less per week than those who graduate (Median Weekly Earnings by Educational Attainment, 2015). Additionally, while 19% of students with any disability have been arrested within two years of leaving school, students with ED have the highest arrest rate of any category in special education at 37% (Wagner, D’Amico, Marder, Newman, and Blackorby, 1992). Wagner (1991) also indicated that 58% of students with ED were arrested within five years of leaving school (either through graduation or dropping out) and 73% of students with ED who dropped out of school were arrested at least once during their lifetime.
The long-term impact of earning a high school diploma can have a positive impact on a graduates’ life. In addition to increased income, graduates are more likely to be on professional pathways toward leadership positions and have better health outcomes (Adler & Newman, 2002; Ross & Wu, 1995; Rumberger & Lamb, 2003). While education is also related to income, a person’s educational level is the strongest predictor of an individual’s health (Farmer & Farmer, 1999; Steger, Kashdan, & Oishi, 2008). High school graduates also have a reduced dependence on social services and reduced levels of criminal involvement, both of which lead to benefits for the communities involved (Catterall, 2011).

While graduation from high school is a popular research focus, specifically examining students with ED graduating has been less frequent. Rylance (1997) used National Longitudinal Transition Study (NLTS) data to identify a significant association between graduation and vocational programs as well as graduation with counseling services. Lund (2014) interviewed students with ED who dropped out of high school to identify their perspectives and found the major themes of an unsupportive educational environment, poor communication within families, and lack of family support related to dropping out. Other studies, such as Sinclair, Christenson, and Thurlow (2005) implemented a mentoring program with urban ninth graders with ED and found participants receiving the mentoring program had lower rates of dropping out and more persistent attendance, yet very little has been completed that examines the specifics of why only one-half the students with ED make it to graduation.

**Theoretical Framework**

The completed research was guided by the Ecological Systems Theory (EST). Ecological Systems Theory was originally proposed by Bronfenbrenner (1977, 1979) as a method for understanding individuals in context (Neal & Neal, 2013). The idea is that
individuals experience different environments and events that influence their behavior as they move through life. These environments and influences include the people surrounding an individual (e.g., friends, family, teachers, neighbors) as well as how these people interact with each other and the individual. It also includes the events occurring that are outside of the control of the individual but that the individual remains involved, the culture of the individual, and the socio-historical contexts that occur during the individual’s lifespan (Neal & Neal, 2013).

Ecological Systems Theory has been utilized in many studies in education and developmental psychology including the psychological and academic outcomes of urban teens (Seidman, 1991), the activity engagement of youth (Rose-Krasnor, 2009) and the influences of family on gender development (McHale, Crouter, & Whiteman, 2003).

**Purpose Statement**

The purpose of the completed study was to determine the variables that predicted graduation from high school for students with ED and compare the results to a group of nondisabled peers. The secondary purpose was to examine the variance between the different sub-groups of individuals with emotional disabilities (e.g., based on race/ethnicity, gender, primary disability category).

**Research Questions**

The following research questions guided the completed study:

1. What student variables are positively correlated with graduation from high school for students with ED?

2. What student variables predict high school graduation for students with ED?

3. What differences exist between variables that predict graduation for students with ED compared to a nondisabled peer group?
Significance of the Study

With all the research conducted to indicate variables linked to graduation and dropping out, very little has examined specifically how these variables impact students with ED. By specifically examining the variables related to students with ED, a greater depth of understanding can be reached and used as a guide for future research and practice. The completed study identified variables that predict graduation, therefore allowing for the creation of specific interventions to increase the graduation rates of students with ED. By specifically targeting variables that can be influenced by the school, parents, or the students themselves, the findings should quickly translate to practical interventions that apply to a broad range of schools or districts. Through the inclusion of individuals without disabilities, the completed study results indicate differences and similarities between the variables that predict graduation for students with ED and those without. The results of the completed study may be used in the development of policies at the district and local levels to help individuals with ED graduate from high school.

Delimitations

While numerous variables have been identified in prior research as being linked with graduating or dropping out, many of the variables are outside the influence of the school or the student, and are therefore not included in the literature review or the completed study. It is clear that extensive research has found variables such as socioeconomic status (SES) of a school’s student body (Neild, 2009), or the SES of individual families, as being linked to dropping out (Owings & Migliaro, 1998). While still important, these and other status variables are outside the scope of the completed study. Finn (1993) identified two primary classifications of dropout predictors: (a) alterable predictors which can be changed by schools and (b) family and status
predictors that are outside the power of educators and families to change. This study focused only on the alterable predictors.

The completed study did not involve the collection of data from teachers or school staff members and exclusively gathered data from archival records. For example, records may have indicated that a parent did not attend a meeting, but the records did not include an explanation that the parent missed the meeting because his or her car would not start that morning.

All participants included in the study worked towards earning a standard high school diploma. No individuals were included if they were on any alternative diploma track. The completed study investigated only schools that are traditional, public high schools and did not include any residential or alternative schools in the study.

**Definition of Terms**

The federal government, as part of the Individuals with Disabilities Education Act (IDEA, 2004) defines an Emotional Disturbance as at least one of the following characteristics exhibited over a long period of time and to a marked degree that adversely affects a child’s educational performance. The defined characteristics are: (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; and/or (e) a tendency to develop physical symptoms or fears associated with personal or school problem (IDEA, 2004, Sec. 300.8). Different states and school districts may use the terminology of having a Behavior and Emotional Disability (BED or EBD), a Serious Emotional Disability (SED) or more simply as an Emotional Disability (ED), with all terms meaning the same thing.
Describing a student as having ED indicates that he or she is required by law to have an Individualized Education Plan (IEP). The IEP is a special education document that is reviewed and adjusted every year the student is served in special education, based on the individual’s specific needs. The document includes the individual’s strengths and areas of need that are addressed in the form of goals. It also includes the specific supports in place to help the student be successful in his or her classes and the specific special education services required by the student. The other significant special education documents are the initial evaluation and re-evaluations which are completed every three years a student is served in special education. The initial and re-evaluations often include psycho-educational assessment results along with other formal and informal forms of assessment.

The IEP and evaluations make up the bulk of a students’ special education folder found in schools. The special education folder includes all the special education documents that have been completed related to the student. For students who have moved school districts, often only the most recent IEP and evaluation information are sent to the receiving school, thus the records may be limited in nature.

The term IEP meetings is used to describe all special education meetings. This term does not include parent-teacher conferences or other less formal meetings. It includes any meeting in which special education paperwork was completed. This includes transition meetings, behavior intervention plan meetings, reevaluation meetings, annual IEP meetings and senior exit meetings.

For the purpose of the completed study, graduating from high school is considered earning a standard high school diploma. This means that a participant earned the diploma needed to enter college, the military or any other post-school option. A participant indicated as
having dropped out is anyone who did not complete a standard diploma, even if he or she later earned a General Equivalency Degree (GED).

Nondisabled peers are those that did not receive special education services while in high school. This does not mean that a nondisabled peer did not have a physical disability or mental health diagnosis (e.g., Attention-Deficit Hyperactivity Disorder- ADHD, bi-polar disorder), but that the student did not require the specialized instruction and support of special education services. The nondisabled group included a few individuals who had received special education services prior to high school, as many students receive speech services or other special education supports in elementary school that they are able to exit from in the later elementary or middle school years.

The remainder of the completed study is organized into four additional chapters. Chapter 2 synthesizes the current and historical literature on students with ED and high school graduation. Chapter 3 explains the research design and methodology of the study. It includes a description of the data collection process and the participant groups included within the study. Chapter 4 includes all statistical analyses completed as part of the study. Chapter 5 discusses the results in-depth and indicates possible implications for future research.
Chapter 2

Literature Review

This literature review focuses on high school graduation and students with ED. The barriers to success and supports for success in high school have been fully explained for all students before transitioning specifically to students with ED. The review ends with a discussion of research involving both students with ED and high school graduation.

Definition and Prevalence of ED

According to the U.S. Department of Education, in 2012 there were over 5.8 million children served in schools in the United States as qualifying for one of the 13 disabilities defined by IDEA (Department of Education, 2015a). Of these students, approximately 380,000 (6.7%) qualified as having ED. Prevalence estimates for ED have varied anywhere from 0.5% of the school-age population to as much as 20% or more (Kauffman & Landrum, 2012). Most reasonable estimates for the prevalence of ED in the population are between 3-6% (Forness, Freeman, Paparella, Kauffman, & Walker, 2012; Kauffman & Landrum, 2012). Among other reasons, the inconsistency between the prevalence of ED and the number of students served in schools may be attributed to the difficulty in defining what qualifies as an emotional or behavioral disability.

Using the federal definition that indicates that a student must have one of five, broadly defined characteristics clearly allows for a large amount of subjectivity in who qualifies for services under the category of ED. It is complicated when the terms for ED have often been changed depending on the organization, profession and state in which the category is being described. While the federal definition describes the category as “Emotional Disturbance,” many professionals prefer the term “Emotional or Behavioral Disorders” as it is a more inclusive term
which indicates the child may have difficulties with behavior, emotions, or both (Kauffman & Landrum, 2012).

Perhaps nowhere is the inconsistency in the prevalence of ED versus the number of individuals served more obvious than when examining the differences in state-level identification rates for ED. Even though there is a single federal definition of the category, “students with ED may show various problems, primarily related to social, personal and educational issues” (Cullinan & Sabornie, 2004, p. 157). Most states have a definition of ED that is diligently aligned with the definition for ED identified within IDEA, though some states have made additions or deletions to some of the characteristics of the definition (Clothe, Evans, Becker, & Paternite, 2014; Wery & Cullinan, 2013). Research has identified that states that remove the social maladjustment terminology classify a larger percentage of the students within their state as having an ED (Becker et al., 2011; Wery & Cullinan, 2013).

There are significant differences in the rates of identification of ED, location of services, and graduation rates for students with an ED on a state-by-state basis. Villarreal (2015), who utilized state and national data, showed that approximately 6.7% of all students with a disability in the United States were identified as having ED during the 2010-2011 school year. Forty-two percent of all students with ED were placed in the regular education environment for at least 80% of the school day, 18% were in the regular environment between 40-79% of the day, and 21% were placed in the regular education environment for less than 40% of the school day. The interstate range for placement in the regular education setting for at least 80% of the day was 19.5% (District of Columbia) to 72.3% (North Dakota). The national average for students placed in a separate facility (e.g. separate school, residential facility, correctional facility) was 18% of
all students with ED in 2010. The interstate range for placement in a separate facility was between 2.5% (West Virginia) to 52.3% (District of Columbia).

In 2010, over 52% of the individuals with ED who exited high school departed due to graduation with a standard diploma, approximately 10% obtained a certificate of completion, and 37% of students with ED dropped out of high school (Villarreal, 2015). These findings are consistent with those identified by the U.S. Department of Education (2015a). The interstate averages for identification rates for ED ranged from 1.5% (Arkansas) to 15.4% (Vermont). The interstate average graduation rates ranged from 15.7% (Utah) to 77.7% (Idaho).

Villarreal (2015) found several statistically significant correlations within his state-level analysis of educational placement and educational outcomes of students with ED. Results indicated a significant, positive correlation between the percentage of students identified with ED in a state and the percentage of students who graduated with a standard high school diploma. The higher the percentage of students identified as having ED, the higher the graduation rate of students with ED in the state. Additionally, states that had a larger special education teacher to student ratio also had a positive correlation with exiting due to graduation. One other striking finding was that states with a higher percentage of European American students were positively correlated to higher graduation percentages, which supports the findings of Cohen et al. (1990) and Kauffman et al. (1987).

With such a large discrepancy in the identification rates and placement rates between states, Villarreal (2015) suggested that much of the difference is due to discrepancies within the definitions between the states. States that had a more inclusive definition, were likely including more students with ED which allowed the state to include individuals who had less-intense levels of needs. This idea would support the increased identification rates suggested within Kauffman
Villarreal also suggested that differences in state-level funding and educational resources within states may have also contributed to the sizable differences.

Misidentification is another possible reason for the differences in state identification levels. Redden et al. (2003) found that even when 15% of the third graders involved in a study met the diagnostic criteria for ED, approximately only 1 in 4 were found eligible for special education services. Of those children identified for special education, they were 5 times more likely to be found eligible under the categories of having a learning disability (LD) or a speech/language impairment (SLI). This is especially concerning as possible learning and language disorders were first ruled out through testing or teacher ratings before these students were identified as at-risk for having an ED. Misidentification can also occur in the category of other health impairments (OHI). The OHI category includes individuals with ADHD who do not qualify for the ED category (Forness et al., 2012).

It is also possible that many children who should be identified as having an emotional disability are knowingly identified under a different primary category with ED as a secondary identification. It may be that the individual is identified in a different group entirely to avoid any possible stigma associated with an ED eligibility. Recent research has indicated significant stigma around mental health disorders and possible reasons to avoid the ED category as it may be perceived as an extension of mental health (Hinshaw, 2005; Pescosolido et al., 2008).

The federal definition of ED has often been criticized for being vague and without a scientific basis (Forness & Kavale, 2000; Kauffman, 2001; Nelson, Rutherford, Center & Walker, 1991) which can lead to the large differences in suggested identification rates. Two important meta-analyses on the subject of identification of individuals with mental health disorders were completed by Roberts, Attkisson, and Rosenblatt (1998), and by Forness and
colleagues (2012). Roberts and colleagues analyzed 52 studies between 1950 and 1995 to examine prevalence of mental health disorders (i.e., the percentage of individuals meeting the mental health criteria at a particular point in time). Roberts et al. found that preschoolers had a mean prevalence rate of 10.2%, children ages 6-12 had a prevalence rate of 13.2% and adolescents between 13-18 had a prevalence rate of 16.5%. Forness et al. (2012) suggested the differences in mental health prevalence rate based on age is related to an increase in symptoms of a disorder, such as with depression, as individuals become older. Depression, for example, generally begins to occur more frequently in the adolescent years, and thus individuals’ disabilities may not arise until he or she is in middle or high school. Within Roberts and colleagues’ analysis of the literature, no substantial difference was identified between the decades, with the exception of the 1990s in which the prevalence rate was 26% overall (Roberts et al., 1998). Roberts et al. suggested that realistically, only around 12% of all individuals would have moderate to severe impairment that would significantly impact the individuals’ education, thus making them eligible for special education services.

Forness et al. (2012) reviewed nine studies between 1995 and 2010. They also identified a prevalence rate of approximately 12%. Forness and colleagues also suggested that while 12% of all school-age children have a mental health disorder with at least a moderate impairment, it is suggested that at least 33% of all school-age children will have experienced a mental health disorder at some time prior to high school graduation. Nearly all of the nine studies reviewed indicated gender differences in identification but the differences were limited to specific diagnosis. Merikangas et al. (2010) indicated substantially more boys with ADHD but significantly more girls with depression or other mood disorders. Very few studies included in
the Forness et al. study indicated any differences in identification among different ethnic groups, including a study by Roberts, Roberts and Xing (2006) which specifically focused on this issue.

The only other noteworthy difference in the identification of mental health disorders across samples of interest was that significant differences were identified across socioeconomic neighborhoods. In a study by Xue, Leventhal, Brooks-Gunn, and Earls (2005), individuals could be clinically identified as having an ED at 11%, 18%, and 21%, respectively for high, middle and low socioeconomic neighborhoods.

Assuming that Forness et al. (2012) and Roberts et al. (1998) prevalence rates of mental health disorders of 12% for all school-age individuals is accurate, and Kauffman and Landrum’s (2012) identification rate of 3-6% of school-age individuals qualifying for having an ED, many individuals with moderate and severe impairment are not being served through special education. It is possible that only the most severely impaired children with mental health disorders are currently receiving specially designed instruction and the support of an IEP.

**Ecological Systems Theory**

Bronfenbrenner began developing EST in the 1970s with the help of empirical investigations dating back to 1870 in Berlin. The Berlin research focused on the effects a neighborhood had on the development of children’s ideas (Bronfenbrenner, 1994). When Bronfenbrenner’s first ideas were published in 1974, research conducted by developmental psychologists was limited in nature, with scant study occurring in real-life situations. At the same time, Bronfenbrenner (1974, 1976) also suggested ecological approaches to the study of child and family policies and educational practices. Bronfenbrenner (1986) stated, “Studies of children and adults in real-life settings, with real-life implications, are now commonplace in the research literature on human development” (p. 287).
The primary ideas behind EST focus on two key propositions. The first is that human development takes place through progressions of complex interactions between a person and other people, objects, or symbols within his or her proximate environment. Interactions have the most impact when they occur frequently and for extended amounts of time. Examples of this include the interactions between parent and child, individual play, and athletic activities. The second proposition is that the power and direction of these influences vary based on the immediate and more distant environment in which these processes take place (Bronfenbrenner, 1994). This would suggest that a child is more likely to be influenced by the school that he or she attends for six hours a day than his or her parent’s place of work as the child is more directly influenced by the school.

The ecological environment is based on Lewin’s theory of psychological fields (Lewin, 1931; 1935) which suggests that the environment exists in nested structures with one inside the next. The innermost level is the most powerful and most immediate influence on the person and this gradually decreases as the level of the environment moves away from the core of the person (Bronfenbrenner, 1994).

The first and most immediate layer of EST is the microsystem. This is the immediate environment surrounding the individual and consists of the interactions experienced between the individual and his or her direct environment such as friends, parents and teachers. The next layer is the mesosystem. The layer consists of the connections taking place between multiple microsystem interactions. Examples of the mesosystem include: the interactions between a person’s parents and teachers; or parents and the neighborhood. The exosystem is made up of the relationships of at least two environments, one of which the individual is not directly involved. For a child, this may be the relationship between the home and the parent’s workplace.
and for a parent this may be the interactions between the school and the neighborhood peer group. The macrosystem is the fourth layer and focuses more on the larger characteristics of a culture along with the belief systems of the culture. These include things such as social values and government policies. The final layer is the chronosystem. The chronosystem includes changes or consistencies over time relating to the characteristics of the individual as well as the environment. Examples of the factors relating to the chronosystem would include changes in family structure over time, place of residence and employment (Bronfenbrenner, 1994).

The completed study utilized research on variables that have been found to relate to dropping out but it also investigated whether any interactions between students, parents and the school were related to graduation. EST suggests that an individual’s development is influenced by both the school, his or her parents and the mesosystem interaction between the school and the parents but it is unclear if these interactions relate to graduation. These, and other microsystem interactions shape the development of the individual but there is a continued need to more thoroughly explain the connections.

**Benefits of Graduating from High School**

Research has consistently demonstrated that graduating from high school positively impacts students’ futures in a variety of ways. High school graduates earn approximately $10,000 more per year ($25,376 vs. $34,736) than their peers who do not graduate (Median Weekly Earnings by Educational Attainment, 2015). Even though dropouts make more money per hour than graduates within the first two years of leaving high school, by 3-5 years out of school, graduates make significantly more per hour (Blackorby & Wagner, 1996).

Beyond making more money, graduates are gainfully employed more frequently than dropouts. Individuals who have a high school diploma have an unemployment rate of 6%
compared to a 9% unemployment rate for those who drop out (Earnings and unemployment rates by educational attainment, 2015). Interestingly, the Institute of Education Sciences (2005) indicated that for students with disabilities, two years after being out of school, dropouts work full-time at a much higher percentage than graduates (34% versus 59%). While this finding appears valid, it is important to note that the study did not account for students who were actively enrolled in post-secondary courses and working part-time.

Another benefit of earning a diploma is that high school graduates go on to take postsecondary classes at much higher rates within two years of graduating (19% vs. 6%), and 3-5 years after leaving high school (37% vs. 11%; Blackorby & Wagner, 1996). More recent research suggests that these numbers are even more glaring with 39% postsecondary participation for graduates, and 9% participation for dropouts (Institute of Education Sciences, 2005). The attendance rates for postsecondary school do not indicate completion rate, but they do include all students who have taken at least one postsecondary class during that specific timeframe.

Despite the fact that high school graduation rates set an all-time high of 81% in 2012-2013 (U.S. High School Graduation Rate Hits New Record High, 2015), districts across the nation are demanding even higher rates. In 2015, the largest school district in the state of North Carolina identified a goal of 95% graduation for all students by the year 2020 (Hue, 2015). Similarly, the Los Angeles Unified School District boldly indicates a goal of 100% graduation from high school without a set timeframe stated (District Goals, 2015). These aims are reinforced through national organizations such as the GradNation campaign which is pushing for 90% graduation by the year 2020 (U.S. High School Graduation Rate Hits New Record High,
Whether the goal is 90% or 100%, the emphasis on improving graduation rates is clearly a priority in the U.S.

**Gender and Ethnicity in Relation to Graduation**

While ethnicity and gender are not alterable variables that can be adjusted by the school, participant, or families, this information is included in light of basic demographic information, including gender and ethnicity, was collected by the principal investigator as part of the study.

