VOCATIONAL TRAINING AND TYPES OF ENGAGEMENT AS PREDICTORS OF DROPOUT FOR STUDENTS WITH HIGH INCIDENCE DISABILITIES

by

MAXINE BROWN

(Under the Direction of Anne Bothe Marcotte)

ABSTRACT

The conditions known as Learning Disabilities (LD) and Emotional and Behavior Disorders (EBD) are consistently associated with factors that place students at risk of dropping out of high school, such as low positive engagement at school and low academic success (Christenson & Thurlow, 2004; Fredricks, Blumenfeld, & Paris, 2004; Murray, 2003). Some studies report dropout rates for youth with LD and EBD at 25% to 44% (Wagner, Newman, Cameto, Garza, & Levine, 2005). Dropping out of school is known to be mitigated for students without disabilities by certain types of vocational training (Stone & Alfeld, 2004), but very little is known about the effects of vocational training for students with LD or EBD.

To address these issues, this dissertation used data from the National Longitudinal Transition Study-2 (NLTS-2) to analyze the association of four categories of predictor variables with the outcome of high school dropout for students with LD or EBD. Variables included demographic (gender, race/ethnicity, and family income), vocational (apprenticeship, skills training, and tech prep), family engagement, and negative youth engagement measures. Comparative analyses were used to examine associations and differences between predictor variables and the outcome of dropout. Additionally, Poisson regression analyses considered

whether the presence of certain predictor variables contributed (negatively or positively) to the likelihood of high school dropout.

Results of this study confirmed previous high dropout rates for students with either a learning disability (6.8%) or behavior disorder (16.5%). In addition, this study showed that youth who were Latino with LD or EBD (9.7% and 19.5% dropout rates, respectively) were more likely to drop out of school than youth who were White (6.5% and 15.9%) or African American (6.5% and 16.3%) with the same conditions. Youth with LD or EBD who participated in general vocational training (5.7%) were more likely to drop out of school than youth who completed specific types of vocational training (<1%). These findings served as the basis for developing implications for practice and research. In particular, this study suggests that existing interventions and programs related to vocational training, bullying, and physical violence may have the potential to curtail high school dropout rates for youth with LD and EBD.

INDEX WORDS: High incidence disabilities, learning disabilities, emotionally disturbed and behavior disordered, transition, high school dropout, engagement, vocational training, dropout prevention

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DEDICATION

To my Pop, I felt you with me throughout this process. Also, to Tyra and Matthew, you were always content to sit in the same room with me while I studied. Just being together was always enough for you…

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CHAPTER 1

INTRODUCTION

This dissertation examined vocational training and types of engagement as predictors of secondary school dropout for individuals with learning disabilities and individuals with emotional disturbance and behavior disorders. This chapter presents some of the terms and concepts necessary for in-depth consideration of this issue.

The term learning disabilities (LD) refers to various disorders that negatively impact student learning by adversely influencing a student's ability to effectively read, write, speak, and/or process mathematic calculations (Title 34, §300, 2012). An individual can experience an LD in one, some, or all of the aforementioned areas. Previously, professionals identified learning disabilities by waiting for individuals to show a discrepancy between their ability and achievement levels (Zumeta, Zirkel, & Danielson, 2014). Current mandates (i.e., No Child Left Behind) have changed to require educators to first attempt to implement research based interventions through a process known as *response to intervention* (RTI) to determine whether students' issues are due to causes other than a learning disability (Zumeta et al., 2014). The purpose of the RTI process is to provide supports at multiple levels if students are experiencing shortfalls based on academic gaps as opposed to a disability.

Youth identified with emotional and behavior disorders (EBD) usually manifest more culturally unacceptable conduct than typical students. Some individuals with EBD can exhibit externalized behaviors and may appear more disruptive and aggressive, while others experience internalizing behaviors (i.e., depression or anxiety) which are often less noticeable

(Hallahan, Kauffman, & Pullen, 2009). Characteristics of youth affected by EBD include an unexplained failure to learn, or inability to maintain relationships with peers and teachers (Title 34, §300, 2012).

LD and EBD are among the most prevalent of all disabilities and are most often grouped with the disabilities known as high-incidence disabilities (Hallahan et al., 2009; Stitchter, Conroy, & Kauffman, 2008). The traditional term high incidence disabilities (HID), first used by Hallahan and Kauffman (1977), also includes youth with intellectual disabilities (ID), as it was believed that the characteristics of youth with LD, EBD, and ID are more homogeneous than different. Hallahan and Kauffman's (1977) asserted was that overlap of their characteristics makes it difficult to distinguish between students with those conditions, and that they should be grouped and educated together. In contrast, contemporary researchers, such as Sabornie, Cullinan, Osborne, and Brock (2005), posited that there are significant intellectual differences between youth with ID and youth in the other two disability groups included in the traditional HID classification. In fact, it has become customary practice to exclude intellectual disabilities from many current discussions concerning high-incidence disabilities (Gage, Lierheimer, & Goran, 2012; Lane, Carter, Pierson, & Glaeser, 2006; Toste, Bloom, & Heath, 2012). Lane et al. (2006), in particular, suggested that there are similarities in academic functioning between students with LD and students with EBD, as well as similarities in postsecondary outcomes (Newman, Wagner, Cameto, & Knokey, 2009). Additionally, there are significant amounts of comorbidity between the groups (Lopes, 2005). Over 50% of youth with a primary diagnosis of LD may also have a diagnosis of EBD; while as many as 75% of youth with a primary diagnosis of EBD may also have LD (Kaplan, Dewey, Crawford, & Wilson, 2001). Because of the intellectual parallels between students with LD and those with EBD, the high prevalence of

comorbidity, similarities in postsecondary outcomes, and overlap in academic treatments, and because of the differences between those groups and ID, discussions of HID in this dissertation are limited to youth with LD and EBD.

Purpose of the Study

One of the shared characteristics between individuals with LD and those with EBD is a relatively high rate of high school dropout, which is leaving school prior to completing the requirements necessary to graduate. This study examined risk factors salient to dropout rates (e.g., student disability type, negative student engagement, income) for students with LD and EBD, in the context of factors that may temper those outcomes (family engagement and vocational training). Specifically, this research investigated the influence of four categories of variables on the outcome of dropout: demographic, vocational, family engagement, and negative engagement. Given previous research, greater amounts of family engagement and vocational training and reduced amounts of negative student engagement (i.e., bullying) were hypothesized predictors of reduced rates of high school dropout.

Because limited academic success is a known contributing factor to school dropout (Plank, DeLuca, & Estacion, 2008), Harvey (2001b) suggested that a good way to keep students in school, while further preparing them for the workforce, was to provide vocational education. Vocational training provides work or career preparation that comes in many different forms and in a variety of occupations. The Perkins Act (legislation that provides funding for vocational education) and current culture focus on the term "career and technical education" (CTE), which implies an emphasis on the skills considered important to be globally competitive (e.g., science and math). However, regardless of the preferred term (vocational or CTE) there are a myriad of choices available to satisfy most preferences and skills sets (Scott & Sarkees-Wircenski, 2008).

In fact, the Perkins Act recognizes 16 career pathways or clusters that point to the paths available to facilitate career trajectories. For students who struggle with traditional academics, including those with LD or EBD, vocational education can provide the education required for specific occupations or trades, while offering options beyond traditional educational courses that consist primarily of academic courses.

The focus of this research was to determine the association of selected individual variables on school dropout rates for youth with LD and EBD. Data from the National Longitudinal Transition Survey-2 (NLTS-2) was analyzed using the following questions:

1. Do dropout rates differ for students with LD versus students with EBD?
2. How do demographics, vocational training, family engagement and negative school engagement affect dropout rates for students with LD?
3. How do demographics, vocational training, family engagement and negative school engagement affect dropout rates for students with EBD?

Procedures and Summary of Results

The NLTS-2 is an extension of an earlier data collection project, the National Longitudinal Transition Study (Wagner, & Cadwallader et al., 2003). NLTS-2 was designed to examine secondary and postsecondary experiences of youth with disabilities who were between the ages of 13 and 16, and in at least the 7th grade, in the 2000-2001 school year (Newman et al., 2009). The analyses reported in this dissertation used NLTS-2 data to investigate the questions presented immediately above. Further analyses were then conducted using Poisson regression. The results of this study identified certain types of vocational training, household income in some cases, and increased family engagement as predictors of improved youth outcomes (i.e., reduced dropout rates).

Significance of the Study

It is difficult to find current research that focuses on improving the outcomes of youth with LD and EBD. Exploring options that contribute to the remediation of dropout can provide valuable data that assists in school transition planning, informed policy planning, and the availability of choices beyond typical academics that primarily focus on college preparation.

Organization of the Remainder of this Dissertation

The remaining chapters provide a review of relevant literature, methods, results, and implications of this work. Chapter 2 reviews available literature on the influence of various types of vocational training and types of engagement on outcomes of high school youth with disabilities. Chapter 3 details the NLTS-2 database and describes the research methods. Chapter 4 presents the results of this study; Chapter 5 presents conclusions, limitations, and implications for future practice and research.

CHAPTER 2

REVIEW OF THE LITERATURE

Close to half of all students with disabilities have a primary diagnosis of learning disabilities (LD) or emotional disturbance and behavior disorders (EBD [National Center for Education Statistics-NCES, 2013]). Characteristics of youth with learning disabilities can include difficulties receiving or recalling information in either specific or multiple subjects. Characteristics of youth with emotional disturbance and behavior disorders include inexplicable failures to grasp academic materials (Title 34, §300, 2012). Table 1 provides more detailed definitions for both disorders.

Ordinarily, students with these disabilities exhibit lower rates of postsecondary (after high school) success than typical students (Newman et al., 2009). Some of the documented postsecondary negative outcomes for youth with LD or EBD include low wages, higher rates of unemployment, poor high school graduation rates and low college attendance rates (Carter, Trainor, Sun, & Owens, 2009; Murray, 2003; Williams-Diehm & Benz, 2008). Research further demonstrates that youth with LD or EBD experience reduced rates of socialization and increased rates of arrest and incarceration (Scanlon & Mellard, 2002; Wagner et al., 2005). National Longitudinal Transition Study-2 data indicated that almost 25% of individuals with LD and 44% of individuals with EBD dropped out of high school (Wagner et al., 2005). Comparatively, another study indicated only slightly more than 9% of all American high school students combined dropped out of school (Laird, DeBell, Kienzl, & Chapman, 2007). Harvey and Koch (2004) suggested that one reason for the high rate of dropout for students with high incidence

disabilities (HID) is that the educational programming available to them is not suitable to their individual needs.

Table 1

Disabilities Considered High-Incidence Disabilities and Federal Definitions

Disability category	Federal definition
Emotionally disturbed and behavior disordered (EBD)	(i) Emotional disturbance means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance: (A) An inability to learn that cannot be explained by intellectual, sensory, or health factors. (B) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers. (C) Inappropriate types of behavior or feelings under normal circumstances. (D) A general pervasive mood of unhappiness or depression. (E) A tendency to develop physical symptoms or fears associated with personal or school problems.
Learning disability (LD)	(10) Specific learning disability. (i) General. Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. (ii) Disorders not included. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

Source: Title 34, §300, Code of Federal Regulations (2012).

Most resources target academic attainment and fail to fully address the diverse needs of individual students within our public school system (Bishop & Mane, 2004). Taking a wider view of the situation with other options such as career development or work training may

provide students with greater resources and options (Bishop & Mane, 2005; Harvey, 2001a). Students without academic aspirations can be at greater risk for dropout (Christenson & Thurlow, 2004). Prior to exploring the available literature on the influence of vocational training, this chapter will first provide some foundational information on transition, dropout, and vocational training. Because of the limited availability of published literature that discussed vocational training for students with LD or EBD, this section examines only six articles that form the basis of a review of the literature and possess some relevance for youth with LD or EBD. Further, this chapter will identify and discuss studies that have conducted similar research using National Longitudinal Transition Study-2 (NLTS-2) data, whose methodologies were helpful in informing the design of the intended analyses.

Dropout

What is dropout? The term "dropout" refers to youth who leave school before completing the requirements necessary to earn a high school diploma. For this chapter, youth with a certificate of attendance are also considered dropouts because they must still pass the general education development test (GED) to gain access to many programs that require a high school diploma. Despite mandated requirements for higher academic standards and many initiatives allotted for dropout prevention (Christenson & Thurlow, 2004), relatively few resources focus on students with disabilities (Lehr, Johnson, Cosio, & Thompson, 2004). As a matter of fact, the problem of dropout remains especially grave among youth with disabilities, in part because they display more chance of dropout than typical students (Lehr et al., 2004; Thurlow, Sinclair, & Johnson, 2002).

Dropout data. In the 2007-2008 school year alone, over four out of every ten students with any disability left school either with no diploma or with only a certificate of attendance

(U.S. Department of Education, 2010). Individuals with LD or EBD in particular show even higher rates, as mentioned above (25% and 44%, respectively; Wagner et al., 2005). These numbers raise several questions that need to be addressed.

