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POSTSCHOOL ENGAGEMENT OF YOUTHS WITH DISABILITIES IN SOUTH CAROLINA: ANALYSIS OF EMPLOYMENT AND POSTSECONDARY EDUCATION OUTCOMES ACROSS THREE YEARS

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POSTSCHOOL ENGAGEMENT OF YOUTHS WITH DISABILITIES IN SOUTH CAROLINA: ANALYSIS OF EMPLOYMENT AND POSTSECONDARY EDUCATION OUTCOMES ACROSS THREE YEARS

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
in Curriculum and Instruction

by
Angela M.T. Prince
August 2013

Accepted by:
Dr. Janie Hodge, Committee Chair
Dr. Antonis Katsiyannis
Dr. William Bridges
Dr. Cynthia Deaton
ABSTRACT
For decades, youths with disabilities have had consistently poor postschool engagement outcomes in terms of employment and postsecondary education and training. Student-, school-, and district-level factors have impacted these outcomes in varying degrees. Using three years of postschool outcome data from the South Carolina Department of Education Office of Exceptional Children, this study examines engagement outcome differences for youths with high incidence disabilities (emotional and behavioral disorders, intellectual disabilities, and learning disabilities) using a logistic regression model. Findings indicated the student-level factors of age, race, high incidence disability, and special education exit reason were significant in predicting the postschool outcomes of employment and postsecondary education. At the school-, district-, and combined levels, only district retention rates were significant in the prediction model.
DEDICATION

I would first like to dedicate this dissertation to my husband, Larry Prince, who has supported me through this process. You understand my need to learn and have constantly encouraged me in the pursuit. Thank you for enabling me to accomplish my career goals and for encouraging me when I struggled.

Second, I would like to dedicate this dissertation to my daughter, Chloë Alexis Mei. May you know the empowerment of education, the gift of frustration, and the satisfaction of success. You will not remember the months I spent writing this document, but this degree is for you, baby girl. I hope my experiences inspire your growth as a beautiful defender of those who have been given less than you. You are my greatest accomplishment.

Third, I would like to dedicate this dissertation to my parents, Vern and Carol Tuttle, who have supported me in word and deed since my birth. You instilled in me the value of academic excellence and bragged on my endeavors. Thank you for always being proud of me.

Finally, I would like to dedicate this dissertation to the students I have been privileged to know. You and your families have taught me life lessons that I will not forget. You have enriched my life beyond description.
ACKNOWLEDGEMENTS

The completion of this dissertation would not have been possible without the guidance and support of Dr. Janie Hodge. From the discussions with the Office of Exceptional Children to refining the finished product, she has critiqued when necessary and encouraged consistently through her passionate service of students with disabilities. I could never fully express the depth of my appreciation for the mentor and friend I have gained. Dr. Antonis Katsiyannis, thank you for giving me the opportunity to write and to review and to present. Working for you has increased my expertise in special education. I have truly enjoyed the opportunity to know you better. To Dr. Billy Bridges, you deserve an award for being the Dr. Stats Professor who not only helped me to survive statistics but also gave me an appreciation for the process. You are my favorite hippie. Dr. Cynthia Deaton, you took a risk in joining this committee. I appreciate your willingness to go outside your comfort zone. Thank you.

I would also like to acknowledge the South Carolina Department of Education, Office of Exceptional Children for their collaboration on this project. To Dr. Busby, Michelle Bishop, and Cathy Boshamer, thank you for providing a beneficial internship. Special thanks to Mr. John Payne. I greatly appreciate your help in providing data, guidance, and suggestions.
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CHAPTER ONE

INTRODUCTION

Youths with disabilities often experience poor postschool engagement outcomes compared to their nondisabled peers. They are more likely to drop out of high school, more likely to be unemployed or underemployed, less likely to pursue secondary education, and less likely to live independently (Newman, et al., 2011). In 2009, the dropout rate was almost twice as high among students with disabilities compared to students without disabilities (15.5% vs. 7.8%), and 80% of youths with disabilities ages 18 to 24 left high school with a credential other than a regular high school diploma (Chapman, Laird, Ifill, & Kewal Ramani, 2011). The unemployment rate for individuals with disabilities remains markedly higher than that for individuals without disabilities. In 2010, the unemployment rate for persons with disabilities above 16 years of age was 14.9%, compared to a rate of 9.4% for persons without disabilities (U.S. Census Bureau, 2011). In 2011, these numbers remained relatively unchanged at 14.8% and 9.4%, respectively (U.S. Bureau of Labor Statistics, 2012).

One factor that impacts long-term outcomes for individuals with disabilities is attainment of postsecondary education and training. Youths with disabilities who exited school with a high school diploma are more likely to receive follow-up services that lead to vocational training or higher education opportunities (Love & Malian, 1997). According to Newman et al. (2011), 60% of youths with disabilities enroll in postsecondary education within eight years after leaving high school. However, only 23% of those who enroll finish their program, and those who enroll in a 2-year course of study
are more likely to complete their program than students enrolled in a 4-year course of study.

Young adults with disabilities who have not found full-time jobs, established independent residences, married, or had children by age 26 are more likely to have low family incomes and to be employed in low-skill jobs (Janus, 2009), and are at an increased risk of living in poverty (Lysaght, Cobigo & Hamilton, 2012). If youths experience barriers to employment, they are also likely to face barriers to independent living, and likely to remain living longer with family members than their non-disabled peers (Janus, 2009). Conversely, youths who continue education beyond high school, whether through postsecondary training (Seltzer, Floyd, Greenberg, Hong, Taylor, & Doescher, 2009) or higher education (U.S. Bureau of Labor Statistics, 2013) are more likely to be employed and to earn more.

In summary, youths with disabilities are less likely to be employed, to enroll in postsecondary education, and to live independently after leaving high school than their nondisabled peers. However, youths who are engaged in postsecondary education or training are more likely to be employed, to earn more money during their lifetime, and are less likely to live in poverty.

This dissertation adds to the literature on the transition of youths with disabilities from high school to postsecondary life by examining student-, school-, and district-level factors that predict postschool engagement outcomes. A rationale for studying the transition of youths with disabilities from high school to postsecondary life is presented in the following three sections: (a) postschool outcomes of youths with high-incidence
disabilities, (b) federal requirements for postschool outcome data collection, and (c) South Carolina postschool engagement outcome data. Following the rationale for studying the transition of youths with disabilities from high school to postsecondary life, the specific aspects of the current study are presented, including (a) purpose of the study, (b) the research methods support this investigation, (c) the significance of the study, and (d) the definitions of relevant terms.

**Postschool Outcomes for Youths with High Incidence Disabilities**

*High incidence* disabilities include emotional behavioral disorders (EBD), intellectual disabilities (ID), and learning disabilities (LD) and these disabilities account for the majority of students who receive special education services (Gage, Lierheimer, & Goran, 2012). In a seminal study about similarities and differences of students with high incidence disabilities, Sabornie, Cullinan, Osborne, and Brock (2005) found that students with mild ID were significantly different than students with both LD and EBD across the cognitive, academic, and behavioral domains. Although students with EBD and LD were similar across the intellectual and academic domains, they were significantly different in the behavioral domain. Similarly, the postschool outcomes of youths with high incidence disabilities vary markedly. The following section delineates the specific postschool engagement outcomes of employment and postsecondary education for youths with EBD, ID, and LD.

**Postschool Outcomes for Youths with EBD**

Among individuals with high incidence disabilities, youths with EBD experience the poorest postschool outcomes; they are more likely to drop out of high school
(Landrum, Katsiyannis, & Archwamety, 2004; Sinclair, Christenson, & Thurlow, 2005), and are less likely to have meaningful employment (Carter & Lunsford, 2005). While youths with EBD often possess the academic abilities to meet general education requirements and attend higher education, they are less likely than youths with other disabilities to be served in general education classrooms (Landrum, Katsiyannis, & Archwamety, 2004), and are less likely than youths with LD to go to college (Newman, Wagner, Cameto, Knokey, & Shaver, 2010). Concurrently, youths with EBD are more likely to be arrested during their lifetime compared to youths with other disabilities (Newman, et al., 2010).

During the 2007-08 school year, 18,385 of the 42,469 (42%) secondary students with EBD dropped out of school, compared to 23% of enrolled students with LD and 21% of enrolled students with ID (National Center for Education Statistics, 2011). Several aspects of engagement predict increased dropout rates for individuals with EBD, but the most significant is grade level retention (Reschly & Christenson, 2006). Among secondary school youths, grade level retention is often imposed for failure of high-stakes tests (Penfield, 2010), absenteeism due to chronic health conditions (Moonie, Sterling, Figgs, & Castro, 2008), and truancy (Vacca, 2008). A general lack of academic ability in reading may also contribute to retention and eventual dropout (Griffith, Lloyd, Lane, & Tanksersley, 2010; Vacca, 2008). Grade level retention negatively impacts homework completion and academic self-concept, yet encourages maladaptive motivation and weeks absent from school. Retention also has a negative impact on youths’ self-esteem (Martin, 2011).
According to the National Longitudinal Transition Study-2 (NLTS-2), 53% of youths with EBD enroll in postsecondary education compared to 67% of nondisabled students (Newman et al., 2011). Of youths with EBD who enroll in postsecondary education, only 35% complete their program (Newman et al., 2011). Several factors may influence limited enrollment in, and successful completion of, postsecondary education for youths with EBD. Youths with EBD may not pursue postsecondary education due to lack of effective transition planning during high school (Cooper & Pruitt, 2005; Karpur, Clark, Caproni, & Sterner, 2005) and lack of supports at the university level (Cooper & Pruitt, 2005; Preece, Beacher, Martinelli, & Roberts, 2005).

In addition to lower rates of postsecondary enrollment and completion, youths with EBD are often considered to be less employable. Potential reasons for their lower rates of employability may include lack of internal competencies in social, vocational, academic, and self-determination skills, as well as external supports of family involvement, community linkages and workplace supports (Carter & Lunsford, 2005). According to the National Longitudinal Transition Study-2, youths with EBD were the second highest among disability groups to report being fired from a job and being laid off (Newman et al, 2011). These youths also held the highest number of different jobs (4.6) and reported having been in their current or most recent job for the least amount of time (18.8 months) compared to youths with other disabilities (Newman et al, 2011). Possible issues with employment for youths with EBD may result from a lack of vocational goals after exiting high school (Edgar & Siegel, 1995), or an impulsivity to leave current
employment prior to seeing improvement in their work life and standard of living
(Wagner, Newman, Cameto, Garza, & Levine, 2005).

**Postschool Outcomes for Youths with ID**

Youths with ID are more likely to take life skills coursework in high school
(Bouck, 2010), are less likely to be employed (Luftig & Muthert, 2005; Stephens,
Collins, & Dodder, 2005), and are less likely to attend higher education (Casale-Giannola
& Kamens, 2006) when compared to youths with other disabilities. Youths with ID are
among the most segregated of individuals with disabilities in school settings, spending
the majority of their time in special education settings (Hughes, Golas, Cosgriff,

Eight years after exiting high school, youths with ID are less likely to be
employed (39%) than youths with EBD (50%) or LD (67%) (Newman et al., 2011).
When youths with ID are employed, social inclusion is not guaranteed (Lysaght, Cobigo
& Hamilton, 2012). While the economic impact of competitive employment for the
individual and the community is apparent, the social impact of integrative employment is
less apparent, but critically important for individuals with ID. According to Stephens,
Collins, and Dodder, (2005), the degree to which the employment setting is integrated
with the community strongly influences the youth’s adaptive behaviors, physical abilities,
social skills, and cognitive abilities. Youths in more integrated employment settings
(competitive or supported employment) demonstrate stronger ability sets – adaptive
behaviors, physical abilities, social skills, and cognitive abilities – than youths in more
restrictive employment settings (sheltered employment or unemployed) (Stephens, Collins, & Dodder, 2005).

Youths with ID are often limited by the type of credential they receive upon leaving high school. If students with ID leave high school with a certificate of completion rather than a regular high school diploma, they have limited postsecondary education options. To increase the number of students with ID attending institutes of higher education, the U.S. Department of Education’s Office of Postsecondary Education developed a grant initiative for qualifying colleges and universities. Funded programs are comprehensive transition models for youths with ID. Curricula include academic studies, social skills training, independent living, and competitive employment in integrative settings. Students exit the program with a credential that is not a college-level diploma (Catalog of Federal Domestic Assistance, 2012). Modified university acceptance for students with ID on non-degree tracks has resulted in greater access to, but few meaningful relationships with, same-aged peers (Casale-Giannola & Kamens, 2006).

**Postschool Outcomes for Youths with LD**

When compared with their same-aged nondisabled peers, youths with LD are more likely to plan postschool employment over college, are more likely to plan two-year college over four, but are less likely have postschool plans during their first year of high school (Kortering, Braziel, & McClannon, 2010). Compared to youths with EBD and ID, youths with LD are most likely to attend higher education (Newman et al., 2011). According to Doren, Lindstrom, Zane and Johnson (2007), youths with LD whose high school transition planning matches their postschool employment goals will have higher
wages, higher skill-level employment options, opportunities for advancement, and higher levels of job satisfaction. While self-determination is important for youths across disabilities (Carter, Lane, Pierson, & Glaeser, 2006; Wehmeyer, Palmer, Shogren, Williams-Diehm, & Soukup, 2013) Doren et al. (2007) identify specific skills for youths with LD who have an active career orientation. Youths with LD who possess skills that include goal-orientation, self-advocacy, understanding the impact of one’s disability, understanding the financial impact of one’s career choices, and displaying prosocial coping skills demonstrated improved employment outcomes after leaving high school compared to participants with passive career orientations (Doren, et al., 2007).

Among students with high incidence disabilities, youths with LD are most likely to enroll in postsecondary education (67%) (Newman et. al, 2011). However, they often lack the essential skills to complete higher-level coursework. Difficulties with time management, organization, writing papers, note taking, and stress often complicate the life of a college-aged youth with LD (Connor, 2012). In addition, students with moderate LD may be unprepared for college learning because they lack basic reading skills (Cowden, 2010).