Research is inconsistent regarding the relationship between gender and graduation from high school. Multiple studies have found that male students are more likely to drop out than female students (National Center for Education Statistics, 2000; Rumberger, 1995). In contrast, Gonzalez and Cramer (2013) examined multiple school-level variables but did not find that gender was a significant predictor of graduation for students with LD and ED. The U.S. Department of Education (2005) utilized data from the National Longitudinal Transition Survey-2 (NLTS-2, 2011) and also found no difference between the graduation rate of individuals with disabilities based on gender, though males have experienced a statistically significant growth of 20% in graduation percentage since 1987, compared with a 10% increase in graduation rate for girls.

Research is also unclear regarding the differences in graduation related to race and ethnicity. Hickman, Bartholomew, Mathwig, and Heinrich (2008) found that dropouts were significantly more likely to be non-Caucasian. This is supported by Rumberger (1995) who found that students who are African American, Hispanic, or Native American had significantly higher odds of dropping out than other students and Asian students were the least likely to drop out. Research by Osher and Osher (1996) found that only 28% of African Americans with ED graduated high school compared to 42% for all youth identified with ED. Data from the NLTS-2
(2011) study identified graduation rates for Hispanic students with disabilities as being lower than Caucasian and African American students with disabilities (60%, 74%, and 77% respectively) though not statistically significantly so (U.S. Department of Education, 2005). These findings are supported by Gonzalez and Cramer (2013) who did not find that race or ethnicity was a significant predictor of graduation for students with LD and/or ED, and Zablocki and Krezmien (2012) found no differences between groups in a study of students with high-incidence disabilities (i.e., ED, LD, SLI, OHI).

**Intelligence and Academic Ability in Relation to Graduation**

It should come as little surprise that having a higher intelligence quotient (IQ) score is predictive of many positive aspects in education. Researchers have found that IQ is highly correlated with math and reading scores as well as having a significant relationship with high school grade point average (GPA; Gregory & Rimm-Kaufman, 2008). Additional research has found that as early as third-grade, IQ scores are positively correlated with high school graduation (Lloyd, 1978). This finding was supported by Barrington and Hendricks (1989) who found that high school graduates had an average IQ of 111 compared to dropouts who averaged a 102 on an 8th grade standardized intelligence test (using 85-110 considered average). This difference between the groups was found to be statistically significant both in 8th grade and again in 9th grade.

Multiple studies have found that academic ability levels have a strong relationship with graduation. Reading level, as early as third grade, is a strong predictor of students who drop out of high school (Christenson & Thurlow, 2004; Lehr, Sinclair, & Christenson, 2004). Hickman et al. (2008) conducted a study examining the differential pathways of high school graduates and high school dropouts. Their findings indicate statistically significant differences in reading,
writing, and mathematics scores from kindergarten through high school. Hickman and colleagues also observed significant differences on Stanford Achievement Test scores in 5th - 9th grades with graduates scoring substantially higher across both reading and mathematics.

When students struggle with math and reading skills in ninth grade, it often leads to truancy and eventually to dropping out (Neild, 2009; Sparks, Johnson, & Akos, 2010). Gonzalez and Cramer’s (2013) study of students with ED and students with LD found that reading and mathematics scores from standardized state examinations did not predict graduation rates. Mattison and Blader (2013) assessed the academic performance of students with ED and found that a student’s broad math score was predictive of the students’ grade point average (GPA), though race, IQ (both verbal and performance), and broad reading did not (Mattison & Blader, 2013).

**Barriers to Academic Success**

Research has been conducted to identify risk-factors for dropping out of school. One of the variables that has been studied and continues to be present in the literature is the issue of poor school attendance (Bornsheuer, Polonyi, Andrews, Fore, & Onwuegbuzie, 2011; Weitzman, Klerman, Lamb, Menary, & Alpert, 1982). Research has shown that patterns in poor school attendance as early as the elementary years are predictive of future school dropout (Weitzman et al., 1982). This means that some students with high absentee rates between the ages of 6 - 12 can be predicted to drop out of high school even though they have never attended a single day of high school. Researchers have found that attendance in kindergarten is statistically significant in predicting attendance at higher levels of schooling (Lehr et al., 2004). Alexander, Entwisle, and Horsey (1997) found that dropouts averaged 16 days absent in kindergarten compared to only 10 days absent for graduates. The six-day difference in absenteeism increased the odds of dropping
out by 30%. Hickman et al. (2008) found that the difference in absenteeism for first graders who would go on to dropout was significantly higher than the absenteeism for first graders who would ultimately graduate (12 days absent versus 9 days absent). This gap widened considerably by 8th grade with dropouts having more than double the number of absences as graduates (19.5 versus 9.5).

Rumberger (1995) found that students who were absent at least 25% of the time were three to five times more likely to drop out than other students. In Scanlon and Mellard (2002), for example, students with disabilities (i.e., LD or ED) stated that their problems in school stemmed primarily from difficulties with school attendance. Not surprisingly, students with poor attendance have grades far worse than their peers with high attendance, and academic and social problems get worse the more absences accrue (Weitzman et al., 1982).

Out-of-school suspensions are also related to dropping out. Sparks, Johnson, and Akos (2010) found that one of the primary factors that influenced students’ dropout rate was having received a long-term suspension (i.e., lasting 10 or more consecutive days). Zablocki and Krezmien (2012) found that students who were suspended or expelled were three times more likely to drop out of school than their comparison peers not been suspended or expelled. Suspensions, therefore have consistently been found to be related to dropping out of high school (Gonzalez & Kramer, 2013; Kortering, Haring & Klockars, 1992).

An additional variable closely related to attendance is student transience while in school. Students who experience multiple moves have greater difficulty in adjusting socially, emotionally, and academically to their new environment (Rumberger & Larson, 1998; Swanson & Schneider, 1999). Rumberger (1995) found that changing schools was significantly related to dropping out of high school for African American and Caucasian students though it was not
significant for Hispanic students. Sinclair et al. (2005) conducted a study of 164 students with ED and transience. They found that 20% of the students attended two or more schools within any given school year. At the end of the study, of the 68 students who had either graduated or were still enrolled, only 15 remained in the same school for the full four years. Another study found that 37% of all students with disabilities exit special education services due to family relocation compared to 52% for students with ED (U.S. Department of Education, 2002).

Kaufman and Bradby (1992) found that each time a student changed schools, the odds of dropping out of high school increased by 30%. These data suggest a population of students who are frequently moving with a resulting negative impact on educational success.

Research has indicated that students who repeat a grade are more likely to drop out of high school than peers who are not retained (Jordan, Lara, & McPartland, 1996; Kortering & Braziel, 1999). Repeating a grade can be due to multiple reasons: (a) lack of academic progress; (b) not passing a required class or number of classes; or (c) immaturity on the part of the student. Rumberger (1995) found that students who repeated a grade were 11 times more likely to drop out of school than students who were never “held back.” Among students repeating a grade more than once, they were 90% more likely to drop out than peers who had not been retained (Jimerson, Anderson, & Whipple, 2002). Kaufman and Bradby (1992) also found that students who repeat a grade in the upper grades had a much greater chance of dropping out than those retained in the lower grades. Kauffman and Bradby’s findings are supported by Hickman et al. (2008) who found that dropouts were more likely to be retained between grades 5 – 6, while individuals retained who would go on to graduate were retained mostly between grades K - 1. Thirty percent of all high school dropouts were never able to be promoted beyond ninth grade (Nield, 2009).
Another hindrance to graduation is that students who have mental health disorders often use illicit drugs and alcohol. These variables have been found to be a strong risk factor for dropping out of high school (Breslau, Miller, Chung, & Schweitzer, 2011). Adolescents between the ages of 12 - 17 who have experienced an episode of major depression are more likely to initiate alcohol use than their unaffected peers (29% vs. 14.5%) and they are more likely to begin using drugs (16% vs. 6.9%; SAMHSA, 2007). While some studies have targeted a broad approach to the impact of mental health on education, recent research has clarified the specific effects. Research has indicated that bipolar and other externalizing disorders (which includes alcohol and drug use as well as conduct disorder) have been associated with a reduced likelihood to graduate from high school (Mojtabai et al., 2015). In addition, having Attention Deficit Hyperactivity Disorder (ADHD) is also a strong link to dropping out of high school (Barkley, Fischer, Smallish, & Fletcher, 2006). Mental illness that is untreated is frequently related to high rates of absenteeism within school (Gall, Pagano, Perrin, & Murray, 2000).

In a study conducted by Loveland, Lounsbury, Welsh, and Buholtz (2007), students identified as highly aggressive were more likely to have a lower grade point average. While highly aggressive students do not have to be identified as having an ED, there is likely some relationship between the groups. In connection to having a lower grade point average, highly aggressive students are more likely to drop out of high school when compared to less aggressive students (Farmer et al., 2003; Kokko, Tremblay, Lacourse, Nagin, & Vitaro, 2006; Risi, Gerhardstein, & Kistner, 2003).

One final risk factor related to school dropout is qualifying for special education services under the category of ED. While students in the United States are graduating from high school with a traditional diploma at a rate of approximately 82% (U. S. Department of Education,
2015b), and all students with disabilities are graduating at a rate of 65%, students with ED graduate at a rate of only 53% (U.S. Department of Education, 2015a). An even more dramatic finding is that students with ED have a dropout rate of over 35%, which is nearly twice that of the next highest disability category (i.e., SLD and OHI at 18%; U.S. Department of Education, 2015a; Zablocki & Krezmien, 2012). The ED graduation and dropout rates above are dismal despite an increase in graduation rate of 15% and a reduction in dropout rate of 17% over the last ten years. Students with early onset of emotional and behavior problems are at an even higher risk for academic failure (Reinke, Herman, Petras, & Ialongo, 2008).

**Supports for Positive Academic Outcomes**

A great deal of research has attempted to identify variables linked to graduating from high school with a standard diploma. While poor attendance has previously been identified as related to dropping out, conversely, consistent attendance in school has been linked to graduation in many different studies (Kieffer, Marinell, & Neugebauer, 2014; Rumberger, 1995; Warren, 2010). In a study of Chicago youth involving students with disabilities, Gwynne, Lesnick, Hart, and Allensworth (2009) found that having a low absentee rate was a predictor of high school graduation. Sinclair et al. (2005) found that consistent attendance early in high school (i.e., the first two years) resulted in an increased likelihood for graduation or remaining in school at the end of four years. Gewertz (2006) found that students who had less than five absences in their freshmen year had an 87% chance of graduating from high school in four years.

As would be expected, students with higher than average grades in high school have an increased chance of high school graduation (Zablocki & Kezmien, 2012). Gewertz (2007) found that having high grades in a student’s freshmen year was indicative of graduating high school in four years. Students who earned a B average grade or higher their freshmen year, for example,
had a 93% chance of graduating; a student with a C average grade had a 72% chance of graduating, and a student with a D average grade had only a 28% chance of graduating in four years. Hickman and colleagues (2008) found a statistically significant difference in the GPA of freshmen from their first semester through the end of their high school career. First semester freshmen who dropped out had an average first semester GPA of 1.27 compared to graduates who earned a 2.75 GPA.

A commonly mentioned variable that is related to increased odds of graduation is students participating in extracurricular activities. Rumberger (1995) found that students who participated in extracurricular activities during middle school were substantially more likely to graduate from high school. Additionally, Catsambis, 1988) found that students participating in sports in high school had higher educational achievement than students not participating in sports. Extracurricular activities include sports but they also involve participating in the Reserve Officer’s Training Corps (ROTC), debate teams, and other school-based clubs. Mezuk (2009) found that African American males who participated in an urban debate league in Chicago between 1997 - 2006 were 70% more likely to graduate than African American males who did not participate in the debate league. These results were consistent for both individuals with high and low 8th grade test scores and GPA. Similarly, Pema and Mehay (2010) found that participating in junior ROTC during the first two years of high school was linked to increased graduation rates.

A parent who has high expectations for their child’s future, and who is actively involved in the school environment has been found to be linked to increased chances of high school graduation. Doren, Gau and Lindstrom (2012) showed that when a parent had the expectation that his or her child would receive a high school diploma, they were 2.5 times more likely to
graduate. These results were also shown in Chen and Gregory (2010), as well as Zhang, Haddad, Torres, and Chen (2010). It is worth noting that in Doren et al., only 48% of parents of students with ED had the expectation that their child would graduate from high school compared to 65% for students with LD, 42% for students with intellectual disabilities, and 65% for all other disability groups.

Similarly, Rumberger (1995) found that parents who participated in the Parent Teacher Association (PTA) and who volunteered in school were linked with greater educational achievement on the part of their child. Dropouts are more likely to have parents with permissive parenting styles (Rumberger, Ghatak, Poulos, Ritter, & Dornbusch, 1990), and increased parental monitoring of students’ activities has been found to reduce dropout rates (Alpert & Dunham, 1986; Blondal & Adalbjarnardottir, 2009). When a student reported parents with higher levels of supervision, they were 34% less likely to drop out than peers with less parental supervision (Rumberger, 1995). While parents become involved in their children’s education in a variety of ways, the fact that they are involved seems to lead to enhanced academic outcomes.

Emerging research has found positive results with early identification of ED and a corresponding treatment. Multiple studies have found that when an intervention (e.g., counseling, therapy) is put in place early for a student with ED, it can reduce the likelihood of academic failure (Lane & Menzies, 2003; Walker & Shinn, 2002). A key feature of the early intervention success relates to identifying all students who are at risk, not only those with severe difficulties (Glover & Albers, 2007).

**Common Characteristics of Students with ED**

Between 2003 and 2013, students with ED have increased their graduation rates from 38% to a high of 53% (U.S. Department of Education, 2015a). The only group that graduates
with a standard high school diploma at a lower rate than students with ED are students with intellectual disabilities. This can be misleading because often times students with intellectual disabilities graduate with an alternative diploma, making the comparison impractical.

Students who are identified as having an ED demonstrate substantially lower academic performance than their nondisabled peers. Students with ED consistently earn lower grades than their peers across all grade levels (Bradley, Henderson, & Monfore, 2004; Wagner & Cameto, 2004). Compared to other students with high-incidence disabilities (i.e., LD), individuals with ED have lower levels of academic achievement (Bradley et al., 2004; Wagner et al., 2006). Teens with ED have been found to have an increased likelihood of failing courses compared to both students without disabilities and students with LD (Wagner, Blackorby, & Hebbeler, 1993). Of all individuals with ED between the age 9-17, 58% have been found to be performing below grade level in reading, and nearly 93% below grade level in mathematics (Greenbaum et al., 1997).

Beyond academics, individuals with ED have other outcomes that are more unfavorable than the general population. Research has consistently indicated higher rates of arrest and incarceration for students with ED (Marder, Wagner, & Sumi, 2003; Wagner, 1995; Wagner et al., 2006). Doren, Bullis, and Benz (1996) found that individuals who were arrested once while in school were much more likely to be arrested within 1 year after leaving school. They also found that males with disabilities were significantly more likely to be arrested than females with disabilities.

Individuals with ED are much less likely to be employed than individuals without ED (Wagner & Newman, 2012), and they are less likely to be living independently after dropping out or graduating from high school (Blackorby & Wagner, 1996). Findings from Wagner and
Cameto (2004) suggested that students with ED are employed slightly more frequently than the general population (53% vs. 50%) though this research does not indicate current employment, only the percentage of individuals who had a job at some point in the last 12 months. Wagner and Cameto also indicated that nearly 20% more individuals without ED earn more than minimum wage compared to individuals with ED (69% vs. 50%).

Individuals identified as having an emotional disability often have a mental health disability. Specifically, students with ED may be formally identified as having oppositional defiant disorder (ODD), conduct disorder, ADHD, depression, mood or anxiety disorders and schizophrenic or psychotic disorders (Forness et al., 2012). They typically do not include individuals with intellectual disabilities, learning disorders, or developmental disorders as these are not generally considered mental health disorders. Having a mental health disorder, does not automatically qualify the person to be identified as having an ED; based on the federal definition, the disability must adversely impact the educational performance of the individual (Forness & Knitzer, 1992). It is possible for individuals to have one or more mental health disorders and to function appropriately within the school environment with the assistance of medication, therapy, or other actions on the part of the individual. There is some belief that an individual should be eligible for the ED category only if they also have a significant negative impact on other areas of school functioning, such as peer or adult relationships (Kavale, Forness, & Mostert, 2005).

Mental health services are very common with students who have ED. Wagner and Cameto (2004) found that 49% of students with ED receive some amount of mental health services compared to 20% of students with other disabilities. According to the U.S. Department of Health and Human Services (2001), nearly 21% of people between ages 9 - 17 in the U.S. have a diagnosable mental illness or addictive disorder associated with at least minimum
impairment, and an additional 11% have a significant impairment. Some students with ED have co-morbid psychosocial and learning disorders such as mood disorders, depression, conduct and oppositional defiant disorder, ADHD, and other mental or cognitive disorders (Forness & Kavale, 2001, Wagner & Cameto, 2004). When mental health interventions such as therapy and medications have been used, evidence suggests that they may increase school performance (Forness, Freeman, & Paparella, 2006; Jacobs et al., 2010; Molina et al., 2009). When individuals with mental health issues are referred to school-based mental health centers or counseling, it can reduce absenteeism by 50% (Gall et al., 2000). These statistics, in comparison to the currently identified 1% of students being served through special education for ED (U.S. Department of Education, 2015a), would suggest that many students are not being appropriately identified and supported in schools.

While certain characteristics are more commonly identified in students with ED, there is no “typical” student with ED. According to Wagner and Cameto (2004), it is common for students with ED to be male (77%) and African Americans are over-represented (25% vs. 16% in the general population). Forness et al. (2012), however, found no significant differences in representation due to ethnicity when controlling for other variables (e.g., gender, age, family income, and parental education). Coutinho, Oswald, Best, and Forness (2002) found that African American males are not over identified within low-income neighborhoods. When African American males live in primarily Caucasian, affluent communities, their odds of being identified as having an ED significantly increases. Neighborhoods that are low-income and composed predominately of minority groups does increase the chance of ED identification for Native American students, but not for other minority groups. Asian American and Hispanic students tend to be under-identified within the ED group (Forness et al., 2012).
About 49% of individuals with ED come from two-parent homes compared to 74% of all students (those with and without disabilities), and it is more likely that the head of the household has a high school education or less (60% vs. 47%; Wagner & Cameto, 2004). Students with ED are often identified as having a disability at age 9 or older (53% vs. 41%), and 40% have attended five or more schools (5% for other disabilities). Approximately 65% of individuals identified with ED are 12 years of age or older (U. S. Department of Education, 2001). While students with ED are retained only slightly more frequently than students with other disabilities (38% vs. 36%), they receive suspensions or expulsions at a much higher rate (73% vs. 33%; Wagner & Cameto, 2004).

Educational Placement

Students with ED are also placed in more restrictive educational settings more often than their peers. Landrum, Katsiyannis, and Archwamety (2004) suggested that only the students with the most significant ED are being identified, which may explain why students with ED are often served in more restrictive classroom settings. Between 1988 and 1997, students with ED being served in separate settings (i.e., special classes, residential facilities, in hospital settings, through homebound instruction or separate schools) decreased from 56% to 51%. During the same time frame, however, students with all disabilities in separate settings declined from 30% to 25%. Similarly, 33% of students with ED received services in specialized, separate classes compared to only 20% for students with all other disabilities. Nearly 18% of students with ED receive their educational services in alternative settings (i.e., residential settings, separate schools, correctional facilities or homebound and hospital environments while only 5% of all students with other disabilities receive their services in alternative settings (U.S. Department of Education, 2015a). Slightly more than 45% of students with ED participate in regular education.
settings for at least 80% of their day compared to 62% of their peers with other disabilities (U.S. Department of Education, 2015a). The data clearly identify a trend to move students into the Least Restrictive Environment (LRE) but they also indicate a difference between where students with ED are receiving services in comparison to their peers with other disabilities.

It is important to understand the educational placements of students with ED because studies indicate that spending more time in a regular education setting is related to graduating from high school with a standard diploma (Landrum et al., 2004; Villarreal, 2015) just as it is for students with all disabilities (Gonzalez & Cramer, 2013). Some of the differences may be explained as students with the most significant academic and behavioral needs are likely to receive their education in the most restrictive settings, while students with less significant needs would more frequently be served in the regular classroom.

Coutinho and Oswald (1996) scrutinized variables that were associated with the educational placement of individuals with ED. The results of their study identified both economic factors and the ethnicity of the student as predictors of educational placement. Specifically, states that have a greater percentage of Caucasian students typically served a larger percentage of individuals with ED in the regular education setting. States that have higher per pupil spending served a greater proportion of students with in more restrictive settings. Related research has indicated that individuals with higher socioeconomic status are much more likely to receive their education in the regular classroom setting (Glassberg, 1994). Other research has found that Caucasian students with ED are placed in less restrictive classroom environments compared to individuals from other ethnic backgrounds (Cohen et al., 1990; Kauffman, Cullinan & Epstein, 1987).