Dropout Risk factors. One obvious question about the high dropout rates is, "Why?" In an effort to more accurately predict the likelihood of student dropout, researchers consider whether or not students have been exposed to risk factors. Risk factors are undesirable events or circumstances that increase a student's probability of dropping out (Murray, 2003). Risk factors may include low socio-economic status (SES), membership in certain racial/ethnic groups, poor school engagement, lack of school success, the presence of a disability, and poor school attendance (Christenson & Thurlow, 2004; Murray, 2003). Although there is no one risk factor certain to cause dropout, multiple risk factors increase the probability of dropout (Murray, 2003). However, it is not really possible to determine which youth will drop out based on risk factors alone (Christenson & Thurlow, 2004). Since the process is very individual, more risk factors do not always point to dropout, and it is unclear what exactly makes some more susceptible to the outcome of dropout than others with the same risk factors (Murray, 2003).

Dropout is usually a gradual process that results from years of school separation or lack of engagement (Christenson & Thurlow, 2004). Student engagement has some correlation with student retention as a protective factor against dropout (Fredricks et al., 2004; Murray, 2003). Fredricks et al. (2004) specifically described three areas of student engagement, behavioral, cognitive, and emotional:

> Behavioral engagement draws on the idea of participation; it includes involvement in academic and social or extracurricular activities and is considered crucial for achieving positive academic outcomes and preventing dropping out. Emotional engagement

> encompasses positive and negative reactions to teachers, classmates, academics, and school and is presumed to create ties to an institution and influence willingness to do the work. Finally, cognitive engagement draws on the idea of investment; it incorporates thoughtfulness and willingness to exert the effort necessary to comprehend complex ideas and master difficult skills. (p. 60)

There are concrete methods to assess student levels of engagement by measuring specific constructs. Measurements that show evidence of student levels of engagement include student grades, attendance records, and discipline records (Heck & Mahoe, 2006; Hopson & Lee, 2011). Poor grades, poor attendance, and numerous disciplinary situations can all be indicators of low levels of school engagement. Fredricks et al. (2004) found that these constructs are interrelated and that targeting even one of the areas specified in their research (behavioral, cognitive, or emotional) provided opportunities to ameliorate factors that contribute to a lack of engagement, and thus reduce dropout risk factors.

Consequences of dropout. Dropping out of school is an undesired outcome because of its associated negative consequences for the individuals who drop out and for society in general. The typical individuals who have dropped out of school have limited academic skills and lack the skills necessary to be desirable or successful in the workforce. Davis (2003) pointed out that they were less likely to maintain employment and earned significantly less than their peers. Other research indicated that youth who drop out of school have limited opportunities for employment, and when employed have very limited opportunities for growth (Christle, Jolivette, & Nelson, 2007). The effects of dropout can filter down to subsequent generations and become a multi-generational cycle of poverty and failure.

The cumulative effect of dropout includes lowered tax revenues for society, due to unemployment and underemployment, and increased dependence on government assistance, reduced amounts of health insurance, and higher incarceration rates for individuals (Alliance for Education, 2009). In fact, Wolf Harlow (2003) found that about 70% of prison inmates were high school dropouts. Additionally, states with higher dropout rates find it more difficult to attract businesses that look for skilled and educated work pools (Alliance for Education, 2009). Every year dropouts cost the U.S. economy and its taxpayers billions of dollars (Christenson & Thurlow, 2004). As a result, the consequences of dropout are borne by every state, municipality, neighborhood, and individual.

Transition

The transition plan is a mandated major and essential portion of an individualized education plan (IEP). The most recent reauthorization of IDEA made changes to the transition definition in order to reduce ambiguities and strengthen planning requirements for students with disabilities (Morningstar & Liss, 2008). Transition planning must happen no later than the first IEP in effect after a child reaches the age of 16. However, based on the judgment of the IEP team, transition planning may begin as early as 14 years old (Powers, Gil-Kashiwabara, Geenen, Powers, & Palmer, 2005). The intended purpose of transition planning is to assess students' strengths, needs, and goals, and to facilitate the attainment of postsecondary success (U.S. Department of Education, 2007). A solid transition plan considers the abilities and preferences of each student and is open to various avenues. For a student with no future academic aspirations who may have also experienced academic disengagement, a vocational emphasis might be an option. A vocational focus may assist with promoting engagement, high school completion and workforce skills. Under IDEA, the transition section of the IEP must include

any additional instruction, services or employment development to help students achieve their goals (U.S. Department of Education, 2007).

Secondary school transition planning is an often-missed opportunity to prepare youth for life beyond postsecondary school and ameliorate some of the factors that lead to high school dropout. Transition planning is a process that furnishes youth with strategies to identify and achieve goals for after they leave high school (Powers et al., 2005). Transition is especially important because, if done properly, it gives professionals opportunities to gauge students' needs and interests while providing the foundation and structure needed to help those students move successfully from high school to the next phase of their lives (Morningstar & Liss, 2008). A strong and effective transition plan could reduce some of the negative post school outcomes associated with youth who have LD or EBD.

Because of the influence of the No Child Left Behind act (NCLB), current academic instruction places more emphasis on the core subjects (Dupoux, 2008). The U.S. Department of Education (2004) identifies core academic subjects as English, reading or language arts, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography. Stronger academics may positively influence students with scholastic postsecondary aspirations, but this does not address the needs of students with other interests (Dupoux, 2008). Because of their capabilities and performance levels, students with disabilities do not always find success in the general education setting taking core subjects (Harvey, 2001a). The NCLB act provides relatively little guidance for students with disabilities. Focusing on academics, NCLB placed less emphasis on the panorama of disabilities and differences displayed by atypical students (Dupoux, 2008). Students with needs more aligned to other types of instruction may not have the opportunities to have those needs fulfilled (Bishop & Mane, 2005).

Research indicates transition planning for students with disabilities continues to miss the mark intended by the federal government because of practitioners who lack skill and guidance in appropriate transition assessment and planning (Carter et al., 2009; Morningstar & Liss, 2008). Somewhere between 25% and 40% of youth with LD or EBD leave high school in pursuit of full time employment and not a college education (Dupoux, 2008; Newman et al., 2009; Silverberg, Warner, Goodwin, & Fong, 2002). Although they continue to enter the work world without the appropriate career skills, transition planning for students with special needs still focuses on behavioral and academic issues, rather than useful real world skills (Carter et al., 2009). Powers et al. (2005) found that because professionals were often unaware of available options they included very few goals to facilitate non-academic postsecondary objectives. They further contended that vocational training was included in transition planning less than a third of the time. Additionally, when transition goals included any type of career planning, professionals made students responsible to complete the steps necessary to attain those goals independently. When considered as a reasonable option and correctly included in transition planning, vocational training may assist with dropout prevention and provide job skills training (Harvey, 2001b). Combining career and academic training has shown some effectiveness on preventing high school dropout (Lehr et al., 2004). Research indicates that vocational training may reduce the rate of high school dropout as much as 30% (Stone & Alfeld, 2004).

Career Readiness. Limited academic success is a known risk factor contributing to school dropout. In order to remediate poor school achievement, case managers routinely require failing students to complete more rigorous academics which place them in even further jeopardy of failing (Plank et al., 2008). Career readiness might be an option worth considering for some students who have needs that are not addressed by academic offerings alone. Vocational

coursework or Career and Technical Education (CTE) provide training that prepares participants for particular professions or trades. Students with needs that are not traditional would benefit from programming that keeps them engaged in school and helps them graduate with the skills they need for postsecondary education or employment (Harvey & Koch, 2004). Youth gain benefits from career development, combined with meaningful successful academic experiences, during secondary school (Trainor, Smith, & Kim, 2012).

Sometimes students with LD or EBD lack a solid understanding of available careers and do not understand how to attain the positions they find interesting (Rojewski, Lee, Gregg, & Gemici, 2012). Career assessments are tools that can glean talents and abilities and are designed to help individuals connect character traits with their most likely successful career options. Career assessments are imperative in assisting students with special needs to focus on their interests and learn their strengths (Rojewski et al., 2012; Trainor et al., 2012). Assessments can offer insight by matching student interests and skills to appropriate programming (Harvey, 2001b). Rojewski et al. (2012) found it unrealistic to expect students to choose an occupation if they do not have a true understanding of the skills and educational factors involved in choosing that career. Exposing youth to available career options, along with the academic or professional requirements, competencies, and skills necessary to attain those options, would better prepare youth to make informed career choices (Harvey, 2001a).

Career training prepares students for specific types of jobs while still in secondary school and has been proven to have some positive effects on student engagement and overall school retention (Harvey & Koch, 2004). Strengthening the transition process includes focusing on career readiness (helping youth prepare for the job or career they are interested in) and considering student needs and the current market. Additionally, including career teachers at IEP

meetings would provide realistic information on the rigor of the program and allow for dialogue and preparation for appropriate accommodations and modifications (Harvey, 2001b).

Vocational Options. Giving students opportunities to prepare for professions while still in high school produces a stronger, more successful workforce. At least two thirds of the public high schools in the United States offer some type of vocational training (Phelps, Parsad, Farris, & Hudson, 2001; Silverberg et al., 2002). Three types of vocational instruction prepare students for different career trajectories. The first is specific labor market preparation, or occupational education, which focuses on ten specifically, defined professions. Next, General Labor market preparation (GLMP) focuses on functional employment skills like computer training. The third type of vocational instruction is Family and Consumer Sciences (FCS), which teach students skills to govern a private household outside of the employment market (Silverberg et al., 2002). Students with LD or EBD who have opportunities to gain vocational training in any of these three types learn real world skills that give them the practical experience they need to be competitive in the job market (Harvey, 2001a). Graduates from vocational programs earned almost 17% higher incomes during their first year post high school than graduates who specialized in academics (Bishop & Mane, 2005). In fact, Bishop and Mane (2005) further established that individuals who gained advanced vocational certifications had higher levels of employment up to 8 years post school and were more highly paid than most academic only concentrators.

Vocational Interventions for Students with Disabilities

There is very little in the literature that focuses on the responses of youth with disabilities who have had vocational training as an intervention for dropout. Wagner's (1991) publication of findings from the original National Longitudinal Transition Study (NLTS) established that

vocational training had a positive effect on the outcomes of youth with disabilities. Interestingly, until the Corbett, Sanders, Clark, and Blank's (2002) study, no other major bodies of work had focused on the effects of vocational training on youth with disabilities. In fact, beyond Corbett et al. (2002), there are no additional works that measure how exposure to vocational training relates to dropout for students with disabilities.

There are, however, some studies (e.g., Luecking & Fabian, 2000; Scholl & Mooney, 2004) that consider the effects of work preparation on outcomes of youth with disabilities. Yet, those studies measured outcomes other than dropout. In spite of this, as the intent of all of the studies were to relate how vocational training contributed to the postsecondary outcomes of youth with disabilities, their inclusion and discussion are appropriate in this chapter. Detailed summary information on all of the articles is included in Table A1 and summarized in Table 2.

As shown in Table 2, six studies were identified that focused on the effects of vocational training as interventions for students with disabilities. These studies appear to represent the majority of the available published American literature on youth with vocational participation. The number of participants in each study ranged from 19 in the Scholl and Mooney (2004) study to 3024 in Luecking and Fabian's (2000) study. Participants included individuals at risk for dropping out of school (Scholl & Mooney, 2004), individuals who had already dropped out of school (Muthumbi, 2008), and individuals who graduated from school (Ofoegbu & Azarmsa, 2010; Shandra & Hogan, 2008). With the exception of Scholl and Mooney (2004), whose study included both typical students and students with disabilities, none of the studies included participants without disabilities.

Table 2

Literature Review Condensed Article Summaries

Study	Major Findings
Corbett, Sanders, Clark, & Blank (2002)	Youth with any type of vocational involvement had lower rates of dropout than youth with no vocational involvement.
Luecking and Fabian (2000)	Youth with LD and EBD who participated in paid internships gained and held post-school employment faster and for longer periods than youth who had not.
Muthumbi (2008)	Paid internships increased the probability that youth with disabilities would complete school and maintain employment post high school.
Ofoegbu and Azarmsa (2010)	High school graduates with LD or EBD with vocational participation obtained and maintained employment at greater rates than those who did not.
Scholl and Mooney (2004)	Youth who completed the full vocational program with paid internships had a higher graduation and early post school employment rate than those who did not.
Shandra and Hogan (2008).	Youth with vocational training earned higher pay, had more benefits, and had greater job stability than those without.