**Federal Requirements for Postschool Outcome Data Collection**

As part of the IDEA 2004 amendments, at least once every six years states are required to submit a State Performance Plan (SPP) in which they report performance on 20 indicators related to the progress of students with disabilities (20 U.S.C. 1416(b)(1)). Four of the 20 indicators are specific to adolescents with disabilities. Indicator 1 requires states to report the graduation rate of students with disabilities. Indicator 2 requires states
to report the dropout rate of students with disabilities. Indicator 13 relates to postsecondary transition planning for students with disabilities. Indicator 14 requires states to collect postschool outcome data one year after students exit high school. Indicators 1, 2, and 14 are performance indicators in which states set aggressive targets for local educational agencies (LEA). For example, South Carolina’s rigorous and measureable target for Indicator 1 on which local education agencies must report is:

- current year must meet the GOAL of 88.3%, or
- the current year must meet the TARGET OBJECTIVE of 78%, or
- the current year is 2 percentage points higher than the previous year, or
- the current year is 2 percentage points higher than the most recent three-year average (including current year) (Zais & Bishop, 2012).

Indicator 13 is a compliance indicator, in which the target is set at 100%, and each LEA is expected to comply (U.S. Department of Education, 2011a; Test & Grossi, 2011).

Table 1 defines Indicators 1, 2, 13, and 14 according to IDEA 2004.
Table 1

*Definitions of Indicators 1, 2, 13, and 14 according to 20 U.S.C. 1416*

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Definition</th>
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<tr>
<td>Indicator 1</td>
<td>Percent of youth with IEPs graduating from high school with a regular diploma compared to percent of all youth in the State graduating with a regular diploma.</td>
</tr>
<tr>
<td>Indicator 2</td>
<td>Percent of youth with IEPs dropping out of high school compared to the percent of all youth in the State dropping out of high school.</td>
</tr>
<tr>
<td>Indicator 13</td>
<td>Percent of youth aged 16 and above with an IEP that includes coordinated, measurable, annual IEP goals and transition services that will reasonably enable the youth to meet the post-secondary goals.</td>
</tr>
<tr>
<td>Indicator 14</td>
<td>Percent of youth who are no longer in secondary school, had IEPs in effect at the time they left school, and were: (a) enrolled in higher education within one year of leaving high school; (b) Enrolled in higher education or competitively employed within one year of leaving high school; or (c) Enrolled in higher education or in some other postsecondary education or training program; or competitively employed or in some other employment within one year of leaving high school.</td>
</tr>
</tbody>
</table>

**South Carolina Postschool Engagement Outcome Data**

Indicator 14 data include the percent of youth who are no longer in secondary school, who had IEPs in effect at the time they left school, and were: (a) enrolled in higher education within one year of leaving high school; (b) enrolled in higher education or competitively employed within one year of leaving high school; (c) enrolled in higher education or in some other postsecondary education or training program; or (d) competitively employed or in some other employment within one year of leaving high school. Table 2 provides the federal definitions for Indicator 14 domains (20 U.S.C. 1416(a)(3)(B)).
Table 2

**Indicator 14 Domains A, B, and C with Definitions**

<table>
<thead>
<tr>
<th>Indicator 14 Domain</th>
<th>Definition</th>
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<tr>
<td>A. Percent enrolled in higher education</td>
<td>[&amp;(number of youth who are no longer in secondary school, had IEPs in effect at the time they left school and were enrolled in higher education within one year of leaving high school) divided by the (number of respondent youth who are no longer in secondary school and had IEPs in effect at the time they left school)] times 100.</td>
</tr>
<tr>
<td>B. Percent enrolled in higher education or competitively employed within one year of leaving high school</td>
<td>[&amp;(number of youth who are no longer in secondary school, had IEPs in effect at the time they left school and were enrolled in higher education or competitively employed within one year of leaving high school) divided by the (number of respondent youth who are no longer in secondary school and had IEPs in effect at the time they left school)] times 100.</td>
</tr>
<tr>
<td>C. Percent enrolled in higher education, or in some other postsecondary education or training program; or competitively employed or in some other employment</td>
<td>[&amp;(number of youth who are no longer in secondary school, had IEPs in effect at the time they left school and were enrolled in higher education, or in some other postsecondary education or training program; or competitively employed or in some other employment) divided by the (number of respondent youth who are no longer in secondary school and had IEPs in effect at the time they left school)] times 100.</td>
</tr>
</tbody>
</table>

Fiscal year 2009 was a baseline year for Indicator 14 data collection. At that time, States were required to set targets through FY 2012. For FY 2010, States were permitted to use actual percentages from FY 2009 as targets. South Carolina’s targets and actual percentages for Indicator 14 over a three-year period are shown in Table 3 (Zais & Bishop, 2012; Zais & Metts, 2011; Zais & Boshamer, 2013).
### Table 3

**SC Indicator 14 Target and Actual Percentages for FY 2009, 2010, and 2011.**

<table>
<thead>
<tr>
<th>Indicator 14</th>
<th>Target 2009</th>
<th>Actual 2009</th>
<th>Target 2010</th>
<th>Actual 2010</th>
<th>Target 2011</th>
<th>Actual 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Percent enrolled in higher education</td>
<td>24.36</td>
<td>24.36</td>
<td>29.7</td>
<td>24.86</td>
<td>36.3</td>
<td></td>
</tr>
<tr>
<td>B. Percent enrolled in higher education or competitively employed within one year of leaving high school</td>
<td>50.23</td>
<td>50.23</td>
<td>53.81</td>
<td>50.73</td>
<td>62.4</td>
<td></td>
</tr>
<tr>
<td>C. Percent enrolled in higher education or in some other postsecondary education or training program; or competitively employed or in some other employment within one year of leaving high school</td>
<td>65.92</td>
<td>65.92</td>
<td>66.88</td>
<td>66.42</td>
<td>73.3</td>
<td></td>
</tr>
</tbody>
</table>

From 2009 to 2011, South Carolina contracted with LifeTrack to distribute surveys to youths with disabilities who had exited high school. In May 2010, 3,570 surveys were mailed to youths who exited during the 2008-2009 school year. Of those, 697 were returned undeliverable. Therefore, 80.5% of exiters received the Postschool Survey (PSS). Of the survey respondents, 854 were received and returned by youths (n=420) or the designated family member (n=434) for a 23.9% response rate. The remaining 2019 youths or their designated family member did not return the survey information (Zais & Bishop, 2012). In 2011, 7,203 surveys were mailed to youths who
exited during the 2009-2010 school year. Of the youths who received surveys, 1,576 responded for a 21.88% return rate (Zais & Metts, 2011). LifeTrack distributed surveys in FY 2011 to 6,966 individuals one year after they exited school. Of the 6,966 youths who received surveys, 1,444 responded for a 20.4% return rate (Zais & Boshamer, 2013). Among the three reporting years, the percentage of survey responses varied from 20.7% to 23.9%. Table 4 includes additional descriptive data related to the response rates by fiscal years.

Table 4

<table>
<thead>
<tr>
<th></th>
<th>FY 2009</th>
<th>FY 2010</th>
<th>FY 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributed</td>
<td>3,570</td>
<td>7,203</td>
<td>6,966</td>
</tr>
<tr>
<td>Returned</td>
<td>854</td>
<td>1,576</td>
<td>1,444</td>
</tr>
<tr>
<td>Response Rate</td>
<td>23.9%</td>
<td>21.87%</td>
<td>20.7%</td>
</tr>
</tbody>
</table>

As part of the requirements of IDEA 2004, South Carolina collects postschool engagement outcome data for youths with disabilities one year after exiting high school. From 2009 to 2011, response rates to a 10-question survey varied from 21% to 24%. Of those youths or family members who responded, 66% to 73% of youths were engaged in some form of employment, education, or training. Twenty-four to 36% were enrolled in postsecondary education for at least one entire term. Fifty to 62% were employed at least 20 hours a week, earning minimum wage, for at least 90 days.

**Purpose of the Study**

Previous research suggests that postschool outcomes for students with EBD, ID, and LD have been less favorable than those for their nondisabled peers in the areas of
employment (Chambers, Rabren, & Dunn, 2009) and postsecondary education (Wagner, Newman, Cameto, Garza, & Levine, 2005). To address poor postschool outcomes for youths with disabilities, IDEA 2004 requires State Education Agencies to collect postschool engagement outcome (employment and postsecondary education/training) data one year after youths with disabilities exit high school (20 U.S.C. 1416(a)(3)(B)).

Although several practical models (Flexer, Daviso, Baer, Queen, & Meindl, 2011; Baer, Daviso, Flexer, Queen, & Meindl 2011) for transition planning have been implemented in high school settings, Greene (2003) presented a theoretical model of postsecondary transition planning that connects secondary programs and transition services with desired postschool outcomes according to four general career paths: (a) fully integrated academics for 4-year college preparation, (b) fully or semi-integrated academics or career and technical education for 2-year college preparation, (c) semi-integrated academics and career and technical education for employment and independent living preparation, and (d) semi-integrated academics and community-based learning for supported living and supported employment preparation. These career paths should be considered during the IEP transition planning commensurate with IDEA 2004’s definition of transition services:

A coordinated set of activities for a child with a disability that is designed to be within a results-oriented process, that is focused on improving the academic and functional achievement of the child with a disability to facilitate the child’s movement from school to post-school activities, including post-secondary education, vocational education, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation (20 U.S.C. 1401(34)(A)).
While recent literature reviews have examined postsecondary transition practices related to improved postschool outcomes (Test, Fowler, et. al, 2009; Test, Mazotti, Mustian, Fowler, Kotering, & Kohler, 2009), only one model identified in the transition literature that connects school practices with positive postschool outcomes is correlational (bivariate). Correlational models to measure the impact of an intervention on the outcome of students are considered exemplary when controls are applied to (a) measurement, (b) quantifying effects, (c) analysis errors, and (d) confidence intervals to portray the range of possible effects and the precisions of the effect estimates (Thompson, Diamond, McWilliam, Snyder, & Snyder, 2005).

However, a correlational model does not take into account student factors of disability, gender, or race as a regression model does (Flexer et al., 2011). Beyond a bivariate model, this study will develop a multivariate logistic regression model for predicting postschool engagement outcomes based on student-, school-, and district-level factors. A statistical model that analyzes outcome data across these levels can inform effective secondary and transition programming decisions for youths with disabilities. The purpose of this study is to analyze postschool engagement outcome data for youths with high incidence disabilities in South Carolina in the areas of employment and postsecondary education/training to inform transition programming and to provide a statistical model for analyzing postschool outcome data.

**Methodological Approach**

This study examines data from the South Carolina *Postschool Survey*. A logistic regression model was developed with engagement status as the dependent variable and
student-, school-, or district-level characteristics as the independent variables. This logistic regression will determine whether engagement status is not related to the independent variables (consistent with the null hypothesis) or if engagement status is, in fact, related to the independent variables (consistent with the research hypothesis).

Specifically, this study addresses the following research questions:

1. Based upon data from the South Carolina PSS, what is the relationship between student-level factors (age, race, gender, high incidence disability, and exit reason) of youths with disabilities and their postschool engagement outcomes (employment and education/training)?

2. Based upon data from the South Carolina PSS, what is the relationship between school-level factors (enrollment, four-year cohort graduation rate, retention rate, attendance rate, out-of-school suspensions or expulsions for violent and/or criminal offenses, annual dropout rate, career education, High School Assessment Program (HSAP) passage rate by students with disabilities, classes not taught by highly qualified teachers, percent of students receiving free or reduced lunch, and urban / rural status) and postschool engagement outcomes (employment and education/training) for youths with disabilities?

3. Based upon the South Carolina PSS, what is the relationship between district-level factors (four-year cohort graduation rate, retention rate, attendance rate, out-of-school suspensions or expulsions for violent and/or criminal offenses, annual dropout rate, HSAP passage rate by students with disabilities, classes not taught by highly qualified teachers, percent of students receiving free or reduced lunch
and urban / rural status) and postschool engagement outcomes (employment and education / training) for youths with disabilities?

**Significance of the Study**

A pressing need exists to identify factors that may contribute to the improvement of postschool outcomes for students with high incidence disabilities, including poor high school graduation rates, low postschool employment, and low postsecondary education enrollment rates. This study examines the relationship between these youths’ postschool engagement outcomes and student-, school-, and district-level factors. The study extends prior research in three ways. First, this research examines the relationship between student-level factors and postschool outcomes for youths with high incidence disabilities. Second, it identifies school and district factors that impact engagement outcomes for youths with disabilities who are transitioning out of high school. Third, results from this study will inform future work examining the intersections of race, age, gender, exit reason, and disability status related to postschool outcomes.

Results from this analysis can be used by state, district, and local education agencies to inform high school program decisions in the areas of postsecondary education and employment. For instance, if the percentage of students receiving special education services who pass the HSAP is significantly related to the postschool engagement outcome of postsecondary education, schools may be encouraged to use funding for after school HSAP tutoring for students with disabilities. Similarly, if the percentage of students enrolled in vocational-technical courses is significantly related to the postschool engagement outcome of employment, districts may be encouraged to provide students
with disabilities greater access to career center programs to increase employment skills. On a national level, this study will provide a linear regression model for use by state education agencies to analyze postschool engagement outcome data in an efficient manner.

**Definitions of Terms**

The key terms used in this study as defined by the South Carolina Department of Education follow (Zais & Bishop, 2012; Zais & Metts, 2011; Zais & Boshamer, 2013):

- **Exiters**: the population of youths who have exited school during the previous school year to the reporting year of the SPP/APR for reasons that include: (a) graduating with a South Carolina high school diploma, (b) receiving a South Carolina state certificate, (c) reaching maximum age, and (d) dropping out of school at age 17 and above, and not returning to school the subsequent year. South Carolina notes that while students with disabilities who have died are counted in state reporting of exiters, South Carolina does not include them in the definition of *exiters* for Indicator 14. Subsequently, their families are not provided surveys nor interviewed, and these students are not included in the survey process.