**Current Research on Graduation and Students with ED**
While examining concepts related to high school graduation is popular, specifically looking at variables linked to graduation for students with ED is not a common focus. One study that does examine high school graduation and students with ED was done by Rylance (1997) using data from the NLTS (1993) database. Rylance based his research idea on the findings of Epstein, Foley and Cullinan (1992) who suggested that teachers considered both counseling services and vocational education among the most important programs for individuals with ED. Similarly, the literature includes recommendations and suggestions for the incorporation of vocational education (Edgar, 1991; Sitlington, Frank, & Carson, 1992), and mental health or counseling opportunities for students with ED (Goodwin, Goodwin, & Cantrill, 1988; Moore & Chamberlain, 1994).

Rylance (1997) used student data from the NLTS (1993) database to examine results from 664 individuals ages 18 - 27 who had the primary disability category of ED. The study specifically looked at the impact of vocational education and counseling and mental health services in predicting graduation rates for individuals with ED. Analysis revealed that participation in school-based counseling as well as participation in vocational education programs were associated with high school graduation. Rylance indicated that vocational education offerings vary substantially from school to school and district to district, and that counseling in schools may also look drastically different in various settings. While Rylance’s findings are noteworthy, with such variation in how both vocational education and counseling services are conducted in schools, it makes the findings difficult to interpret.

Sinclair et al. (2005) found positive results when using a dropout prevention program as a treatment for students with ED. The findings indicated that students who received the treatment during their freshmen year of high school had lower rates of dropping out and changed schools
less frequently. Additionally, students in the treatment group had higher rates of attendance and more consistent enrollment in schools. One other area in which the treatment group improved was in their participation within their own IEP meetings. For the two cohorts with whom the mentoring intervention was used, the dropout rate decreased to a level on par with all students in the district (39% versus 38%) while the control group dropout rate remained higher than the national average (58% versus 51%).

Lund (2014) completed in-depth interviews with students with ED in Norway to clarify students’ perceptions of dropping out as an intentional act. In Norway, individuals are required to complete schooling through the U.S. equivalent of 10th grade (age 16) followed by an optional three years of upper secondary school. Nearly 25% of students drop out without completing upper secondary school and this is considered a widespread problem within Norway (Lund). While Lund’s research occurred with Norwegian students identified as having social, emotional, and behavioral difficulties (SEBD), the definition used for SEBD is nearly identical to what is identified by IDEA. Villarreal (2015) makes it clear that there are massive differences in ED identification between states in the United States, so it should be anticipated that some differences would exist between the population of individuals with ED in the U.S. and the sample of individuals with ED included in Lund’s study. Because Lund’s study utilized an extremely close approximation of the IDEA definition, it was determined that there would likely be considerable overlap between the two groups.

The results from Lund (2014) indicate that there were two primary reasons individuals dropped out. The first reason is that the former students felt that the classroom and school environments were non-supportive. Individuals felt ignored by adults and sometimes they even felt directly bullied by the school staff. The second reason most frequently stated regarding
dropping out was problems within the students’ own family. This theme included statements about confrontational relationships between two or more family members and consistently poor communication between family members. Based on the findings, Lund suggested creating a home and school environment that tolerates mistakes while providing frequent sources of motivation. This would serve to provide the motivation many individuals need while also helping to improve the productive dialogue between teachers and students as well as students and parents.

Ehrenreich, Reeves, Corley and Orpinas (2012) examined highly aggressive students who were likely to have considerable overlap with students with ED. Within focus groups, students identified problems with getting behind in credits (being identified as a grade behind the group he or she began high school) specifically in 9th grade, as a major frustration that led to dropping out. This was followed by social problems among a student’s peer group and family financial concerns as areas of high stress. The highly aggressive students felt that their stressors stemmed from external sources, rather than personal choices. Moreover, students stated that concrete forms of motivation (such as money or places to hang out) were needed to provide the reason to stay in school when times were difficult. The last major theme identified by highly aggressive students was the positive influence from high school coaches on keeping students motivated and engaged in school.

Preliminary Examination of Graduation and ED

Mills (2016) conducted a pilot study to examine variables that predicted graduation among former high school students identified with ED. The results showed that individuals with ED who graduated attended nearly 25% more of their special education meetings while in high school compared to participants with ED who dropped out. Student attendance at special
education meetings was statistically significant for a positive correlation with graduating from high school. Other significant variables that were positively correlated with graduation included qualifying for special education under the primary category of ED and participating in extracurricular activities. Significant variables that were negatively correlated with graduation included the number of years spent in 9th grade and time spent in a special education environment.

Several of the findings from Mills’ study were supported by the literature, though a few were contradictory to previous research. The relationship between repeating 9th grade and dropping out among those with ED was consistent with findings from Joredan et al. (1996) as well as Kortering and Braziel (1999), and the results indicating increased time spent in special education was linked to dropping out was also consistent with research completed by Landrum and colleagues (2004) as well as Villarreal (2015). Consistent with the findings from Rumberger (1995), extracurricular participation was found to be both positively correlated with graduation and to have a statistically significant difference in amount of participation between graduates and non-graduates (Mills, 2016). The result in Mills (2016) indicating that having an ED as the primary qualification for special education services was positively correlated to graduation was inconsistent with previous reports (U.S. Department of Education, 2015a).

Summary

A great deal of research has examined special education and graduation from high school. For students with ED, much of the research has been focused on the concern that so many students with ED dropout without earning a high school diploma. Unfortunately, students with ED frequently exhibit many of the risk factors linked to dropping out, for all students, including: lower academic performance (Bradley et al., 2004); increased failure of academic courses
(Wagner et al., 2003); and more restrictive educational placements than students with other disabilities (U.S. Department of Education, 2015a). Research has not identified the specific risk factors and supports that relate to high school graduation for individuals with ED. It remains unclear whether the risk factors and supports identified for all students are the same when an emotional disability also exists. Research needs to continue exploring the relationships between high school graduation and variables that can be influenced by the school, parents and students with ED.
Chapter 3

Methods

Within this chapter, an explanation of the completed methodological nuances of the study is described. This includes a description of the research design, the examination of participant samples, and the procedures for identifying participants. Also included is an explanation of the data collection procedures and how the data were analyzed. The study identified the variables that predict graduation for students with ED utilizing archival data from special education and cumulative folders of former high school students. The study also included a comparison group of nondisabled peers to identify differences between the groups.

Research Design

The study utilized a descriptive quantitative research design. This method was chosen as there is little research on why only half of all individuals identified with ED graduate from high school in the U.S. and even fewer studies that examined variables that are under the influence of the school, parents, and students themselves. By using a descriptive quantitative design, the completed study was able to identify variables that predicted graduation and that add valuable knowledge to the extant literature.

Schools Included

The research was completed in a large, urban school district in the southeastern United States. The student population of the school district (n = 150,000) was 51% male and 49% female. The district was approximately 47.5% Caucasian, 23.8% African American, 16.9% Hispanic, 7.6% Asian, 0.3% American Indian and the remaining 3.7% of students identified as multi-racial. Around 7% of the district was identified as Limited English Proficient (LEP), 34.2% as receiving Free or Reduced lunch (F&R), and 12.3% of the students between
kindergarten and 12th grade were identified as eligible for special education services. At the high school level only (grades 9-12), 13.5% of students were identified as receiving special education services. Of the students who did qualify for special education in the district, approximately 0.5% were identified as ED. Additionally, the 0.5% did not include any student who had ED as a secondary disability; the completed study included any student who had ED as a secondary disability as well.

The completed study included three participant schools. Schools were purposefully selected using maximum variation sampling to identify schools at three different levels of F&R rate for the district. Maximum variation sampling is beneficial when attempting to include a representative sample while using a small sample size (List, 2004). The selected schools included one school that was substantially below the average F&R rate, one that approximated average, and one that was substantially above the F&R rate. Each of the selected schools was considered a traditional, public high schools that included grades 9-12 and served approximately 1900 - 2400 students. When combined, the three selected schools were able to effectively represent the population of students who attended traditional high schools within the district.

Participants

Each school was expected to have folders of between 40 - 60 former students with ED from the five years of records kept on-site at the school. The actual total from each school was between 20-60. The school with the lowest potential participants had the smallest student population that received F&R services while the other two schools had similar sized groups of potential participants. The total participants identified for possible inclusion in the study included 115 individuals with ED. All participants in the ED group were required to have ED as either a primary or secondary disability, and they also were identified as ED for at least three
years of high school. The records included two individuals who were exited from special education services by a parent or the IEP team at some point during high school. Both participants who had been exited from special education prior to graduation had three full years of special education services and were therefore included in the ED group. All participants were working toward a traditional diploma on the standard course of study and no participants completing alternative programs were included. Lastly, each participant’s educational outcome (either graduation or dropping out) must have been clearly identified. All individuals who met the criteria were included within the completed study. The completed study included 105 participants with ED. Ten participants were eliminated from the study because they had unclear educational outcomes or were still in school in a different district.

Each school had an estimated 2500 - 4000 folders on-site for students who were no longer attending the school. From these folders, a comparison group of nondisabled peers was selected using stratified random sampling to include an equal number of nondisabled participants as there were participants in the ED group from each school. Stratified random sampling allows for probabilistic sampling within each of the two sub-groups of graduates and non-graduates (Creswell & Plano Clark, 2011). The strata used for the nondisabled group were based on the educational outcome (i.e., graduates and dropouts) of the participants. When identifying the nondisabled group, the principal investigator attempted to include an approximation to the 83% graduation rates of all students, published by the schools included in the study. The nondisabled group was made up of 104 participants, 86 had graduated and 18 dropped out. The number of nondisabled group participants included in the study for each school was approximately the same as the number of participants with ED from each school.
Typically, schools separated the folders of individuals who had graduated from individuals who left the school prior to graduation. This allowed for graduates and dropouts to be easily identified for inclusion in the study. The primary investigator utilized a random numbers table to systematically select individuals to include in the nondisabled comparison group. A random numbers table identified a list of numbers that were used as indicators of which participants to include. For example, if the table begins with the numbers 8, 2, 7, 9, 5, the primary investigator would count to 8 and pull the file, then count 2 more and pull the file and then another 7 to pull the next file. This process began with the oldest graduate files and worked forwards until the number of participants was met for the strata. The process was then repeated with the oldest dropout files. Individuals were included in the nondisabled comparison group if they received special education services prior to but not within high school. It was not uncommon for individuals to receive speech or other services in elementary school and then to be exited from special education when services were no longer needed. As with the ED group, the educational outcome must be clearly identified for all nondisabled group participants.

Data Collection

Data collected in the completed study originated from archived records in the special education and cumulative folders of former students with ED and a nondisabled comparison group. All participants for whom data were collected were no longer enrolled in the research schools due to graduation or dropping out. If a participant were currently enrolled at a different school not included in the study, that participant was not included in the study. However, if the individual were enrolled in a GED program or any other non-high school diploma program, he or she was included in the study.
Permission from the N. C. State University (NCSU) Institutional Review Board (IRB) was sought and obtained prior to data collection. After receiving permission from the IRB, permission from the school district within which the research took place was also obtained. Lastly, the primary investigator contacted the Principals of schools in which the research occurred. Each Principal was provided with a brief explanation of the study (see Appendix A), a copy of the NCSU IRB approval, and the school district approval letter. The primary investigator either met in-person or had a telephone conversation with each Principal to answer questions. Prior to beginning data collection, verbal permission was obtained from the Principals of the schools where the study occurred.

Data Collection Procedures

All data were collected on-site at the three high schools included in the study. Each school kept five years of inactive records on file at the school, separated by the year the student exited, and if they exited due to graduation or for some other reason. Schools typically did not separate the individuals who transferred schools from those who dropped out or for any other reason. These individuals’ records were typically kept in file cabinets identified as “Exited 2014” or something similar.

The primary investigator began identifying files starting with the oldest files of graduates. The investigator sorted through the entire year of graduates, pulling each folder of individuals indicated as having an ED from that year while inserting a temporary placeholder for ease of returning the folders. When all participants had been identified from that year, each student’s file was used to ascertain all information in the spreadsheet. Folders were returned to their original places in the file cabinets before the process continued to the next most recent. When all
data were recorded for individuals who graduated, the same process was followed for collecting data from the “non-graduate” file cabinets.

When the total number of graduates and non-graduates with ED were identified, the primary investigator utilized the 5-year average graduation rate of the school (approximately 83%) to determine the number of nondisabled graduates and dropouts to include in the sample. The primary investigator then utilized a random number table to select the appropriate number of graduates and dropouts. A random number table was created (Random number generator, n.d.) with numbers ranging from 1 – 75. This table was printed and used during the data collection process. Each number on the table indicated the number of participants to be skipped prior to including a participant. The primary investigator continued using the table to identify participants for inclusion until the number needed had been gathered.

Data collection for the nondisabled comparison group was different than anticipated. The cumulative folders of all students that graduated had been systematically destroyed at each school, leaving only the specialty folders indicating special education, gifted, medical, intervention, and English as a Second Language (ESL) folders. Because selecting participants from only the specialty folders would have excluded the large number of participants who did not participate in a specialty program participants were instead selected from yearly ACT scores. Each year, the state required every 11th grader in the state to take the ACT as a benchmark score of the school. The schools keep a master list of the ACT participants that is alphabetized. The master list for each year of testing was used, along with the random numbers table to identify participants. After participants were identified from the ACT list, the primary investigator then looked for each student in the graduate student file cabinets and the exited student file cabinets. If an identified student had a special education folder that indicted services while in high school,
the student was dropped from the list of participants and another participant was randomly
selected. Potential participants were also eliminated if their files were in the exited student file
cabinet with an indication that the student transferred districts. The primary investigator utilized
this method to identify a total of 104 nondisabled participants with clear education outcomes
from the three schools.

During the actual data collection process, the folders in use were in the possession of the
primary investigator or second coder at all times. All data were recorded in the room in which
the records were stored or in an adjacent secured room, away from school personnel. Folders
were immediately returned to the appropriate file cabinets when not in use.

Data Collection Instrument

A data collection instrument was generated utilizing a Microsoft Excel spreadsheet that
guided the data collection process. A database was created that included the following variables
(in addition to gender, ethnicity and graduation status):

- IQ
- Ability scores in reading, writing, and mathematics
- The number of years the participant spent in high school
- The number of special education meetings held while in high school
- Parental in-person attendance at meetings percentage
- Parental phone conference attendance at meetings percentage
- Student attendance at meetings percentage
- Expectations for the future (e.g., attending college, enter the military)
- Primary area of eligibility
- Secondary eligibility categories
• Age the participant qualified for special education
• The percentage of time the participant spent in special education classes averaged over number of years in high school
• If attendance was indicated as an IEP goal
• Mental health diagnosis
• If the student received treatment (e.g., medication, therapy, or both) for a mental health diagnosis
• If the participant was involved in extracurricular activities within the school
• If the student had legal involvement
• The number of high schools the participant attended

(Refer to Appendix B for a full explanation of the variables included in the study and where each was located in the file.

All participant-identifying information was kept confidential. Participants were assigned randomized identification numbers with the master list of names and identification numbers being kept in a secure, password protected digital folder on a computer hard drive. When each participant was first identified, the participant’s name was added to the master list of pre-generated three-digit identification numbers. The identification numbers were then recorded in the database with the other information included in the study.

**Use of a Second Coder**

A second coder was used in the data collection process. The second coder independently reviewed 20% of all participants’ folders that were then compared with the primary investigator’s results. The second coder used a separate random numbers table to identify which folders were reviewed.
For the first five randomly selected participants, the information was gathered cooperatively between the primary investigator and the second coder in order to ensure a consistent data collection procedure. After the initial procedure was established, the second coder and the primary investigator independently completed the database for the participants. After every five participant folders reviewed by the second coder, the results of the primary investigator and the second coder were compared for coding accuracy. For any datum that was dissimilar between the primary investigator and second coder, the folder was reexamined to reach consensus.

Once all database information had been gathered and checked for all participants, the primary investigator examined the database to ensure that it was complete. The database was examined for missing data as well as inconsistencies in scoring the variables. The only missing items in the data were those that were not included in the participants’ folders (See Table 1 and Table 2 for an indication of the percentages of missing data). After the data were cleaned, the database was uploaded and analyzed using Stata 14.

**Data Analysis**

Prior to analysis, all data were examined and converted into functional forms. Several of the nominal variables were dichotomous in nature and thus converted to a “1” or a “0.” This included: primary area of eligibility; secondary eligibility; were attendance indicated as an IEP goal; were mental health diagnoses was given; if the participant was involved in extracurricular activities; and if the participant had legal involvement in high school. The other nominal variables were dummy-coded for use during the analyses (i.e., ethnicity, expectations for the future, and whether the student received mental health treatment). Several variables were mean-centered including GPA.
Analyses were conducted to answer the three research questions: 1- What student variables are positively correlated with graduation from high school for students with ED?; 2- What student variables predict high school graduation for students with ED?; and 3- What differences exist between variables that predict graduation for students with ED compared to students without disabilities? For the first research question a correlational analysis were completed. For research question 2, independent samples t-tests, logistic regressions, and a discriminant function analysis was completed. For the final research question, independent samples t-tests, a logistic regression, and a discriminant function analysis were completed. Additional analyses also used the same statistical tests to examine the similarities and differences between White participants with ED and Participants of Color with ED.

The participants with ED and nondisabled participants were compared using a variety of school variables. See Table 3 for a table of comparison variables

Analyses specifically examined similarities and differences among the following: (a) participants with ED who did not graduate and participants with ED with did graduate; (b) participants with ED who did not graduate and participants with other primary disabilities who did not graduate; (c) participants with ED who graduated and participants with other primary disabilities who graduated; (d) participants with ED who graduated and nondisabled participants who graduated; (e) participants with ED who did not graduate and nondisabled participants who did not graduate; and (f) differences between Participants of Color with ED and White participants with ED graduates and non-graduates.
Chapter 4

Results

Chapter 4 includes a detailed examination of the results from the present study on individuals with emotional disabilities, and a comparison group of nondisabled peers, who graduated or dropped out of high school. After identifying basic demographic information and a discussion of the missing data, the chapter is organized in connection with the three specific research questions indicated throughout the study: (a) What student variables are positively correlated with graduation from high school for students with ED?; (b) What student variables predict high school graduation for students with ED?; and (c) What differences exist between variables that predict graduation for students with ED compared to students without disabilities? Analysis completed included correlational analysis, $t$-tests, logistic regressions and discriminant function analyses.

Prior to the present research, a pilot study was completed by Mills (2016), which found several areas to further investigate. Within the pilot study, the variables that were statistically significant in negatively predicting graduating included the numbers of years a student with ED spent in 9th grade and having an attendance-based IEP goal. Student attendance rates of attending his or her own IEP meetings was positively correlated with graduation and approached significance as a predictor for graduation. The procedures and statistical analyses completed as part of Mills (2016) pilot study served as a foundation for the present study.

Demographics

After reviewing all files at all three participating schools, 115 individuals with ED were identified. Of those, ten were eliminated due to either the student being currently enrolled in a different school or it was unclear whether the student had graduated. Of the 105 participants
who remained, 94 had ED as their primary disability and 11 were classified with ED as a secondary disability. The second most common primary disability category among participants was LD with eight individuals; other participants (n = 3) qualifying under OHI and SLI. Thirteen of the participants with a primary qualification of ED also had a secondary disability. The two largest ethnic groups in the special education group were Black (48) and White (40) followed by Hispanic (8), individuals identified as multiracial (7), and Asian (2). Males were considerably more common than females (77 versus 28) in the special education group. Of the participants with ED, 55 did not graduate while 50 did graduate. Refer to Table 4 for a full demographic description.

Data from three schools contributed to the present analysis. School 1 (i.e., middle percentage of F&R) included 50 individuals. School 1 was originally included in the Mills (2016) pilot study and therefore included one additional year of possible participants. School 2 (i.e., high percentage of F&R) contributed 37 individuals with ED. School 3 (i.e., low percentage of F&R) added 18 individuals with ED to the study. School 3 included one less year of graduates as all graduate folders from the oldest year on file had been destroyed.

The comparison group of nondisabled peers included 104 individuals from the three schools with nearly the same number of individuals in the nondisabled group as in the ED group from each school. Of the nondisabled group, 83% graduated, which closely approximated the five-year graduation rates of the three schools. The largest ethnic group in the nondisabled group was White (31), followed by Black (12), Hispanic (9), Asian (3), and multiracial (2) participants. Race was not found for all participants in the nondisabled group. The breakdown of gender in the nondisabled group was 54 males and 50 females.
Acock (2014) recommended using 100 or more participants to complete a logistic regression analysis while Agresti (2007) recommended including at least 10 participants for every one predictor variable included in the model. The present study included 209 participants, which meets both criteria and it was determined using the total number of participants was appropriate for the necessary statistical power.