Note. Articles presented in alphabetical order

Corbett et al. (2002), to begin with, analyzed data from the Florida Education and Training Placement Information Program (FETPIP), a database that contains information on former students. One of the questions guiding their inquiry considered whether amounts and types of vocational training in secondary school for students with EBD had any influence on dropout rates. Of 305 participants with EBD, 226 (74%) dropped out of school. More importantly, dropout varied based on the amount and type of vocational courses that participants had completed. Generic courses consisted of skills required for daily office work (e.g., typing, basic computer skills). Occupationally specific courses consisted of skills required to do a

particular type of work (e.g., carpenter, painter). On-the-job training courses provided youth with opportunities to learn skills while actually performing tasks on a real job for school credit. Of these, students with occupationally specific courses and on-the-job training courses performed similarly, while youth who took generic courses dropped out of school more often. Corbett et al. (2002) concluded that (although the level of influence varied based on the type of vocational training) each of the vocational programs examined in their research positively impacted youth with EBD by lowering the likelihood that they would drop out of school.

Beyond the above Corbett et al. (2002) summary, no other published study has assessed dropout for students with disabilities. Shandra and Hogan (2008), who did not examine specific models of work preparation, did use data retrieved from the National Longitudinal Survey of Youth (1997) to evaluate the outcomes of students who participated in any type of vocational training during high school, and their levels of work participation. Students included in the study, indicated participation in cooperative education technical preparation, career majors, work based mentoring, job shadowing, or internships. The authors found that students who indicated participation in secondary training had higher rates of stable, full-time employment. In fact, all participants were more likely to hold stable, full-time employment, as compared with those who did not participate in any type of training program. Corbett et al. (2002), findings supported the assertion that students with training were at an advantage over students without training (Bishop & Mane, 2004; Bishop & Mane, 2005).

Luecking and Fabian's (2000) study also provided some vocational training but placed greater emphasis on internships of at least 3 months' duration and strong employer relationships. Scholl and Mooney (2004) also provided vocational coursework, combined with paid apprenticeships over a 2-year period. Over 60% of Luecking and Fabian's (2000) participants

maintained independent employment 18 months post intervention. However, the authors noted the need for more support of students with EBD, who were three times less likely to be employed than their counterparts. After 2 years, students who participated in and successfully completed the program offered in Scholl and Mooney's (2004) study graduated with a regular high school diploma with a technical endorsement and with eligibility for vocational course credits at a Wisconsin university or technical college. The participants who completed the program had a postsecondary school participation rate higher than the national average. Graduates also had favorable employment and earnings when compared to national standards (Scholl & Mooney, 2004).

The two remaining studies shown in Table 2 both had notable methodological problems. Muthumbi's (2008) study concentrated on students with disabilities who were dropouts, in addition to students with disabilities still attending school. Her study, however, included very little methodology information and, therefore, holds less prominence than most of the other research discussed in this chapter. Participants were from New York State's initiative to streamline services for students with special needs between the ages of 14 and 24. Five separate counseling centers provided one-stop counseling for students with disabilities. Each center provided supports for career counseling, social skills counseling, and mentoring. Youth received guidance in obtaining vocational training, internships and community based employment. The author found a positive relationship between the services offered by the community based centers and student outcomes. Interestingly, the study concluded that older students who participated in vocational training were not afforded many of the basic vocational classes that the younger students were offered, and therefore, they did not acquire the same overall skills level the younger students achieved. As a result, students under 16 who received vocational training

were more successful than the older youth who received vocational training. This finding is similar to those reported by Bishop and Mane (2004) for students without disabilities that support the benefits of exposing younger youth to vocational training.

Similar to Muthumbi (2008), Ofoegbu and Azarmsa (2010) conducted a study on vocational programming that also lacked detail about their methodology. Notwithstanding this issue, the vocational training focus of their research was appropriate for inclusion in this chapter. Ofoegbu and Azarmsa's (2010) study focused on participant graduates from a vocational program offered by the Long Beach Unified School District and concluded that a vocational program that targeted specific supports toward students with LD and EBD had a positive impact on both gaining and retaining post school employment. Their findings agreed with Stone and Alfeld's (2004) report that confirmed vocational programming with supports for youth with disabilities was very useful and effective tools to assist professionals with transition planning.

Extant Data

The previous sections discussed one of the important background elements for this dissertation: existing studies of vocational training. Another important area of background for this dissertation is that large databases of relevant information have been gathered but not yet assessed in ways that address the questions of interest. Thus, this dissertation relied on extant data, as discussed in the next sections.

Secondary researchers typically analyze extant data, or data previously collected by other individuals, groups, or organizations (Kluwin & Morris, 2006). Some authors continue to question the validity of secondary analyses, because of the secondary analysts' lack of control over initial data collection procedures (Penuel & Means, 2010). Nevertheless, increasing access

to secondary data provides many opportunities for researchers consideration (Shultz, Hoffman, & Reiter-Palmon, 2005; Strayhorn, 2009).

Advantages and Limitations of Using Secondary Data. Large datasets, such as state-level education databases or national longitudinal studies, often link information between different disciplines (Penuel & Means, 2010). The availability of computerized data sets makes it possible to research and analyze information that would have previously been impossible to view without physically digging through large quantities of paper documents (Kluwin & Morris, 2006).

Samples collected for national databases [e.g., the National Education Longitudinal Study of 1988 (NELS: 88)], the Early Childhood Longitudinal Survey (ECLS), or the National Longitudinal Survey of Youth (NLSY) are designed to be representative of the populations from which they are drawn and allow for generalization (Livermore & She, 2007). Researchers can also conduct inferential analysis and draw conclusions about subpopulations (Penuel & Means, 2010). Researchers interested in a more personalized approach would benefit from other types of inquiry. Though using large studies can be advantageous, such studies are not without limitations (Strayhorn, 2009).

Conceptualizing constructs and defining variables are very important aspects of the research process. Variables are data items that researchers measure. Variables must be defined with precision and clarity. Because basic understandings and concepts vary between individuals, secondary analysts must be wary of variables that are not clearly operationalized by primary data collectors. Poorly defined variables can cause secondary researchers' data to be misconstrued and result in analysis errors. In an example provided by Brooks-Gunn, Phelps, and Elder (1991), an experimental study used the name White as a demographic variable that typically describes

individuals of European descent, however, included individuals of Asian descent in that category. Secondary researchers, who intended to measure the variable White with intentions on measuring individuals of European descent only, would unintentionally also have measured individuals of Asian background. This example illustrated the importance for researchers to be very specific when identifying, choosing, and defining study variables (Motheral et al., 2003).

An advantage of using longitudinal data is that it can be analyzed to determine changes to the same individuals over time. Time-sensitive data, however, could lose value in longitudinal studies taking years to complete. Because of continually evolving legislative requirements, cultural shifts, and changes in business needs, particular data collected on student participation in vocational education in 1998 may not be relevant a few years later. It should be further noted that extant data cannot be used to confirm that one treatment or action causes another (Penuel & Means, 2010) unless the original data collection methods were specifically designed to support such conclusions.

Ultimately, after considering both advantages and shortcomings of using secondary data, it is the responsibility of analysts to confirm the appropriateness of extant data. Overall, access to a large database gives secondary researchers opportunities to gain admission to large amounts of data while sparing them the time and expense of collecting the data. Nevertheless, secondary researchers must be ever vigilant of some of the pitfalls, which include subpopulation samples that may not be representative of the population they are supposed to represent. Table 3 details advantages and limitations of using secondary datasets.

Table 3

Advantages and Limitations of Using Large Databases

Advantages	Disadvantages
Preserve resources (time and expense) by avoiding primary data collection	Students forego opportunities to develop skills in primary research and data collection
Datasets typically larger and often provide national samples	Datasets could be poorly organized and difficult to manipulate by secondary researchers
Data easily transferred and stored	It may be difficult to gain access to data that requires secondary licensing
Many possible research designs	Difficult to detect errors in the primary research
Data ready to be input into statistical software programs	Requires training and guidance in secondary data manipulation
Data convenient for use in primary or preliminary studies	Inexperienced secondary researchers mistake extant data use as quick and effortless
Access to longitudinal data that would not be attainable to most researchers	Primary data collectors may not have included the detail and specificity in their documentation to allow ease of use for secondary researchers
Organizations are more open to using existing data	Secondary data use still requires planning and preparation
Access to samplings that include subpopulations	Samplings of subpopulations may be small or inadequate
Data samplings provide researchers opportunities for generalization	Available data may not be appropriate to answer secondary researcher's questions

Sources: Kluwin & Morris (2006); Shultz, Hoffman & Reiter-Palmon (2005).

Sources of Secondary Data. Once a decision is made to analyze secondary data, there are several avenues available to access existing databases. Academic repositories store research data conducted by university researchers and are one option available for obtaining archival data.

Although university databanks can be rich with research information, they lack prominence, and databases disappear as financial support that was provided through grant funding is depleted (Kluwin & Morris, 2006). The Inter-University Consortium for Political and Social Research (ICPSR) maintains impressive collections of datasets. With a goal of maintaining and sharing data, the ICPSR collection is an extensive archive of social science data and is available at most universities throughout the world. The ICPSR, initially formed in 1962, has an archive of over 20,000 datasets that are voluntarily deposited by researchers (Shultz et al., 2005). Researchers who are affiliated with ICPSR member institutions can access these archived datasets.

Currently, the U.S. Department of Education and U.S. Census Bureau provide two of the most useful websites for educational researchers (Kluwin & Morris, 2006). These two agencies store almost limitless amounts of demographic and educational data. The National Center for Educational Statistics (NCES) collects and analyzes educational data for the federal government and has commissioned multiple studies, including the National Educational Longitudinal Study of 1988 (NELS: 88), which contains data on 24,599 students who were in the 8th grade in 1988 (Hafner, 1990; Kluwin & Morris, 2006). The NCES also commissioned the High School Longitudinal Study of 2009 (HSLS:09), that collected data on the long-term experiences of over 20,000 students who were in 9th grade in 2009 (Ingels, Dalton, Holder, Lauff, & Burns, 2011).

Researchers can gain additional information by accessing the U.S. Department of Labor and military records (Shultz et al., 2005). The Administration for Children and Families, the Department of Health and Human Services, and the Federal Interagency Forum on Child and Family Statistics also provide data specific to children and education. All three databases are open for public use, and thus require no special permission to view and obtain data. The Educational Testing Service – ETS, and the Gates Foundation are examples of private

organizations, and foundations that are less popular than other sources but also contain useful data (Kluwin & Morris, 2006; Shultz et al., 2005). A large database relevant to this research is the National Longitudinal Transition Survey-2 (NLTS-2).

Other Studies that Used NLTS-2 Data

Three studies in the literature (McCall, 2011; Milsom & Glanville, 2010; Zablocki & Krezmien, 2012) used NLTS-2 data and measured variables that bore some commonality with the questions addressed by this dissertation. All three studies used chi-square analysis to determine the amount of influence each predictor variable employed on their outcome variable(s). Questions of interest with missing values were addressed using the listwise deletion method. Listwise deletion disposes of entire cases that are missing one or more values (Peugh & Enders, 2004). Two of the three studies (McCall, 2011; Milsom & Glanville, 2010), removed any participant from their study immediately upon determining any values were missing. Conversely, prior to deleting a participant, Zablocki and Krezmien (2012) first attempted to find those data in subsequent waves and only omitted those participants for whom those missing data could not be found in any wave. Table 4 provides more information on the studies, including the study purposes, populations of interest and variables measured. As shown in Table 4, no other currently published NLTS-2 works have studied the influence of vocational training on dropout for students with LD and EBD. However, these studies were relevant because they analyzed variables from the NLTS-2 database.

Table 4

Research Studies That Used NLTS-2 Data

Study	Participant characteristics	Purpose	Method	NLTS2 Coding	Dependent variable(s)
McCall (2011).	*N = 450 Students with [a]EBD	Study the effects of predictor variables that may influence the outcomes of youths with EBD.	NLTS2 data in Waves 1 through 4. Wave 1 data were used to determine the independent variables. Logistic regression for analysis.	NLTS2 coding was not included. The four independent variables used in the study were: "demographic, negative student engagement, family engagement, and positive student engagement" (p. 38).	Graduated high school (yes/no) Working full time (yes/no) Enrolled in postsecondary school (yes/ no) Has been arrested (yes/no)
Milsom & Glanville (2010).	N= 734 [b]LD (**n=412) EBD (n=322)	Study the factors that contribute to dropout with students with high incidence disabilities.	Data were mined from the Wave 1 parent survey. Analysis method was not discussed but was conducted using Mplus 4.0.	Grades (np1D9b) had nine possible responses and were not collapsed for analysis in this study. Social assertiveness (np1G1a, np1G1b, np1G1d, and np1G1f). Self-control (np1G1c, np1G1e, np1G1g, and np1G1i). Social cooperation (np1G1j, np1G1k, and np1G1h). Getting along with other students (np1D10). Getting along with teachers (np1D11). Bullied (np1D13b, np1D13d, and np1D13e).	Graduated high school (yes or no)

Study	Participant characteristics	Purpose	Method	NLTS2 Coding	Dependent variable(s)
Zablocki & Krezmien (2012).	N = 5,928 Students with EBD, LD, [c]OHI, [d]ID, and [e]SI.	Study the effects of gender, socioeconomic status, and race on the likelihood of dropping out for students with disabilities. Study effects of grade retention, school suspension, academic grades, and perceptions of school engagement on the likelihood of dropping out for students with disabilities	Data were mined from Wave 1, Wave 2, & Wave 3 of the NLTS2. Data were analyzed using logistic regression.	The race variable (W1_EthnHdr_2001) 1 = Caucasian/White, 2 = African American/Black, 3 = Hispanic, 4 = Asian/Pacific Islander, 5 = American Indian/Alaskan Native and Other. Grades (np1D9b) Grade retention (np1D_5L_7h) NLST2 weighting avoided over or underrepresentation	Graduated high school (yes or no)

Note. [a]EBD= Emotional and behavior disorders; [b]LD = Learning Disabilities; [c]OHI = Other Health Impaired; [d]ID= Intellectually disordered; [e]SI = speech-language impairments.