- **Respondents**: youths or their designated family member who answer and return the survey and/or interview questions

- **Graduated with regular high school diploma**: the completion of 24 unit courses in specified areas and the successful passing of an exit exam, the HSAP

- **Received a certificate**: exiting school after completion of 24 credit units but failure to successfully complete the HSAP
• **Dropout**: youths who have exited school but who have not reached maximum age (Note: the Indicator 14 definition of dropout is not the same as the Annual Yearly Progress or Annual Performance Report dropout calculations.)

• **Higher education**: enrollment on a full- or part-time basis in a community or technical college (2-year program) or college/university (4- or more year program) for at least one complete term, at any time in the year since leaving high school.

• **Competitive employment**: work (a) in the competitive labor market that is performed on a full-time or part-time basis in an integrated setting; and (b) for which an individual is compensated at or above the minimum wage, but not less than the customary wage and level of benefits paid by the employer for the same or similar work performed by individuals who are not disabled (29 U.S.C. 705(11) and 709(c)).

• **Other postsecondary school/training**: enrollment on a full- or part-time basis for at least one complete term at any time in the year since leaving high school in an education or training program, which could include JobCorps, adult education, workforce development programs, on-the-job training, vocational educational programs which are less than two-years, and certificate programs (less than a two-year program).

• **Other employment**: work for pay or self-employment for a period of at least 90 total days at any time in the year since leaving high school, including working in a family business.
CHAPTER TWO
REVIEW OF RELEVANT LITERATURE

The purpose of this chapter is to examine the literature regarding studies of postschool outcomes for youths with high incidence disabilities. The primary focus of this chapter is a systematic review of current literature that involves participants with emotional and behavioral disorders (EBD), intellectual disabilities (ID), and learning disabilities (LD). This review includes studies at the national, state, and local levels using the students’ disability, minority status, and gender as factors affecting postschool outcomes (Flexer et al., 2011).

To identify studies for inclusion in this review, Academic Search Premier, Education Research Complete, ERIC, Psych Info, and Vocational & Career Collection databases were searched using the key words postschool outcomes and disability from the years 1990 to 2013. Next, a hand search was conducted of Career Development for Exceptional Individuals, Exceptional Children, and Remedial and Special Education for articles related to postschool outcomes of transition-aged youths who had exited high school while receiving special education services. These journals were selected because each had published studies on postschool outcomes for youths with disabilities. Finally, an ancestral search of references found in selected articles was conducted. Criteria for studies included in this review were: (a) published in peer-reviewed journals (b) reported analyses of postschool outcomes; (c) involved participants with disabilities who have exited high school in the United States, (d) reported outcome data related to employment and education/training, and (e) identified youths with emotional EBD, ID, LD, or
combinations of the three as participants. A total of nine articles were identified for inclusion in this review. Of these, four (44%) reported information from surveys, five (56%) reported information from interviews, five (56%) were program analyses, and one (11%) was a secondary analyses of a national data set. (Note: because more than one approach was used in several studies, percentages will not sum to 100). Studies included in this review are summarized in Table 5.
Table 5

*Summary of Studies Included in the Review*

<table>
<thead>
<tr>
<th>Study</th>
<th>Location</th>
<th>Disabilities</th>
<th>Engagements</th>
<th>Analyses</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baer, Daviso, Flexer, Queen, &amp; Meindl 2011</td>
<td>Interview respondents from 177 school districts in Ohio; 409 youths with disabilities</td>
<td>EBD</td>
<td>ID</td>
<td>LD</td>
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<tr>
<td>Benz, Yovanoff, &amp; Doren 1997</td>
<td>Interview respondents from Oregon and Nevada; 218 youths with disabilities and 109 youths without disabilities</td>
<td>EBD</td>
<td>ID</td>
<td>LD</td>
<td>Oth</td>
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<tr>
<td>Study &amp; Location</td>
<td>Location</td>
<td>Disabilities</td>
<td>Engagement</td>
<td>Analyses</td>
<td>Results</td>
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<td>EBD</td>
<td>ID</td>
<td>LD</td>
<td>Oth</td>
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<tr>
<td>Blackorby &amp; Wagner 1996</td>
<td>National sample of 1,990 interview respondents</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Chambers, Rabren, &amp; Dunn 2009</td>
<td>Survey respondents from Alabama; 192 youths with disabilities and 202 youths without disabilities</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Study</td>
<td>Location</td>
<td>Disabilities</td>
<td>Engagement</td>
<td>Analyses</td>
<td>Results</td>
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<tr>
<td>Flexer, Daviso, Baer, Queen, &amp; Meindl, 2011</td>
<td>Interview respondents from 177 school districts in Ohio; 1,540 youths with disabilities</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
| Joshi, Bouck, & Maeda, 2012  | Secondary analysis of a National data set that included 62,513 youths | X            | X          |          | • Descriptive Statistics  
• Multiple Regression  
• Logistic Regression | The majority of students with mild ID participated in employment-related transition activities though participation differed by school demographics. Postschool employment status was related to participation in employment-related transition activities while in school. |
<table>
<thead>
<tr>
<th>Study</th>
<th>Location</th>
<th>Disabilities</th>
<th>Engagement</th>
<th>Analyses</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levine &amp; Edgar 1994</td>
<td>Interview respondents from three school districts in <strong>Washington</strong>; 337 youths with disabilities and 610 youths without disabilities</td>
<td>X X</td>
<td>X X</td>
<td>X X X X</td>
<td>The only significant gender differences in outcomes were found among youths with LD six years after exiting high school: males were significantly more likely to be employed and engaged than females. Nondisabled peers were more successful than either youths with disabilities in postsecondary education attendance and completion and engagement. Discrepancies were specifically noted for females with disabilities.</td>
</tr>
<tr>
<td>Love &amp; Malian 1997</td>
<td>Interview respondents from <strong>Arizona</strong>; 1,285 youths with disabilities</td>
<td>X X X X X X</td>
<td>X X</td>
<td>X X X X</td>
<td>The majority of students (both those who had completed high school and those who had dropped out) were working, full time, earning an average wage of $5.00 an hour, in jobs that relatives or friends had assisted in procuring. No significant differences in income levels were found between students who had completed school and students who had dropped out. School completers were more likely to enroll in PSE.</td>
</tr>
<tr>
<td>Study</td>
<td>Location</td>
<td>Disabilities</td>
<td>Engagement</td>
<td>Analyses</td>
<td>Results</td>
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<tr>
<td>Sample, 1998</td>
<td>Thirty interview respondents from one <strong>Colorado</strong> school district</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Six months after exiting school, youths who had been employed for long periods of time during school had higher rates of employment than those who had not worked. One year after exiting school, youths whose parents had been actively involved in their educational programs were more likely to have a successful community adjustment than youths whose parents had not been involved in their educational programs.</td>
</tr>
</tbody>
</table>
National Analyses

NLTS. The National Longitudinal Transition Study (NLTS) was mandated by Congress in 1983 under Section 8 of Public Law 98-199 to follow the postschool outcomes of a nationally representative sample of youths with disabilities from more than 300 school districts across the United States. Beginning in 1985, more than 8,000 youths between the ages of 13 and 21 and their parents participated in telephone interviews and mail surveys in two waves (1987 and 1990) on the postschool engagement outcomes of employment, wages, postsecondary education, independent living, and use of adult services.

Blackorby and Wagner (1996) synthesized the NLTS postschool engagement outcomes of employment, wages, postsecondary education, and independent living for youths with disabilities less than two years and three to five years after exiting high school. The study examined the differences of youths with disabilities by subgroups – disability status, gender, race, and exit reason – and compared them to their nondisabled peers. Postschool engagement outcomes from a sample of 1,990 youths whose parent completed an interview in the first wave of NLTS data collection and either the parent or youth completed a telephone interview or mail questionnaire in the second wave of data collection were compared to respondents to the U.S. Department of Labor’s National Longitudinal Survey of Youth (1983).

Overall, youths with disabilities were less likely to be employed than their nondisabled peers both less than two years after exiting high school and three to five years later, though the full-time competitive employment of youths with disabilities
increased significantly over time (18.8%). Youths with LD and ID showed the greatest increases in employment rates. Youths with LD were employed at slightly higher rates as their nondisabled peers longitudinally (70% vs. 69%), and the wage increase of youths with LD and EBD was dramatic over time (by 36.2% and 39.6%). Conversely, the percentage of youths with ID who earned greater than $6.00 per hour increased less over time (10.3% vs. 13.2%). While the percentage of all youths with disabilities enrolled in postsecondary education increased over time (14% to 26.7%), there were no significant increases for youths with LD, EBD, and ID.

Males with disabilities were more engaged in employment than their female counterparts, both after exiting high school (52% vs. 31.5%) and 3-5 years later (64.3% vs. 40.3%). Over time, the earning power of males increased at a higher rate than that for females (33% increase vs. 22% increase). While the percentage of males and females enrolled in postsecondary education increased significantly over time, the growth rate of enrollment for females exceeded that for males by more than 5% (16.3% vs. 11%). Overall, males had more positive postschool outcomes than females both in 1987 and in 1990.

The number of African American youths with disabilities who were employed nearly doubled from 1987 to 1990 (25.5% vs. 47.3%); this increase in employment exceeded the growth by their Caucasian counterparts (8%) though African American youths remained employed at lower rates (47.3% vs. 60.8%). While Caucasian and Hispanic youths significantly increased in their percentage of high wage earners (35% and 24%), the percentage of African American youths receiving competitive wages
decreased slightly (-0.5%). Over time, postsecondary enrollment increased significantly across all three races/ethnicities, though Caucasian students’ enrollment still exceeded African Americans and Hispanics three to five years after leaving high school (42.3% vs. 25.5% vs. 31.1%). Based on employment rates, wages, and enrollment in postsecondary education, African American students experienced the poorest postschool outcomes across ethnic groups.

High school completers were more likely to be competitively employed than youths who had dropped out or aged out at both points in time, but less likely to be high wage earners two years after leaving high school. However, graduates experienced the greatest increase in earning potential three to five years after leaving school. Graduates were nearly three times more likely than their dropout counterparts and almost twice as likely as their age-out counterparts to enroll in postsecondary education both less than two years after leaving high school (18.9% vs. 6.3% vs. 10.6%) and 3-5 years after leaving high school (36.9% vs. 11.1% vs. 18.2%).

**NLTS-2.** The National Longitudinal Transition Study-2 (NLTS-2; Cameto, Wagner, Newman, Blackorby, & Javitz, 2000) expanded the work and findings of the NTLS both in length and depth. The NLTS-2 included six waves of data beginning in the 2000–2001 academic year and continued through the 2008–09 academic year and included six data sources: (a) parent and/or youth telephone interviews; (b) direct assessments of students; (c) teacher survey; (d) school program survey; (e) school information survey; and (f) student transcripts (SRI International, 2013). Almost 500 Local Educational Agencies (LEA) and state-supported schools were randomly selected
to participate, and over eleven thousand students who were between the ages of 13 and 16 and in at least seventh grade receiving special education services were randomly selected to participate within the schools. The school selection was stratified by geographic region, student enrolment and wealth of LEA/community.

Joshi, Bouck, and Maeda (2012) explored the extent to which students with mild ID participated in employment-related transition activities, the relationship between participation in these activities and school demographic variables, and the relationship between these activities and postschool employment outcomes. Their secondary analysis included sample of 62,523 youths with mild ID from the NLTS-2 database.

Joshi, Bouck, and Maeda (2012) identified 14 employment-related transition activities that helped students with mild intellectual disabilities engage in post-high school employment: (a) vocational assessment, (b) career counseling, (c) prevocational education, (d) career technical education or vocational education, (e) prevocational or job readiness training, (f) instruction in looking for jobs, (g) job shadowing, (h) job coach, (i) specific job skills training, (j) placement support, (k) internship or apprenticeship programs, (l) tech prep programs, (m) work experiences in school, and (n) other paid work experiences. The researchers also identified postschool work experiences including paid employment, individual demographic variables, student disability status, and school demographic variables to examine the relationship between school factors and employment-related transition activities.

By way of descriptive statistics, the most frequently reported employment-related transition activity received was instruction in how to find jobs, followed by prevocational
education, prevocational training, and occupational/vocational education. More than half of the participants with mild ID reported paid employment experiences and school-sponsored work as transition activities in which they had participated. Students in suburban settings received more employment activities while in school than students in rural or urban settings, though students in urban settings were six times more likely to have paid employment in school than students in rural settings. The percentage of the school population receiving special education services was significant in that students who attended schools with high percentages of students receiving special education services were four times less likely to have a job while in school. Of the 42.6% of youths with mild ID who reported being employed full-time after leaving high school, the majority of respondents were earning $6.00 per hour or more.

In-depth statistical analyses included multiple regression and logistic regression of in-school employment activities and postschool employment. Dependent variables were distinguished as continuous (number of employment activities) or binary (vocational/technical preparation and paid-employment experiences that were not school-related). Continuous variables were analyzed using multiple regression and binary variables were analyzed using logistic regression.

For the multiple regression analysis, participation in employment activities was the dependent variable, and school geographic location, school population, and percentage of school population receiving special education services were the independent variables. Findings from the multiple regression indicated a school’s geographical location was significantly related to participation in employment activities.
Suburban setting was significantly different from the urban setting \((t(21) = 2.245, p = .036)\), but rural setting was not significantly different from either. This finding suggests students with mild ID who were educated in suburban settings received more employment activities (four to five vs. three to four in rural or urban). School size and percentage of students receiving special education were not significant predictors of students’ participation in employment-related transition activities.

For the logistic regression analysis, youths’ current employment and whether the youth had ever been employed were the dependent variables and participation in employment activities and participation in vocational/technical preparation were the independent variables. The logistic regression indicated none of the school demographic variables (geographic location, school population, and percentage of population receiving special education) were significantly related to the participation in vocational or technical preparation. However, geographical location of a school was significantly related to the participation in paid work experience apart from school-sponsored work. Rural and urban schools were significantly different from each other with an odds ratio of 5.98. This indicates that youths who were educated in urban areas were approximately six times more likely to have experienced paid employment in school as students from the rural areas. The relationship between paid-employment experiences and the percentage of students receiving special education was also significant \((p = .007)\), producing an odds ratio of 3.706. Youths who were educated in schools with a high percentage of the population receiving special education services were almost four times less likely to be employed after exiting high school. For youths who reported current employment,
participation in the 14 employment-related transition activities significantly impacted their probability for future employment. The addition of one of these activities into the youth’s school program increased the likelihood of postschool employment by a 1.2 odds ratio. Participation in school-sponsored work experiences while in school was a significant predictor of future employment ($t(26)=2.763$). However, the greatest predictor of future employment for youths with mild ID was paid-employment experiences while in school; participants were 3.5 times more likely to be employed after leaving high school.