**Missing Data**

Every possible attempt was made to have complete and accurate data for all participants. Certain variables were challenging to record with each of the two groups. For the nondisabled group, the researcher was unable to collect data for the special education specific variables including: (a) number of meetings in high school; (b) percentage of attendance at meetings for parent and student; (c) telephone conference attendance; (d) expectations for the future; (e) eligibility category; and (f) time in a special education environment. It was difficult to determine if a nondisabled group participant had a mental health condition or was receiving treatment as this information is generally located in an IEP, but occasionally it was indicated in the medical plan within the cumulative folder of participants. Legal involvement and extracurricular participation were challenging to find for both samples. The extracurricular participation variable focused on activities that could be taken as part of a class (e.g., band, choir, orchestra, ROTC) due to lack of data for sports participation. For the ED group and participants who dropped out, ACT scores did not always exist. This may have been due to many students dropping out prior to taking the exam in 11th grade or due to some individuals with ED having inconsistent grade promotions. Individuals with ED frequently are not promoted on-time with their nondisabled peers, resulting in students in their third year of high school being indicated as 10th grade during the first semester but earning enough credits to be promoted to 11th grade
during the second semester of the same year. This can result in the individual missing the opportunity to take the ACT with other juniors.

**Variables that Correlate with Graduation for Participants with ED**

A correlational analysis was conducted to identify variables that were correlated with graduating from high school for students with ED using all the variables gathered in the study. The variables that correlated ($p < 0.01$) with graduation from high school included: (a) years in 9th grade ($r = -0.27$); (b) having an attendance-based IEP goal ($r = -0.28$); and (c) being involved with the legal system ($r = -0.30$). Several variables correlated at the $p < 0.001$ level including: (a) GPA ($r = 0.51$); (b) the percentage of student attendance at meetings ($r = 0.39$); (c) average time spent in special education ($r = -0.34$) and; (d) extracurricular participation ($r = 0.33$). Refer to Table 5 for all correlations completed with the ED group.

**Variables Related to Graduation for Participants with ED**

Independent-sample $t$-tests (two-tailed) were used to identify differences between those with ED who graduated from high school and those who dropped out. It was hypothesized that there would be differences in the means of the variables between the two groups of students with ED. Statistical significance was found in the difference between GPA of graduates and dropouts (graduated $M = 2.00$, $SD = 0.96$; dropped out $M = 1.04$, $SD = 0.63$) $t (68) = 4.78$, $p < 0.001$, $\eta^2 = 0.25$. Graduates earned a 2.0 weighted GPA compared to dropouts earning a 1.04 weighted GPA. Years spent in 9th grade (graduated $M = 1.45$, $SD = 0.54$; dropped out $M = 1.81$, $SD = 0.71$) $t (102) = 2.88$, $p < 0.01$, $\eta^2 = 0.08$ was also statistically significant. For graduates, 57% completed 9th grade in one year compared to 36% for dropouts. The percentage of students meeting attendance was found to be significant (graduated $M = 0.58$, $SD = 0.31$; dropped out $M = 0.33$, $SD = 0.30$) $t (102) = 4.18$, $p < 0.001$, $\eta^2 = 0.15$. This indicates that graduates attended
approximately 58% of their meetings while in high school compared to only 33% attendance at meetings for dropouts. The percentage of time spent in special education during high school varied based on educational outcome (graduated $M = 0.09$, $SD = 0.09$; dropped out $M = 0.19$, $SD = 0.19$) $t (102) = 3.67$, $p < 0.001$, $\eta^2 = 0.12$. Graduates spent less than half of the time in the special education setting on average during high school with 9% of their educational hours in a special education environment compared to 19% for dropouts. Having an attendance-based IEP goal was statistically significant for educational outcomes (graduated $M = 0.14$, $SD = 0.35$; dropped out $M = 0.38$, $SD = 0.49$) $t (102) = 2.88$, $p < 0.01$, $\eta^2 = 0.08$. This indicates that only 14% of graduates with ED had an attendance-based IEP goal at some point during high school compared to 38% of dropouts having a goal focusing on attendance. Extracurricular activity participation was found to be significant (graduated $M = 0.34$, $SD = 0.48$; dropped out $M = .08$, $SD = 0.27$) $t (103) = 3.49$, $p < 0.001$, $\eta^2 = 0.11$. More than four times as many individuals who graduated, participated in an extracurricular activity while in high school (34%) compared to the number of dropouts participating (8%). When comparing graduates and dropouts, having legal involvement was found to be statistically significant (graduated $M = 0.12$, $SD = 0.33$; dropped out $M = 0.38$, $SD = 0.49$) $t (103) = 3.12$, $p < 0.01$, $\eta^2 = 0.09$. This result indicates that only 12% of graduates were involved with the legal system compared to 38% of dropouts.

Of all the academic achievement, IQ, and ACT subtest scores, not a single test indicated a statistically significant difference between graduates and dropouts for participants with ED. The only academic variable that approached significance on the two-tailed $t$-test was comparing the educational reading assessment scores in which graduates averaged approximately four points higher than dropouts (95.76 versus 91.45) $t (100) = 1.92$, $p = 0.06$, $\eta^2 = 0.04$. See Table 6 for a list of all $t$-test results.
Logistic regression for participants with ED. For the primary analysis, it was hypothesized that GPA, the average time spent in the special education environment, whether the participant had legal involvement, whether the student had an IEP goal focused on attendance, the number of years the student spent in 9th grade, and student attendance percentage at IEP meetings would predict graduation from high school. A logistic regression analysis was performed to test this prediction. The years in 9th grade and GPA variables were mean centered, and the attendance goal and legal involvement variables were dichotomous (no = 0; yes = 1).

A test of the full model with all predictors against a constant-only model was statistically significant—accounting for a 46% proportional reduction in error when estimating graduation from high school, pseudo-$R^2 = .46$, $\chi^2 (6) = 41.40$, $p < .001$. Odds ratios (OR) are presented in Table 7. GPA positively predicted graduation, OR = 11.64, 95% CI [2.22, 60.92]. The odds of graduating are 1064% more likely with a one-point increase in GPA. Student percentage of attendance at IEP meetings also positively predicted graduation, OR = 1.04, 95% [1.00, 1.07]. The odds of graduating from high school increase by 4% for every one percent increase in student attendance percentage. Time spent in the special education environment negatively predicted graduation, OR = 0.91, 95% CI [0.84, 0.99]. The odds of graduating from high school decreased by 9% for every one-percent increase in time in a special education environment percentage. Legal involvement [OR = 2.72; CI 0.40, 18.59], years in 9th grade [OR = 1.89; CI 0.48, 7.49] and having an attendance goal [OR = 0.65; CI 0.11, 3.71] did not significantly predict graduation from high school. The model correctly classified participants as graduates or non-graduates with 83.08% accuracy.

Discriminant function analysis for participants with ED. Discriminant function analysis was used to determine the accuracy of predictor variables at predicting actual group
membership based on educational outcome. Discriminant function analyses were run, using variables specific to participants with ED who graduated and dropped out. The groups were anticipated to differ significantly on a linear combination of five variables: (a) GPA; (b) student attendance percentage at IEP meetings; (c) percentage of time spent in the special education setting; (d) having an attendance-based IEP goal; and (e) legal involvement. The results of the discriminant function analysis were significant (Wilks $\lambda = .56$, $F = 9.55$, df = 5, Canonical correlation = .67, $p < 0.001$); the function extracted accounted for 44% of the variance in educational outcome. Table 8 presents the standardized discriminant function coefficients. Participants’ GPA, student attendance percentage at IEP meetings, and time in special education were highly correlated with the function while having an attendance-based IEP goal and legal involvement were correlated at lower levels. Table 9 shows the group means. Accurate predictions of actual group membership based on the new canonical variables was highly successful: 82% of the participants with ED were correctly identified into their original categories.

A more simplified discriminant function analysis model was also run using only GPA and student attendance at IEP meetings percentages for participants with ED. The simplified model correctly identified group membership of over 79% of all participants with ED. The model was also highly significant (Wilks $\lambda = .61$, $F = 20.13$, df = 2, Canonical correlation = .61, $p < 0.001$). Table 10 shows the standardized canonical coefficients and Table 11 shows the group means.

Differences Between ED and Nondisabled Groups Related to Graduation

Results for nondisabled participants. A correlation analysis including only individuals without disabilities indicated several similarities and differences to the group with ED. The
correlation did not include any of the special education specific variables as data did not exist for these variables for nondisabled participants. The correlation between GPA and graduation from high school was highly positive in the nondisabled group \(r = 0.63, p < 0.001\) as it was in the ED group \(r = 0.51, p < 0.001\), and the negative correlation between the number of years spent in 9th grade with graduation from high school was significant for the nondisabled group \(r = -0.42, p < 0.001\) as well as the ED group \(r = -0.27, p < 0.01\). A positive correlation was found between graduation and extracurricular participation for both the nondisabled group \(r = 0.33, p < 0.01\) and the ED group \(r = 0.33, p < 0.001\). One variable that had significantly different results was in the highly negative correlation with the number of high schools and graduation for the nondisabled group \(r = -0.55, p < 0.001\) which did not achieve statistical significance for the ED group. Several variables were correlated at the \(p < 0.05\) level for the nondisabled group that were not found to be significant for the ED group including: (a) ACT math scores \(r = 0.21\); (b) ACT sciences scores \(r = 0.23\); (c) ACT composite scores \(r = 0.23\); and (d) being Hispanic \(r = -0.26\). See Table 5 for all correlations for Nondisabled students.

Independent-sample t-tests (two-tailed) were used to identify differences between nondisabled participants who graduated from high school and those who dropped out. It was hypothesized that there would be differences in the means of the variables between the two groups of nondisabled students. Statistical significance was found in the GPA of nondisabled participants (graduated \(M = 3.34, SD = 0.87\); dropped out \(M = 1.31, SD = 1.17\) \(t\) (98) = 8.06, \(p < 0.001\), \(\eta^2 = 0.40\). Nondisabled participants who graduated had an average GPA of 3.34 compared to nondisabled dropouts with an average GPA of 1.31. Nondisabled graduates spent significantly less time in 9th grade than dropouts (graduated \(M = 1.04, SD = 0.20\); dropped out \(M = 1.50, SD = 0.82\) \(t\) (85) = 4.25, \(p < 0.001\), \(\eta^2 = 0.18\). Dropouts spent an average of 1.5 years in
9th grade compared to just over one year for graduates. Of the 16 nondisabled dropouts in the study, five remained in 9th grade for two or more years compared to only three out of 71 graduates. Graduates who were nondisabled attended fewer different high schools than dropouts who were nondisabled (graduated \( M = 1.04, SD = 0.20 \); dropped out \( M = 1.73, SD = 0.88 \) \( t \) (85) = 6.05, \( p < 0.001, \eta^2 = 0.31 \). This means that graduates attended an average of 1.04 high schools while dropouts attended an average of 1.73 high schools. Only 4% of graduates attended more than one high school compared to 47% of dropouts. Nondisabled graduates were significantly more likely to participate in extracurricular activities than nondisabled dropouts (graduated \( M = 0.45, SD = 0.50 \); dropped out \( M = 0.00, SD = 0.00 \) \( t \) (66) = 2.81, \( p < 0.01, \eta^2 = 0.11 \).

Approximately 45% of graduates participated in extracurricular activities compared to no dropouts participating.

For nondisabled students, ACT science scores were found to be significant (graduated \( M = 0.50, SD = 0.28 \); dropped out \( M = 0.13, SD = 0.20 \) \( t \) (87) = 2.25, \( p < 0.05, \eta^2 = 0.05 \). Graduates earned mean ACT science scores in the 50th percentile compared to dropouts earning ACT science scores near the 13th percentile. ACT math scores were also significantly correlated to graduation (graduated \( M = 0.54, SD = 0.26 \); dropped out \( M = 0.23, SD = 0.09 \) \( t \) (87) = 2.04, \( p < 0.05, \eta^2 = 0.05 \). Participants who graduated earned an average ACT math score at the 54th percentile, while dropouts earned scores at the 23rd percentile. ACT composite scores were indicated as being significant for graduation for nondisabled participants (graduated \( M = 0.46, SD = 0.27 \); dropped out \( M = 0.12, SD = 0.15 \) \( t \) (87) = 2.20, \( p < 0.05, \eta^2 = 0.05 \). For the composite ACT scores, graduates earned an average score at the 46th percentile compared to dropouts earning an average score at the 12th percentile.
Comparison of results from the \( t \)-tests of ED and nondisabled groups. The independent-samples \( t \)-tests of individuals with ED and nondisabled individuals suggested several parallels within the results. Both groups showed statistically significant results at the \( p < 0.001 \) level for the difference of GPA between graduates and dropouts (ED graduates: \( M = 2.00 \) versus nondisabled graduates: \( M = 3.34 \); ED dropouts: \( M = 1.04 \) versus nondisabled dropouts: \( M = 1.31 \)). Additionally, extracurricular participation was highly significant (\( p < 0.01 \)) for extracurricular participation for both groups (ED graduates: \( M = 0.34 \) versus nondisabled graduates: \( M = 0.45 \); ED dropouts: \( M = 0.08 \) versus nondisabled dropouts: \( M = 0.00 \)) though slightly lower for the ED participants. Amount of time spent in 9\(^{th} \) grade was also significant with both groups (\( p < 0.01 \)) (ED graduates: \( M = 1.45 \) versus nondisabled graduates: \( M = 1.04 \); ED dropouts: \( M = 1.81 \) versus nondisabled dropouts: \( M = 1.50 \)).

Despite the similarities, several differences in the \( t \)-tests results became evident after completing all the analyses with the nondisabled group. The nondisabled group graduates and dropouts had statistically significant different scores on the ACT math and ACT science subtests as well as the composite ACT scores (\( p < 0.05 \)), whereas the ED group did not have any significant differences on the ACT tests. The biggest difference between the groups was that nondisabled graduates and dropouts varied on the number of high schools attended (\( p < 0.001 \)) while there was no statistical difference between the number of high schools attended for the ED participants. See Table 6 for a full comparison of \( t \)-test results.

Logistic regression for nondisabled participants. A logistic regression analysis model was created to study nondisabled participants and graduation. It was hypothesized that grade point average and the number of high schools attended would predict graduation from high school. The tested model would have also included extracurricular participation and years in
ninth grade but due to the small number of individuals having participated with extracurricular activities and few participants having repeated ninth grade, the larger model was unable to obtain a complete calculation. The smaller model, including grade point average and the number of high schools, was used to test the hypothesis. Within the model, GPA was mean centered.

The model with GPA and number of high schools as predictors was statistically significant when compared to the constant-only model. It accounted for 62% proportional reduction in error when estimating graduation from high school, pseudo-$R^2 = .62$, $\chi^2 (2) = 47.50$ $p < .001$. Odds ratios (OR) are presented in Table 12. Consistent with the prediction hypotheses, GPA positively predicted graduating from high school, OR = 9.69, 95% CI [2.74, 34.24]. The odds of graduating from high school are 869% higher with a one point increase in GPA. The number of high schools attended negatively predicted graduation OR = 0.17, 95% CI [0.03, 1.03]. Combined, the model correctly classified participants as graduates or non-graduates with 96.51% accuracy.

**Results for all participants.** A correlation analysis was completed including all participants to determine variables related to graduation for all students. The correlation with all participants only included variables for which there were data available for both students in special education and nondisabled peers (see Table 3). Several variables were correlated with high school graduation at the $p < 0.05$ level including: (a) ACT English ($r = 0.21$); (b) ACT math ($r = 0.22$); (c) ACT composite scores ($r = 0.25$); (d) standardized tests in reading ($r = 0.21$); (e) achievement tests in math ($r = 0.20$); (f) gender ($r = -0.15$); and (g) attending multiple high schools was negatively correlated to graduating ($r = -0.18$). Participants’ scores on the ACT science test were positively correlated with graduation ($r = 0.29$, $p < 0.01$) as were participants’ IQ scores ($r = 0.24$, $p < 0.01$). At the $p < 0.001$ level, GPA was positively correlated with
graduation, \((r = 0.63)\); as was involvement with extracurricular activities \((r = 0.36)\); while increasing the time spent in ninth grade was negatively correlated to graduation \((r = -0.42)\). All three of the \(p < 0.001\) level correlations are the same between the special education only group analysis and the full participant group data. The only slight difference is that correlation with the number of years spent in 9\(^{th}\) grade was slightly weaker in the special education only analysis.

Independent-sample \(t\)-tests (two-tailed) were completed that included all participants to determine differences between graduates and dropouts. The results indicated a difference in gender between graduates and dropouts (graduated \(M = 0.57, SD = 0.49\); dropped out \(M = 0.73, SD = 0.45\) \(t\) (207) = 2.19, \(p < 0.05, \eta^2 = 0.02\). Female participants made up 43% of the graduate group for all participants compared to only 27% of the dropouts. ACT English subtest scores were significant (graduated \(M = 0.42, SD = 0.26\); dropped out \(M = 0.17, SD = 0.19\) \(t\) (101) = 2.17, \(p < 0.05, \eta^2 = 0.04\). Graduates earned ACT English scores near the 42\(^{nd}\) percentile compared to dropouts who earned an average score at the 17\(^{th}\) percentile. ACT math scores were identified as having a statistically significant difference among graduates and dropouts (graduated \(M = 0.54, SD = 0.26\); dropped out \(M = 0.28, SD = 0.17\) \(t\) (101) = 2.26, \(p < 0.05, \eta^2 = 0.05\). Participants who graduated earned an average ACT math score at the 54\(^{th}\) percentile, while dropouts averaged at the 28\(^{th}\) percentile. Participants’ composite ACT scores were found to have a statistically significant difference based on educational outcome (graduated \(M = 0.46, SD = 0.27\); dropped out \(M = 0.15, SD = 0.17\) \(t\) (100) = 2.58, \(p < 0.05, \eta^2 = 0.06\). ACT composite scores for graduates averaged at the 46\(^{th}\) percentile while dropouts earned an average score at the 15\(^{th}\) percentile.

A statistically significant difference was found in the reading achievement scores of graduates and dropouts (graduated \(M = 96.24, SD = 11.40\); dropped out \(M = 91.45, SD = 10.60\) \(t\)
Graduates earned an average standard score of five points higher on reading achievement tests. Math achievement scores were also found to be significant (graduated $M = 93.53$, $SD = 15.40$; dropped out $M = 87.50$, $SD = 15.00$) $t (108) = 2.09$, $p < 0.05$, $\eta^2 = 0.04$. Participants who graduated earned an average standard score on math achievement tests of 94 compared to dropouts who earned an average of 88. Having an identified mental health diagnosis was significant in relation to graduation outcome (graduated $M = 0.80$, $SD = 0.40$; dropped out $M = 0.63$, $SD = 0.49$) $t (109) = 2.06$, $p < 0.05$, $\eta^2 = 0.04$. Of the participants who graduated, 80% had an identified mental health condition while only 63% of dropouts had an identified mental health condition. For all participants, the number of high schools attended was statistically different for those who graduated and those who dropped out (graduated $M = 1.43$, $SD = 0.89$; dropped out $M = 1.77$, $SD = 0.83$) $t (189) = 2.55$, $p < 0.05$, $\eta^2 = 0.03$. On average graduates attended 1.43 high schools while dropouts attended 1.77 high schools. Of all the graduates, 27% attended more than one high school compared to 54% of dropouts.

A difference was found between ACT science scores and educational outcome of participants (graduated $M = 0.49$, $SD = 0.28$; dropped out $M = 0.10$, $SD = 0.15$) $t (100) = 3.08$, $p < 0.01$, $\eta^2 = 0.09$. Graduates earned an average ACT science score at the 49th percentile compared to dropouts earning scores at the 10th percentile. The participants’ IQ score was also found to be significant with graduation (graduated $M = 103.76$, $SD = 17.06$; dropped out $M = 96.49$, $SD = 11.12$) $t (131) = 2.80$, $p < 0.01$, $\eta^2 = 0.06$. On average, graduates earned a standard score on an IQ test of 103.76, while dropouts earned a standard score on an IQ test of 96.49. A difference was found between graduates and dropouts regarding being involved with the legal system (graduated $M = 0.12$, $SD = 0.33$; dropped out $M = 0.35$, $SD = 0.48$) $t (105) = 2.86$, $p < 0.01$, $\eta^2 = 0.06$. Only 12% of graduates were identified as being involved in the legal system.
compared to 35% of dropouts. GPA was again found to have statistical significance related to graduation outcome (graduated $M = 2.94$, $SD = 1.08$; dropped out $M = 1.13$, $SD = 0.85$) $t (166) = 10.33, p < 0.001, \eta^2 = 0.39$. Graduates earned an average GPA of 2.94 compared to dropouts who earned an average GPA of 1.13. A significant difference was found between the number of years spent in 9th grade for graduates and dropouts (graduated $M = 1.21$, $SD = 0.43$; dropped out $M = 1.74$, $SD = 0.74$) $t (187) = 6.24, p < 0.001, \eta^2 = 0.17$. Graduates spent approximately 1.21 years in 9th grade while dropouts spent an average of 1.74 years in ninth grade. Only 20% of graduates spent more than one year in 9th grade but 57% of dropouts spent more than one year in 9th grade. For graduates and dropouts, a statistically significant difference was found related to extracurricular participation (graduated $M = 0.40$, $SD = 0.49$; dropped out $M = 0.06$, $SD = 0.25$) $t (169) = 5.04, p < 0.001, \eta^2 = 0.13$. This indicates that approximately 40% of graduates participated in extracurricular activities compared to 6% of dropouts.