Summary

Successfully negotiating their way through high school can be a difficult journey for many youth with LD and EBD. It is well known that they have poor postsecondary outcomes and that they display greater sensitivity to dropout. The problem of dropout drains our society of billions of dollars while further adding major social impacts.

Although the studies included in this chapter all found vocational training beneficial for successful postsecondary transitions, there is relatively little high-quality research that considers the effects of vocational training on the outcomes of students with LD or EBD. There is, however, research that considers the influence of both positive and negative types of engagement on student outcomes. Given the availability of large datasets like the NLTS-2, it is also important to our understanding of these issues that careful analysis be completed of those data. The study reported in the following chapters, therefore, used NLTS-2 data to address the questions presented at the end of Chapter 1 and repeated here:

1. Do dropout rates differ for students with LD verses students with EBD?
2. How do demographics, vocational training, family engagement and negative school engagement affect dropout rates for students with LD?
3. How do demographics, vocational training, family engagement and negative school engagement affect dropout rates for students with EBD?

CHAPTER 3

METHOD

This research examined the associations between variables selected on the basis of the literature reviewed in Chapter 2, and the outcome of dropout for youth with learning disabilities (LD) and emotional and behavioral disabilities (EBD). All data were obtained from the National Longitudinal Transition Study-2 (NLTS-2). This chapter presents relevant method details about the NLTS-2, followed by a description of the methods used for this study.

The National Longitudinal Transition Survey-2

Description. The National Longitudinal Transition Study-2 (NLTS-2) is an extension of the National Longitudinal Transition Study (NLTS) commissioned by the Office of Special Education Programs (OSEP), a section of the U.S. Department of Education (Wagner, & Cadwallader et al., 2003). NLST-2 focused on the characteristics, experiences, and outcomes of students who received special education services for any of 12 disability groups recognized by the Individuals with Disabilities in Education Act - IDEA (Wagner, Newman, Cameto, Levine, & Garza, 2006). The NLTS-2 also includes youth experiences with special education, school programs, and the manner in which they completed school (e.g., graduation or dropout). The database also provides information on students' postsecondary experiences and investigated variables that may be influential in positive student outcomes (Newman et al., 2009).

One goal of the NLTS-2 was to allow researchers to make comparisons to other national longitudinal studies. In order to provide for accurate comparisons, the NLTS-2 used the same data collection instruments as the Special Education Elementary Longitudinal Study (SEELS), a

six-year study of students with special needs starting in elementary school through high school (Cameto, Wagner, Newman, Blackorby, & Javitz, 2000). NLTS-2 also allows for comparisons with the original NLTS, while simultaneously expanding its scope to look at variables that were not previously analyzed (Wagner, Cameto, & Newman, 2003). NLTS-2 researchers have also made comparisons to nondisabled youth who participated in the National Longitudinal Survey of Youth, 1997 - NLSY97 (Newman et al., 2009). Looking at over 11,000 students in the NLTS-2 database provides a picture of youth with disabilities, and was intended for national generalization (Wagner et al., 2006).

Data Collection Instruments and Timeline. Youth eligible for participation in the NLTS-2 were 13 to 16 years old and were in 7th grade or above during the 2000-2001 school year (Newman et al., 2009). Sample members were randomly chosen from rosters of students with disabilities prepared by participating school districts from across the U.S. (SRI International, 2000). Data collection and analyses were divided in to five separate phases or waves. Data were collected from parents and youth in odd years between 2001 through 2009. Data sources were composed to obtain multiple perspectives and included students, school personnel, school records, and parents/guardians (Wagner et al., 2006).

NLTS-2 utilized three primary data collection activities including telephone interviews, school surveys, and youth assessments (Newman et al., 2009). Waves 1 and 2 collected data information from parents, students and school staff. Principals completed school background surveys that included questions on school demographic data. Additionally, teachers from participants' first academic class of the day completed surveys, while special education teachers provided responses about students that included specific IEP, classroom placement, and vocational information (NLTS-2 Data Brief, 2002).

In either 2002 or 2004, once youth participants were at least 16 years old, NLST-2 administered a one-time direct assessment of academic achievement in core subjects (Wagner et al., 2006). Students who completed these assessments also participated in a brief in-person interview (Cameto et al., 2000). Examiners also monitored student achievement by collecting annual transcript information throughout the course of the study (NLTS-2 Data Brief, 2002).

Parent-only telephone interviews preceded initial youth interviews, as parents were deemed to be more knowledgeable about background information, in addition to family characteristic data. Youth interviews began in the second wave and were conducted through the fifth wave. Before contacting students, NLTS-2 examiners interviewed parents first to determine if their youth were able to respond to similar questions. If parent responses were positive, youth were contacted to complete the telephone interview.

Congruence. Both parent and youth interviews and surveys contained similar questions. To avoid redundant data, NLTS-2 researchers recorded only one responder's answer (either student or parent) for each question. When parent and youth responses to the same questions were congruent, primary researchers combined responses. In the event of conflicting responses, researchers accepted student responses over parent responses (Newman et al., 2009). In order to determine how frequently parent and youth responses agreed with each other, primary analysts conducted a test of congruence. By comparing parent and youth responses to "four items related to key outcomes of interest," (p. A-8) analysts determined that responses agreed 69% to 87% of the time. Although no criteria for appropriate congruency were disclosed, the test of congruence was declared within the expected range and thus acceptable (Wagner et al., 2005).

Participant Response. NLST-2 data includes participant response rate information for all five data collection waves. Each wave experienced some attrition. Consent withdrawal and

participant death were two reasons for member attrition (SRI International, 2000). It is worth noting that parent response decreased from a high of over 80% in Wave 1 to less than 50% by Wave 5 (NLTS-2 Database Overview, 2012). Statistical weights (which were included to allow for national generalization) were readjusted with each wave to avoid attrition-based bias (Newman et al., 2009). Table 5 summarizes eligible respondents and response rates for all 5 waves.

Table 5

NLTS-2 Eligible Responders and Response Rates by Wave

Wave year and collection tool	Practical eligible sample	Number with completed instrument	Response rate for practical sample
Wave 1 (2001 -2002)			
Parent interviews/mail survey	11,246	9,230	82.1%
Wave 2 (2003 - 2004)			
Parent/youth interviews/youth survey	11,228	6,859	61.1%
Student's school program survey	10,517	5,588	53.1%
General education academic teacher survey	7,114	2,577	36.2%
School characteristics survey	10,517	5,956	56.6%
Student Assessment	5,071	3,193	63.0%
Wave 3 (2005)			
Parent/youth interviews/youth survey	11,227	5,657	50.4%
Wave 4 (2006 - 2007)			
Parent/youth interviews and surveys	11,132	5,574	50.1%
Student's school program survey	7,815	4,078	52.2%
General education	4,866	1,983	40.8%

academic teacher survey			
Student Assessment	4,343	3,135	72.2%
Wave 5 (2008 - 2009)			
Parent/youth interviews and surveys	11,082	5,318	48.0%
Student transcripts	11,272	9,072	80.5%

Source: NLTS-2 Database Overview (2012).

Weighting. NLTS-2 researchers attempted to include participants from every region, state, and locality in the country. However, some groups were still over or underrepresented based on the number of individuals who took part in the study. Uneven representation can lead to selection bias (a false representation of the population of interest). In order to better generalize to the national population of all students receiving services within special education and avoid errors associated with selection bias, NLTS-2 analysts assigned weights to each of the participants who took part in the study. Weights assign a numeric multiplier to each participant in order to increase or decrease their extent of influence. For instance, after determining the total number of students with each disability or diagnosis nationally, that total national number was divided by that number of students in the obtained sample. As an example, if the total national numbers of individuals with EBD were known to be 458, but only 32 students with EBD were sampled by NLTS-2, the national number divided by the sampling number would give each participant of weighted value of 14.31. In other words, when weighted each individual participant would represent 14.31 students (Newman et al., 2009). Therefore, each weighted value allows every participant to represent an amount of people in the population of interest (Kish, 1990).

Variables of Interest

As NLTS-2 is a restricted database it was first necessary to apply for a license to obtain access to those data. After an application process, admittance was granted under the existing license of Dr. Jay W. Rojewski. Further, Institutional Review Board approval was obtained to analyze data on the individuals in this study (see Appendix B).

Inclusion Variables. Students included in this study met inclusion criteria defined in terms of disability and grade level. Disability was defined as any participant who reported a primary diagnosis of either LD or EBD. School records determined grade level, and only youth in grades 9-11 during the Wave 1 data collection period of the NLTS-2 study were eligible for inclusion. Table 6 describes the disability and grade level variables with the initial identifiers and names provided by NLTS-2.

Table 6

Inclusion Variables Chosen for this Study with NLTS-2 Provided Names, Values, and Descriptions

NLTS-2 variable names	NLTS-2 variable description	NLTS-2 numeric variable values[a]
Disability code np1Dis_Recod	1 Learning disability 4 Emotional disturbance	1 Yes 0 No
Youth grade level	9 Ninth grade 10 Tenth grade 11 Eleventh grade	Numeric grade value

Source: NLTS-2 Database Overview (2012).

Predictor Variables. Four areas of predictor variables were included for analysis: demographic, vocational training, family engagement, and negative school engagement.

Demographic Variables. Demographic predictor variables included ethnicity, income, and gender. Table 7 describes the demographic predictor variables with the initial identifiers and names provided by NLTS-2.

Table 7

Demographic Predictor Variables Chosen for this Study with NLTS-2 Provided Names, Values, and Descriptions

NLTS-2 variable names	NLTS-2 variable description	NLTS-2 numeric variable values[a]
Ethnicity code np1St_Eth	1 White 2 African American/Black 3 Hispanic	1 Yes 0 No
Gender of youth np1A1	1 Male 2 Female	1 Yes 0 No
Household income w1_IncomeHdr 2001	1 $25,000 or less 2 $25,001 - $50,000 3 More than $50,000	1 Yes 0 No

Source: NLTS-2 Database Overview (2012).

Race/ethnicity and gender. Student race/ethnicity and gender are two inalterable factors that are known to be associated with youth outcomes for students with and without disabilities. Multiple studies indicated that males, African Americans and Latinos tend to drop out at rates that far exceeded Whites or Asians (Burrus & Roberts, 2012; Melville, 2006). Additionally, dropout rates can increase substantially depending on the manner in which race/ethnicity and gender are combined (Greene & Winters, 2006). Participants in the NLTS-2 study self-selected their race/ethnicity classifications, and for the purposes of the present analysis, race and ethnicity were defined as the students' self-selected classifications. Race/ethnicity outside of Latino, African-American, and White were excluded, because other groupings' representations in NLTS-2 were negligible. Additionally, the only gender categories considered for this study were male or female, which were also self-selected by the participants.

Socioeconomic status (SES). As suggested in various works, a family's household income or overall financial status can contribute to a student's likelihood of completing school (Christenson & Thurlow, 2004; Murray, 2003; Newman et al., 2009). In order to study the influence of socioeconomic status (SES) on student outcome, this research reviewed data that described household income. In particular, the less money the family has, the higher an individual's likelihood of high school dropout (Stone & Alfeld, 2004). In 2001 (the first year of NLTS-2 data collection), the poverty rate (according to federal guidelines) for most of the country was $8,590 for the first person in the household, with another $3,020 for each additional member (Federal Register, 2001). As the average household size for that year was just over three members (U.S. Census Bureau, 2011), a typical household of three fell within the federal definition of poverty if their income was less than $15,260. Because the NLTS-2 did not use another category below <$25,000.00 a year that would have specifically targeted families considered below the federal poverty guidelines, it was not possible to complete analyses in terms of household poverty status. Therefore, household income was used as an indicator of overall financial and socioeconomic status.

Vocational Participation. Participation in vocational training was a consideration for this research. NLTS-2 provided multiple variables associated with vocational training. However, not all NLTS-2 vocational variables were of interest. Variables that measured vocational participation were included based on whether or not they were categorized in NLTS-2 research as referring to an active form of training to learn a particular skill or job function with direct links to industry standards for employment (Wagner, Newman, Cameto, Levine, & Marder, 2003). Variables were further considered and included based on their inclusions in current

discussions on vocational training (Corbett et al., 2002; Luecking & Fabian, 2000; Muthumbi, 2008; Ofoegbu & Azarmsa, 2010; Scholl & Mooney, 2004; Shandra & Hogan 2008).