**State Analyses**

IDEA 2004 requires states to collect postschool outcome data for youths with disabilities one year after the student exits high school (20 U.S.C. 1416(a)(3)). Specifically, states are required to report the percent of youth who are enrolled in higher education, competitively employed, enrolled in some other postsecondary education or training program, or employed within one year of leaving high school. However, some states elected to collect postschool engagement outcome data prior to the IDEA 2004 requirements, including Oregon and Nevada (Benz, Yovanoff, & Doren, 1997), Arizona (Love & Malian, 1997), and Alabama (Chambers, Rabren, & Dunn, 2009). In Oregon and Nevada, Benz, Yovanoff, and Doren (1997) compared the in-school and out-of-school outcomes of youths with and without disabilities. Using a logistic regression model, the researchers examined the relationships between school-based, work-based, and demographic variables on competitive employment and productive engagement outcomes. In Arizona, Love and Malian (1997) studied the impact of special education on
the education and postschool outcomes of students with disabilities. Using chi-square analysis, the researchers compared the responses of youths who graduated high school versus youths who dropped out. In Alabama, Chambers, Rabren, and Dunn (2009) used a chi-square analysis to compare the postschool engagement outcomes of employment, postsecondary education, and residence of youths with and without disabilities. Two recent studies from Ohio (Flexer et al., 2011; Baer et al., 2011) demonstrate postschool engagement outcome data collection that exceeds federal requirements. In the first study, Flexer et al. (2011) developed logistic regression models to predict postschool engagement outcomes of employment and postsecondary education for youths with EBD, ID, LD, and other disabilities. In the second study using the same data set, Baer et al. (2011) developed a logistic regression model to predict postschool engagement outcomes of employment and postsecondary education specifically for youths with ID.

**Oregon and Nevada.** Benz, Yovanoff, and Doren (1997) compared the in-school and out-of-school outcomes of 218 youths with disabilities and 109 of their non-disabled peers in Oregon and Nevada. Telephone interviews were conducted with students during their last year of high school and one year after exiting using computer-assisted technology. Specifically, the researchers’ logistic regression analyses examined the relationships between school-based, work-based, and demographic variables on the two outcomes of competitive employment and productive engagement. School-based independent variables were (a) career awareness; (b) academic skills of reading, writing, and math; and (c) problem-solving. Work-based variables were grouped according to those that occurred during high school and post high school. In-school independent
variables included school-related paid work experiences and non-school jobs during their last two years of school and student proficiency in job search, responsibility, and social skills. Postschool independent variables included parent-student agreement about postsecondary goals and the youth’s continuing academic, vocational, and social needs one year after exiting high school. Demographic variables included gender, racial minority status, dropout status, youth’s parenting status, and household income.

The dependent variables were competitive employment and productive engagement. Competitive employment was defined as paid employment at a rate of at least $4.25 per hour for a minimum of 20 hours a week at the time of the interview. Among demographic variables, only gender was a significant predictor of postschool employment: females with disabilities were five times less likely to be competitively employed than all other groups (males with disabilities, females without disabilities, and males without disabilities). Only 40% of females with disabilities were competitively employed 1 year out of school compared with 71% of males with disabilities. Career awareness and problem-solving skills were unrelated to competitive employment. Students with disabilities who demonstrated high levels of reading, writing, and math achievement were two to three times more likely to be competitively employed than students with low skills. All other predictor variables were unrelated to competitive employment of youths with disabilities after high school.

Productive engagement was defined as engagement for a total of 12 months in any individual or combination of the following activities: “(a) working half-time or more only, (b) going to school half-time or more only, (c) working and going to school, and (d)
participating full-time in the military” (Benz, Yovanoff, & Doren, 1997, p. 156). Youths with disabilities were two times less likely to be productively engaged than their nondisabled peers one year after exiting high school. Two demographic variables were predictive engagement, race, and youth’s parent status: both racial minority youths and youths who had children of their own were three times less likely to be productively engaged one year after exiting high school. This finding was consistent for youths with and without disabilities. Youths who possessed career-awareness skills and had no continuing vocational or social needs were one and a half to two times as likely to be productively engaged one year after exiting high school.

**Arizona.** Love and Malian (1997) studied the impact of special education on the education and postschool outcomes of students with disabilities who had exited from special education services in Arizona. Prior to the 1997 amendments to IDEA regarding transition planning, the Arizona Follow-Along Project was patterned after the Oregon and Nevada projects as a conceptual model of school-to-adult life transition. Their sample included 1,285 students who participated in computer-assisted telephone interviews during their last year of high school. Of the total population, 67% were male and 37% were female; 69% were Caucasian; 3% were African American; 23% were Hispanic / Latino; 4% were Native American / American Indian; and 1% was Asian. Initial respondents included 71% of students with LD, 14% of students with ID, and 8% of students with EBD. One year after exiting high school 528 of these youths were interviewed again by telephone. While the demographic variables of postschool respondents were not provided, it is significant that no youths with EBD responded;
therefore, statements about high school completers versus dropouts are not representative of this population.

After exiting a special education program, 39% of the youths reported having one paying job, and 29% of the youths reported holding two jobs, for a total employment rate of 68%. Of those, 23% of the youths reported having had their jobs for 12 months. Both high school completers and dropouts reported high rates of job satisfaction, and both populations were most often employed in service positions. Relatives were cited as the greatest assistance for acquiring jobs. School completers were more likely to be referred for postschool services than dropouts, including career services that led to employment.

The majority of both high school completers and dropouts reported working full-time (40 hours per week); and $5.00 an hour was the most often reported wage by 16% of respondents. Surprisingly, there were no significant differences in hourly wages or gross income between high school completers and dropouts. However, a statistically significant difference was found between the responses of parents whose children had completed school and those who had dropped out regarding having enough money to pay bills during the past year and satisfaction in the way the students spent their money. Parents of students who had dropped out reported that their children rarely had enough money to pay bills and were not satisfied with how the students spent their money. High school completers were more likely to have health insurance and to receive retirement benefits.

While both completers and dropouts reported delays of up to 12 months before searching for a job, there were no significant differences between the groups (17% vs. 20%). Two
percent of school completers reported military service as their employment after exiting high school.

Youths who had completed high school reported a greater incidence of enrollment in 4-year colleges and 2-year community colleges than students who had dropped out. However, 31% of those who had dropped out reported returning to high school for additional training. There were significant differences in the reporting of youths’ academic abilities between their parents and themselves. Seventy percent of the youths reported they usually read well enough to do the things they needed, whereas only 58% of the parent responders reported their child usually read well enough to do the things they needed. Similarly, 60% of the youths reported that they usually wrote well enough to do the things they needed (compared to 51% of the parents); and 49% of the youths reported that they usually performed math well enough to do the things they needed (compared to 43% of the parents). No significant differences were found between youths who had completed school and those who had dropped out.

The majority of youths (68%) lived at home with their parents. However, 24% of the students who had dropped out of school reported they needed help finding a place to live, and of these, more than half noted that they did not receive any help in finding a place to live. Youths who completed school also reported more satisfaction with their living arrangements than youths who had dropped out.

Alabama. Chambers, Rabren, and Dunn (2009) compared postschool outcomes for students with and without disabilities as measured by the Alabama Post-School Transition Survey. The Alabama Transition Initiative, the state’s transition systems
change project, included 49 school districts that received funding and support for the implementation of best practices in transition. Of these 49, 15 were chosen to participate in a study comparing postschool transition outcomes of youths with and without disabilities. School systems were chosen for the study based upon their willingness to expand postschool tracking systems to include youths without disabilities. Respondents for this study included 192 students with disabilities and 202 nondisabled peers who had graduated, received a certificate, aged out, or dropped out of high school in 2001. Of the respondents with disabilities, the greatest representation among disability groups was LD and ID. Sixty-three percent of respondents with disabilities were male, 36% were female, and 1% did not specify. Among race/ethnicities, Caucasian and African American students were equally represented at 49% each. For school completion among students with disabilities, 23% earned a regular high school diploma, 64% earned an Alabama Occupational Diploma, 11% dropped out, and 2% were unknown.

The Alabama Post-School Transition Survey contains a demographics section plus 27 questions pertaining to high school programs and experiences, postschool outcomes, and quality-of-life indicators. Nine of those questions were included in chi-square analyses of differences in responses between youths with and without disabilities one year after exiting high school. Survey administration for youths with disabilities occurred through phone, in-person, and other interview formats by school personnel where the youths had attended high school. Often, special education teachers interviewed their former students about employment, residence, and postsecondary education / training.
In postschool outcome of employment status, no significant differences were found between youths with and without disabilities when the students exited high school and one year later. Upon exiting, 63% of youths with disabilities were employed at the time of the interview; one year later, 73% of respondents were employed. Details of employment type, number of hours per week, or wages earned were not provided.

According to the residence analysis, youths without disabilities were just as likely as youths with disabilities to be living with relatives or in a foster or group home. Specifically, 83% of youths with disabilities were living in dependent settings, and 13% reported living independently of relatives either with friends, with a spouse, or by themselves. Almost half of youths in both groups reported they would continue in their current residence, 37% of youths with disabilities indicated they would like to live somewhere else, and 11% of youths with disabilities were undecided. No significant differences existed in the responses of youths with and without disabilities in the residence category.

In the areas of postsecondary education and training, youths without disabilities were significantly more likely to have participated in both 2-year and 4-year college ($p = .000$). However, no significant differences were found for participation in technical school, high school completion (General Equivalency Degree), or military training. Details about length of time enrolled in training (e.g., at least one term) were not provided.

Of the three categories – employment, residence, and postsecondary education / training – youths with and without disabilities reported similar outcomes for employment
and residence. However, favorable outcomes for youths with disabilities may have been elevated by two factors. First, participants were from model transition school systems that received additional funding to implement best practices. Therefore, this representative group cannot be generalized statewide. Second, youths with disabilities were interviewed by school personnel whom they may have known. This potential relationship with the interviewer may have influenced youths with disabilities to report favorable details about their current situation.

**Ohio.** Flexer, Daviso, Baer, Queen, and Meindl (2011) designed a correlational study “to integrate research on evidence-based practices, career pathway models of transition, and research on the impact of gender, race, and disability into causal models to predict postschool outcomes” (p. 85) and sought to create an epidemiological model of postschool outcomes. Participants were 1,540 youths with disabilities from 177 school districts who exited special education services in the school years ending June 2005, 2006, 2007, and 2008. The survey used in this study included a student record review, a student exit interview, and a 1-year follow-up phone interview. The record review and exit survey were conducted prior to students’ exit from high school. The 10-item exit survey was read to students individually and included questions related to students’ plans to enter postsecondary education and/or employment, fields of anticipated employment, and plans for independent living. The phone survey conducted one year after the students’ exit followed up on the questions asked of students just before exiting high school, allowing researchers to compare transition goals with postschool outcomes.
The dependent variables used for this analysis were enrollment in a 2- or 4-year college for eight or more credits and full-time employment (working 35 hours or more per week for competitive pay) within one year of exit. Length of enrollment (e.g., a full term) or employment (e.g., at least 90 days) and wages (e.g., at least minimum wage) were not provided in the analyses. The independent variables were: (a) inclusion, defined as being in general education classes at least 80% of the time; (b) career and technical education (CTE), defined as three or more semesters of career and technical classes; and (c) work study participation. The study controlled for gender, race, and disability status. Because of small numbers of other minorities in the sample, the authors defined *racial minority status* as African American youths to create a race dichotomy. Disability status was dichotomized as (a) students with intellectual and/or developmental disabilities (including multiple disabilities, autism, orthopedic disabilities, and traumatic brain injuries), and (b) students with learning and behavioral disabilities (including LD, EBD, and other health impairments).

Logistic regression was used to create prediction models for postschool engagement outcomes (postsecondary education and employment) for youths with disabilities. The prediction model for inclusion and postsecondary education showed that inclusion substantially improved the odds of full-time postsecondary education ($p < .001$). However, students with ID were only about half as likely as other students to attend full-time postsecondary education. Students who were educated in general education classrooms more than 80% of the school day attended 2- or 4-year colleges at more than 2 to 4 times the rate of non-included students. This regression formula
correctly identified those who would not enter postsecondary education 100% of the time. This finding suggests that inclusion may be a necessary, but not sufficient, condition for continuing to postsecondary education.

For the relationship between CTE and full-time employment, a significant interaction existed. Students in CTE were 1.5 times more likely to be employed one year after exiting high school than students who did not attend three semesters of career and technical courses ($p < .001$). This model successfully predicted who would not enter full-time employment 89% of the time and was strongly influenced by gender, race, and disability status. Specifically, females, African Americans, and youths with ID were significantly less likely to be employed full-time after exiting high school.

The relationship between work study and full-time employment was negatively influenced by gender, racial minority status, and disability. Females ($p < .001$), African American youths ($p < .001$), and youths with ID ($p < .05$) were significantly less likely to be employed full-time than other work study students. This model correctly predicted who would not enter full-time employment 91.4% of the time. Interestingly, youths with ID who participated in work study were less likely to be employed than those who did not. The authors note the combination of these two variables was detrimental to the likelihood of full-time employment after high school.

In a follow-up study using the same data set, Baer, Daviso, Flexer, Queen, and Meindl (2011) examined predictors of transition outcomes of 409 youths with ID who exited special education services in the school years ending June 2005, 2006, 2007, and 2008). Consistent with findings from the NLTS-2 (Wagner, Newman, Cameto, Levine, &
Marder, 2003), females and African American students were more likely to be identified with ID than with LD, EBD, or other health impairments (OHI) (Baer, et al., 2011). The survey in this study included a student record review, a student exit interview, and a 1-year follow-up phone interview. The record review and exit survey were conducted just prior to students’ exit from high school. The 10-item exit survey was read to students individually and included questions related to students’ plans to enter postsecondary education and/or employment, fields of anticipated employment, and plans for independent living. The phone survey conducted one year after the students’ exit followed up on the questions asked of students just before exiting high school, allowing researchers to compare transition goals with postschool outcomes.