**Logistic regression for all participants.** For all participants, a logistic regression analysis model was created to examine variables that predict graduation. It was hypothesized that GPA, the amount of time spent in 9th grade, and extracurricular participation would predict graduation from high school. The tested model would have also included IQ scores, ACT science scores and legal involvement status participation but due to the limited data within these variables, the larger model was inadequate for the purposes of the present study. The smaller model, including GPA, time spent in 9th grade, and extracurricular participation, was used to test the hypothesis. Within the model, GPA was mean centered.

The model with GPA, number of years in 9th grade, and extracurricular participation as predictor variables was statistically significant when compared to the constant-only model. It accounted for 48% proportional reduction in error when estimating graduation from high school,
Consistent with the prediction hypotheses, GPA positively predicted graduating from high school, OR = 7.80, 95% CI [3.24, 18.79]. The odds of graduating from high school are 780% higher with a one point increase in GPA. The extracurricular participation approached statistical significance but the number of years in 9th grade did not predict graduation independent of the model. Combined, the model correctly classified participants as graduates or non-graduates with 87.12% accuracy.

**Discriminant function analysis for all participants.** Discriminant function analysis was used to determine the accuracy of predictor variables at predicting actual group membership based on educational outcome. Two different discriminant function analyses were run, one examining graduates and dropouts with ED, and a second targeting nondisabled graduates and dropouts. The groups were anticipated to differ significantly on a linear combination of three variables: (a) GPA; (b) years spent in 9th grade; and (c) extracurricular participation. For nondisabled participants, the overall discriminant function analysis test was significant (Wilks λ = .47, F = 23.71, df = 3, Canonical correlation = .73, p < .001); the function extracted accounted for over 53% of the variance in educational outcome. A statistically significant difference was also found for participants with ED (Wilks λ = .66, F = 10.27, df = 3, Canonical correlation = .58, p < .001); the function extracted accounted for over 34% of the variance in educational outcome. Table 14 presents the standardized discriminant function coefficients. Participants’ GPA was highly correlated with the function while the years in 9th grade, and extracurricular participation were negatively correlated at lower levels. Table 15 shows the group means. Accurate predictions of actual group membership based on the new canonical variables was
highly successful: 96% of the nondisabled cases and 78% of participants with ED were correctly identified into their proper categories.

**Additional Analyses**

**Differences based on race and ED.** All 105 of the individuals in the ED group had ethnicity indicated on file. Of the 105, 55 graduated and 50 did not. The two most common ethnicity groups were Black (25 dropouts and 23 graduates), and White (19 graduates and 21 dropouts). The Hispanic, Asian, and multiracial groups combined included 11 dropouts and 6 graduates. In order to utilize each participants’ data, the primary investigator decided to compare ethnic groups using a dichotomous variable for ethnicity with a White group and a Participants of Color group. This decision was also made as the White group is the largest overall ethnic group at the three schools within the present research, averaging over 51% of the population within the three schools. Additionally, while a White and Black dichotomy could have been utilized, adding the additional 17 participants to the Black group did not substantially change the graduation percentage of the group (Participants of Color 45% versus just Black participants 48%).

Each group was also subdivided by gender. Within the Participants of Color group, 15 of the 65 participants were female, indicating 23% of the group was female. These percentages were also comparable to the Black only option which included 13 females out of 48 participants, or 27% female and 73% male. The White group included 13 females and 27 males equaling a percentage of 33% female and 67% male.

**Results for examination of ethnicity and ED.** A subsequent analysis was completed to examine the correlations between graduation and all the predictor variables for individuals in the Participants of Color group. The results indicate statistically significant correlations to
graduation at the $p < 0.05$ level in time spent in 9th grade ($r = -0.27$); average time spent in the special education environment ($r = -0.29$); having an attendance-based IEP goal ($r = -0.29$); having legal involvement ($r = -0.32$); and attending multiple high schools ($r = 0.25$). At the $p < 0.01$ level of significance, graduation was correlated with students attending their own IEP meetings ($r = 0.35$) and having a mental health diagnosis ($r = 0.33$). For Participants of Color with ED, both GPA ($r = 0.50$), and participating in extracurricular activities ($r = 0.45$) were correlated at the $p < 0.001$ level with graduation.

A correlational analysis was completed including only participants with ED who were White. All variables were correlated with graduation from high school. The results indicated two correlations at the $p < 0.05$ level including IQ ($r = 0.36$) and having a mental health diagnosis ($r = -0.36$). The average time spent in the special education environment ($r = -0.47$) and student attendance at IEP meeting percentages ($r = 0.44$) were correlated with graduation at the $p < 0.01$ level of significance. GPA was the only variable correlated with graduation at the $p < 0.001$ level ($r = 0.65$). See Table 16 for all correlations for the White and Participants of Color groups.

Two-tailed, independent-samples $t$-tests were utilized to identify differences between Participants of Color with ED who graduated and those who dropped out. A statistically significant result was found in the difference in graduates and dropouts for time spent in 9th grade (graduated $M = 1.57$, $SD = 0.50$; dropped out $M = 1.94$, $SD = 0.78$) $t (60) = 2.17$, $p < 0.05$, $\eta^2 = 0.07$. Graduates spent an average of 1.57 years in 9th grade compared to 1.94 years in 9th grade for dropouts. Nearly 68% of dropouts spent two years in 9th grade with another 26% spending three years in 9th grade. Just over 57% of graduates repeated 9th grade and none spent more than two years in 9th grade.
The percentage of time a participant spent in a special education environment was significant (graduated $M = 0.10$, $SD = 0.09$; dropped out $M = 0.20$, $SD = 0.21$) $t (61) = 2.34$, $p < 0.05$, $\eta^2 = 0.08$. Graduates spent half the time in the special education environment compared to dropouts (10% versus 20%, respectively). Being involved with the legal system was significant for Participants of Color (graduated $M = 0.14$, $SD = 0.01$; dropped out $M = 0.43$, $SD = 0.26$) $t (62) = 2.62$, $p < 0.05$, $\eta^2 = 0.10$. Approximately 43% of dropouts were involved in the legal system compared to only 14% of graduates. The number of high schools attended was found to be statistically significant as well (graduated $M = 2.31$, $SD = 1.31$; dropped out $M = 1.75$, $SD = 0.87$) $t (63) = 2.06$, $p < 0.05$, $\eta^2 = 0.06$. Graduates attended an average of 2.31 high schools while dropouts attended 1.75. For Participants of Color who graduated, over 72% attended more than one high school (including 4 participants who attended 5 high schools) compared to 50% of dropouts (none of whom attended more than 4 schools).

A statistically significant difference was found between graduation and students attending his or her own IEP meetings (graduated $M = 0.58$, $SD = 0.45$; dropped out $M = 0.34$, $SD = 0.31$) $t (61) = 2.95$, $p < 0.01$, $\eta^2 = 0.12$. Graduates attended 58% of his or her IEP meetings while dropouts attended 34% of his or her meetings. Having a mental health diagnosis was significantly different from graduation (graduated $M = 0.79$, $SD = 0.41$; dropped out $M = 0.47$, $SD = 0.51$) $t (61) = 2.73$, $p < 0.01$, $\eta^2 = 0.10$. Nearly 79% of graduates had an identified mental health diagnosis compared to 47% of dropouts. Grade point average was found to be a significant factor (graduated $M = 1.51$, $SD = 0.72$; dropped out $M = 0.80$, $SD = 0.54$) $t (39) = 3.89$, $p < 0.001$, $\eta^2 = 0.12$. Participants who graduated earned a grade point average of 1.51 compared to dropouts earning a GPA of 0.80. Participating in an extracurricular activity was a significant factor for Students of Color and graduation (graduated $M = 0.38$, $SD = 0.49$; dropped
out $M = 0.03, SD = 0.17$) $t (62) = 3.94, p < 0.001, \eta^2 = 0.20$. Thirty-eight percent of Participants of Color that graduated participated in extracurricular activities compared to only 3% of dropouts participating in extracurricular activities.

The primary investigator also completed independent samples (two-tailed) $t$-tests for White participants with ED focusing on graduation outcome. For White participants with ED, IQ was statistically significant between graduates and dropouts (graduated $M = 106.24, SD = 12.17$; dropped out $M = 98.05, SD = 8.98$) $t (38) = 2.40, p < 0.05, \eta^2 = 0.13$. Participants who graduated earned an average standard score on an IQ test of 106 compared to students who dropped out who earned a standard score of 98. A significant difference was found between graduates and dropouts related to having an identified mental health diagnosis (graduated $M = 0.76, SD = 0.44$; dropped out $M = 1.00, SD = 0.00$) $t (37) = 2.31, p < 0.05, \eta^2 = 0.13$. For White participants who graduated, 76% had an identified mental health diagnosis compared to 100% of dropouts having an identified mental health diagnosis. The percentage of time a White participant attended his or her own IEP meeting was found to be significant related graduation status (graduated $M = 0.59, SD = 0.29$; dropped out $M = 0.32, SD = 0.29$) $t (37) = 2.97, p < 0.01, \eta^2 = 0.19$. Participants who graduated and were White attended approximately 59% of their IEP meetings compared to an attendance rate at meetings of 32% for dropouts. The average percentage of time spent in the special education environment was also found to be statistically significant related to graduation (graduated $M = 0.06, SD = 0.08$; dropped out $M = 0.18, SD = 0.14$) $t (37) = 3.21, p < 0.01, \eta^2 = 0.22$. White students who graduated spent an average of 6% of their time in the special education environment while in high school while dropouts spent an average of 18% of their time in the special education environment. Lastly, a significant difference was found between graduates and dropouts related to GPA for White
participants with ED (graduated $M = 2.68$, $SD = 0.85$; dropped out $M = 1.45$, $SD = 0.58$) $t(25) = 4.28$, $p < 0.001$, $\eta^2 = 0.42$. Graduates who were White earned an average GPA of 2.68 compared to dropouts who earned an average GPA of 1.45. See Table 17 for $t$-test results for both the Participants of Color with ED and the White Participants with ED.

A logistic regression analysis model was used to examine Participants of Color with ED and graduation. It was hypothesized that grade point average, student meeting attendance percentage, and mental health diagnosis would predict graduation from high school. The model was performed to test the hypothesis. Within the model, GPA was mean centered and having a mental health diagnosis was dichotomous (yes or no).

The model with the three predictor variables was statistically significant when compared to the constant-only model. It accounted for 48% proportional reduction in error when estimating graduation from high school, pseudo-$R^2 = .48$, $\chi^2(3) = 26.77$, $p < 0.001$. Odds ratios are presented in Table 18. Having a mental health diagnosis positively predicted graduating from high school, OR = 32.08, 95% CI [2.68, 383.98]. The odds of graduating from high school were 3108% higher when a participant had an identified mental health diagnosis. Consistent with the prediction hypotheses, GPA positively predicted graduating from high school, OR = 5.69, 95% CI [1.17, 27.82]. The odds of graduating from high school were 469% higher with a one point increase in GPA. The student attendance at IEP meetings variable was also statistically significantly related to graduation from high school, OR = 1.04, 95% CI [1.00, 1.08]. A participant was 4% more likely to graduate with a one-percent increase in attendance percentage. Combined, the model correctly classified participants as graduates or non-graduates with 82.50% accuracy.
A logistic regression analysis was used to identify the variables that predict graduation for White participants with ED. It was hypothesized that grade point average, the percentage of student percentage at IEP meetings, average percentage of time spent in the special education environment and IQ would correctly predict high school graduation. Within the final model, GPA and IQ were mean-centered.

When the full model was run against a constant-only model, the results supported the prediction. The model accounted for a 74% reduction in error when estimating graduation from high school for White participants with ED, pseudo-$R^2 = .74$, $\chi^2 (4) = 27.45$, $p < 0.001$. Odds ratios (OR) are presented in Table 19. None of the four predictor variables was found to be statistically significantly independent of the other variables. The only variable that approached statistical significance was the percentage of student meeting attendance, OR = 1.16, 95% CI [0.97, 1.38]. As a whole, the model correctly classified participants as graduates or non-graduates with 92.59% accuracy.

**Summary of ED and race.** Several similarities and differences exist when comparing variables that correlate with or predict graduation for White students and Participants of Color with ED. Both the Participants of Color and the White participants had a statistically significant correlation and independent-sample $t$-test scores for time spent in special education, student attendance at IEP meetings and GPA related to graduation status. Both Participants of Color and White participants indicated significance with mental health diagnoses and graduation status, though for Participants of Color, the relationship between graduation and having an identified mental health condition was positive while it was a negative relationship for White participants. For Participants of Color, time spent in 9th grade, legal involvement and having an attendance based IEP goal were negatively associated with graduation while remaining insignificant for
White participants. Attending multiple high schools had a positive relationship with graduation for Participants of Color as did participating in extracurricular activities. For White students, IQ was positively and significantly correlated with graduation and a difference was found between graduates and dropouts on a t-test.

**ED primary versus ED secondary.** An additional area of focus within the analysis was examining individuals with ED as their primary disability category versus individuals with ED as a secondary disability. All differences identified between the groups should be considered with an understanding in the substantial difference in group member size (94 ED primary versus 11 ED secondary). No statistically significant differences were identified between the two groups for the ACT subtests, academic achievement tests, or IQ. The only statistically significant difference identified between the two groups was in the years spent in 9th grade (ED primary $M = 1.67, SD = 0.65$; ED secondary $M = 1.22, SD = 0.44$) $t(100) = 2.02$, $p < 0.05$, $\eta^2 = 0.04$. Individuals with ED primary tended to spend more time in 9th grade, with 57% of individuals spending two or more years in 9th grade compared to only 22% of individuals with ED secondary spending more than one year in 9th grade.

After completing all of the statistical analyses, several variables consistently were identified as being statistically significant with graduation for different groups of study. The analysis focused on five primary groups: (a) all participants with ED; (b) White participants with ED; (c) Participants of Color with ED; (d) nondisabled participants; and (e) all participants. For each primary group, a correlational analysis, multiple independent-samples t-tests (two-tailed), and a logistic regression were completed. For the logistic regressions, the predictor variables used included variables identified as statistically significant at the $p < 0.01$ or $p < 0.001$ levels.
Several variables were found to be significantly related to graduation status across test and group. Grade point average was found to be statistically significant between graduates and dropouts on nearly every test and for every group of study. Repeating 9th grade was also found to have an inverse relationship with graduation for most groups except for White students with ED. Higher percentages of student attendance at IEP meetings was consistently found to be related to graduation for all groups of students with ED. An inverse relationship with graduation was also observed for time spent in special education. For students without disabilities, and for the entire participant sample, ACT scores were found to be statistically significant in relation to graduating or dropping out.
Chapter 5
Discussion

The present study identified some of the variables that impact graduation status for students with ED and for students without disabilities, and found GPA, years spent in 9th grade and extracurricular participation all related to graduation. Specifically for students with ED, attending IEP meetings was also found to be important in predicting graduation. Implications and limitations of the present study are discussed below, as well as suggestions for future research and special education service delivery for students with ED.

Variables that Correlate with Graduation for Participants with ED

There were several variables that had a statistically significant correlation with graduation for participants with ED. These variables include: (a) grade point average, (b) extracurricular participation, and (c) the percentage of student meeting attendance. Grade point average was among the highest correlations with graduation. This finding was expected as it is logical that participants who graduated would have higher GPAs than participants who dropped out. While the benefits of extracurricular participation on graduation has long been supported by literature, the percentage of student attendance at IEP meetings has yet to be appropriately studied in relation to graduation status.

Also supported by literature, were the negative correlations with graduation and the number of years spent in 9th grade, the percentage of time an individual spent in a special education environment, and having an attendance-based IEP goal. Based on the corresponding literature, these findings suggest that many of the same variables that impact all students graduating or dropping out of high school, similarly impact individuals with ED.

Variables that Predicted Graduation for Participants with ED
Several variables predicted graduation for participants with ED. GPA and the percentage of student attendance at IEP meetings positively predicted graduation while time spent in a special education environment negatively predicted graduation. It is noteworthy that GPA is related to graduation, but the relationship was significant across all tests and groups. The amount of time spent in a special education environment being negatively related to graduation also is a logical result. Participants who struggle greatly, with behaviors or academics, likely fail more classes and would therefore be provided more extensive special education supports. It seems likely that participants with the most intense needs dropped out in part due to difficulties in achieving academic success even with support.

**Differences between ED and Nondisabled Group Related to Graduation**

As part of the primary focus of the present study, it was important to examine the differences between the participants with ED and the nondisabled comparison group on the variables that predicted graduation. When using variables that applied for both groups, GPA was found to predict graduation from high school for both groups. One variable that was significant in relation to graduation for nondisabled participants but not so with participants with ED was the negative prediction of graduation by attending more than one high school. Nondisabled participants who attended more than one high school were more likely to dropout out while the number of high schools attended did not influence participants with ED graduating. Participants with ED attended an average of 1.88 high schools compared to nondisabled participants who attended an average of 1.16, possibly suggesting the negligible impact on graduation for participants with ED as transience was so common among the group. Ecological Systems Theory may suggest that nondisabled participants are less able to handle the micro- and mesosystem changes that occur as part of switching schools.
Two other variables were statistically significant for participants with ED and nondisabled participants on t-tests but were not able to be included on the logistic regression and discriminant function analyses. The number of years spent in 9th grade was a statistically significant predictor for both groups, with graduates spending less time than dropouts in 9th grade. Graduates with ED averaged 1.45 years in 9th grade compared to 1.04 years for nondisabled graduates while dropouts with ED averaged 1.81 years in 9th grade compared to 1.50 years for nondisabled dropouts. It is should be observed that graduates with ED averaged only 0.05 less years in 9th grade than nondisabled dropouts. This perhaps indicates that participants with ED can sustain a higher amount of failure before ultimately achieving successful completion of high school and the greater need for nondisabled peers to achieve on-time promotion.

Extracurricular participation was also statistically significant for predicting graduation for both groups. Ecological Systems Theory would strongly suggest the importance of meso- and microsystem level interactions when participating in extracurricular activities and the positive influence the interactions have on the individual.

The other variables that were statistically significant for only the nondisabled group were the ACT scores. For nondisabled participants, ACT science, ACT math and ACT composite scores were all statistically significant when comparing graduates to dropouts. None of the ACT scores were significantly different for participants with ED. This was an interesting result as a limitation of the ACT variables were that they could only be recorded for individuals who took the ACT, meaning individuals typically in 11th grade and older. Effectively, this eliminated the opportunity for participants who dropped out prior to 11th grade from taking the ACT and being
included in the data. The ACT variables essentially examined the differences between participants who dropped out after 11th grade compared to graduates.

The results from the discriminant function analysis models suggested that it is possible to predict whether an individual with ED and a nondisabled participant graduated or dropped out based on key predictor variables. Using GPA, the number of years spent in 9th grade and extracurricular participation as the predictor variables, 96% of the nondisabled participants and 78% of participants with ED were correctly identified based on educational outcome. The model used for both groups was statistically significant.

In many ways, the three predictor variables are closely linked together and linked with academic success. It is clear that an individual who passed his or her classes would earn a higher GPA and would be less likely to repeat 9th grade. For a student who passed fewer classes, he or she would have been more likely to repeat 9th grade. Both lower grades as well as repeating 9th grade lead to being ineligible for certain extracurricular activities. An exception to this rule is participating in activities such as band or choir, which can be taken as classes and therefore do not have the same academic requirements as participating in football or track. This could partially explain why extracurricular participation had the weakest impact on educational outcome of the three predictor variables.

**Major Findings**

After completing the analyses with each of the different groups, numerous significant results were found. One of the most important predictors was that participants with ED who attended a greater percentage of his or her IEP meetings were more likely to graduate from high school. While student attendance mattered a great deal at IEP meetings, parental attendance at IEP meetings had no statistically significant relationship with graduation. Spending additional
time in 9th grade was found to be detrimental to all participants in relation to graduation. Grade point average was found to be a significant predictor of graduation on all analyses and with each group of participants. Time spent in the special education environment was found to be statistically significant for educational outcome. Lastly, extracurricular participation was closely related to graduation for nearly every group in the study.

**Grade point average.** Across every correlation, every t-test and all but one of the logistic regressions, GPA was found to be statistically significant in relation to graduation. Participants who graduated had higher final GPAs whether they had ED or not. The gap between graduates and dropouts was significant for all groups, but it is worth noting that participants with ED who graduated earned an average 2.00 GPA while dropouts earned a 1.04 GPA. The gap is even greater for nondisabled participants, with graduates earning a 3.34 average GPA and dropouts earning an average of 1.31. While the nondisabled participants clearly earned higher GPAs than the participants with ED, a difference also existed between the GPA of graduate and dropout Participants of Color and White students with ED. Participants of Color who graduated earned an average GPA of 1.51 compared to 2.68 for White graduates and Participants of Color who dropped out earned a 0.80 GPA compared to 1.45 for White dropouts.