Specific job skills, apprenticeship or internship, and tech-prep were the only variables included in the NLTS-2 database that fit the criterion of vocational training used for this study. Specific job skills provide detailed job skills training in conjunction with academic courses that can lead to a certificate or industry-recognized credentialing. Apprenticeship or internship programs offer students opportunities to gain greater levels of competence with valuable on-the-job training, while tech-prep programs offer training in skills that employers require (i.e., basic computer and internet skills) from individuals entering the workplace (Scott & Sarkees-Wircenski, 2008). Variables, descriptions, and coding are included in Table 8.

Table 8

Vocational Predictor Variables Chosen for this Study with NLTS-2 Provided Names, Values, and Descriptions

NLTS-2 variable names	**NLTS-2 variable description**	**NLTS-2 numeric variable values**
npr1C14_06 Specific job skills	This student has received the following classes since starting high school	1 Yes 0 No
npr1C14_07 Apprenticeship or internship		1 Yes 0 No
npr1C14_10 Tech-prep		1 Yes 0 No

Source: NLTS-2 Database Overview (2012).

Engagement. In this dissertation the concept of engagement reflects commitment or attachment. It can also be likened to the notion of bonding. Positive engagement is a protective factor against secondary school dropout (Christenson & Thurlow, 2004; Fredricks et al, 2004; Murray, 2003). However, Fredricks et al. (2004) further explained that engagement could be either positive or negative, and as such, could promote or detract from overall student success.

Balfanz and Legters (2006) even considered negative building environments as a variable that promoted school disengagement and increased the probability of dropout. Therefore, both positive and negative forms of engagement were included in these analyses.

*Family Engagement Scale***.** A family engagement scale was developed combining selected NLTS-2 items. Table 9 includes the full list and ranges of variables included in the FES in the original form provided by NLTS-2. Family engagement variables considered the level of support parents provided to students by measuring their involvement with their children's schools and their willingness to participate in school matters.

Table 9

Family Engagement Variables Used in Scale Developed for the Present Study

NLTS-2 Variable Names	**NLTS-2 Variable Description**	**NLTS-2 Numeric Variable Values**
np2E1b_a	Attended general school meeting	0 Never 1 1-2 times 2 3-4 times 3 5-6 times 4 > than 6 times
np2E1b_b	Attended school or class events	0 Never 1 1-2 times 2 3-4 times 3 5-6 times 4 > than 6 times
np2E1b_c	Volunteered at the school	0 Never 1 1-2 times 2 3-4 times 3 5-6 times 4 > than 6 times
np2E1b_d	Went to parent/teacher conference	0 Never 1 1-2 times 2 3-4 times 3 5-6 times 4 > than 6 times

Source: NLTS-2 Database Overview (2012).

Family engagement incorporated variables including whether parents attended general school meetings, volunteered at the school, attended school or class events and went to parent/teacher conferences. Further, it also measured the number of times parents participated in each activity. In order to reduce the number of variables that measure the same construct and increase stability, the variables measuring family engagement were combined into one scale.

Table 10 illustrates the family engagement scale variables in the form used for the present study. In order to consider the overall concept of family engagement, as opposed to the individual factors (i.e., the reasons for the school visits) individual responses were collapsed to a 3-point scale, collapsing 1-2 times with never (responses 0 and 1) into "1"; collapsing 3-4 times with 5-6 times (responses 2 and 3) into "2", and recoding more than 6 times (response 4) into "3." By using descriptive statistics, each participant's mean score was converted to a scaled score using the grand mean of 1.50 and standard deviation of 0.50. Thus, mean scores of 1.00-1.59 were assigned to 1, 1.60-2.09 were assigned to 2, and 2.10-3.00 were assigned to 3. For interpretation, 1 was defined as low support, 2 as medium support, and 3 as high support. Reliability analysis performed for this scale yielded a Cronbach's alpha level of .782, which indicated an acceptable level of internal consistency.

Table 10

Collapsed Ranges for Family Engagement Variables as Developed for Scale for the Present Study

Initial NLTS-2 numeric variable values	**Family Engagement Scale Score[a]**	**Descriptions as used for this Study**	**Means of Collapsed Item Scores**
0 Never 1 1-2 times	1	Low Support	1.00-1.59
2 3-4 times 3 5-6 times	2	Medium Support	1.60-2.09

4 > than 6 times	3	High Support	2.10-3.10

[a] Range scores collapsed.

*Youth Negative Security Engagement Variables***.** Youth Negative Security Engagement variables comprised 10 variables that measured matters that would indicate degree of attachment to the school environment such as whether youth had things stolen at school, whether the youth bullied or picked on other students, or whether the youth has been teased or called names at school. NLTS-2 asked each of these questions in two slightly different ways; therefore, similar variables were combined to reduce the primary set of variables from 10 to 5. In the event of inconsistent responses (a "yes" and a "no"), the affirmative response took precedence. Because these variables were presented within the NLTS-2 as measuring the same construct, they were treated for this study as measures of the negative engagement construct. A complete list of the Youth Negative Security Engagement variables is provided in Table 11.

Table 11

Youth Negative Security Engagement Variables Showing NLTS-2 Names and Combined Names Developed for the Present Study

NLTS-2 original variable names	Variable description	Numeric variable values	Variable names as combined and used in current study
np2R6a	Youth has had things stolen at school	0 No 1 Yes	Youth has had things stolen at school
np2R6a_K4a	Youth has had things stolen from locker or desk	0 No 1 Yes	
np2R6b	Youth was bullied at or on the way to and from school	0 No 1 Yes	Youth was bullied at or on the way to and from school
np2R6b_K4b	Youth has been bullied at school	0 No 1 Yes	
np2R6d	Youth was teased or	0 No	Youth was teased or

	called names at school	1 Yes	called names at school
np2R6d_K4d	Youth has been teased or called names at school	0 No 1 Yes	
np2R6e	Youth has been physically attacked or in fights at or coming or going to school	0 No 1 Yes	Youth was physically attacked at school
np2R6e_K4e	Youth was physically attacked at school	0 No 1 Yes	
np2R6c	Youth bullied or picked on other students	0 No 1 Yes	Youth has bullied others at school
np2R6c_K4c	Youth has bullied others at school	0 No 1 Yes	

Source: NLTS-2 Database Overview (2012).

Participants. The population of interest for this dissertation included students who participated in the NLTS-2 study with a primary diagnosis of either LD or EBD. NLTS-2 restricted database guidelines prohibit using exact participant numbers and require that participant values be rounded to the nearest 10. About 2,680 students were identified with LD, and about 910 students were identified with EBD. Data used for demographic information (diagnosis, gender, race/ethnicity, and income) were drawn from Wave 1 where possible. For cases with missing responses in Wave 1, information was drawn from subsequent waves whenever available. Any cases for which responses remained unobtainable by Wave 3 were removed entirely from all analyses (i.e., this study adhered to missing values using listwise deletion). Table 12 provides detailed information on the numbers and percentages of the total remaining sample for race/ethnicity, gender, income, and age, by diagnosis.

Table 12

Demographic Variables for Samples Grouped by Diagnosis (unweighted) N=3590

	Learning Disabilities		Emotionally Disturbed	
Characteristic	**Number[a]**	**% of sample**	**Number[a]**	**% of sample**
Race/ethnicity				
White	1,840	68.7	670	73.6
African-American	600	22.3	180	19.4
Hispanic	240	9.0	60	7.0
Total	2,680	100	910	100
Family income				
$25,000 or less	1,010	40.4	350	40.8
$25,001 - $50,000	740	29.6	250	28.6
More than $50,000	750	30	260	30.6
Total	2,500	100	860	100
Gender				
Male	1800	63.6	700	73.3
Female	1030	36.4	250	26.7
Total	2830	100	950	100

[a] Per NLTS-2 restricted-use guidelines values rounded to nearest 10.

Details about the number of NLTS-2 participants with LD or EBD who reported taking vocational training and the percent of total sample size by diagnosis are provided in Table 13.

Table 13

Vocational Training grouped by disability (unweighted) N=3470

Type of vocational training	**Learning Disabilities**		**Emotionally Disturbed**	
	Number[a]	**% of sample**	**Number[a]**	**% of sample**
Internship or apprenticeship	40	1.4	10	1.2
Tech-prep program	110	3.6	60	2.1
Job skills training	220	7.2	50	1.8

[a] Per NLTS-2 restricted-use guidelines values rounded to nearest 10.

Correlations between all possible pairs of predictor variables, and correlations between each predictor variable and the dependent variable of dropout, were completed and are presented in Table A2. These calculations used Spearman's *rho*, because the data were nominal or ordinal. Two-tailed comparisons indicated that all of the correlations were statistically significant ($p < .05$). However, all *r* values were between -.20 and +.20, which indicated negligible relationships between individual variables. The strongest relationships were between skills training and apprenticeship, and skills training and tech prep ($r = .159$ and $r = .173$, respectively). These findings suggested the need for further explorations using regression analyses.

Final Variable Model. Table 14 illustrates the final variables as used for the present analyses. In order to reduce the final amount of variables and strengthen the model used for the regression analyses, variables were combined whenever possible. Separate variables for race/ethnicity (African-American, White, and Latino) were combined into one Ethnicity variable and recoded so that African-American=1, White=2, and Latin=3. Gender variables were also combined into one Gender variable so that Male =1 and Female =2. Engagement was modeled using both family engagement scale scores (1-3, as shown in Table 10) and the five negative engagement variables. Dropout and expulsion were combined into one variable for Wave 2 and one variable for Wave 3, and then separate Waves 2 and 3 dropout results were joined into one final dropout variable. Household income categories were as provided by the NLTS-2 dataset.

Table 14

Final Variable Selection Model used In Regression Analyses

Variable categories and names	Variable description	Numeric variable values
Demographic		
Gender[a]	Male or Female	1 Male 2 Female
Ethnicity[a]	Self-reported ethnicity	1 African American 2 White 3 Latino
Household Income Categories[b]	1 $25,000 or less 2 $25,001 - $50,000 3 More than $50,000	0 No 1 Yes
Vocational Training		
Apprenticeship	Participated in apprenticeship	0 No 1 Yes
Tech Prep	Participated in tech prep	0 No 1 Yes
Skills Training	Participated in skills training	0 No 1 Yes
Types of Engagement		
Family Engagement Scale[c]	Family Support	1 low 2 medium 3 high
Youth Negative Engagement Variables		
- Youth has had things stolen at school	Youth had things stolen at school	0 No 1 Yes
- Youth was bullied at or on the way to and from school	Youth was bullied	0 No 1 Yes
- Youth has bullied others at school	Youth bullied others	0 No 1 Yes
- Youth was teased or called names at school	Youth was teased	0 No 1 Yes
- Youth was physically attacked at school	Youth was physically attacked	0 No 1 Yes

Table 14 (continued)

Final variable selection model used in regression analyses

Variable categories and names	Variable description	Numeric variable values
Dependent Variable		
Dropout[d]	Dropout or expelled	0 No 1 Yes

[a]Combined and recoded into one variable, [b]Range provided by NLTS-2, [c]Collapsed to a 3-point scale [d]Waves 2 and Wave 3 responses combined into one variable

Procedures

Data were analyzed from the first three waves of the NLTS-2. The rationale for not considering data collected beyond Wave 3 was that the Perkins Act, the law that administers vocational education was reauthorized in 2006. Wave 3, which ended in 2005, was the last data collection period prior to the reauthorization, and subsequent data collections could have been influenced by variables that did not exist previously.

Wave 1 of the parent survey and student's school program survey established the participant base and identified demographic and course (vocational or otherwise) information. Any data used for the engagement scales were taken from Wave 2 of the parent/youth survey, because those questions were not asked in Wave 1. Data from Waves 2 and 3 provided school status (dropout or not) for each participant.

Data Analyses

All data analyses for this dissertation were conducted using IBM SPSS Statistics, version 22 (SPSS [IBM, 2013]). All analyses were weighted for national generalization and completed once for the group of participants with LD and then again for the group of participants with EBD.

Dropout Percentages for Individual Categories. Descriptive analyses were conducted to evaluate variable relationships and differences. Comparisons in each predictor variable category were completed against the outcome variable "dropout."

Poisson Regression Models. Analyses of the models were conducted using Poisson regression. Poisson regression is appropriate for count variables, which are variables that calculate the number of times an event occurs. Poisson regression was suitable for this dissertation as each variable analyzed counted the number of times an event occurred. Although it is not a common form of analysis in behavioral sciences, researchers are finding the use of Poisson regression straightforward and simpler than traditional logistic regression (Faroughi & Ismail, 2014; Huang & Cornell, 2012).