The dependent variables used for this analysis were enrollment in any 2- or 4-year postsecondary education within one year of exit and any full-time competitive employment within one year of exit. Competitive employment was defined as working for competitive pay 35 hours per week within one year of leaving high school. Length of enrollment (e.g., a full term) or employment (e.g., at least 90 days) and wages (e.g., at least minimum wage) were not provided in the analyses. The independent variables were: (a) inclusion, defined as being in general education classes at least 80% of the time; (b) career and technical education, defined as three or more semesters of career and technical classes; and (c) work study participation. The study controlled for two variables, gender and African American status.

Descriptive statistics showed youths with ID in this sample had substantially lower postsecondary education enrollment (17%) and employment rates (29%) than
combined youths with LD, EBD, and other health impairments (40% and 39%). Students with ID were less likely to be fully included in general education classes (21% vs. 74%), but were more likely to be in work study (52% vs. 33%) and to have received adult services (25% vs. 4%). Bivariate correlations showed that CTE opportunities were significantly less likely for non-included students with ID in this sample \((p < .01)\); that African American students with ID in this sample were less likely to be in general education classes \((p < .05)\) or to be in CTE \((p < .01)\); and that students with ID who were not included in general education classes \((p < .01)\) or CTE \((p < .01)\) were more likely to be in work study programs.

Logistic regression was used to create prediction models for postschool engagement outcomes (postsecondary education and employment) for youths with ID. The prediction model for inclusion and postsecondary education for students with ID yielded a risk-odds ratio of 1.94 after controlling for other factors. Students with ID who were educated in the general education classroom were almost twice as likely to enroll in postsecondary education after controlling for other factors. However, females were only half as likely to attend postsecondary education compared to males, and African American youths were almost three and half times less likely to attend postsecondary education than Caucasian youths. The regression model predicted who would not be enrolled in postsecondary education with 90% accuracy.

CTE was not a significant predictor of employment for youths with ID as hypothesized. Rather, gender was a more significant predictor of full-time employment: females with ID were half as likely to enter employment as their male counterparts.
Similarly, work study was not a significant predictor of employment for youths with ID as hypothesized. Rather, gender and race were better predictors of full-time employment. Specifically, females and African American youths with ID were half as likely to enter employment as their male counterparts. Overall, inclusion was the only program predictor for postschool engagement (postsecondary education) of youths with ID. This was an unfortunate finding, because only 21% of youths with ID in this sample received 80% or more of their instruction in the regular classroom setting.

**Local Analyses**

Local Education Agencies (LEAs) may collect postschool outcome data related to larger projects or grant-funded projects. Two local analyses – Sample (1998) and Levine and Edgar (1994) – are examples of this practice. Data collected by Sample (1998) was in conjunction with two grant-funded projects in Colorado specifically related to postschool engagement of youths with EBD. Levine and Edgar (1994) collected postschool engagement outcome data as part of a larger project entitled *The First Decade after Graduation* (Edgar, 1995) in Washington.

Sample (1998) examined postschool engagement outcomes of employment and community adjustment for 30 youths with EBD from one Colorado district participated in interviews 6, 12, and 24 months after leaving school. Specifically, the youths had participated in two grant-funded transition programs in one of three varied special education programs – a self-contained high school, a resource room at a local high school, and a private program for youths transitioning out of incarceration.
A 22-question structured interview protocol was developed to identify postschool engagement in employment, postsecondary education, independent living, finances, leisure, and citizenship outcomes. Six independent variables were chosen for analysis from Kohler’s (1993) best practices in transition: (a) vocational intervention, (b) paid work experience, (c) social skills curriculum, (d) interagency collaboration, (e) parent involvement, and (f) individualized planning. The presence of these variables in the students’ school experience was verified by a database managed by project staff and the students’ permanent files maintained by the school district. The two dependent postschool engagement outcomes were employment and community adjustment.

Employment was stratified into four levels: (a) unemployed, (b) working less than 21 hours per week, (c) working 21 to 37 hours per week, and (d) working more than 37 hours per week. Community adjustment was evaluated based on employment, residential stability, fiscal autonomy, leisure interests, and citizenship (voting, volunteering, or belonging to clubs).

Two analyses of community adjustment were developed. In the first analysis, youths who met all five factors were rated as “adjusted.” In the second analysis, youths needed to meet only four factors – employment, residential stability, fiscal autonomy, and leisure interests – to be rated as “adjusted.” Of the 30 youths, 12 dropped out, 4 earned a GED, and 14 exited with a diploma. Over time, both the number of youths employed and the hours per week increased. Six months after exiting high school, 30% of the youths were working more than 37 hours per week, and 23% were unemployed. Twelve months after exiting, 40% of the youths were working more than 37 hours per week, and the
percent of unemployed youths increased slightly. The greatest gains were observed 24 months after exiting when almost 60% of the youths were working more than 37 hours per week, and 15% were unemployed.

On both analyses of community adjustment, youths improved over time. Using the first analysis of adjustment – employment, residential stability, fiscal autonomy, leisure interests, and citizenship – 90% of youths were rated “not adjusted.” This rating improved over time, and 60% of youths were considered “adjusted” 24 months after exiting high school. However, improvement was observed more rapidly when the citizenship factor was not included when 65% of youths were rated “adjusted” after 6 months. After 24 months, the same percentage of youths in analysis 2 was rated “adjusted” as in the first analysis.

Single factor analysis of variance (ANOVA) was used to determine differences between best practices interval data – vocational instruction, paid work experience, and social skills instruction – and employment outcomes 6, 12, and 24 months after exiting high school. One statistically significant finding emerged from 27 one-way ANOVAs. Youths who had a high level of employment while they were in school (more than 10 hours a week) were more likely to be employed six months out of high school than their peers.

Chi-square analysis was used to determine differences between best practices nonparametric data – parent involvement, interagency collaboration/planning, and individualized plans – and employment outcomes 6, 12, and 24 months after exiting high school. One statistically significant finding emerged from 27 chi-square tests. Youths
with high parent involvement were more likely than to achieve community adjustment 12 and 24 months out of high school than their peers. An example of high parental involvement was attending IEP meetings or parent-teacher conferences. The authors note that parent involvement, interagency collaboration, and individualized plans were either difficult to measure or not present in enough youths to be credibly measured. For instance, only three of the 30 youths’ permanent files contained documentation of interagency collaboration.

As part of a larger project entitled The First Decade after Graduation (Edgar, 1995), Levine and Edgar (1994) examined whether males and females with and without disabilities had significantly different postschool experiences in the years following high school. Two cohorts of students, both with and without disabilities, from three school districts in Washington were included in the study. Cohort 1 included 28 youths with mild ID, 172 youths with LD, and 349 nondisabled peers who exited school in June 1985. Cohort 2 included 20 youths with mild ID, 117 youths with LD, and 261 nondisabled peers who exited school in June 1990.

Two computer-assisted scripted interviews were conducted one year apart on postschool outcome topics including employment, postsecondary education, postsecondary graduation, engagement, independent living, marital status, and parent status. The researchers defined employment as “working at least 1 hour per week in a capacity that pays a wage” (Levine & Edgar, p. 283). Based on this definition, all 643 youths were in competitive employment. The majority of youths were working more than 20 hours per week (95% of the 1985 cohort and 60% of the 1990 cohort). Wages earned
was not a consideration in this study. Postsecondary education was defined as “attendance in some form of postsecondary school or training. These include community college, university, business, vocational, or trade school, or Job Corps” (Levine & Edgar, p. 283). Engagement was defined as employment, postsecondary education, or both.

Interview respondents were most often parents or other relatives, but rarely the youths. During interview one, cohort 1 had exited school 5.5 – 6 years earlier, and cohort 2 had exited 6 – 12 months earlier. Interview two was conducted one year later and included only those interviewees who participated in interview one. Using a chi-square analysis, researchers set the significance level for interview responses at $p < .001$ “to demonstrate that even at these lower significance levels there are few meaningful postschool outcome differences between males and females within the same disability groupings” (Levine & Edgar, 1994, p. 288). The only significant differences in postschool outcomes between males and females within disability groups were among the 1985 cohort. Both employment and engagement favored males with LD over females with LD. Females youths with LD in the 1985 cohort who were parenting children provided the largest explanation for their lack of engagement as defined in the study, because they were neither working nor enrolled in postsecondary education.

When the researchers considered the differences in outcomes between disability groups and gender, more significant differences were found in outcomes between disability groups than between gender. In fact, among study participants, no significant differences in employment were found among youths with LD, ID, and their nondisabled peers. This may have been due, in part, to the few participants with mild ID included in
the study. Greater differences were identified between youths with and without disabilities in attendance and graduation from postsecondary education programs, especially the type of degree earned. Youths with disabilities were less often enrolled in postsecondary education and those who were enrolled were less likely to complete their program of study than their nondisabled peers.

**Synthesis of Findings**

Several themes emerged from this review. First, gender was identified as a significant predictor of employment. A second important area for consideration identified in the review was the impact of racial minority status on employment and postsecondary education. A third area identified as important to postschool outcomes was the role of school completion in determining engagement. Finally, disability was found to impact multiple engagement outcomes. The following sections present a synthesis of the literature related to these four themes.

**Gender**

Among youths who had exited school, males were more likely to be competitively employed (Levine & Edgar, 1994; Blackorby & Wagner, 1996; Benz, Yovanoff, & Doren, 1997; Flexer, et al., 2011) and employed full-time (Flexer, et al., 2011) than females. In one study, females with disabilities were five times less likely to be competitively employed than males with disabilities; only 40% of females with disabilities were competitively employed after exiting school, compared to 71% of males with disabilities (Benz, Yovanoff, & Doren, 1997). Dependent upon disability, the employment outcome may worsen based on gender. Females with ID were half as likely
to enter employment as their male counterparts (Baer et al., 2011). Males also earned more money over time. The wage increase per hour for both males and females was significant over time, as was the difference between the increases ($p < .05$). While it appears that females improved their earning power over time, the gender gap actually broadened (Blackorby & Wagner, 1996).

Three to five years after exiting high school, the number of females with disabilities enrolled in postsecondary education increased at a rate that exceeded their male counterparts (Blackorby & Wagner, 1996). This finding may not generalize across all disabilities, because a more recent study found that females with ID were almost half as likely to attend postsecondary education compared to males with ID (Baer et al., 2011). The reinforced finding that females were more likely to be identified with ID than with LD or EBD (Wagner, et al., 2003; Baer, et al., 2011) may contribute to this result.

Females were more likely to live independently after exiting school (Blackorby & Wagner, 1996; Levine & Edgar, 1994). There were mixed results as to whether this finding could be attributed to the number of females who were parenting but not employed or enrolled in postsecondary education (Levine & Edgar, 1994; Benz, Yovanoff, & Doren, 1997). The number of females with LD who were parenting without marriage was significantly greater than females with ID or no disability (Levine & Edgar, 1994).

**Race.**

Findings for postschool engagement factors were most often reported in the form of racial minority status (Blackorby & Wagner, 1996; Benz, Yovanoff, & Doren, 1997;
Baer et al., 2011; Flexer et al., 2011) which was defined as combined youths of African American and Hispanic backgrounds (Blackorby & Wagner, 1996), African American only (Baer et al., 2011; Flexer et al., 2011), or undefined because of insignificance of findings (Benz, Yovanoff, and Doren, 1997). Regardless of definition, youths with disabilities from racial minority backgrounds were consistently less likely to be employed and to attend postsecondary education than their Caucasian counterparts with disabilities (Blackorby & Wagner, 1996; Baer et al., 2011; Flexer et al., 2011). African American youths who received 80% or more of their education in the general classroom setting increased their chances of attending full-time postsecondary education by 3.4% (Baer et al., 2011).

The finding that youths from racial minority backgrounds were less frequently employed (Blackorby & Wagner, 1996; Baer et al., 2011; Flexer et al., 2011), received lower wages (Blackorby & Wagner, 1996), and were less likely to be engaged due to parenting responsibilities (Benz, Yovanoff, & Doren, 1997) suggest that racial minority status may present further obstacles to successful transitions beyond those that youth experience because of disability alone. School programming decisions such as work study that were reported to have positive influences on the postschool outcomes of youths with disabilities (Test, Mazotti, et al., 2009; Test, Fowler, et al., 2009) demonstrated negative impacts on the full-time employment of African American youths with disabilities (Baer et al., 2011; Flexer et al., 2011). African American youths with ID were half as likely as their Caucasian counterparts to be employed full time.
School completion

The variance of postschool engagement outcomes between graduates and those who exited for other reasons is largely dependent upon the definition of the outcome. For instance, Love and Malian (1997) identified no significant differences between school completers and dropouts in employment rates, type of employment (e.g., service jobs), or earnings per hour. However, the authors’ definition of employment was broad with no qualifiers for competitive employment. Conversely, Blackorby and Wagner (1996) defined employment by number of hours per week worked and receipt of a minimum wage and found significant differences between high school graduates and other exiters. Graduates were more likely to be competitively employed than youths who had dropped out or aged out and experienced the greatest increase in earning potential three to five years after leaving school (Blackorby & Wagner, 1996).

Graduates were more likely to enroll in postsecondary education than their dropout (Blackorby & Wagner, 1996; Love & Malian, 1997) and age-out counterparts (Blackorby & Wagner, 1996). When they had been out of school three to five years, nearly 37% of high school graduates had been postsecondary students at some time since exiting school, compared with 11% of dropouts and 18% of those who had aged out (Blackorby & Wagner, 1996). Over 30% of youths who dropped out reported returning for school completion coursework. One year after leaving high school, 18% of the students who had dropped out reported that they had earned a high school diploma; 11% reported earning certificates of completion; and one student reported being enrolled in a 4-year degree program (Love & Malian, 1997).
Other comparisons between school completers and early exiters exist. One year after exiting high school, 11% of those who had dropped out were married and 21% of those who had dropped out had children (Love & Malian, 1997). These two factors may have influenced the finding that less than two years after exiting high school, dropouts were more likely to be living independently than school completers (Blackorby & Wagner, 1996). However, residential independence did not infer financial responsibility, because dropouts were less likely to have jobs that included retirement benefits, to possess a checking account, and to utilize adult services in securing a job (Love & Malian, 1997).