The present study results were consistent with the literature in several areas. The results confirm that students with ED earn lower grades than their peers (Bradley et al., 2004; Wagner & Cameto, 2004). While GPA was only gathered once in the present study, combined with the results that students who repeat 9th grade are less likely to graduate, the study appears to confirm that grades during freshmen year of high school are indicative of graduating in four years (Gewertz, 2007; Zablocki & Krezmien, 2012).
**Student attendance at IEP meetings.** Students are required to be invited to IEP meetings at age 14 and older but they are not necessarily required to attend IEP meetings. Based on the results in the present study, students should be attending as many of his or her meetings as possible while in high school.

On average, participants who graduated attended 58% of his or her meetings compared to 33% meeting attendance for dropouts. Student meeting attendance percentage was found to be statistically significant for the correlational and t-tests completed on participants with ED as well as the subgroups of Participants of Color with ED and White participants with ED. Student attendance was used as a predictor variable for all three groups that included participants with ED and was found to positively predict graduation for both the full ED group and the Participants of Color group.

On the discriminant function analysis completed with only participants with ED, student attendance at IEP meetings was among the most important predictor variables used to identify educational outcome. Combined with GPA in a simple discriminant function analysis, student attendance percentage at IEP meetings helped to correctly predict the educational outcome of over 79% of the participants. This was only 3% less than a model using three additional significant variables was included. This suggests that by simply knowing an individual’s grade point average and the percentage of time a student attends his or her own meetings while in high school, accurate predictions can be made for the educational outcomes of the large majority of individuals with ED.

While current research has not examined the impact of students attending their own IEP meetings, it may be important to further explore Lund’s (2014) findings from interviews with dropouts with ED in Norway. Lund found that students with ED who dropped out of high school
did so in part because they felt unsupported, unwelcome and even bullied by school staff. The entire purpose of most special education meetings is to determine how best to support the individual student, but perhaps students who choose not to attend their own meetings would support Lund’s conclusions regarding feelings of being unwelcome. Additional research should examine the impact of students’ feelings of support in relationship to IEP attendance so that teachers and schools can better address this concern.

Ecological Systems Theory may suggest that students who attend a greater percentage of meetings are more fully developed in his or her microsystem and mesosystem level interactions. It is also possible that the influences at the micro- and mesosystem level obtained through meeting attendance positively supports the development of the individual. Attending an IEP meeting involves interactions with multiple different adults, with some of whom the student may have only a limited relationship. Some meetings include adults with whom the student gets along poorly or adults where a positive relationship exists. Each of these interactions helps to shape the student. It is also possible that students choose to attend or avoid meetings based on the parent being able to communicate with school staff. Some students may have learned that he or she can avoid the problem of parents finding out what has been occurring at school a little longer by choosing not to attend the meeting.

**Repeating 9th grade.** As widely reported, spending more than one year in 9th grade reduced the likelihood of graduating from high school both for participants with ED and for all other participants. This result is supported by multiple different studies which have indicated that retention is often detrimental to graduation (Jordan et al., 1996; Kortering & Braziel, 1999). The present study also supports Kaufman and Bradby’s (1992) findings that retention in upper grades is often related to dropping out.
Across nearly every group, dropouts averaged a statistically significant amount more time in 9th grade. While the relationship is significant for students with ED, as indicated by an average of 1.45 years in 9th grade for graduates and 1.81 years for dropouts, the gap was even more significant for nondisabled participants. For nondisabled participants, graduates spent an average of just over one year in 9th grade but dropouts spent approximately 1.5 years in 9th grade.

The one group for which time spent in 9th grade did not statistically matter, was White participants with ED. On neither the correlation analysis nor the t-tests, years in 9th grade was found to be statistically significant with graduation for White participants with ED. It was unclear what may have caused this outlier, but it is possible that the small sample size of the group contributed.

Using EST, both the microsystem and the macrosystem may contribute to the students’ development through repeating 9th grade. At the macrosystem level, students who repeat grades may have to endure a school-wide stigma attached to being retained and not being in classes with their peers. The attitudes of the school community may apply social pressure for individuals to grow as productive students or it may negatively impact students causing them to spiral still further. In the context of the microsystem microsystem, being retained causes the individual to sit in classes that may have previously been taken or to be included in larger school activities with the freshmen class when he or she should be in a different grade. That stress of the daily interactions that may occur when repeating a grade may push some to work harder but it may also push the individual to dropping out. This concept is supported by Ehrenreich and colleagues (2012) who found that students who get behind in credits significantly drop in motivation to push for academic success.
**Extracurricular participation.** Rumberger (1995) and Catsambis (1988) found that participating in extracurricular activities is positively related to graduation from high school. The results from the present study strongly confirm prior research. Approximately 40% of all participants who graduated participated in an extracurricular activity compared to around 6% of dropouts. These percentages were similar for both the ED only and nondisabled only subgroups. The one group for whom extracurricular participation was not statistically significant was for White participants with ED. No clear explanation exists for this but as previously mentioned, the White participants with ED subgroup was the smallest of the five groups of study. It is worth noting that this was among the most challenging variables to collect datum. Data were limited to what was documented in IEPs and extracurricular activities that could be taken as a class (i.e., ROTC, band, choir, orchestra).

Ecological Systems Theory would suggest that the influences, both direct and indirect, of extracurricular participation lead to positive developments in academics. When participating in athletics, an individual has strong microsystem interactions with teammates and coaches, but multiple mesosystem interactions also exist that may have a positive influence on the individual’s development. In order for a student to participate in an extracurricular activity, there must be some amount of interaction between the individual’s parents and coaches. If that interaction is negative, the student may be unlikely to remain in the activity. The macrosystem may also factor in as many school communities have an identity closely linked to a sport or other non-academic program. The community belief and support provided may positively encourage some individuals to perform academically so as not to let down the community. For individuals who do not or cannot participate with the team, the result may have a negative influence on the individual’s development toward academic success.
Time in the special education environment. The present study confirms the results of Landrum and colleagues (2004) and Villarreal (2015), who found that spending more time in a special education environment is related to dropping out. Participants with ED who graduated spent an average of 9% of his or her time in a special education environment compared to dropouts at 19%. Participants of Color graduates (10%) and dropouts (20%) spent slightly more time in a special education environment than White graduates (6%) and dropouts (18%). Time in a special education environment also negatively predicted graduation for all individuals with ED. This result is logical as it would seem likely that participants with the most significant level of needs would have required the most time in the special education environment and would have been less likely to graduate partially related to his or her substantial needs. Conversely, participants with less intense needs, who were more likely to graduate because of their minor need for support, would have spent less time in special education.

It is possible that EST would suggest that the special education environment has a negative microsystem level influence on participants’ development. While it was beyond the scope of the present study, family influence likely has an influence on educational placement decisions which would be an important mesosystem interaction.

Parent attendance at IEP meetings. For the present study, three variables were created to reflect the different types of attendance but parental attendance was not found to be statistically significant on any of the analyses nor with any of the variables. Percentages were used rather than raw totals as there is not a set number of meetings that a student with ED has while in high school. The first variable was the overall percentage of meetings attended by the parent. The second and third variables created were the percentage of in-person parental attendance and the percentage of phone conference attendance. It was thought that a difference
would be found between graduates and dropouts for parents that physically attended compared to those that attended through a conference call but this hypothesis was not confirmed.

While the results from the present study do not prove that parent attendance at meetings does not matter, the lack of statistically significant results may suggest that parental attendance at IEP meetings does not matter for graduation outcome. This finding is directly contradictory to other research that found that increased parental monitoring of students’ activities had been found to reduce dropout rates (Alpert & Dunham, 1986; Blondal & Adalbjarnardottir, 2009). While monitoring of student’s activities is not the exact same thing as attending IEP meetings, attending IEP meetings does increase a parent’s ability to monitor behaviors.

From an EST perspective, this result suggests that the mesosystem level interaction between school and parents is not important for students with ED. It suggests that parental attendance is not significant in the positive development of the student in working towards graduation.

**Additional Findings**

**Legal involvement.** Only 12% of participants with ED who graduated had an indication of legal involvement compared to 38% of dropouts. Current literature does indicate that the arrest rates and incarceration rates are higher for students with ED (Marder et al., 2003; Wagner, 1995; Wagner et al., 2006). Gathering records of legal involvement was extremely difficult for all students, but particularly for nondisabled students. It was difficult to identify if the present study supports the literature. It seems unlikely that the actual arrest rates for nondisabled participants would have been higher than the rates of legal involvement found for students with ED.
Legal involvement can be a very stressful and very significant influence on an individual’s development. The microsystem level interaction may result in a positive influence on development as a push to make change or it may be a significant negative influence if extended incarceration is involved. Whether the influence of legal involvement is positive or negative is likely focused on each specific individual, but EST would likely argue that the corresponding influence of having legal involvement is strong.

**Attendance-based goal.** Having an attendance-based IEP goal mattered for individuals with ED but it did not matter when analyzed specifically with the White and Participants of Color sub-groups. For graduates with ED, only 14% had an attendance-based goal compared to 38% of dropouts. This variable is also interesting because there are no rules for when an IEP goal should be written that targets improving a student’s attendance. The IEP team creates an attendance goal when it is believed to be needed, likely with some data to support the need. Because attendance records are difficult to obtain for former students, it was believed that the operationalization used in the present study may serve as a reasonable substitute. The results from the present study support the substantial existing literature that indicates the importance of strong attendance with graduation (Bornsheuer et al., 2011; Weitzman et al., 1982) and would suggest that the attendance-based IEP goal operationalization may have some merit moving forward.

Attendance problems would suggest several microsystem level relationships that are detrimental to the development of a successful student. It is likely that a student who is frequently absent has at least one relationship with a peer or family member that impacts the decision to miss school. It also seems likely that if absences have grown to the point where the school believes an attendance-based IEP goal is necessary, the school has previously been in
contact with the family about attendance concerns. EST would suggest that a stronger positive influence from family members or school staff would be needed to improve a student’s attendance.

**Test scores mattered for nondisabled participants.** ACT scores, IQ, and achievement test scores were measured for all participant groups, but were primarily found to be statistically significant with graduation status for nondisabled participants. A statistically significant relationship to graduation status was found when all participants were included in the analyses, but was not found in the ED only group. Part of the difference between the two groups may have been due to the difficulty in obtaining ACT scores for students with ED. Another consideration is that the majority of nondisabled participants with IQ and achievement scores in his or her file had results on record due to participation in gifted programs. This would suggest that the IQ and achievement scores of the nondisabled group included in the present study would be higher on average than a random sample of all nondisabled graduates at the participating schools.

The results from the present study would seem to partially support Barrington and Hendricks (1989) who found that having a higher IQ does relate to graduation. It also partially supports prior research that has suggested that higher achievement scores are important for graduation (Chistenson & Thurlow, 2004; Lehr et al., 2004). The present study supports Gonzalez and Cramer’s (2013) findings which found no relationship between reading and math scores and graduation for students with ED.

None of the achievement score variables were found to be statistically significant in relation to graduation even though achievement scores were obtained for nearly all the participants with ED. This is important because students receiving special education services are required to discuss the need for obtaining updated test scores every three years at an IEP
reevaluation meeting. Many schools and districts complete updated testing for every student every three years, but the present study would suggest the results are of less importance. This is not to say that completing an updated evaluation is never warranted, just that it may not be necessary every three years for most students. One outlier in this area is that the IQs of White participants with ED who graduated were significantly higher than those who dropped out.

**Small relationship between being Hispanic and graduation.** The only significant result related to ethnicity and graduation for any of the groups in the present study was a negative correlation for graduation and participants who were Hispanic. No difference was found on any of the other correlations or t-tests which would suggest a weak relationship between graduation status and being Hispanic. The literature on ethnicity and graduation is mixed, with studies indicating that dropouts are likely to be Hispanic or African American (Hickman et al., 2008), but other studies indicating no differences between groups (Zablocki & Krezmien, 2012). It is also possible, that the statistically significant negative correlation to graduation for students who were Hispanic may have been due to the small numbers of Hispanic students included in the study. Perhaps with a larger sample, more definitive results would have been obtained for the different ethnic groups.

**Attending additional high schools.** Research (Rumberger, 1995; Swanson & Schnieder, 1999) has found that student transience has a negative impact on academics. The present study found that attending more than one high school is negatively related to graduating from high school. The number of high schools attended negatively predicted educational outcome for nondisabled participants, meaning that attending more high schools was related to dropping out of school for that sample.
For participants with ED, changing schools was not found to be statistically significant with graduation. Participants with ED who graduated attended slightly more schools than dropouts (2.00 vs. 1.77). The four participants with ED who attended the most high schools (5) graduated, but no dropout attended more than four schools. For Participants of Color with ED, attending multiple high schools was both positively correlated and statistically significant with graduation. Participants of Color who graduated averaged 2.31 high schools attended compared to 1.75 high schools attended for dropouts. It is unclear what this result suggests for Participants of Color with ED, but perhaps it may indicate that these individuals have learned to successfully adjust to school change, or that the new school allowed for individuals to have a “fresh start,” free of preconceived notions by school staff. The present study did not include school changes in elementary and middle school, which may have also altered the results.

Ecological Systems Theory may suggest that participants with ED are better equipped to handle the micro- and meso-system changes that occur when transitioning to different schools. It is possible that this increased ability to handle school change may have been acquired from prior experiences changing schools. It is also possible that positive supports exist in the students’ home or school setting that helps to ease the transition process.

**Mental health diagnosis.** For Participants of Color with ED, having a mental health diagnosis was positively related to graduation from high school. Conversely, White students with ED had an inverse relationship with mental health status and graduation, indicating that having an identified mental health diagnosis was related to dropping out of school. Existing literature has consistently found results related to White students with ED, that having mental health disorders is linked to dropping out (Breslau et al., 2011). It is unclear why the Participants of Color with ED group and the White participants with ED would have statistically significant
results related to graduation status that were opposite on the same variable. One possibility is that the sample size of both groups was small and therefore may not be an accurate indication of the population means.

Mojtabai and colleagues (2015) found that individuals with externalizing disorders (e.g., conduct disorder, ADHD, ODD) are linked to dropping out. The present study did not differentiate between the type of disorder, only if a mental health diagnosis was or was not given. The reason for making the variable dichotomous was due to the frequency of participants having 3-5 different diagnoses. It was rare to find a participant who had ADHD or Generalized Anxiety Disorder only.

**Number of IEP meetings.** The number of IEP meetings held for each participant with ED was not a statistically significant result in relation to graduation status in the present study. There is very little existing research on the number of IEP meetings a student has in high school, but it is logical that a difference may exist between the number of meetings for graduates and dropouts. Perhaps this is caused by some special education paperwork being lost as students transition to new schools. Student transience makes it challenging to accurately measure the number of meetings each participant with ED actually had while in high school. Another possible cause for the lack of statistical difference with the number of meetings and graduation status could be that students who get in trouble more frequently may have more frequent meetings, but may not remain in high school for a full four years to graduation. Conversely, students who graduate may have less frequent meetings but have a full four years of time in high school for meetings to be held.

**Age qualified for special education.** It was hypothesized that a difference would exist between the age of special education qualification for participants with ED who graduated, and
for those participants with ED who dropped out. No statistically significant difference was found, however. It seems reasonable that participants with the most severe disabilities would have been identified earlier, and that participants with more significant needs would have been more likely to drop out. It is also possible that strong parental pushes may have led to some students with lessor needs qualifying for special education earlier than would typically be expected. Additionally, it was difficult to obtain accurate ages for qualification as many of the participants frequently changed schools and states over the course of his or her K-12 career. For participants who changed districts multiple times, the exact date of qualification for special education was often missing from the final records. Another possibility for the lack of a difference between graduates and dropouts is that participants who qualified earlier in their school years received a positive influence from the special education services provided.

**ED and race.** The present study examined the similarities and differences between Participants of Color with ED who graduated or dropped out and White participants with ED who graduated or dropped out. The Participants of Color group consisted of individuals who identified as Black, Asian, Hispanic and multiracial. The different racial groups were combined due to the extremely small sample sizes of Asian, Hispanic, and multiracial participants, and the similarities in graduation percentages between the Black participants and the Asian, Hispanic, and multiracial participants.

The Participants of Color and White participants with ED were similar on several important variables. Both groups showed a significant difference between the GPAs of graduates and dropouts, though White participants who graduated and White participants who dropped out had higher scores than the corresponding Participants of Color groups. Student attendance at IEP meetings was almost identical for Participants of Color who graduated
compared to White graduates, and with Participants of Color who dropped out compared to White dropouts. This may suggest that both groups are equally encouraged to attend meetings. It is also worth noting, that both groups’ graduates and dropouts spent comparable amounts of time in special education while in high school, though it was slightly higher for Participants of Color.

For Participants of Color, years spent in 9th grade, having an attendance-based IEP goal, and involvement with the legal system were all negatively related to graduation but none was statistically significant for White participants. It is unclear why these three variables were only significant for the Participants of Color and not the White participants. Having an attendance-based goal and repeating 9th grade would logically be closely related as students who miss more classes would have an increased chance of failing classes which then leads to 9th grade retention. It is possible that the individuals who repeated 9th grade were also more likely to have attendance problems.

For White participants with ED, IQ was statistically related to graduation with graduates averaging an IQ score of just over 106, while White dropouts earned a score of 98. This finding was an outlier and not found to be significant among any other group in the study.

Conclusions

As part of the research and analysis process, students with emotional needs were compared to a group of nondisabled peers. The comparison was made in order to specifically target the similarities and differences between individuals with ED and individuals considered normal by the school district. Results from the comparison provided a better understanding of how different the two groups actually were.
Implications. Among the most consistent results in the present study was the finding that participants who attended a greater percentage of their own IEP meetings were more likely to graduate from high school. It suggests that schools need to do everything in their power to get students with ED to attend their own IEP meetings. It may be necessary to develop specific lesson plans to teach students about meetings and what is accomplished. Perhaps it would also be beneficial to pre-meet with students to explain the purpose and what will be discussed at the meeting. If teachers did pre-meet with students, this has the ability to build the microsystem level interactions between teachers and students. This strategy would also place a larger focus on the importance of the student within their own education, a concept which is central to EST.

Special education teachers often schedule meetings around when the parent can attend, but perhaps more focus should be placed on when it is best for the student to attend as well. Similarly, it would be useful to ask the student which adults from the school he or she would like to attend. Of course, state law and district policy dictate requirements for the necessary participants at meetings, but including adults that the student prefers may encourage the student to attend while also meeting the participant requirements. If students are treated as the primary member of the IEP team and allowed to help identify the other participants, the student is actively involved in micro- and mesosystem interactions within the school. As the power and the direction of influences on development increase with greater frequency and proximity to the student, building a strong team of individuals around the student would seem to be a key component of helping a student graduate from high school.

Change may also need to be made to special education paperwork. An IEP can include between 10-20 pages of dense information using complicated education-specific language. IEPs are not student or parent friendly nor are they easily understood by general education teachers.
Because it is important that students with ED attend his or her own meetings, it would be beneficial if the student understands what is written on the IEP.

**Extracurricular participation.** Extant research indicates the benefits of participating in extracurricular activities for all students, and the present study suggests the benefit for students with ED. Educators should encourage active involvement within the school setting and likely this should begin well before high school. In high school, athletic participation involves meeting GPA and grade promotion requirements, but that is not the case in middle school athletics. Encouraging middle school students to participate in extracurricular activities might motivate students to earn the necessary grades to continue with the activities once in high school. In the present study, extracurricular participation included participation with band, choir, orchestra and NJROTC in addition to athletics. Typically, those programs are offered as classes within a high school and therefore no GPA or promotion requirements exist limiting participation. For all students, but particularly those who have GPAs too low to participate in other activities, encouraging participation in band or choir may have a significant impact.

At a policy level, many districts have cut middle school extracurricular activities due to the high costs of maintaining the programs. Perhaps cutting those activities is worth reinvestigating since they have continually been linked to graduating from high school for many students.

**IQ and ability scores.** Some schools and districts complete updated IQ and academic achievement test scores for every student at his or her triennial reevaluation. For students with ED, it does not appear that IQ and ability scores are related to graduation from high school. Due to the substantial time and energy for completing updated testing, which typically includes removing the student from classes for completion, it may be beneficial to postpone testing to
every other triennial reevaluation. It may also cause the student additional stress related to leaving the classroom or with negative feelings of self-concept based on the outcomes. Of course, there will always be circumstances in which updating testing more regularly is necessary, but for participants in the present study, IQ and ability scores did not matter for graduation.

**Ecological Systems Theory.** The core concepts within Ecological Systems Theory would strongly support the findings of the study. As the student is central and the environments with which they interact have the strongest influence on development, it is appropriate that student attendance at IEP meetings was found to be closely related to graduation. Similarly, it also logical that participating in extracurricular activities, which include interactions with teammates, coaches, classmates, and parents would have a positive relationship with graduation. Schools should be encouraged to utilize the principles of EST in the development of strategies for increasing graduation rates for students with ED.

**Recommendations for further research.** It is very important to continue studying the attendance of parents and students at IEP meetings. Additional research should examine the relationship between meeting attendance and graduation for all students with special needs, not just those with ED. It remains unclear why some parents and students do attend while others do not attend meetings. Are there consistent reasons for attendance that the school or district has control over? For schools that have high or low attendance by parents and students at IEP meetings, it would be important to examine the impact on graduation. Does student attendance at IEP meetings matter before high school? Students are required to be invited beginning at age 14, but is there any significance for attendance to meetings in elementary or middle school? Are there interventions that work at increasing student attendance to meetings? Such questions need answers that only additional research can provide.
More research is needed related to students with ED and extracurricular participation. Most of the current research focuses on all students or students in special education in general, but very little has targeted individuals with ED.