Missing Data. As only students with LD and EBD were of interest, youth with other primary disabilities diagnoses were not considered. Although primary disability categories were taken from Wave 1, any missing disability information was derived from subsequent data collection waves. Missing data were managed using the listwise deletion method. For the present analyses, any case missing a response to a question of interest was discarded and not included for analysis. NLTS-2 restricted-use guidelines prohibit disclosing exact participant amounts; however, as shown in Table 15, the percentages of missing data were comparable for students with LD and EBD. Both disability groups had larger percentages of missing data in family income and family engagement categories (10%-20%). Greater amounts of missing data using the listwise deletion method can lead to bias, and a decrease in overall power. Nevertheless, Allison (2014) supported using listwise deletion above other standard methods, (i.e., pairwise deletion, or multiple-imputation). Though imperfect, Howell (2008) similarly supported the use of listwise deletion above other options and considers its' use the

most uncomplicated and least troublesome of available methods. Further, as most analyses outcomes in this dissertation echo other findings in the research, it was considered suitable to use this method and to accept these data.

Table 15

Missing data percentages for unweighted sample N=3470[a]

Variable	Number[a]	Percent Missing LearningDisabilities	Number[a]	Percent Missing EmotionallyDisturbed
Demographic				
Race/ethnicity	30	<5	40	<5
Family income	300	10-15	120	10-15
Gender	40	5-10	30	<5
Vocational Training				
Apprenticeship	20	<5	40	<5
Tech Prep	20	<5	40	<5
Skills Training	20	<5	40	<5
Engagement				
Family Engagement	500	15-20	160	15-20
Youth Negative Engagement	20	<5	30	<5

[a] Per NLTS-2 restricted-use guidelines numbers rounded to nearest 10

Summary

This study considered the influence of demographics, vocational training and two types of engagement on the prevalence of dropout for youth with LD or EBD, using Poisson regression analyses of data from the National Longitudinal Transitional Study-2 (NLTS-2). The following chapter discusses the results of these analyses.

CHAPTER 4

RESULTS

These inquiries were guided by the premise that youth with learning disabilities (LD) and with emotional and behavioral disorders (EBD) are influenced by factors that place them at greater risk of high school dropout and that the mitigation of some of those factors might decrease their likelihood of dropout. As described in Chapter 3, data were drawn from students identified with a primary diagnosis of LD or EBD who participated in the National Longitudinal Transition Study-2 (NLTS-2). All study data were drawn from Waves 1-3 of the NLTS-2. This chapter reports the results of various statistical analyses. All statistical analyses were completed using IBM SPSS Statistics, version 22 (SPSS [IBM, 2013]).

Dropout Percentages for Individual Categories

Analyses were conducted comparing all predictor variables against the outcome of dropout. Weighted totals provided opportunities to generalize findings to the population, while in this case, obscuring specific participant numbers. Further, as illustrated within Table 16, a smaller percentage of youth with LD dropped out of school as compared with youth with EBD (6.8% vs. 16.5%).

Table 16

Dropout Comparisons Between Youth with LD and Youth with EBD

	Total Number[a]	**Weighted Number of Students who Dropped Out[a]**	**Percent of Dropout**
Emotional and Behavioral Disorders	229708	37802	16.5

Learning Disabilities	1255965	86005	6.8

Note: [a]Numerical values are based on weighted totals and not on actual number of participants

As shown in Table 16, youth with LD who were Latino dropped out of school at higher rates than youth with LD who were either White or African American (almost 10% vs. 6.5%). Students with LD whose families reported earnings of over $50,000 had the lowest percentages of high school dropout (3.7%). Youth with LD who reported participating in job skills training had less than 1% drop out rates as opposed to youth with LD who had tech prep training (almost 6% drop out rates). Families who reported medium levels of support had more dropout (11.3%) than low support (6.3%) or high support (4.4%) families. Youth with LD who reported that they were bullied, and youth with LD who reported that they had been attacked, dropped out of school more frequently than youth who reported any other type of negative school experience (14% and 12.6% respectively).

Table 17

Population Size and Dropout Rates for Youth with LD (N=3470)[a]

	Total Number in Category[b]	**Total Number of Dropout in Category[b]**	**Total Percent of Dropout in Category**
Race/ethnicity			
White	837378	54146	6.5
African-American	256576	16561	6.5
Latino	105481	10304	9.7
Family income			
$25,000 or less	418248	37812	9.0
$25,001 - $50,000	336574	28478	8.5
More than $50,000	367249	13421	3.7
Gender			
Male	809131	51689	6.4
Female	445963	34316	7.7
Vocational Training			
Internship or apprenticeship	7978	246	3.0

Table 17 (continued)

Population Size and Dropout Rates for Youth with LD (N=3470)[a]

	Total Number in Category[b]	**Total Number of Dropout in Category[b]**	**Total Percent of Dropout in Category**
Tech-prep program	67129	3821	5.7
Job skills training	64281	453	.70
Engagement			
Family Engagement Scale			
Low Support	699624	44067	6.3
Medium Support	219120	24781	11.3
High Support	214053	9360	4.4
Youth Negative Engagement Scale			
Youth had things stolen	1050725	67424	6.5
Youth was bullied	34289	4817	14.0
Youth was a bully	38092	2318	6.1
Youth was teased	114451	9438	8.2
Youth was physically attacked	8903	1127	12.6

Note: [a]Total N rounded to nearest 10 per NLTS-2 guidelines, [b]Numerical values are based on weighted totals and not on actual number of participants

Youth with EBD (Table 18) had higher dropout rates in almost every category compared with youth with LD (compare Table 17). At almost 20%, Latinos with EBD had higher percentages of dropout than youth with EBD who were White or African American (15.9% and 16.3%). Youth with EBD who came from families earning over $50,000 dropped out of school at higher rates than students from families with less income. Youth with EBD who had skills training had a less than 2% dropout rate. Students from families categorized as showing high support dropped out of school at greater percentages than those with medium support (11.8% vs. 7.6%). In the negative engagement category, youth who had been bullied and youth who had been physically attacked showed the greatest propensity for dropout (40.5% and 30.4%).

Table 18

Population Size and Dropout Rates for Youth with EBD (N=3470)[a]

	Total Number of Category[b]	**Total Number of Dropout in Category[b]**	**Total Percent of Dropout in Category**
Race/ethnicity			
White	146858	23300	15.9
African-American	49810	8107	16.3
Latino	24262	4721	19.5
Family income			
$25,000 or less	95019	16387	17.2
$25,001 - $50,000	57231	8771	15.3
More than $50,000	64218	11832	18.4
Gender			
Male	168440	28328	16.8
Female	61268	9474	15.5
Vocational Training			
Apprenticeship[c]	- - -	- - -	- - -
Tech-prep program	6911	848	12.3
Job skills training	11315	184	1.6
Engagement			
Family Engagement Scale			
Low Support	123337	24098	20.0
Medium Support	23905	1812	7.6
High Support	34217	2904	11.8
Youth Negative Engagement Variables			
Youth had things stolen	189340	29755	15.7
Youth was bullied	7161	2899	40.5
Youth was a bully	19452	2390	12.3
Youth was teased	9897	1587	16.0
Youth was physically Attacked	3858	1172	30.4

Note: [a]Total N rounded to nearest 10 per NLTS-2 guidelines, [b]Numerical values are based on weighted totals and not on actual number of participants, [c]Weighted results were not available for this category

Poisson Regression Models

Using SPSS version 22, separate Poisson regression analyses were run for each disability group. Initial assessments of model fit began with Pearson chi-square values divided by its corresponding degrees of freedom for the LD model $\left(\frac{906653.066}{978902}\right)$ and for the EBD model $\left(\frac{141921}{164945}\right)$. A resulting value closer to 1 indicates that the model fit is suitable for the data. The values for LD (.926) and EBD (.860) were close to 1 and were indicators of acceptable model fitness. Further, both models had significant Omnibus tests results ($p < .05$), which is additional evidence of appropriate model fit. All variables in each category for youth with LD were placed Table 19 while complete results for youth with EBD are in Table 20.

Learning Disabilities Analysis. Tests of model effects supported that all of the variables placed into the Poisson LD model were significant ($p < .05$) and contributed to the overall model. Family income significantly predicted likelihood of school dropout. Youth with learning disabilities that came from families reporting less than $25,000 incomes and from families reporting between $25,000 and $50,000 were more than twice as likely than those from wealthier families that reported over $50,000 incomes to drop out of school (Table 19). Females with learning disabilities were more likely to drop out of high school than males with learning disabilities. Youth identifying as Latino had the highest likelihood of dropping out of school, followed by youth who were African American.

All variables in the vocational category were statistically significant. Youth with LD who had not participated in apprenticeships were just under twice more likely to drop out of school than youth who had. Having tech prep skills did not make much of a difference with

whether or not youth with LD dropped out of school. In fact, the odds of dropping out of school with tech prep were only slightly less (OR=.936) than dropping out of school without them.

Youth with LD who had little family support dropped out of school at higher rates (OR=1.674) than youth with high levels of family support. Increased levels of support for youth with medium levels of family support lowered the probability (OR=1.289) of dropout.

All variables included in negative forms of engagement were statistically significant. Only youth who bullied others had a lower likelihood of dropout than youth who reported other forms of negative engagement. Youth who were stolen from were more than twice as likely to drop out of school as youth who were not. Youth who were bullied had 3 times the probability of dropping out of school. Being physically attacked increased the odds to of dropout by over 4 times. Youth with LD who reported that they had been teased were over 5 times more likely to drop out of school than those who were not teased.

Table 19

Poisson Regression Table for Youth with LD

Predictor	B	S.E.	Odds Ratio	95% C.I. for Odds Ratio	
				Lower	Upper
Constant	-6.431	.1682	.002	.001	.002
Family Income[a]					
<25,000	.935	.0114	2.548	2.492	2.606
25,001-50,000	.985	.0114	2.677	2.619	2.738
Race/ethnicity[b]					
African American	.252	.0107	1.287	1.260	1.314
Latino	.616	.0139	1.852	1.802	1.903
Gender[c]					
Female	.138	.0080	1.148	1.130	1.166

Vocational Training[d]					
TechPrep	.067	.0187	1.069	1.030	1.109
Skills Training	-3.758	.1134	.023	.019	.029
Family Support Variables[e]					
Low	.515	.0132	1.674	1.632	1.718
Medium	.281	.0138	1.325	1.289	1.361
Negative Youth Engagement					
Youth had things stolen	.837	.0198	2.310	2.222	2.401
Youth was bullied	1.265	.0154	3.545	3.440	3.653
Youth was a bully	-.140	.0294	.869	.820	.921
Youth was teased	1.680	.0334	5.367	5.027	5.731
Youth was physically attacked	1.437	.0662	4.208	3.696	4.791

[a]Reference group is >50,000; [b]Reference group is White; [c]Reference group is Male; [d]Reference group is Apprentice; [e]Reference group is High

Emotional and Behavior Disorders Analysis. The tests of model effects revealed that all of the variables placed into the Poisson EBD model were significant ($p < .05$) and contributed to the overall model. Family income did not affect the probability of dropout for youth with EBD. Males with EBD were 40% more likely to drop out of school (OR= 1.405) than females. As with LD, dropout rates for youth who were Latino or African American with EBD were higher than those for youth who were White (Table 20).

Those analyses also suggested that youth who participated in an apprenticeship had lowest odds of dropout. In fact, the likelihood of dropout for youth with EBD with apprenticeships was almost negligible. Engaging in tech prep did not prevent youth with EBD from dropping out of school at a lower rate than youth without tech prep. However, youth with skills training reported dropping out over 5 times less than youth without skills training.

Low or medium family support significantly impacted the probability of dropout, as those youth were more likely to drop out of school than youth with EBD that had high levels of family support.

Each negative engagement variable was statistically significant except for when youth reported that they had bullied others ($p > .05$). Youth with EBD who were victims of theft were over 50% (1.554 $p < .001$) more likely to drop out of school. Teasing slightly increased the odds of dropping out of high school. However, being physically attacked increased the odds of dropout over 50% (1.525 $p < .001$) and being a victim of bullying increased the probability of dropping out over 70% (1.717 $p < .001$).

Table 20

Poisson Regression Table for Youth with EBD

Predictor	B	S.E.	Odds Ratio	95% C.I. for Odds Ratio	
				Lower	Upper
Constant	-26.389	.1150	3.463E-12	2.764E-12	4.339E-12
Family Income[a]					
<25,000	.013	.0165	1.013	.981	1.046
25,001-50,000	.082	.0165	1.085	1.051	1.121
Race/ethnicity[b]					
African American	.067	.0215	.947	.917	.978
Latino	-.054	.0166	1.070	1.026	1.116
Gender[c]					
Female	-.340	.0156	.712	.690	.734
Vocational Training[d]					
TechPrep	1.768	.0798	5.861	5.012	6.853
Skills Training	.344	.0806	1.411	1.204	1.652
Family Support Variables[e]					
Low	.982	.0223	2.670	2.556	2.789
Medium	.934	.0238	2.546	2.430	2.667

Negative Youth Engagement

Youth had things stolen	.441	.0965	1.554	1.286	1.878
Youth was bullied	.541	.0676	1.717	1.504	1.960
Youth was a bully	.059	.0707	1.061	.924	1.219
Youth was teased	-.418	.0971	.658	.544	.796
Youth was physically attacked	.422	.0651	1.525	1.342	1.732

[a]Reference group is >50,000; [b]Reference group is White; [c]Reference group is Male; [d]Reference group is Apprentice; [e]Reference group is High

Summary

Two collections of analyses were completed in this section. Initial frequency analyses showed outcomes for youth with LD and youth with EBD in all four predictor variable (demographic, vocational training, family engagement, and negative engagement) categories. The dropout trend between diagnoses tended to differ based on category. For example, girls with learning disabilities had a greater probability of dropout. The opposite is true for girls with EBD, where boys had a higher likelihood of dropout. Income mattered for both groups, as low family income was predictive of dropout for youth with LD, while the opposite was true for youth with EBD who reported the highest dropout in the group who reported earnings >$50,000.00. Overall, the likelihood of dropping out of school was greater for youth with EBD than for youth with LD in every category.