**Disability**

Youths with LD and ID showed the greatest increases in employment rates, and the wage increase of youths with LD and EBD was dramatic over time. Youths with ID were employed in greater numbers over time, though their earning power was less when compared to youths with LD and EBD (Blackorby and Wagner, 1996; Flexer et. al., 2011). Youths with ID were more likely to receive career and technical education but less likely to be employed full-time after receiving this training (Flexer et. al., 2011). Males with LD were more likely to be employed and engaged after exiting high school than were males with ID and females with ID or LD (Levine & Edgar, 1994). Six months after exiting school, youths with EBD who had been employed for long periods of time during school had higher rates of employment than those who had not worked (Sample, 1998).

While the percentage of all youths with disabilities enrolled in postsecondary education increased from less than two years to three to five years after exiting high
school (14% to 26.7%), enrollment of youths with LD increased significantly (13.9% to 30.5%, \( p < .01 \)) while enrollment of youths with EBD or ID did not (Blackorby & Wagner, 1996). Youths with ID were only about half as likely as other students to attend full-time postsecondary education (Blackorby & Wagner, 1996; Flexer, et al., 2011). The odds of youths with ID attending full-time postsecondary education increased two to four times when they received 80% or more of their education in the regular classroom setting (Flexer et al., 2011); however, the small number of youths who receive these services limits the generalization. While previous research demonstrates the lack of positive postsecondary outcomes for youths with EBD (Neel, Meadows, Levine, & Edgar, 1988; Wagner, D’Amico, Marder, Newman, & Blackorby, 1992), studies included in this review did not address this outcome. However, Sample (1998) found that one year after exiting school youths with EBD whose parents had been actively involved in their educational programs were more likely to have a successful community adjustment than youths whose parents had not been involved in their educational programs.

**Summary and Conclusions**

In summary, this literature review confirms the need for additional research on postschool outcomes related to student-, school-, and district-level factors. Only nine studies met inclusion criteria for this review. Studies were required to be published in peer-refereed journals and to have analyzed postschool engagement outcomes of employment and/or postsecondary education for youths with EBD, ID, or LD who had exited high school while receiving special education services in the United States. Differences in participants, locations, and definitions of engagement outcomes should be
considered when generalizing the reviewed results. Therefore, conclusions and implications from this literature review should be interpreted with caution.

For youth with disabilities, postschool engagement outcomes in employment and postsecondary education vary based on gender, race, disability, and school exit reason. Overall, youths with LD have consistently demonstrated best employment and education outcomes when compared to youths with EBD and ID. Youths with ID are least likely to be engaged in postsecondary education, largely due to their exclusion from the general education classroom. While youths with EBD generally possess the academic ability to complete high school, they are more likely to dropout than youths with ID or LD.
CHAPTER THREE
RESEARCH METHODS

Youths with high incidence disabilities – specifically EBD, ID, and LD – are at an increased risk of poor postschool outcomes in postsecondary education (Chambers, Rabren, & Dunn, 2009; Levine & Edgar, 1994) and employment (Joshi, Bouck, & Maeda, 2012; Sample, 1998). A review of the literature related to postschool outcomes indicates a need to examine postschool engagement outcomes using a model that considers multiple independent and dependent variables while controlling for possible extraneous factors (Flexer et al., 2011). This study addressed this need by analyzing the association between postschool outcomes for youths with disabilities and student-, school-, and district-level factors based upon the *South Carolina Postschool Survey* (SC PSS) given by the Department of Education Office of Exceptional Children. This survey is the method South Carolina has chosen to fulfill the Individuals with Disabilities Education Act of 2004 (IDEA) Part B Indicator 14 requirement for collecting postschool engagement outcomes for students with disabilities one year after exiting high school. Specifically, the survey addresses employment and postsecondary education / training. In this chapter, the methods used to complete this study are described. This description is presented in four sections: (a) the guiding research questions and hypotheses, (b) the design of the study, (c) the research procedures, and (d) methods of data analyses.

**Research Questions and Hypotheses**

The purpose of this study was to analyze postschool engagement outcome data for youths with high incidence disabilities in South Carolina in the areas of employment and
postsecondary education/training. Specifically, this study addressed the following research questions:

- **Question 1**: Based upon data from the South Carolina PSS, what is the relationship between student-level factors (age, race, gender, high incidence disability, and exit reason) of youths with disabilities and their postschool engagement outcomes (employment and education/training)?

- **Hypothesis**: It is hypothesized that postschool engagement outcomes (employment and education/training) are dependent upon student-level factors (age, race, gender, and exit reason) of youths with disabilities. Based on the review of relevant literature in chapter two, a reasonable hypothesis is that youth age is less likely to impact engagement than exit reason, and youths who exit school with a regular high school diploma are more likely to be engaged in both postsecondary education and employment. Caucasian males are hypothesized to be more engaged in both postsecondary education and employment than African American males and female youths.

- **Question 2**: Based upon data from the South Carolina PSS, what is the relationship between school-level factors (enrollment, four-year cohort graduation rate, retention rate, attendance rate, out-of-school suspensions or expulsions for violent and/or criminal offenses annual dropout rate, enrollment in career/technology courses, HSAP passage rate by students with disabilities, classes not taught by highly qualified teachers, percent of students receiving free
or reduced lunch, and urban / rural status) and postschool engagement outcomes (employment and education/training) for youths with disabilities?

- **Hypothesis:** It is hypothesized that postschool engagement outcomes (employment and education/training) are dependent upon school-level factors of youths with disabilities. It is hypothesized that postsecondary education will be related to a school’s HSAP passage rates by students with disabilities and employment will be related to percent of students receiving free or reduced lunch, and urban / rural status. Specifically, youths with LD who attend schools with higher HSAP passage rates by students with disabilities will be more likely to be engages in postsecondary education. Youths who attended urban schools will be more likely to be engaged in competitive employment, and youths who exited schools with a higher percent of students receiving free and reduced lunch will be less likely to be engaged in both employment and postsecondary education.

- **Question 3:** Based upon the South Carolina PSS, what is the relationship between district-level factors (four-year cohort graduation rate, retention rate, attendance rate, out-of-school suspensions or expulsions for violent and/or criminal offenses, annual dropout rate, HSAP passage rate by students with disabilities, classes not taught by highly qualified teachers, percent of students receiving free or reduced lunch and urban / rural status) and postschool engagement outcomes (employment and education/training) for youths with disabilities?

- **Hypothesis:** It is hypothesized that postschool engagement outcomes (employment and education/training) of youths with disabilities are dependent
upon district-level factors in small districts with one or two high schools. Similar to school-level factors, postsecondary education will be related to a school’s HSAP passage rates by students with disabilities and employment will be related to percent of students receiving free or reduced lunch, and urban / rural status at the district level. Specifically, youths with LD who attend schools in districts with higher HSAP passage rates by students with disabilities will be more likely to be engaged in postsecondary education. Youths who attended schools in urban districts will be more likely to be engaged in competitive employment, and youths who exited schools with a higher percent of students receiving free and reduced lunch will be less likely to be engaged in both employment and postsecondary education.

**Design of the Study**

Social science data are often viewed as nested designs, in that individuals are nested within an organizational structure, such as a community or school, which is nested in a geographic location, such as a district or state (Raudenbush, Bryk, Cheong, & Congdon, 2004). This study will use three separate logistic regression models at the three data levels – student, school, and district. In addition, a combined model that accounts for the data structure was used to investigate overall relationships (i.e., how do independent variables interact across the levels). For example, how does a school-level variable such as students’ participation in work-based experiences interact with a student-level variable such as disability status to impact the engagement outcome of employment?
Research Procedures

Before conducting this study, permission from the institutional review board of Clemson University and South Carolina Department of Education was attained. Following approval, the researcher obtained South Postschool Survey data from the Office of Exceptional Children. Three years of data were provided for analysis.

Using the Excent, Inc. computer program, Indicator 14 administrative reports were extracted for each district and a master list was created in a Microsoft Excel spreadsheet. Indicator 14 reports were chosen for the information contained – youth names and ID numbers, school district names and ID numbers, school names, youth disability, exit date, and exit reason. Youths who were missing complete address information, duplicate youths, and youths who had died were deleted from the master list.

Master lists were created for three fiscal years (FY): for the 2008-09 school year (FY09), youths who exited from July 1, 2008 to June 30, 2009 were included; for the 2009-10 school year (FY10) youths who exited from July 1, 2009 to June 30, 2010 were included; and for the 2010-11 school year (FY11) youths who exited from July 1, 2010 to June 30, 2011 were included. Data were obtained from the Office of Exceptional Children (OEC) at the South Carolina Department of Education (Zais & Bishop, 2012; Zais & Metts, 2011; Zais & Boshamer, 2013).

South Carolina Postschool Survey. From FY09 to FY11, South Carolina utilized LifeTrack Services, Inc. (LifeTrack) to collect Indicator 14 data. Between May and September of each year, LifeTrack mailed surveys with postage paid return envelopes to the indicated population. Follow-up telephone calls using scripted
information were made to non-responders. Data were collected from exiters who had an IEP when they left school (or their family/others), including youth who graduate, receive a certificate, age-out, dropped out, or those expected to return but did not (Zais & Bishop, 2012; Zais & Metts, 2011; Zais & Boshamer, 2013). Respondents who returned blank surveys (e.g., no questions were answered and were coded with 3, “no answer”) were removed from the analysis. Respondents who marked question three, “Describe the kind of school or job training programs you attended. (Mark One Option)” with option one “high school completion” were removed from the analysis. The assumption is these youths had returned to high school – perhaps in a different district – and were continuing their education. Finally, 36 respondent ID numbers could not be matched with youths from the Master List and were removed from the analysis. This yielded a final data set that included 2,283 respondents. Of these, 200 were 2009 respondents; 841 were 2010 respondents; and 1,242 were 2011 respondents. Table 6 lists the 10 questions included on the South Carolina Postschool Survey (SC PSS) by LifeTrack.

Table 6

South Carolina Postschool Survey Questions

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In the 12 months after leaving high school, have you ever attended any school, job training, or education program?</td>
</tr>
<tr>
<td>2</td>
<td>Did you complete an entire term?</td>
</tr>
<tr>
<td>3</td>
<td>Describe the kind of school or job training programs you attended. (Mark One Option)</td>
</tr>
<tr>
<td>4</td>
<td>In the 12 months after leaving high school, have you ever worked?</td>
</tr>
<tr>
<td>5</td>
<td>Since leaving high school, have you ever worked for a total of 3 months (about 90 days)?</td>
</tr>
<tr>
<td>6</td>
<td>Did you work on average 20 hours or more per week (or about half-time of a 40-hour week)?</td>
</tr>
<tr>
<td>7</td>
<td>Were you paid at least minimum wage?</td>
</tr>
<tr>
<td>8</td>
<td>Describe the job you have or have had. (Mark One Option)</td>
</tr>
<tr>
<td>9</td>
<td>Gender</td>
</tr>
<tr>
<td>10</td>
<td>Ethnicity</td>
</tr>
</tbody>
</table>
Definitions of Variables

Three categories of independent variables were included in the study. Student variables include disability, age, gender, disability status, race, and exit reason. School variables include grade retention rate, dropout rate, graduation rate, socio-economic status (SES), attendance, behavior, and special education achievement (HSAP). District variables include grade retention rate, dropout rate, graduation rate, SES, attendance, behavior, and special education achievement (HSAP). Whereas demographic or status predictors such as race or SES are not amenable to school-based interventions, other predictors such as academic deficits or behavioral needs are malleable, alterable, or amenable to intervention (Reschly & Christenson, 2006).

Two dependent variables were selected to provide information on the relationship between the independent variables and a range of important postschool engagement outcomes. These engagement outcomes include whether participants were competitively employed and had attended postsecondary institutions or training since exiting high school. The selection of variables was influenced by prior literature examining the relationship between disability status and postschool outcomes, and specifically among students with EBD, ID, and LD (Blackorby & Wagner 1996; Benz, Yovanoff, & Doren, 1997; Love & Malian, 1997; Flexer et al., 2011). Whereas most prior studies looked at all students with disabilities collectively, the present study extends that literature by examining the relationships between independent variables (i.e., student-, school-, and district-level factors) and postschool outcomes specifically for youths with high incidence disabilities.
**Postschool Engagement Outcome (Dependent Variable).** In this study, youths were categorized on a framework of postschool engagement outcomes that includes engaged in *higher education*, engaged in *competitive employment*, engaged in *postsecondary education/training*, engaged in *other employment*, or unengaged. Youths who did not meet the requirements to be counted as *enrolled in higher education* but who attended some kind of postsecondary education were counted as *engaged in postsecondary education/training*. Youth who did not meet the requirements to be counted in *competitive employment* but were working were counted as *engaged in employment*. Youths who were neither enrolled in education nor working were counted as unengaged.

**Postsecondary Education/Training.** Postsecondary education and training is reported in questions one through three on the SC PSS. To be counted as *enrolled in higher education*, a youth must have been enrolled on a full- or part-time basis in a community or technical college (2-year program) or college/university (4- or more year program) for at least one complete term, at any time in the year since leaving high school. Question one on the PSS indicates enrollment; question two indicates attendance of a full term; and question three indicates the type of postsecondary enrollment. Questions one and two can be responded to with *no*, *yes*, or not answered. Question three has six possible responses: (a) high school completion, (b) short-term education/employment training, (c) enrollment in vocational/technical college, (d) enrollment in 2- or 4-year college, (e) Mission/Peace Corps, or (f) not applicable. If a youth answered question one with “yes” for having attended an education program and answered question three with
“d” enrollment in 2- or 4-year college but answered question two with “no” for completing a full term, the youth would be counted *engaged in postsecondary education / training* but not *enrolled in higher education*. Figure 1 shows the possible engagement outcomes for postsecondary education/training.