Students with ED are frequently very transient, attending two or more high schools and it becomes very challenging to accurately study the group. More research needs to be done with students with ED related to moving so that more accurate data can be collected. It may also be worth examining why students with ED change schools frequently. Perhaps research may identify variables that support a student remaining in one school throughout high school.

Some districts across the country use different promotion systems. There are districts that promote each year a student in is high school no matter the grades earned, then retain the student in 12th grade indefinitely until graduation requirements have been met. Other districts, however, such as the district in the present study, retain the student in 9th grade until promotion requirements have been met to advance to 10th grade, then hold the student in 10th grade until promotion to 11th grade is earned. It would be beneficial to examine the educational outcomes of students with ED in schools with different promotion systems.

Findings from this study and the extant literature indicate the negative impact of increased time in special education environments for students. Are there additional supports that can be provided within the inclusive classroom that would help students with special needs? This question also requires research to provide answers.

Limitations

The completed study, like all studies, had several limitations despite careful planning by the primary investigator. Many participants, both with and without ED, attended school in more than one school district or moved around frequently even within the same district. This led to
participant files without evidence of meetings, evaluations, and other documents that would have been used as part of the data collection process.

Human error may have impacted the results of the completed study. The folders of former students are often examined or moved and therefore folders of potential participants with ED may have been missed due to the folder being placed in an incorrect location. As there was no list identifying each former student with ED, there was no way to tell if a folder was missing.

While having over one-hundred participants in each group was enough to satisfy the requirements of the statistical analyses used within the present study, additional participant numbers would have improved the accuracy of the results. In a large district, such as the one in which the present study was completed, there were many more students with ED at other schools who could have been included in the analysis.

Several of the variables included as part of the study were operationalized in new ways that previously had not been utilized. Because the investigator did not have access to traditional attendance records, a dichotomous operationalization was created in which participants were indicated as having an attendance-based IEP goal or not having an attendance goal. This method had not been used in prior research, thus making it unclear if the operationalization was an effective measure of attendance. Similarly, the investigator created other variables (e.g., parent attendance at meetings; phone conference attendance percentage; student attendance at meetings; expectations for the future) from the IEP documentation, that had not been investigated.

The extracurricular participation variable had limitations in its interpretation due to the nature of the data that were able to be recorded. Because schools do not keep a list of individuals who participated in sports or other clubs on file with the other records, the investigator was not able to identify all participants who participated in extracurricular activities. The data that were
collected was ultimately an indication of the individuals who participated in class-based extracurricular activities rather than the typical method for measuring extracurricular participation.

The investigator did not examine the interaction of parents and students attending IEP meetings together or separately. While the relationship of both the parent attending meetings and the student attending meetings was examined, the investigator did not explore the interaction of both a parent as well as a student attending at the same time or the individuals attending separately. It is unclear if a relationship existed between the combined attendance of parents and students with graduation.

One limitation that likely impacted the findings for the nondisabled comparison group was the method for identification of nondisabled participants. It was anticipated that all student folders would be retained on-site at schools for five years but this was not the situation for graduates. The only folders retained for graduates were the special education, ESL, and academically gifted participant folders. All former students, who did not receive one of the three services did not have a file in the graduate file-cabinets. The primary investigator used the rosters of students who completed the ACT, from the corresponding years of the study, to randomly select the nondisabled comparison group. The method allowed for the inclusion of all participants who attained 11th grade status and were present to take the test as scheduled on the state-wide testing date for 11th graders. As schools are required to test at least 95% of all juniors each year, this method allowed for the inclusion of the largest number of possible participants. Unfortunately, any student who dropped out prior to becoming an 11th grader was unintentionally excluded.
Another limitation related to generalization of the results is that the completed study involved participants from a single, sizeable, urban school district and specifically from large public high schools. The results are unlikely to generalize to smaller school districts with smaller high schools in different locations. It is possible that the findings may have some generalizability within the state where the research was completed. As Villarreal (2015) indicated, each state has widely different identification and graduation rates for students with ED, and the results are likely to generalize only to states with similar identification and graduation rates. Finally, the findings of the completed study are largely correlational in nature and cannot be used to infer causation. The results suggest possible relationships that could be worthy of additional investigation, and that could lead to additional, socially valid research on this topic and with these types of participants.

**Conclusion.** Perhaps the most important finding from the present research is the importance of participants in special education attending their own IEP meetings. Results indicated that student attendance at IEP meetings is predictive of the student graduating. While the specific reasons for the impact of student IEP meeting attendance cannot be explained from the present study, each of the statistical tests conducted indicated similar results.

Another result was important because it was not once found to be statistically significant. Parent attendance at IEP meetings did not appear to matter for participants with ED. It was anticipated that both student and parent attendance at IEP meetings would be two of the most important variables within the results. It was therefore surprising that while student attendance was highly significant time and time again, none of the parent attendance variables achieved statistical significance. From a professional standpoint, it appears that many districts have been focusing on enabling parents to attend meetings while greater effort should be focused on
preparing the students for the meetings and ensuring that they can attend and participate actively in their own IEP meetings.

While the findings in the present study require additional research, the results contain information that can be immediately utilized by schools. Schools and districts can immediately implement strategies for students with ED to increase student attendance at their own IEP meetings, without any added costs to the district. Increasing the attendance of students with ED at their own meetings may result in improving on the dismal graduation rates of students with ED and this would then impact graduation rates as a whole for the district.

Thus far, the relationship between student attendance at IEP meetings and graduation has been limited to students with ED. Further research should explore the outcome of inviting all students with special needs to attend their own special education meetings. More information about the impact of students attending their own meetings may provide useful strategies for helping districts achieve their increasing graduation goals. Results from the present study suggest new lines of research that have direct and critical impacts on supporting students and families to improve graduation rates and transitions for students with ED.
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Table 1

Percentages of Missing Values for Variables that Applied to All Participants

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<thead>
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<th>Variable</th>
<th>Missing Values</th>
<th>Variable</th>
<th>Missing Values</th>
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<tr>
<td>Gender</td>
<td>1%</td>
<td>Reading</td>
<td>48%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>23%</td>
<td>Math</td>
<td>48%</td>
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<tr>
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<td>51%</td>
<td>Writing</td>
<td>49%</td>
</tr>
<tr>
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<td>51%</td>
<td>Years in 9th Grade</td>
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<td>Mental Health</td>
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</tr>
<tr>
<td>IQ</td>
<td>37%</td>
<td>Number of HS's</td>
<td>9%</td>
</tr>
</tbody>
</table>
Table 2

*Percentages of Missing Values from the Variables Specific to Participants with ED*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Missing Values</th>
<th>Variable</th>
<th>Missing Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Meetings</td>
<td>3%</td>
<td>Time in Sp. Ed.</td>
<td>4%</td>
</tr>
<tr>
<td>Telephone Attendance</td>
<td>19%</td>
<td>Attendance IEP Goal</td>
<td>4%</td>
</tr>
<tr>
<td>In-Person Attendance</td>
<td>19%</td>
<td>Eligibility</td>
<td>3%</td>
</tr>
<tr>
<td>Overall Parent attendance</td>
<td>3%</td>
<td>Dual Qualification</td>
<td>4%</td>
</tr>
<tr>
<td>Student Attendance</td>
<td>4%</td>
<td>Age Qualified</td>
<td>5%</td>
</tr>
<tr>
<td>Expectations</td>
<td>5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3

Variables Used for All Participants and the ED Group Only

<table>
<thead>
<tr>
<th>Group</th>
<th>All Participants</th>
<th>ED group only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Educational outcome</td>
<td>Number of special education meetings</td>
</tr>
<tr>
<td>Gender</td>
<td>Parental attendance at meetings</td>
<td></td>
</tr>
<tr>
<td>IQ</td>
<td>Student attendance at meetings</td>
<td></td>
</tr>
<tr>
<td>ACT scores</td>
<td>Expectations for the future</td>
<td></td>
</tr>
<tr>
<td>Ability scores</td>
<td>Primary area of eligibility</td>
<td></td>
</tr>
<tr>
<td>Mental health diagnosis</td>
<td>Secondary area of eligibility</td>
<td></td>
</tr>
<tr>
<td>Mental health treatment</td>
<td>Age qualified for special education</td>
<td></td>
</tr>
<tr>
<td>Extracurricular participation</td>
<td>Time spent in special education environment</td>
<td></td>
</tr>
<tr>
<td>Legal involvement</td>
<td>Attendance goal</td>
<td></td>
</tr>
<tr>
<td>Number of high schools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years in 9th grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4

*Demographics of Research Participants*

<table>
<thead>
<tr>
<th>Gender</th>
<th>African American</th>
<th>Hispanic</th>
<th>Asian</th>
<th>Caucasian</th>
<th>Multiracial</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female-ED</td>
<td>13</td>
<td>1</td>
<td>0</td>
<td>13</td>
<td>1</td>
<td>28</td>
</tr>
<tr>
<td>Male-ED</td>
<td>35</td>
<td>7</td>
<td>2</td>
<td>27</td>
<td>6</td>
<td>77</td>
</tr>
<tr>
<td>Female-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nondisabled</td>
<td>7</td>
<td>5</td>
<td>1</td>
<td>12</td>
<td>2</td>
<td>27</td>
</tr>
<tr>
<td>Male-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nondisabled</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>19</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>17</td>
<td>5</td>
<td>71</td>
<td>9</td>
<td>162</td>
</tr>
</tbody>
</table>

Two-hundred nine total participants were included in the present study but demographic information was not clearly identified for all participants.
Table 5

*Correlations to Graduations*

<table>
<thead>
<tr>
<th></th>
<th>ED Group</th>
<th>Nondisabled Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Graduation</td>
<td>Graduation</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.03</td>
<td>-0.14</td>
</tr>
<tr>
<td>English ACT</td>
<td>0.25</td>
<td>0.20</td>
</tr>
<tr>
<td>Math ACT</td>
<td>0.27</td>
<td>0.21</td>
</tr>
<tr>
<td>Reading ACT</td>
<td>0.16</td>
<td>0.10</td>
</tr>
<tr>
<td>Science ACT</td>
<td>0.46</td>
<td>0.23*</td>
</tr>
<tr>
<td>Composite ACT</td>
<td>0.32</td>
<td>0.23*</td>
</tr>
<tr>
<td>GPA</td>
<td>0.51***</td>
<td>0.63***</td>
</tr>
<tr>
<td>IQ</td>
<td>0.11</td>
<td>0.03</td>
</tr>
<tr>
<td>Reading Achievement</td>
<td>0.19</td>
<td></td>
</tr>
<tr>
<td>Math Achievement</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>Writing Achievement</td>
<td>0.11</td>
<td>0.01</td>
</tr>
<tr>
<td>Years in 9th Grade</td>
<td>-0.28**</td>
<td>-0.42***</td>
</tr>
<tr>
<td>Number of Meetings in HS</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Telephone Conference Attendance</td>
<td>-0.02</td>
<td></td>
</tr>
<tr>
<td>In-Person Parent Attendance</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>Overall Parent Attendance</td>
<td>0.13</td>
<td></td>
</tr>
<tr>
<td>Student Attendance Percentage</td>
<td>0.39***</td>
<td></td>
</tr>
<tr>
<td>Expectations</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>
Table 5 (continued)

<table>
<thead>
<tr>
<th>Eligibility</th>
<th>-0.04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual Qualification</td>
<td>0.06</td>
</tr>
<tr>
<td>Age Qualified for SPED</td>
<td>-0.04</td>
</tr>
<tr>
<td>Time in SPED</td>
<td>-0.34***</td>
</tr>
<tr>
<td>Attendance Based IEP Goal</td>
<td>-0.28**</td>
</tr>
<tr>
<td>Mental Health Diagnosis</td>
<td>0.14</td>
</tr>
<tr>
<td>Extracurricular Participation</td>
<td>0.33***</td>
</tr>
<tr>
<td>Legal Involvement</td>
<td>-0.30**</td>
</tr>
<tr>
<td>Number of HSs Attended</td>
<td>0.11</td>
</tr>
</tbody>
</table>

* $p < .05$

** $p < .01$

*** $p < .001$
Table 6

*Results from Two-Tailed t-tests*

<table>
<thead>
<tr>
<th></th>
<th>ED Grads</th>
<th>ED Dropouts</th>
<th>Nondisabled Grads</th>
<th>Nondisabled Dropouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>2.00***</td>
<td>1.04</td>
<td>3.34***</td>
<td>1.31</td>
</tr>
<tr>
<td>Years in 9th Grade</td>
<td>1.45**</td>
<td>1.81</td>
<td>1.04***</td>
<td>1.50</td>
</tr>
<tr>
<td>Student Attendance Percentage</td>
<td>0.58***</td>
<td>0.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time in Special Education</td>
<td>0.09***</td>
<td>0.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance-Based IEP goal</td>
<td>0.14**</td>
<td>0.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal System</td>
<td>0.12**</td>
<td>0.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extracurricular</td>
<td>0.34***</td>
<td>0.08</td>
<td>0.45**</td>
<td>0.00</td>
</tr>
<tr>
<td>Number of HSs</td>
<td>2.00</td>
<td>1.78</td>
<td>1.04***</td>
<td>1.73</td>
</tr>
<tr>
<td>ACT Science</td>
<td>0.46</td>
<td>0.05</td>
<td>0.50*</td>
<td>0.13</td>
</tr>
<tr>
<td>ACT Math</td>
<td>0.55</td>
<td>0.34</td>
<td>0.54*</td>
<td>0.23</td>
</tr>
<tr>
<td>ACT Composite</td>
<td>0.44</td>
<td>0.19</td>
<td>0.46*</td>
<td>0.12</td>
</tr>
</tbody>
</table>

*p < .05

**p < .01

***p < .001
Table 7

*Logistic Regression Analysis of the Variables that Predict Graduation for Students with Emotional Disabilities*

<table>
<thead>
<tr>
<th>Graduated</th>
<th>Odds Ratio</th>
<th>SE</th>
<th>z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>11.64*</td>
<td>9.83</td>
<td>2.91</td>
<td>0.00</td>
</tr>
<tr>
<td>Years in 9th grade</td>
<td>1.89</td>
<td>1.33</td>
<td>0.91</td>
<td>0.36</td>
</tr>
<tr>
<td>Student attendance percentage</td>
<td>1.04*</td>
<td>0.02</td>
<td>2.25</td>
<td>0.02</td>
</tr>
<tr>
<td>Attendance goals&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.65</td>
<td>0.58</td>
<td>-0.48</td>
<td>0.63</td>
</tr>
<tr>
<td>Time in SPED</td>
<td>0.91*</td>
<td>0.04</td>
<td>-2.21</td>
<td>0.03</td>
</tr>
<tr>
<td>Legal&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2.72</td>
<td>2.67</td>
<td>1.02</td>
<td>0.31</td>
</tr>
<tr>
<td>Constant</td>
<td>0.01</td>
<td>0.01</td>
<td>-2.20</td>
<td>0.03</td>
</tr>
</tbody>
</table>

LR $\chi^2$ (6) = 41.40

$p > \chi^2 = 0.00$

Pseudo-$R^2 = 0.46$

* $p < .05$

<sup>a</sup>Attendance goals: No = 0; Yes = 1

<sup>b</sup>Legal: No = 0; Yes = 1
Table 8

*Standardized Canonical Discriminant Function Coefficients for Participants with ED*

<table>
<thead>
<tr>
<th>Variable</th>
<th>ED group</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>-0.72</td>
</tr>
<tr>
<td>Student attendance percentage</td>
<td>-0.56</td>
</tr>
<tr>
<td>Time in Special Education</td>
<td>0.41</td>
</tr>
<tr>
<td>Attendance-based IEP goal</td>
<td>0.17</td>
</tr>
<tr>
<td>Legal involvement</td>
<td>-0.15</td>
</tr>
</tbody>
</table>
Table 9

Functions at Group Means for Participants with ED

<table>
<thead>
<tr>
<th>Graduated</th>
<th>ED Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0.96</td>
</tr>
<tr>
<td>Yes</td>
<td>-0.80</td>
</tr>
</tbody>
</table>
Table 10

*Standardized Canonical Discriminant Function Coefficients for Participants with ED - Simplified Model*

<table>
<thead>
<tr>
<th>Variable</th>
<th>ED group</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>0.77</td>
</tr>
<tr>
<td>Student attendance percentage</td>
<td>0.70</td>
</tr>
</tbody>
</table>

*Note.* Grade point average (GPA) was identified from the final transcripts of participants with numbers from 0.00 – 5.00, with 4.00 indicating earning an “A” on an academic-level course. Student attendance percentage was the average percentage of IEP meetings a student attended while in high school.
Table 11

*Functions at Group Means for Participants with ED - Simplified Model*

<table>
<thead>
<tr>
<th>Graduated</th>
<th>ED Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>-0.84</td>
</tr>
<tr>
<td>Yes</td>
<td>0.73</td>
</tr>
</tbody>
</table>
Table 12

Logistic Regression Analysis of the Variables that Predict Graduation for the Nondisabled Students

<table>
<thead>
<tr>
<th>Graduated</th>
<th>Odds Ratio</th>
<th>SE</th>
<th>z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>9.69*</td>
<td>6.24</td>
<td>3.53</td>
<td>0.00</td>
</tr>
<tr>
<td>Number of HS's</td>
<td>0.17</td>
<td>0.16</td>
<td>-1.92</td>
<td>0.06</td>
</tr>
<tr>
<td>Constant</td>
<td>256.99</td>
<td>362.46</td>
<td>3.93</td>
<td>0.00</td>
</tr>
</tbody>
</table>

LR $\chi^2 (2) = 47.50$

$p > \chi^2 = 0.00$

Pseudo-$R^2 = 0.62$

* $p < .05$
Table 13

*Logistic Regression Analysis of the Variables that Predict Graduation for Students with ED and the Nondisabled Students*

<table>
<thead>
<tr>
<th>Graduated</th>
<th>Odds Ratio</th>
<th>SE</th>
<th>z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>7.80</td>
<td>3.50</td>
<td>4.58</td>
<td>0.00</td>
</tr>
<tr>
<td>Years in 9th grade</td>
<td>1.50</td>
<td>0.75</td>
<td>0.81</td>
<td>0.42</td>
</tr>
<tr>
<td>Extracurricular participation&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.29</td>
<td>4.51</td>
<td>1.95</td>
<td>0.05</td>
</tr>
<tr>
<td>Constant</td>
<td>3.31</td>
<td>2.42</td>
<td>1.64</td>
<td>0.10</td>
</tr>
</tbody>
</table>

LR $\chi^2$ (3) = 77.62

$p > \chi^2 = 0.00$

Pseudo-$R^2 = 0.48$

<sup>a</sup>Extracurricular participation: No = 0; Yes = 1
<table>
<thead>
<tr>
<th>Variable</th>
<th>Nondisabled</th>
<th>ED group</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>0.79</td>
<td>1.01</td>
</tr>
<tr>
<td>Years in 9th grade</td>
<td>-0.44</td>
<td>0.24</td>
</tr>
<tr>
<td>Extracurricular participation</td>
<td>0.27</td>
<td>0.32</td>
</tr>
</tbody>
</table>
Table 15

*Functions at Group Means for all Participants*

<table>
<thead>
<tr>
<th>Graduated</th>
<th>Nondisabled</th>
<th>ED group</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>-2.50</td>
<td>-0.76</td>
</tr>
<tr>
<td>Yes</td>
<td>0.44</td>
<td>0.65</td>
</tr>
</tbody>
</table>
Table 16

*Correlations for Participants with ED Organized by Ethnicity*

<table>
<thead>
<tr>
<th></th>
<th>White with ED</th>
<th>Participants of Color with ED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Graduation</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-0.02</td>
<td>-0.02</td>
</tr>
<tr>
<td>English ACT</td>
<td>0.17</td>
<td>0.44</td>
</tr>
<tr>
<td>Math ACT</td>
<td>0.26</td>
<td>0.34</td>
</tr>
<tr>
<td>Reading ACT</td>
<td>-0.09</td>
<td>0.50</td>
</tr>
<tr>
<td>Science ACT</td>
<td>0.59</td>
<td>0.76</td>
</tr>
<tr>
<td>Composite ACT</td>
<td>0.32</td>
<td>0.73</td>
</tr>
<tr>
<td>GPA</td>
<td>0.65***</td>
<td>0.50***</td>
</tr>
<tr>
<td>IQ</td>
<td>0.36*</td>
<td>-0.10</td>
</tr>
<tr>
<td>Reading Achievement</td>
<td>0.32</td>
<td>0.11</td>
</tr>
<tr>
<td>Math Achievement</td>
<td>0.17</td>
<td>0.09</td>
</tr>
<tr>
<td>Writing Achievement</td>
<td>0.07</td>
<td>0.11</td>
</tr>
<tr>
<td>Years in 9th Grade</td>
<td>-0.27</td>
<td>-0.27*</td>
</tr>
<tr>
<td>Number of Meetings in HS</td>
<td>0.04</td>
<td>0.00</td>
</tr>
<tr>
<td>Telephone Conference Attendance</td>
<td>0.07</td>
<td>-0.05</td>
</tr>
<tr>
<td>In Person Parent Attendance</td>
<td>-0.07</td>
<td>0.05</td>
</tr>
<tr>
<td>Overall Parent Attendance</td>
<td>-0.18</td>
<td>0.22</td>
</tr>
<tr>
<td>Student Attendance Percentage</td>
<td>0.44**</td>
<td>0.35**</td>
</tr>
<tr>
<td>Expectations</td>
<td>-0.06</td>
<td>0.02</td>
</tr>
</tbody>
</table>
Table 16 (continued)