Poisson regression analyses were run on models for both disability groups. Both models were statistically significant predictors of outcomes for both disability groups. In fact, statistically significant outcomes were similar in both models, except in the negative engagement category. Behaving as a bully appeared to lower the odds of dropout regardless of disability

category. The analyses conducted were able to address the research questions considered for this study:

1. Do dropout rates differ for students with LD versus students with EBD?

   Frequency analyses comparing dropout rates for student with LD versus students with EBD indicated that students with LD had a lower rate of dropout than youth with EBD (almost 7% vs. almost 17%). Further, with the exception of the sub category of medium family support (within the Family Engagement Scale) where students with LD had a higher dropout rate than students with EBD (11.3% vs. 7.6%), students with EBD had a higher percent of dropout in every single category.

2. How do demographics, vocational training, family engagement and negative school engagement affect dropout rates for students with LD?

   Students with LD who were Latino (almost 10%), had family incomes under $25,000 (9%), or were female (almost 8%) had the highest dropout rates when comparisons were made in terms of demographic variables. Students with LD who had any type of vocational training had lower dropout rates than almost every other predictor category. Students with LD who reported participating in apprenticeships had about a 3% drop out rate, while those with skills training had <1% drop out rate. Although students with LD who reported participating in tech prep courses communicated higher rates of dropout than the other types of vocational training (6%), only students from families that earned >$50,000 (3.7%) and students that specified that they were from families that had high support on the family engagement scale (4.4%) had lower dropout rates. Students who expressed that they were bullied or physically attacked had higher dropout rates than any other category within learning disabilities (14% and almost 13%).

3. How do demographics, vocational training, family engagement and negative school engagement affect dropout rates for students with EBD?

   Similar to findings for students with LD, students with EBD who were Latino had higher dropout rates (almost 20%) than other race/ethnicity groups in this study. Conversely, students with EBD from families with incomes under $25,000 and boys with EBD had the highest demographic percents of dropout. There was no descriptive analysis data available for youth with EBD who participated in apprenticeships. However, students with EBD who participated in skills training or tech prep had dropout rates of 1.3% and 12.3% respectively. Only students with EBD that specified that they were from families that had medium support on the family engagement scale (almost 8%) had lower dropout rates. Similar to students with LD, students with EBD who reported that they were bullied or physically attacked had higher dropout rates than every other category within EBD (almost 41% and 30.4% respectively).

CHAPTER 5

DISCUSSION

Outcomes for the learning disabled (LD) and emotionally and behaviorally disordered (EBD) population are often less positive than outcomes for other populations, as these groups have a higher likelihood of dropout than most other groups. This dissertation examined vocational training and types of engagement as predictors of secondary school dropout for individuals with learning disabilities and individuals with emotional disturbance and behavior disorders. This inquiry operated under the supposition that greater amounts of family engagement and vocational training along with reduced amounts of negative student engagement (i.e., bullying) were predictors of reduced rates of high school dropout. Specifically, using data from the National Longitudinal Transition Study-2 (NLTS-2), this study used results from Poisson regression analyses to examine the predictive natures on the outcome of dropout of variables from 4 categories: demographic (gender, race/ethnicity, and family income), vocational (apprenticeship, skills training, and tech prep), family engagement, and negative youth engagement. This chapter will review and provide a more detailed discussion of the findings presented in Chapter 4, consider the limitations encountered in this research, and address implications for practice and future research.

Key Findings

The following section provides a more detailed discussion of the findings for all four predictor areas: demographics, vocational training, family support engagement, and youth negative engagement, against the outcome of dropout.

Demography. Disability groupings mattered. Girls with LD had greater odds of dropping out of school than boys with LD. Conversely, boys with EBD were more likely to drop out than girls with EBD. This latter finding is consistent with previous reports that boys drop out of school more than girls (Stone & Alfeld, 2004). However, the finding that girls with LD are more at risk for high school dropout than boys with LD was not supported by current or previous research.

Disability groupings also mattered when considering income. Outcomes of participants from both groups were influenced by income, but with one interesting complexity. On the whole, the present results were consistent with the American Psychological Association-APA's (2012) report that dropout rates for youth from low-income families far exceeded those for students from more affluent families (the lower family's the income, the higher the odds of dropout). Families who reported annual incomes < $25,000 include the families that were considered impoverished (according to federal guidelines) at the time of the initial data collection period. These results were not consistent in the present findings, however, for chi square results for youth with EBD, which indicated that youth with EBD from families who earned more than $50,000 had the highest percent of dropout. No explanation could be found in the present data or in previous research for this partially counterintuitive result.

Race/ethnicity was a significant factor for all groups. All tests consistently indicated that students who were African American or Latino were more likely to drop out of school than students who were White. This outcome supported the previous literature that has also found that youth who were African American or Latino drop out at higher rates than youth who were White (American Psychological Association-APA, 2012; Burrus & Roberts, 2012; Melville, 2006).

Vocational training. Very few study participants reported that they had engaged in skills training, tech prep or apprenticeships. In fact, less than 15% of all of the study's participants had any of the types of vocational training analyzed in this study. However, analyses suggested that purposeful and specific types of vocational training might reduce the odds of dropout in both disability groups. For instance, tech prep training, which provided instruction on general computer skills and many of the 21st century skills that are typical to most jobs, did not greatly negate the odds of dropping out for either disability group. In fact, almost 7% of study participants with LD who reported tech prep and 12% of study participants with EBD who reported tech prep dropped out of school. Report of dropout was far lower, however, for youth with specific skills training or apprenticeships. This result was consistent with prior research that suggested that students who participated in apprenticeship programs (especially paid) dropped out of school less and had better postsecondary employment outcomes (Corbett, et al., 2002; Luecking & Fabian, 2000; Ofoegbu & Azarmsa, 2010; Shandra & Hogan, 2008).

Family engagement support. The results of the family engagement support scale were also consistent with previous reports. Students with greater amounts of family support experienced more successful outcomes than students with lower amounts of family support. Families who volunteered, or attended school meetings or parent/teacher conferences had lower likelihoods of dropout than families who did not. These results were consistent across regression analyses for both disability groups in this study. These findings are also similar to APA (2012) findings that youth with less family support were at greater risk for high school dropout. There were however, some differences when considering analyses results. Although youth in both disability groups showed the greatest rate of dropping out in the low support categories, results for middle and high support groups were inconsistent with other findings. As an illustration,

youth with LD in the medium support group had a greater rate of dropout than those in either the low or high support groups. Similarly, youth with EBD who reported high family support had a greater rate of dropout than youth with EBD in the medium support group. These results encourage the question of what types of support these youth received. For instance, if these families initially stated they frequently attended school or teacher meetings, were these meetings the results of problematic behaviors exhibited by the students? Therefore, these parents were not necessarily present to support or encourage the student; rather, the parents' attendance may have been the consequence of a negative event. As NLTS-2 inquiries were not designed to ascertain the nature of the support episodes, further research might prove useful in order to explain these findings.

Youth negative security engagement. Participants who reported experiencing most types of negative security engagement incidences were more likely to drop out of high school. Youth who were victims of thefts, bullying, or physical violence had (especially with EBD) had a much higher likelihood of dropping out of high school. These findings were consistent with previous literature (Balfanz & Legters, 2006). Interestingly, regardless of diagnosis, youth who were bullies appeared more insulated against the effects that lead to dropout. These findings point to other questions for other inquiries concerning what makes individuals who consider themselves victimizers less likely to drop out of school.

Limitations

The information provided by NLTS-2 for this dissertation was both meaningful and worth contributing to the research pool. The NLTS-2 database contained information on thousands of variables, allowing researchers the potential to analyze almost limitless questions. Participants for this study were followed over a 10-year period, which offered the opportunity to

observe changes with the same youth over time. NLTS-2 provided variable weights that allowed the opportunity to generalize the results nationally. Because the database is restricted, participant identities were strongly protected. It was also a valuable resource to gain access to such a large source of data, which is also the most recent study of such length on youth with disabilities.

However, the NLTS-2 and the present analyses are not without limitations. To begin with, the foundation of the data collection process was a self-report response method to the survey questions. Because of the self-report design, it is probable that responders may have (whether intentionally or unintentionally) provided misinformation for some of the responses. Further, the wide assortments of variables that the NLTS-2 database carried were at times redundant. There were instances where the same question was asked during the same wave multiple times. For example, in Wave 2, there were at least three different questions that asked why the student was no longer in school. Although the possible responses were similar, some participant responses were not consistent. Additionally, the variable cataloging process was challenging. There was no alphabetizing or an intuitive process that would have simplified the process of identifying and selecting the available variables. The only way to search for variables was by correctly identifying the appropriate category. Patterson, et al. (2000) further supported poor variable organization as a disadvantage of using secondary data. Also, since the NLTS-2 did not operationalize the variables, it was necessary, at times, to seek the existing literature to provide working definitions. This was the case when seeking the appropriate vocational variables for inclusion in this work. In order to differentiate between available vocational variables and choose the most appropriate variables it was necessary to provide clarity by considering trends from the research pool.

Another limitation was the variable selection. There were other variables that may have offered additional explanations useful in these analyses. For instance, it might have added strength to this research to consider how long individuals who took vocational training participated in their programs as in the Corbett et al., (2002) study which would have offered the opportunity to analyze whether or not the length of vocational participation had made any difference to the outcome of dropout. It might have been further been useful to have specific information on the reasons for family school visits. Having more information might have explained whether these visits were for positive or negative reasons, and might have clarified why high family engagement did not always translate into lower numbers of high school dropout.

The final limitation for discussion in this dissertation concerns the treatment of missing responses. The listwise deletion process removed entire cases that were missing responses (Peugh & Enders, 2004). Because it removed entire cases, this process might have removed vital information for other questions that did have responses. Further, removing complete cases for responders who did not answer every question may have contributed to bias of the results from the remaining responders. Unfortunately, other methods for managing missing information are also not without flaws. Using the listwise deletion process is supported by other research as the most appropriate method to manage missing participant responses (Allison, 2014; Newman et al., 2009).

Implications for Practice

Interpretations for these analyses were based on descriptive rather than experimental data. Although not conclusive, the research for this dissertation clearly showed associative relationships between the predictor variables that were analyzed and the outcome of dropout.

Results of this research are inspirational to practice in several capacities. Against that backdrop, the exceptions may provide useful guidance for practice. First, youth with LD and EBD continue to drop out of school at high rates. Specific results from this dissertation showed that some students who participated in certain types of vocational training had lower dropout rates than students who participated in more general types of training. These results support greater consideration and implementation of specific types of vocational training whenever appropriate. Over 20 years have passed since Wagner et al. (1991) stated that vocational training contributed to more positive outcomes, yet there has been very little research that focused on vocational training as an intervention to dropout in youth with disabilities. In the present analyses, tech skills did not appear to prevent dropout at all. It may be worth considering whether employers consider general tech skills so basic that they are not considered true skills, but fundamental proficiencies expected of all employees which do not offer an additional advantage to individuals with these proficiencies. Youth from both disability groups in this study were less likely to drop out if they received specific skills training or apprenticeships.

Regression analyses' results in this dissertation suggested that greater family support resulted in lower dropout. School programs can contribute to positive family engagement. Positive, respectful, relationships between building-based adults and students' families may contribute to positive family engagements. APA (2012) suggested that partnerships between schools and families could help promote positive student outcomes. As suggested by the results of this study, different programs should be included to decrease negative forms of engagement. In particular, programs that contribute to youth understandings of the effects of bullying, and that aim to decrease physical violence, might produce fewer dropouts. Programs like Check and Connect, an intervention to keep students from disengaging from school by using relationships

with trained adult building monitors (Lehr et al., 2004), or Positive Behavioral Interventions and Supports (PBIS) which increases positive feedback, and promotes student safety, might both be explored for students with LD or with EBD and with a goal of lower dropout. Fredricks et al. (2004) proposed targeting engagement in any area produces more positive outcomes. Overall, it is important for practitioners to be sensitive to the unique needs of their students, and to find ways to incorporate those needs in their instruction in manners that are effective for the individual students.