**Employment.** Employment is reported in questions four through eight on the SC PSS. To be counted as *competitively employed*, a youth must have worked for pay at or above the minimum wage in a setting with others who are nondisabled for a period of twenty hours per week for at least 90 total days at any time in the year since leaving high school, which includes military employment. Question four indicates employment; question five indicates length of employment; question six indicated the number of hours; question seven indicates the wage earned; and question eight indicates the type of
employment setting. Questions four through seven can be responded to with no, yes, or not answered. Question eight has eight possible responses: (a) in a company, (b) in the military, (c) in supported employment, (d) self-employed, (e) family business, (f) employed in jail, (g) other, and not answered. If a youth answered “yes” to having worked in the last 12 months, “yes” for a total of three months, “yes” for an average of 20 hours or more per week, but “no” to minimum wage because he was employed in jail, then he would be counted as engaged in employment but not competitively employed.

Figure 2 shows the possible engagement outcomes for employment.

**Student-level Factors (Independent Variables).** At the student level, five factors were considered in the analysis: (a) disability status, (b) age, (c) race, (d) gender, and (e) exit reason. In a literature synthesis of postschool outcomes data for youths with disabilities, Alverson, Naranjo, Yamamoto, and Unruh (2010) identified 11 demographic
variables collected over 100 included studies. Of these, the most often reported variables were disability type (n=65), gender (n=37), race (n=15), geographic location (n=12), and dropout or early leaver status (n=12) (Alverson et al., 2010).

**School- and District-level Factors (Independent Variables).** At the school level, 11 factors were considered in the analysis: (a) number of students enrolled, (b) four-year cohort graduation rate, (c) retention rate, (d) attendance rate, (e) percentage of out-of-school suspensions or expulsions for violent and/or criminal offenses (f) annual dropout rate, (g) enrollment in career/technology courses, (h) HSAP passage rate by students with disabilities, (i) percentage of classes taught by teachers who are not highly qualified, (j) percent of students receiving free or reduced lunch, (k) urban/rural status, and (l) career education. At the district level, 9 factors were considered in the analysis: (a) four-year cohort graduation rate, (b) retention rate, (c) attendance rate, (d) percentage of out-of-school suspensions or expulsions for violent and/or criminal offenses, (e) annual dropout rate, (f) HSAP passage rate by students with disabilities, (g) percentage of classes taught by teachers who are not highly qualified, (h) percent of students receiving free or reduced lunch, and (i) urban/rural status. Unless specified, school- and district-level variables refer to entire student populations based on availability in annual report cards.

**Annual Report Card Data.** Reschly and Christenson (2006) identified eight student engagement variables related to dropout that can be assessed through the state of South Carolina’s *Annual School Report Card* and *Annual District Report Card* (2013a): (a) school population as measured by enrollment, (b) four-year graduation rate, (c)
attendance rate, (d) behavior as measured by out-of-school suspensions or expulsions for violent and/or criminal offenses, (e) achievement as measured by HSAP passage rate for students with disabilities, and (f) retention rates.

**Population.** School enrollment influences dropout rates, because larger populations result in higher dropout rates (Alspaugh, 1998; Fowler & Walberg, 1991). Pittman and Haughwout (1987) found the dropout rate increased by 1% for every addition of 400 students to the high school population. Specifically, large schools (defined as those whose student population exceeds 1,000 students) have been linked to higher dropout rates among students with disabilities (Reschly & Cristenson, 2006). The population variable for this study will be *enrollment which* will be retrieved from the South Carolina *Annual School Report Card*

**Graduation Rate.** For this study, the graduation rate variable was the *on-time graduation rate* identified in the South Carolina *Annual School Report Card.* South Carolina is one of 16 states to use the cohort method to report graduation rates. The cohort rate is defined as “percent of students from an entering 9th grade cohort who graduate with a standard diploma within four years” (Editorial Projects in Education Research Center, 2007, p. 2). The graduation rate performance goal for adequate yearly progress (AYP) is 88.3%; however, the graduation rate for students with disabilities in South Carolina has fluctuated from 39% to 46% in FY2006 to FY2009 (Zais & Bishop, 2012). In South Carolina, graduation with a state–issued regular diploma has two requirements: (a) completion of 24 units of courses in specified areas, and (b) passing all parts of the HSAP exam. As many as 32 states permit the IEP team to make allowances
for the graduation requirements for students with IEPs; however, South Carolina is one of only three states that makes no allowances and holds all students to the same standards for earning a diploma (Burdette, 2007).

**Attendance rate.** A study of school exiters with disabilities found school problems leading to dropout were first interest and attendance related, and then disability related. Youths reported that their reasons for dropping out were lack of interest in subject matter and absenteeism rather than academic difficulty (Scanlon & Mellard, 2002). Chronic absenteeism has a negative impact on academic ability, for students have fewer opportunities to learn material that will be used later in school (Epstein & Sheldon, 2002). Attendance issues may be family (Rumberger, Ghatak, Poulos, Ritter, & Dornbusch, 1990), school (Scanlon & Mellard, 2002), and community (Epstein & Sheldon, 2002) related. Attendance rates for schools and districts were identified in the South Carolina Annual School Report Card.

**Behavior.** The behavior variable for this study was out-of-school suspensions or expulsions for violent and/or criminal offenses identified in the South Carolina Annual School Report Card. Statewide studies of out-of-school suspensions (OSS) or expulsions for violent and/or criminal offenses demonstrate a disproportionate number of students with disabilities being disciplined in this manner. In Kansas, students with disabilities were almost three times more likely to be suspended or expelled than students without disabilities (Cooley, 1995). A more recent study in Indiana showed that students with disabilities received OSS more than twice as often as the general education population,
but were less likely to be expelled (Rausch & Skiba 2006). The lower rate of expulsions is likely due to the disciplinary provisions of IDEA 2004.

Most recently, Disability Rights Texas (2012) identified 30 districts for disproportionately using OSS to punish students with disabilities. In those 30 districts, almost 22% of students with disabilities received OSS during the 2010-11 school year, compared with an average 7% statewide suspension rate for students with disabilities and an average of less than 4% percent of all students. Students with EBD are more likely to receive OSS and expulsions than other students with and without disabilities. In Kansas, students who were identified with EBD were 7.5 times more likely to receive a suspension or expulsion than their peers with other disabilities and 12 times more likely to be suspended or expelled than all other students with and without disabilities (Cooley, 1995). In Indiana, students who qualified for EBD accounted for 4.7% of the disabled population, but accounted for 35.5% of all IDEA disciplinary provision use. Students with EBD received discipline under the special IDEA provisions seven times more frequently compared to students with ID or LD (Rausch & Skiba, 2006).

**Achievement.** The High School Assessment Program (HSAP) is a standards-based test in English language arts and math (Editorial Projects in Education Research Center, 2007) that is South Carolina’s current exit exam. To be eligible for graduation with a regular high school diploma, both sections of the test must be passed with a score of Basic or Above (Above Basic, Proficient). Nationwide, the exit exam requirement has fluctuated over time. Currently, 24 states have the exit exam requirement for earning a standard diploma. Twenty-one states, including South Carolina, maintain a uniform exit
exam requirement for all students, regardless of academic ability level. Students take the
tests for the first time in the second spring after their initial enrollment in the ninth grade
(South Carolina Department of Education, 2012). Students beyond the second year after
their initial enrollment in the ninth grade take the test(s) needed to meet the requirement
for a South Carolina high school diploma twice a year (fall and spring). Following a
remediation program in summer school, a summer administration of the HSAP may be
offered to students who have not passed the exit examination and who are planning to
graduate before the beginning of the next school year (South Carolina Department of
Education, 2013c). South Carolina is one of 18 states that offer students the option of
retaking the test (Burdette, 2007). Students with disabilities are provided
accommodations for HSAP, based on their IEP (South Carolina Department of
Education, 2013d). This is the only school- and district-level factor that is reported
specifically for students with disabilities and for the overall student population in the
South Carolina Annual School Report Card for schools and districts. For the purposes of
this study, the passage rate of students with disabilities was used in all calculations.

Retention rates. Students with disabilities who are held back a grade level in
school are more likely to dropout, especially when the retention comes in secondary
school (Alexander, Entwisle, & Kabbani, 2001). Among secondary school youths, grade
level retention is often imposed for failure of a high-stakes test (Penfield, 2010),
absenteeism due to chronic health conditions (Moonie et al., 2008), and truancy (Vacca,
2008). Grade retention is a significant negative predictor of academic self-concept and
homework completion and a significant positive predictor of maladaptive motivation and
weeks absent from school (Martin, 2011). Retention rates for schools and districts are available in the South Carolina *Annual School Report Card.*

**Highly-qualified Teachers.** Another factor important to special education is the IDEA 2004 requirement for highly-qualified teachers. While the number of emergency licenses greatly decreased from 2004-2008, special education was the second highest category of emergency licenses in 2007-08 at 2.7% (U.S. Department of Education, 2011b). This continued shortage of special education teachers began with special education’s inception in the late 1970’s (Boe & Cook, 2006). Specifically, the percentage of teachers on emergency waivers for high poverty districts decreased from 4.5 to 2%; however, the percentage of emergency licenses issued in other districts was only 1.1% (U.S. Department of Education, 2011b). The combination of socioeconomic status and highly qualified teachers may impact the engagement outcomes of youths with disabilities. The highly qualified teacher variable for this study were classes not taught by highly qualified teachers identified in the South Carolina *Annual School Report Card.*

**Career Education.** For students with disabilities, participation in programmatic school-to-work study (Benz, Yovanoff, & Doren, 1997), technology training (Leonard, D’Allura, & Horowitz, 1999), and completing an internship during the last year of high school (Luecking & Fabian, 2000) are strong predictors of postschool employment outcomes. For students with mild intellectual disabilities, participation in school-sponsored work experiences was a statistically significant predictor of postschool employment: those who participated were three times more likely to be employed than those who did not (Joshi, Bouck, & Maeda, 2012). Career education variables for this
study included *enrollment in career/technology courses* and *student participation in work-based experiences* from the South Carolina Annual School Report Card.

**Free and Reduced Meal Eligibility.** Two additional factors – (a) socio-economic status as measured by percent of students receiving subsidized meal plans and (b) urban/rural status – are reported by the South Carolina Department of Education’s *E-Rate - Free and Reduced Meal Eligibility Data* (2013b). In a study of five theories predicting high school dropout before 10th grade, poor academic achievement mediated the effect of all independent factors on school dropout, although general deviance, bonding to antisocial peers, and socioeconomic status also retained direct effects on dropping out (Battin-Pearson, Newcomb, Abbott, Hill, Catalano, & Hawkins, 2000). Schools located in urban areas have been linked to higher dropout rates across all disability statuses (Reschly & Cristenson, 2006) and lower in-school employment opportunities for students with mild intellectual disabilities (Joshi, Bouck, & Maeda, 2012).

**Data Analysis**

In this study, postschool outcomes were examined across three engagement frameworks. Framework 1 included six levels of engagement; Framework 2 included four levels of engagement – similar to Indicator 14 – plus *unengaged*; and Framework 3 included two levels of engagement, *engaged* or *unengaged*. The three engagement frameworks that ranged from most specific to least specific delineations of the independent variables were tested. According to findings from a review of postschool outcomes studies from 1975 to 2009, (Alverson, Naranjo, Yamamoto, & Unrah, 2010), the most frequently reported engagement outcomes are employment, postsecondary
education and training, and independent living. Within each of these outcomes, it is common for studies to report multiple levels of variables, including number of hours per week worked, amount of money per hour earned, number of years in degree seeking program.

For Framework 1, six engagement levels were created to categorize survey responses. The first engagement unit included youths who responded “yes” to questions one and two and four through seven and “2- or 4-year college” for question three, indicating maximum engagement in both higher education and competitive employment. The second engagement unit included youths who responded “yes” to questions one and two and “2- or 4-year college” for question three, indicating engagement in higher education. The third engagement unit included youths who responded “yes” to questions four through seven, indicating competitive employment. The fourth engagement unit included youths who responded “yes” to question one and chose options 3, 5, 6, or 7 for question three, indicating other postsecondary education/training. The fifth engagement unit included youths who responded “yes” to question four but did not respond with “yes” to one or more of questions five, six, or seven, indicating other employment. Finally, youths who responded with “no” or “no answer” to a combination of questions one and four were included in unit 6, unengaged.

For Framework 2, engagement levels more closely represented the Indicator 14 categories: (a) higher education, (b) competitive employment, and (c) postsecondary education/training + other employment. Engagement levels were determined using the same questions as in Framework 1, with two exceptions. Levels 1 and 2 were collapsed
into one category (A), and levels 4 and 5 were collapsed into one category (C). Level 3 remained *competitive employment*. All who remained were included in level 4, *unengaged*.

For Framework 3, engagement was measured on two levels, *engaged* or *unengaged*. Any youth who fit the previous framework levels of A, B, or C was categorized as *engaged*. All who remained were *unengaged*.

Logistic regression was used to analyze the relationship of multinomial dependent variables to independent variables (Hosmer & Lemeshow, 2000). Proportions for multinomial dependent variables do not follow a normal distribution, are bounded by 0 and 1, result in heteroscedasticity, and logistic regression is a method to correct for these issues. The relationship of each engagement framework with the student independent variables, the school independent variables, and the district independent variables was determined with a series of logistic regressions. The basic model for the logistic regression was: \( Y_{ij} = \beta_{0j} + \beta_{1j}(X_{1ij}) + e_{ij} \) where

- \( Y_{ij} \) refers to the logit of engagement status outcome.
- \( X_{ij} \) refers to the student, school, or district independent variable.
- \( \beta_{0j} \) refers to the intercept of the logit.
- \( \beta_{1j} \) refers to the change in the logit per change in the independent variable.
- \( e_{ij} \) refers to random errors.