<table>
<thead>
<tr>
<th></th>
<th>Value 1</th>
<th>Value 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligibility</td>
<td>-0.07</td>
<td>-0.03</td>
</tr>
<tr>
<td>Dual Qualification</td>
<td>0.14</td>
<td>0.00</td>
</tr>
<tr>
<td>Age Qualified for SPED</td>
<td>-0.26</td>
<td>0.10</td>
</tr>
<tr>
<td>Time in SPED</td>
<td>-0.47**</td>
<td>-0.29*</td>
</tr>
<tr>
<td>Attendance Based IEP Goal</td>
<td>-0.27</td>
<td>-0.29*</td>
</tr>
<tr>
<td>Mental Health Diagnosis</td>
<td>-0.35*</td>
<td>0.33**</td>
</tr>
<tr>
<td>Extracurricular Participation</td>
<td>0.14</td>
<td>0.45***</td>
</tr>
<tr>
<td>Legal Involvement</td>
<td>-0.24</td>
<td>-0.32*</td>
</tr>
<tr>
<td>Number of HSs Attended</td>
<td>-0.18</td>
<td>0.25*</td>
</tr>
</tbody>
</table>

* $p < .05$

** $p < .01$

*** $p < .001$
Table 17

Results from Two-Tailed t-tests Organized by Ethnicity

<table>
<thead>
<tr>
<th></th>
<th>White Grads</th>
<th>White Dropouts</th>
<th>Participants of Color Grads</th>
<th>Participants of Color Dropouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>2.68***</td>
<td>1.45</td>
<td>1.51***</td>
<td>0.80</td>
</tr>
<tr>
<td>Years in 9th Grade</td>
<td>1.29</td>
<td>1.58</td>
<td>1.57*</td>
<td>1.94</td>
</tr>
<tr>
<td>Student Attendance Percentage</td>
<td>0.59**</td>
<td>0.32</td>
<td>0.58**</td>
<td>0.34</td>
</tr>
<tr>
<td>Time in Special Education</td>
<td>0.06**</td>
<td>0.18</td>
<td>0.10*</td>
<td>0.20</td>
</tr>
<tr>
<td>Legal System</td>
<td>0.10</td>
<td>0.28</td>
<td>0.14**</td>
<td>0.43</td>
</tr>
<tr>
<td>Extracurricular</td>
<td>0.29</td>
<td>0.17</td>
<td>0.38***</td>
<td>0.03</td>
</tr>
<tr>
<td>Number of HSs</td>
<td>1.57</td>
<td>1.83</td>
<td>2.31*</td>
<td>1.75</td>
</tr>
<tr>
<td>IQ</td>
<td>106.24*</td>
<td>98.05</td>
<td>90.76</td>
<td>92.76</td>
</tr>
<tr>
<td>Mental Health</td>
<td>0.76*</td>
<td>1.00</td>
<td>0.79**</td>
<td>0.47</td>
</tr>
</tbody>
</table>

* $p < .05$

** $p < .01$

*** $p < .001$
Table 18

*Logistic Regression Analysis of the Variables that Predict Graduation for Students of Color with Emotional Disabilities*

<table>
<thead>
<tr>
<th>Graduated</th>
<th>Odds Ratio</th>
<th>SE</th>
<th>z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>5.69*</td>
<td>4.61</td>
<td>2.15</td>
<td>0.03</td>
</tr>
<tr>
<td>Student attendance percentage</td>
<td>1.04*</td>
<td>0.02</td>
<td>2.18</td>
<td>0.03</td>
</tr>
<tr>
<td>Mental health diagnosisa</td>
<td>32.08*</td>
<td>40.63</td>
<td>2.74</td>
<td>0.01</td>
</tr>
<tr>
<td>Constant</td>
<td>0.01</td>
<td>0.02</td>
<td>-2.71</td>
<td>0.01</td>
</tr>
</tbody>
</table>

LR $\chi^2$ (3) = 26.77

$p > \chi^2 = 0.00$

Pseudo-$R^2 = 0.48$

* $p < .05$

aMental health diagnosis: No = 0; Yes = 1
Table 19

*Logistic Regression Analysis of the Variables that Predict Graduation for White Students with Emotional Disabilities*

<table>
<thead>
<tr>
<th>Graduated</th>
<th>Odds Ratio</th>
<th>SE</th>
<th>z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>812.38</td>
<td>3667.28</td>
<td>1.48</td>
<td>0.14</td>
</tr>
<tr>
<td>IQ</td>
<td>1.15</td>
<td>0.10</td>
<td>1.21</td>
<td>0.23</td>
</tr>
<tr>
<td>Student attendance percentage</td>
<td>1.16</td>
<td>345.02</td>
<td>1.67</td>
<td>0.09</td>
</tr>
<tr>
<td>Time in SPED</td>
<td>0.88</td>
<td>0.10</td>
<td>-1.05</td>
<td>0.29</td>
</tr>
<tr>
<td>Constant</td>
<td>0.29</td>
<td>0.51</td>
<td>-0.70</td>
<td>0.48</td>
</tr>
</tbody>
</table>

LR $\chi^2 (4) = 27.45$

$p > \chi^2 = 0.00$

Pseudo-$R^2 = 0.74$
Appendix A

Explanation to Principals

Predicting Graduation

Brad Mills

Faculty Sponsor: Dr. Sabornie

Introduction

This study will utilize data from former student’s special education and cumulative folders to identify and predict risk factors for high school graduation for students with Emotional Disabilities (ED). Additionally, students with ED will also be compared to students who are nondisabled from the same schools.

According to the OSEP annual report to the U.S. Department of Education’s *37th Annual Report to Congress on the Implementation of Individuals with Disabilities Education Act* (IDEA) (2015), in 2013 only 53% of students with Emotional Disabilities (ED) graduated high school compared to 65% of students in all disability categories. Additionally, between 2003 and 2013, students with ED have had at least a 35% dropout rate each year. This number is the highest of all disability categories and exceeds the overall average for students in all disability categories by 17%. Students with ED are also nearly twice as likely to be arrested within two years of leaving school (37% vs. 19% for students with other disabilities) and more than half of all students with ED (58%) will be arrested within five years of leaving school (Wagner, 1991; Wagner, D’Amico, Marder, Newman, and Blackorby, 1992). These are extremely depressing statistics, suggesting a population of individuals desperately in need of help. The current research being conducted is not enough.
Justification

It is important to look at the students with ED who are graduating high school to examine the factors that relate to success as compared to students with ED who do not graduate. The proposed study will examine the special education files of students who are no longer in high school (both those who have graduated as well as those who dropped out) to identify variables that may be linked to an increased chance of high school graduation. The hope is that this study will guide future research for interventions to improve graduation rates of students with ED.

A pilot study completed by Mills (2016), found several areas of significance to further explore. The numbers of years a student with ED spent in high school and having an attendance-based IEP goal were both found to be negatively predictive of graduating from high school. The student percentage of IEP meeting attendance was positively correlated with graduation and approached significance as a predictor for graduation.

Methodology

The proposed research will include students who are no longer enrolled in Wake County Public School System (WCPSS) (either graduated or dropped out). Permission will be acquired by WCPSS as well as permission from the Principal of the schools being researched. The research will include three schools with an expectation of 40-60 students with ED from each school giving meaning an estimate 120-180 participants with ED. The participants in the ED group must either have ED as a primary or secondary disability. A comparison group of nondisabled individuals will also include between 120-180 participants. The nondisabled group
will also attempt to include an approximation to the school 5-year average for graduation rates of nondisabled students.

All information will be gathered through each former students’ special education and cumulative folders.

A second coder will be used in the data collection process. The second coder will independently review 20% of all participants’ folders to be compared with the primary investigator’s results. Any discrepancies will be reevaluated by both the primary investigator and the second coder to determine the correct response to achieve 100% consistency.

Data to be recorded may include: disability group, educational outcome, IQ/ability scores, meeting attendance percentages for parent and student, extracurricular involvement, age qualified for SPED, time spent in a separate setting, race/ethnicity, indications of mental health diagnoses and treatment, and if attendance-based goals are included in the IEP.

Data analysis will include the use of Stata 14 statistical software. The analyses conducted will include logistic regressions, correlational analyses and t-tests. Discriminant Factor Analysis is also a possibility, though more information will be needed on this. Analysis will specifically examine: (a) participants with ED who did not graduate and participants with ED who did graduate; (b) participants with ED who did not graduate and participants with other primary disabilities who did not graduate; (c) participants with ED who graduated and participants with other primary disabilities who graduated; and (d) differences between ethnic group graduates and non-graduates.

Potential Outcomes

Increasing graduation rates is a priority for many high schools in the nation including a recent goal of 95% graduation rates in WCPSS (Chambers, 2015). Special education
involvement is a risk-factor for dropping out of high school, and this is even more of a concern with students who have emotional disabilities. The results from this study may lead to identifying additional risk-factors for dropping out as well as what factors are correlated with high school graduation. From this research, it may be possible to begin identifying methods for improving the graduation rates of future students with similar needs.

References


Mills, B. S. (2016). *Predicting graduation: An examination of the variables that predict graduation for students with emotional disabilities* (Unpublished master’s thesis). North Carolina State University, Raleigh, NC.


Appendix B
Coding Manual

**Ability Score in Mathematics:** Coded as the standard score indicated from the participant’s most recent evaluation. If only one cumulative math score is given or the assessment includes a cumulative math score that is calculated from sub-scores, such as “Total Mathematics”, this is indicated as the math score. If the evaluation gives cluster scores for Calculation and Math Fluency, the two cluster scores will be added together and divided by two to achieve a cumulative score. Scores with a decimal of “5” or higher will be rounded up to the next whole number. Math scores are found in the psychoeducational evaluation, the DEC 7, and on the DEC 3.

**Ability Score in Reading:** Coded as the standard score indicated from the participant’s most recent evaluation. If only one cumulative reading score is given or the assessment includes a cumulative reading score that is calculated from sub-scores, such as “Total Reading”, this is indicated as the reading score. If, such as with the Woodcock-Johnson Tests of Achievement- III (WJ-III), the evaluation gives cluster scores for Basic Reading and Reading Comprehension, the two cluster scores will be added together and divided by two to achieve a cumulative score. Scores with a decimal of “5” or higher will be rounded up to the next whole number. Reading scores are found in the psychoeducational evaluation, the DEC 7, and on the DEC 3.

**Ability Score in Writing:** Coded as the standard score indicated from the participant’s most recent evaluation. If only one cumulative writing score is given or the assessment includes a cumulative writing score that is calculated from sub-scores, such as “Written Expression”, this is indicated as the writing score. If the evaluation gives cluster scores for Writing Fluency and Writing Samples, the two cluster scores will be added together and divided by two to achieve a
cumulative score. Scores with a decimal of “5” or higher will be rounded up to the next whole number. Writing scores are found in the psychoeducational evaluation, the DEC 7, and on the DEC 3.

**Age Qualified for Special Education:** Coded as a whole number, the age of the individual when he/she qualified for special education services thus scores can be between 0-21. If the individual qualified for special education but was exited and qualified again, the more recent qualification age will be used. If an individual comes from out of state or out of county, if documentation exists indicating the age the student qualified, that will be used. If no documentation indicates the age of qualification, the item will be left blank. The date of qualification is located on the Informed Consent for Initial Provision of Services (DEC 6).

**Attendance Focused IEP Goal:** Coded dichotomously. No attendance targeted IEP goal = 0, Yes an attendance targeted IEP goal = 1. The item will only look at IEPs that are in place while in high school. If the student has an IEP goal that indicates a target behavior of having a certain percentage of attendance per class, less than a targeted number of absences or something similar, this will be coded as having an attendance based IEP goal. An attendance targeted goal only needs to occur once to be indicated as a “yes.”

**Average Percentage of Time in the Special Education Setting During High School:** This is calculated as a percentage, then converted to a two-digit decimal between 0 and 1. If the third number to the right of the decimal (thousandths place) is a 5 or higher, the hundredths place will be rounded up accordingly, if the third number is 4 or lower no rounding will occur. For each annual high school IEP, the percentage of time spent in the SPED environment will be calculated. Classes in which a student is in the regular environment, even with the assistance of a SPED teacher, will not be counted, only time in the resource setting. The percentage will be
averaged based on the length of time there are IEPs on file during high school, whether it is only one year or five years. The percentage will be calculated using six hours of academic time per school time, thus 90 minutes per day in the resource setting would be 25% of time spent in the resource setting for the year. If a student is in school for a reduced day, no changes will occur in the calculation.

**Dual qualification:** Coded dichotomously. No secondary qualification = 0, Yes the participant has a secondary qualification = 1.

**Ethnicity:** Coded categorically using African American = 1; Hispanic = 2; Asian = 3; Caucasian = 4; multiracial = 5; not identified = 6. The sample participant’s ethnicity is commonly identified in the initial description of the participant on the psychoeducational evaluation.

**Expectations for the Future:** Coded categorically. Graduate from high school = 1; Attend college = 2; Get a job = 3; Join the military = 4; Other = 5. This will be indicated from the most recent IEP on file on the transition page. If the participant’s desires are different from the parent’s expectations, the student’s will be indicated. If the expectations state that the participant will join the military before going to college, the expectations will be coded as though the participant is wanting to go to college.

**Extra-Curricular Participation:** Coded dichotomously. No extra-curricular participation during high school= 0; Yes, the student participated in an extracurricular activity during high school = 1. This information is typically found in the high school IEPs. No information will be used from prior to high school and participation in non-school activities will not be considered. Extra-curricular activities do include participation with sports teams, band, chorus, NJROTC and club participation. Having an out of school job will not be considered an extracurricular activity.
If at any time documentation indicates the student participated in an extracurricular activity, that is indicated as a “yes.”

**Gender:** Coded dichotomously. Female = 0; Male = 1. This is identified based on the name and gender specific pronouns used in the file such as “he” or “she.”

**Graduated from High School:** Coded dichotomously. Did not graduate = 0, Graduated = 1. This is identified based on the location of the file in the “Graduates class of 20...” file cabinet or the “Exited from school 20...” Also, individuals who graduate should (but do not always) include a senior exit meeting within 30 days of graduation that indicates that the participant is graduating at the end of the semester. All participants should have an unofficial transcript, which indicates credits, in his/her cumulative folder which is with the special education folder.

*This variable is the one variable that is asked of the participant or family members for individuals who left school prior to graduation. Using contact information within the participant’s folders, the participant or his or her family will be contacted only to ask if the participant graduated or dropped out of school.

**IQ:** Coded as the standard score indicated from the participant’s most recent evaluation. Can be either the Full Scale Intelligence Quotient (FSIQ) from the WISC-IV, the General Conceptual Ability (GCA) from the Differential Ability Scales- II (DAS-II) evaluation, the Composite Intelligence Index (CIX) on the Reynold Intellectual Assessment Scale (RIAS) or other similar evaluation scores.

**Mental Health Diagnosis:** Coded dichotomously. No mental health diagnosis = 0, Yes a mental health diagnosis exists = 1. This information is typically identified in re-evaluation or psychoeducational evaluations. It also may be located within the IEPs, though this is less common. An individual is considered having a mental health diagnosis if at any time in his/her
history there is documentation of a diagnosis unless more recent documentation clearly states that there is no longer a diagnosis.

**Mental Health Treatment:** Coded categorically. No treatment indicated = 0, medication treatment only = 1, therapeutic treatment only = 2, both medication and therapy treatments = 3. This information is typically identified in re-evaluation or psychoeducational evaluations. It also may be located within the IEPs, though this is less common. If at any time during the documents on file, there is indication that the participant received treatment of any form, this will be indicated accordingly. If the documentation of treatment is in multiple locations within the file, the item is scored cumulatively, meaning if documentation states medication being used and later paperwork states that the individual met with a therapist, the item would be scored a “3” for both types of treatment.

**Number of High Schools Attended:** This was coded as a whole number indicating the number of different high schools a participant attended. If the participant left a school and returned to the same school later, it was only counted once. Documentation must exist to indicate a school was attended. If a student left the school being studied but ultimately graduated from a different school, the student will be given credit for the additional high school as he or she would have been required to attend a high school in order to graduate. Online high schools and homes schooling will be considered the same as any traditional high school. If a student attends a high school but takes an individual class or two at an online high school, the online class will not be counted as a separate school. If a participant evenly splits his or her day between a traditional high school and an online program, then the online program will be counted.

**Number of Meetings in High School:** Coded as a whole number, indicating the number of meetings that are documented in the folder for the participant. A meeting will be counted as
having occurred if there are meeting minutes with a specific date and recordings of what was discussed or if there is an official special education document created on a specific date, even without meeting minutes. Meetings must include a Local Education Agent (i.e., principal, vice principal), a regular education teacher, a special education teacher, parents and the child. It is important to note that the regular education teacher can be excused from the meeting and the parents and students can choose not to attend. Meetings that occurred at other schools will not be considered unless documentation of the meeting is included in the folder. Guesses of meetings occurring at other schools will not be counted. If a student leaves the school being studied with two years remaining in high school, which would indicate the participant would have at least one more while in high school, it will not be added to the total number of meetings.

**Percentage of Parental Attendance in IEP Team Meetings:** This is calculated as a percentage, then converted to a two-digit decimal between 0 and 1. If the third number to the right of the decimal (thousandths place) is a 5 or higher, the hundredths place will be rounded up accordingly, if the third number is 4 or lower than no rounding will occur. Attendance will be looked at in three places for a meeting. On the meeting minutes, which should indicate all participants in attendance, on the special education document that is completed at the meeting (i.e., IEP, BIP, Re-evaluation) and on the Prior Written Notice summary document (DEC 5). If a parent is indicated as participating in two or more of locations, they will be considered having attended the meeting. If the parent is indicated as having attended in one location, but the minutes or documents clearly indicate that the parent said or did something at the meeting, the parent will be indicated as having attended. Parents will be considered one person, thus if the father attends a meeting and the mother attends the next, if would be indicated as 100%
Attendance by the parents. Participating in the meeting via phone conference will be indicated as attending the meeting the same as if the parent participated in person.

**Percentage of Parental Attendance in IEP Team Meetings in person:** This is calculated as a percentage, then converted to a two-digit decimal between 0 and 1. If the third number to the right of the decimal (thousandths place) is a 5 or higher, the hundredths place will be rounded up accordingly, if the third number is 4 or lower then no rounding will occur. This will be calculated in conjunction with the overall parent attendance variable. The percentage will be calculated by dividing the number of meetings attended in person by the total number of meetings in high school. If on any of the three documents, it indicates the parent attended via phone conference, they will not be considered attending in person for that meeting.

**Percentage of Student Attendance in IEP Team Meetings:** This is calculated as a percentage, then converted to a two-digit decimal between 0 and 1. If the third number to the right of the decimal (thousandths place) is a 5 or higher, the hundredths place will be rounded up accordingly, if the third number is 4 or lower then no rounding will occur. Attendance will be looked at in three places for a meeting. On the meeting minutes, which should indicate all participants in attendance, on the special education document that is completed at the meeting (i.e., IEP, BIP, Re-evaluation) and on the prior written notice summary document (DEC 5). If a student is indicated as participating in two or more of locations, they will be considered having attended the meeting. If the student is indicated as having attended in one location, but the minutes or documents clearly indicate that the student said or did something at the meeting, the student will be indicated as having attended.

**Primary Area of Eligibility:** Coded dichotomously with any disability other than ED = 0 and ED = 1. This will be located on the most recent IEP or Re-evaluation.
Years Spent in 9th Grade: Coded as a whole number, indicating the number of years spent in 9th grade. Each special education document includes the participant’s current grade at the top of the page. Participants will be indicated as being in ninth grade for an entire year for each academic year in which one of the documents indicates grade 9. For example, if the participant entered high school in the 2009-2010 school year he/she would be indicated in 9th grade which will count as one year. If during the 2010-2011 school year, a different meeting document indicates that the participant is in 9th grade, that will be indicated as a second year in 9th grade. Even if a later document indicates the participant has been moved to 10th grade later in the 2010-2011 school year, the participant will still be counted as having spent two years in ninth grade. No fractional years will be given as a student is typically only promoted in the middle of the year due to special exceptions, and the practice is not done consistently for all students and at all schools.