Implications for Future Research

This study reveals a very limited amount of information on the dropout situation for youth with LD and EBD. Some questions that remain unanswered would, if answered, contribute to a greater understanding of how to create more successful school experiences for these youth. Analyses results for this dissertation inspired considerations of other avenues of potential research. As most of these analyses conformed to known research, and much has been said about the problems, the implications discussed in this section primarily focus on interventions.

Initially, it would be worthwhile to explore social support programs that assist in the overall improvement and growth of the entire family in various areas (financial, academic, and life skills counseling), and placing an emphasis on programs that appear to offer the most successful outcomes against multigenerational school failures. For example, programs like those provided by, The Children's Aid Society in New York target families that are primarily low income, but provides wide-ranging supports in various areas. In this way, the focus of the intervention(s) is multi-dimensional and focuses wherever the family has a need. Services available are plentiful, some of which include parent literacy and counseling programs, in

addition to after school programs for the children, and services for youth who become involved with the juvenile detention system (The Children's Aid Society, n.d.).

Research that focuses on teacher support and ongoing training might be very useful, especially in the area of transition. Transition planning is an opportunity for practitioners to guide youth for whom it appears beneficial into vocational options. The practice of including vocational options in transition planning for some students is further supported in the existing literature (Morningstar & Liss, 2008; Powers et al., 2005). Some researchers encourage options such as career academies, which are small community schools within schools that offer career related coursework and local community work experience (Kennelly & Monrad, 2007). Programs of study that combine career and academic training have shown effectiveness with preventing dropout (Dupoux, 2008; Lehr et al., 2004). In fact, it may be worthwhile to research models that have successfully implemented similar programs.

Research that focuses on strategies that ultimately lead to student engagement might support the findings in this research and other studies in the literature (Christenson & Thurlow, 2004; Fredricks et al., 2004; Hopson & Lee, 2011). Finally, exploring research that affords more opportunities for specific types of vocational training might further develop some of the findings in this dissertation. It would additionally support and extend some of the findings in other research such as Corbett et al. (2002), which found certain types of vocational training were more effective than others.

Additionally, high levels of dropout for students who reported certain types of negative engagement suggest the need for research methods that focus on teaching youth tactics beyond violence, bullying, and teasing. To go even further, research that both encourages and provides

opportunities for victims to gain shelter and protection from victimizers might encourage more students to avoid dropping out.

Summary

This chapter presented key findings, considered limitations encountered in this research, and addressed implications for practice and research. It is not possible to intervene for each variable that appeared to make students more prone to the effects of dropout (i.e., gender and race/ethnicity). With a focus on matters that might make a difference and can be changed, implications suggested utilizing transition planning for more vocational training in specific areas, finding opportunities to engage students and their families, offering social programming to reduce negative engagements, and looking at social services. This inquiry adds to a research pool that is in dire need of current data that discusses students with disabilities and dropout.

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Appendices

Table A1

Literature Review Article Summaries

Study	Participant characteristics	Purpose	Method	Major findings	Implications
Corbett, Sanders, Clark, & Blank (2002).	N=305 Out of school youth with EBD that were in 8th grade during the 1989-1990, 1990-1991, 1991-1992, or 1992-1993 school years. Students from a large school district in Florida. Youth had to attend more than 1 semester (91 days) of high school.	Determine if different types of vocational training (generic, occupationally oriented, on-the-job training) positively impact dropout, and employment success. Determine if different types of vocational training minimize use of public assistance and lower incarceration rates.	Independent variable: Vocational training - generic - occupationally oriented - on-the-job training Dependent variables: - dropout status - post-school employment status - use of public assistance - incarceration status. Each measurement controlled for ethnicity, gender, [d]SES, achievement and exceptionality. Statistics came from various quantitative measurements, including t-tests, chi-square tests of independence, and point biserial correlations.	No vocational education dropout ratio was 132:1. One year of generic vocational training, dropout ratio was 101:1. One year of occupationally oriented vocational training dropout ratio was 73:1. One year of on the-job-training dropout ratio was 75:1. One year of each type of vocational training, dropout ratio was 32:1. Only on-the-job training showed higher post school earnings.	More focus should be placed on generic programs and on-the-job training. Any type of occupationally oriented program should have an on-the-job training component. Vocational training opportunities should be available earlier and for longer periods through secondary school.

Note.* N= Total number of participants; ** HID = High incidence disabilities; *** n= Subgroup removed from N (Total number of participants); [a]LD = Learning disabilities; [b]EBD = Emotionally disturbed / behavior disordered; [c]NLSY97 = National Longitudinal Survey of Youth 1997; [d]SES= Socioeconomic status.

Table A1 (continued)

Literature Review Article Summaries

Study	Participant characteristics	Purpose	Method	Major findings	Implications
Luecking & Fabian (2000)	* N=3024 Youth with **HID. ***n= 1726 (*LD*) n= 448 (*EBD*) High school seniors.	Study outcomes of participants in Marriott Foundation's Bridges Program. Provided training, career guidance and employment support. 12-week program, with 10 cohorts that operated in 7 different states.	Logistic regression analysis. Identified 7 predictor variables: - Gender - Disability type - Race - Internship completion - Job offer - Hourly wage - Job integration Conducted post intervention measurement of employment status at 3 different points in time (6 months, 12 months, and 18 months).	Ongoing vocational training and career support had positive effects on employment outcomes. Paid internships are beneficial to students. The better a student performs during internships the greater the likelihood of post school employment. Students with EBD were less likely to be employed At each measurement, fewer students held employment.	Further research needed in the area of employment training and support, especially for students with EBD. Longer-term supports would be beneficial for helping students maintain long term employment. Consideration of greater supports for students with EBD.

Note.* N= Total number of participants; ** HID = High incidence disabilities; *** n= Subgroup removed from N (Total number of participants); [a]LD = Learning disabilities; [b]EBD = Emotionally disturbed / behavior disordered; [c]NLSY97 = National Longitudinal Survey of Youth 1997; [d]SES= Socioeconomic status.

Table A1 (continued)

Literature Review Article Summaries

Study	Participant characteristics	Purpose	Method	Major findings	Implications
Muthumbi (2008)	N= 457 Youth with disabilities. Youth ages 14-24 depending on the site they visited. Students with disabilities, youth with disabilities considered at risk for not completing school or finding employment, and youth with disabilities who were school dropouts.	Grant from state of New York created 5 one- stop centers that combined various programs to provide greater assistance and transitional services for students with disabilities. Services included vocational, soft skills training, and mentoring.	A qualitative analysis of the demonstration projects included in the program: - Workforce investment boards - One-stop centers - Vocational and Educational Services for Individuals with Disabilities (VESID) - Schools - Adult agency providers - Employers - Employer networks - Board of Cooperative Educational Services (BOCES) - Transition Coordination Sites	Providing vocational training, when youth are younger promotes better outcomes. Paid employment promotes increased probability of positive outcomes.	Greater interagency/inter-program cooperation would benefit student outcomes. Inherent barriers prevent interagency and inter-program cooperation and success.

Table A1 (continued)

Literature Review Article Summaries

Study	Participant characteristics	Purpose	Method	Major findings	Implications
Ofoegbu & Azarmsa (2010).	N=81 High school graduates with LD or EBD. Former participants of the Vocational Education Program (VEP) in Long Beach Unified School District (LBUSD).	To determine whether the education vocational program bore any relevance on gaining and keeping postsecondary employment.	Dependent variables: - Current employment status. - If employed, length of employment. School data provided information on former students participation in vocational education program, disability status, and graduation status. Participants completed questionnaire information on employment status.	The majority of individuals with LD or EBD who participated in the vocational training program gained postsecondary employment. The majority of individuals with LD or EBD who participated in the vocational training program maintained employment two to three years after completing high school.	There is a significant impact on the outcomes of students with disabilities that participate in vocational training programs, as opposed to those who do not. Professionals can utilize the results of this study to aid in the planning and implementation for transition objectives. Further studies concerning the efficacy of vocational training programs on the outcomes of youth with LD or EBD would benefit the research base.

Note.* N= Total number of participants; [a]LD = Learning disabilities; [b]EBD = Emotionally disturbed / behavior disordered

Table A1 (continued)
Literature Review Article Summaries

Study	Participant characteristics	Purpose	Method	Major findings	Implications
Scholl & Mooney (2004)	N=31 n=12 (typical students, used as control group) n=19 (Students with various disabilities, (16 with LD) High school juniors and seniors. Participants in the Wisconsin Youth Apprenticeship (YA) Program. Students with disabilities who were at risk for graduating without career skills.	2-year program trained participants in vocational courses. Provided paid internships.	Qualitative semi-structured interviews. Each interview was about 90 minutes long and audiotaped to allow for verbatim transcriptions. Researchers included a control group of 12 typical students.	Intervention appeared successful for youth that completed the program. Poor collaboration and communication between stakeholders weakened the program, and severely impacted students with disabilities. Students that experienced "rigorous and engaging classroom instruction that integrated technical and academic competencies" (p. 9) experienced more successful outcomes than students who did not.	High levels of program organization and coordination, and a harmonious coupling between disabilities and chosen career fields enhanced the probabilities of success. Programs of this type might increase the resiliency of previously unsuccessful students with disabilities. The research pool would benefit from a larger N and more extensive study.

Note.* N= Total number of participants; ** HID = High incidence disabilities; *** n= Subgroup removed from N (Total number of participants);
[a]LD = Learning disabilities; [b]EBD = Emotionally disturbed / behavior disordered; [c]NLSY97 = National Longitudinal Survey of Youth 1997; [d]SES=Socioeconomic status.

Table A1 (continued)

Literature Review Article Summaries

Study	Participant characteristics	Purpose	Method	Major findings	Implications
Shandra & Hogan (2008)	N=2254 Student participants in the [c]NLSY97 study. Students with all disabilities combined.	To determine whether there is a relationship between school-to-work program participation and post high school work status…(p.124) To determine which types of school-to-work programs proved most effective in post school employment outcomes.	Dependent variables: - Stable Employment - Working full-time - Annual income - Hourly compensation - Employer-offered health insurance - Employer-offered paid sick days Longitudinal multivariate regression techniques to analyze eight waves of the NLSY97 (p.120). Generalized Estimating Equations (GEEs) to analyze employment outcomes over time (p. 123).	Students with disabilities with vocational training had more fringe benefits than students with disabilities who had no training. Students with disabilities that had vocational training had greater probability of maintaining stable employment. Out of all the school based programs measured, cooperative education was most highly correlated with post school employment. Participation in work-based internship programs increased the average hourly pay. Participation in work-based mentoring increased the likelihood of employer paid sick days.	There is a significant impact on the outcomes of students with disabilities that participate in school-to-work programs, as opposed to those who do not. Professionals can utilize the results of this study to aid in the planning and implementation for transition objectives. Further longitudinal datasets would be a useful addition to the results of this study. Further studies concerning the efficacy of specific school-to-work programs would benefit the research base.

Note.* N= Total number of participants; ** HID = High incidence disabilities; *** n= Subgroup removed from N (Total number of participants); [a]LD = Learning disabilities; [b]EBD = Emotionally disturbed / behavior disordered; [c]NLSY97 = National Longitudinal Survey of Youth 1997; [d]SES= Socioeconomic status.

Table A2

Correlations Between Predictor Variables and Dependent Variable

Measure	1	2	3	4	5	6	7	8
1. Gender	---							
2. Race/ethnicity	-.014*	---						
3. Household Income	-.017*	.128**	---					
4. Apprenticeship	.003**	-.043**	-.010*	---				
5. Tech Prep	.076**	.015**	-.022*	.062**	---			
6. Skills Training	.025**	.012**	.019**	.159**	.173**	---		
7. Family Engagement	.050**	-.048**	.029**	.013**	-.022**	.019**	---	
8. Youth Negative Engagement	-.037*	.009**	.046**	-.006*	-.029**	-.047*	.046**	---
9. Dropout	.005**	-.002**	-.072*	-.019*	-.026**	-.061*	-.017*	.045**

Note: *p < .05, **p < .01

Appendix B

Approval Letter from the Human Subjects Committee

The University of Georgia

Phone 706-542-3199

Office of the Vice President for Research
Institutional Review Board

Fax 706-542-3660

APPROVAL OF PROTOCOL

April 24, 2014

Dear Jay Rojewski:

On 4/24/2014, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	The influence of vocational training on outcomes of youth with LD and EBD
Investigator:	Jay Rojewski
IRB ID:	STUDY00000437
Funding:	None
Grant ID:	None

The IRB approved the protocol from 4/24/2014 to 4/23/2015 inclusive. Before 4/23/2015 or within 30 days of study closure, whichever is earlier, you are to submit a continuing review with required explanations. You can submit a continuing review by navigating to the active study and clicking Create Modification / CR.

If continuing review approval is not granted before the expiration date of 4/23/2015, approval of this study expires on that date.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103).

Sincerely,

Larry Nackerud, Ph.D.
University of Georgia
Institutional Review Board Chairperson