The initial logistic regression model included all theoretically relevant student-, school-, district-level, and combined independent variables. Selection of the subset of independent variables that were significantly related to engagement was accomplished using stepwise logistic regression (Hosmer & Lemeshow, 2000). The chance of engagement due to the selected subset of individual variables was determined by plotting
the predicted probabilities of each engagement category against the independent variables. All analyses were conducted using *JMP*, statistical software created by *SAS* with specific strengths in analyzing data visually (JMP, 2013).

**Summary**

Data for the current study were drawn from the South Carolina *Postschool Survey*, which is collected by the South Carolina Department of Education Office of Exceptional Children. Stepwise logistic regression was used to identify a subset of independent variables from 5 independent student variables, 11 independent school variables, and 9 independent district variables that were significantly related to the dependent postschool engagement outcome variables of employment and postsecondary education/training. A logistic regression model measured the probabilities of the dependent variables across three engagement frameworks.
CHAPTER FOUR

RESULTS

The purpose of this study was to analyze postschool engagement outcome data for youths with disabilities in South Carolina in the areas of employment and postsecondary education to inform transition programming and to provide a statistical model for analyzing postschool outcome data. The South Carolina Department of Education Office of Exceptional Children provided three years of data from the South Carolina Postschool Survey. This survey is the method South Carolina has chosen to fulfill the Individuals with Disabilities Education Act of 2004 Part B Indicator 14 requirement for collecting postschool engagement data for youths with disabilities one year after exiting high school. Specifically, the survey addressed employment and postsecondary education / training. Three logistic regression models at the three data levels – student, school, and district – were used to investigate individual relationships. A fourth combined model was used to investigate overall relationships (i.e., how do student, school, and district independent variables interact). In this chapter, the results of this study are described. These results are presented in six sections: (a) respondents, (b) student-level factors, (c) school-level factors, (d) district-level factors, (e) combined factors, and (f) a summary of the findings. A discussion of these results is found in Chapter Five.

Respondents

Data from a sample of 2,283 PSS respondents from 2009 to 2011 were analyzed. Of the 2,283 respondents, 200 were 2009 respondents; 841 were 2010 respondents; and 1,242 were 2011 respondents. In this section details are provided regarding the
demographics of respondents based on age, gender, race, primary disability, and special education exit reason.

**Age.** The age range of survey respondents was 16 to 26 years with a mean age of 19.8 years (SD = 1.36). Among 2009 respondents, the mean age was 21.6 years (SD = 1.73). Among 2010 respondents, the mean age was 19.4 years (SD = 1.2). Among 2011 respondents, the mean age was 19.7 years (SD = 1.16).

**Gender.** Among 2009 and 2010 respondents, males more than doubled the females in number. In 2009, 145 males (73%) responded, compared to 53 females (27%). In 2010 respondents, 585 males (70%) responded, compared to 254 females (30%). However, in 2011, 855 females (69%) responded, compared to 387 males (31%). Across combined reporting years, females with disabilities (n = 1,162) had significantly higher response rates (p < .05) than males with disabilities (n = 1,117). Gender for the PSS was self-reported in question 9.

**Ethnicity.** In 2009, 38% of the respondent population was African American, less than 1% was Hispanic, 1% were Native Americans, 2% were Other, and 34% were White. Twenty-five percent did not answer the ethnicity question on the 2009 survey. In 2010, 32% of respondents were African American, less than 1% were Asian, 2% were Hispanic, less than 1% were Native American, 1% were Other, and 55% were White. Ten percent did not answer the ethnicity question on the 2010 survey. In 2011, 38% of respondents were African American, less than 1% were Asian, 2% were Hispanic, less than 1% were Native American, 3% were Other, and 49% were Caucasian. Seven percent
did not answer the ethnicity question and an additional 38 respondents (3%) were missing data on the 2011 survey.

Among overall survey respondents, 50% were Caucasian ($n = 1,120$), 36% were African American ($n = 808$), 2% were Other ($n = 46$), 2% were Hispanic ($n = 40$), and less than 1% were Native American / American Indian. Over 9% of respondents ($n = 212$) did not indicate their ethnicity, which was self-reported in question 10. Because of the low responses from other racial minority groups and the number of unspecified ethnicities, the focus of this study will follow previous studies (Chambers, Rabren, & Dunn, 2009; Baer et al., 2011; Flexer et al., 2011) and limit comparisons to Caucasian and African American youths. Table 7 shows respondents by race/ethnicity across reporting years.

Table 7

*Respondents by Race/ Ethnicity by Year*

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>2009</th>
<th></th>
<th>2010</th>
<th></th>
<th>2011*</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>African American</td>
<td>76</td>
<td>38</td>
<td>269</td>
<td>32</td>
<td>463</td>
<td>38</td>
</tr>
<tr>
<td>Asian</td>
<td>0</td>
<td>&lt; 1</td>
<td>1</td>
<td>&lt; 1</td>
<td>3</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
<td>&lt; 1</td>
<td>12</td>
<td>2</td>
<td>27</td>
<td>2</td>
</tr>
<tr>
<td>Native American</td>
<td>2</td>
<td>&lt; 1</td>
<td>4</td>
<td>&lt; 1</td>
<td>9</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>2</td>
<td>9</td>
<td>1</td>
<td>32</td>
<td>3</td>
</tr>
<tr>
<td>Caucasian</td>
<td>67</td>
<td>34</td>
<td>463</td>
<td>55</td>
<td>590</td>
<td>49</td>
</tr>
<tr>
<td>Not Answered</td>
<td>49</td>
<td>25</td>
<td>83</td>
<td>10</td>
<td>79</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100</td>
<td>841</td>
<td>100</td>
<td>1204</td>
<td>100</td>
</tr>
</tbody>
</table>

*Missing data ($n = 38$)

**Primary disability.** Among the thirteen disability categories under IDEA 2004, youths with LD provided the greatest representation among respondents ($n = 1,262$), comprising 55% of the sample. Youths with ID ($n = 391$) was the second largest
representative group, comprising 17% of the sample. Youths with other health impairments (OHI; \( n = 323 \)) was the third largest group of respondents, comprising 14% of the sample. Youths with EBD \( (n = 138) \) comprised the fourth largest group of respondents, comprising 6% of the sample. Table 8 shows total survey respondents by disability categories.

Table 8

*Respondents by Primary Disability*

<table>
<thead>
<tr>
<th>Primary Disability</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autism</td>
<td>64</td>
<td>3</td>
</tr>
<tr>
<td>Deafblindness</td>
<td>1</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Deaf and Hard of Hearing</td>
<td>37</td>
<td>2</td>
</tr>
<tr>
<td>Emotional Behavioral Disorder</td>
<td>138</td>
<td>6</td>
</tr>
<tr>
<td>Hearing Impairment</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Intellectual Disability</td>
<td>391</td>
<td>17</td>
</tr>
<tr>
<td>Multiple Disabilities</td>
<td>12</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Not Specified</td>
<td>2</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Orthopedic Impairment</td>
<td>21</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Other Health Impairment</td>
<td>323</td>
<td>14</td>
</tr>
<tr>
<td>Specific Learning Disability</td>
<td>1,262</td>
<td>55</td>
</tr>
<tr>
<td>Speech or Language Impairment</td>
<td>7</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Traumatic Brain Injury</td>
<td>7</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Visual Impairment</td>
<td>18</td>
<td>&lt; 1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2283</td>
<td>100</td>
</tr>
</tbody>
</table>

The focus of survey respondents for this study is youths with high incidence disabilities. *High incidence* disabilities—EBD, ID, and LD—account for the majority of the student population that receives special education services (Gage, Lierheimer, & Goran, 2012). For the purpose of this study, youths were coded as having an (a) EBD \( (n = 138) \), (b) ID \( (n = 391) \), (c) LD \( (n = 1262) \), or (d) other disability \( (n = 492) \). Table 9 shows respondents by high incidence disabilities by year.
Table 9

Respondents by High Incidence Disabilities by Year

<table>
<thead>
<tr>
<th>High Incidence Disability</th>
<th>2009</th>
<th>2010</th>
<th>2011*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>EBD</td>
<td>16</td>
<td>8</td>
<td>51</td>
</tr>
<tr>
<td>ID</td>
<td>50</td>
<td>25</td>
<td>133</td>
</tr>
<tr>
<td>LD</td>
<td>96</td>
<td>48</td>
<td>479</td>
</tr>
<tr>
<td>Others</td>
<td>38</td>
<td>19</td>
<td>178</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100</td>
<td>841</td>
</tr>
</tbody>
</table>

Note. EBD = Emotional Behavioral Disorder, ID = Intellectual Disability, LD = Learning Disability.

Chi square goodness of fit was used to determine whether the survey respondent distributions fit the distributions of the total population of school-aged students with disabilities in South Carolina. The distributions of the total population were based on Child Count data from the South Carolina Office of Exceptional Children (2012, 2011a, 2011b). In 2009, youths with EBD composed 3.99% of the school-aged population of students with disabilities (Office of Exceptional Children, 2011b). The number of respondents comprised 9.9% of the sample (n = 16). Youths with ID comprised 9.5% of the school-aged population of students with disabilities (Office of Exceptional Children, 2011b), compared to 31% of the respondent sample (n = 50). Youths with LD comprised 48% of the school-aged population of students with disabilities (Office of Exceptional Children, 2011b), compared to 59.2% of the respondent sample. Among the three high incidence disabilities, there was significant overrepresentation of 2009 survey respondents with EBD and ID compared to the school-age population of students with these disabilities.
In 2010, youths with EBD composed 3.65% of the school-aged population of students with disabilities (Office of Exceptional Children, 2011a). The number of respondents comprised 6.06% of the sample ($n = 51$). Youths with ID comprised 8.88% of the school-aged population of students with disabilities (Office of Exceptional Children, 2011a), compared to 15.82% of the respondent sample ($n = 133$). Youths with LD comprised 47.58% of the school-aged population of students with disabilities (Office of Exceptional Children, 2011a), compared to 56.96% of the respondent sample ($n = 479$). For all three high incidence disabilities, there was significant overrepresentation among survey respondents when compared to the school-age population of students with high incidence disabilities.

In 2011, youths with EBD composed 3.42% of the school-aged population of students with disabilities (Office of Exceptional Children, 2012). The number of respondents comprised 5.71% of the sample ($n = 71$). Youths with ID comprised 8.51% of the school-aged population of students with disabilities (Office of Exceptional Children, 2012), compared to 16.75% of the respondent sample ($n = 208$). Youths with LD comprised 47.31% of the school-aged population of students with disabilities (Office of Exceptional Children, 2012), compared to 55.31% of the respondent sample ($n = 687$). For all three high incidence disabilities, there was significant overrepresentation among survey respondents when compared to the school-age population of students with high incidence disabilities.

**Special education exit reason.** Youths with disabilities exit special education services in South Carolina for one of four reasons: (a) dropping out, (b) graduating with a
regular high school diploma, (c) reaching maximum age, and (d) receiving a certificate. For youths with disabilities who drop out of high school, their postschool outcomes are bleak (Blackorby & Wagner, 1996; Love & Malian, 1997; Newman et. al, 2011). Youths who exited special education services by dropping out \((n = 866)\) represented 38\% of the sample.

To be eligible for graduation with a regular high school diploma in South Carolina, a student must pass both the English language arts and mathematics sections of the HSAP with a score of Basic or Above (Above Basic, Proficient). Nationwide, the exit exam requirement has fluctuated over time. Currently, 24 states have the exit exam requirement for earning a standard diploma. Twenty-one states, including South Carolina, maintain a uniform exit exam requirement for all students, regardless of academic ability level. South Carolina is one of 18 states that offer students the option of retaking the test (Burdette, 2007). Youths who graduated with a regular high school diploma \((n = 1,098)\) represented 48\% of the sample.

According to IDEA 2004, students with disabilities may attend school through age 21. Youths who reached maximum age \((n = 197)\) represented 9\% of this sample. Youths who received a certificate \((n = 120)\) represented 5\% of the sample. Only two youths exited special education services for revocation of consent. Table 10 shows respondents by exit reason by year.
Table 10

Respondents by Special Education Exit Reason by Year

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropped out</td>
<td>129</td>
<td>64.5</td>
<td>289</td>
<td>34.3</td>
<td>448</td>
<td>36.0</td>
</tr>
<tr>
<td>Graduated with a regular high school diploma</td>
<td>31</td>
<td>15.5</td>
<td>442</td>
<td>52.5</td>
<td>625</td>
<td>50.3</td>
</tr>
<tr>
<td>Reached maximum age</td>
<td>35</td>
<td>17.5</td>
<td>64</td>
<td>7.6</td>
<td>98</td>
<td>7.8</td>
</tr>
<tr>
<td>Received a certificate</td>
<td>5</td>
<td>2.5</td>
<td>44</td>
<td>5.2</td>
<td>71</td>
<td>5.7</td>
</tr>
<tr>
<td>Revocation of consent</td>
<td>0</td>
<td>-</td>
<td>2</td>
<td>&lt; 1</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100</td>
<td>841</td>
<td>100</td>
<td>1242</td>
<td>100</td>
</tr>
</tbody>
</table>

Significance of Student-, School-, and District-level Factors

Independent variables originated from postschool outcome, dropout, postsecondary transition, and teacher education literature. Among postschool outcome studies, the most often reported student-level variables were disability type, gender, race, geographic location, and dropout or early leaver status (Alverson et al., 2010). For this analysis, the age of the respondent was also considered. Eight variables related to dropout rates of students with disabilities were included: (a) school population, (b) graduation rate, (c) attendance rate, (d) behavior, (e) achievement, (f) retention rates, (g) urban location (Reschly & Christianson, 2006), and (h) socioeconomic status (Battin-Pearson, et al., 2000). The emphasis of IDEA 2004 on highly-qualified teachers, along with the number of emergency licenses issued for special education teachers (U.S. Department of Education, 2011b) and continued shortage of special education teachers (Boe & Cook, 2006) justified the inclusion of teacher qualifications in percent of teachers who were not highly qualified. Finally, the role of career education in the successful postsecondary transition of youths with disabilities (Benz, Yovanoff, & Doren, 1997; Leonard, D’Allura, & Horowitz, 1999; Luecking & Fabian, 2000; Joshi, Bouck, & Maeda, 2012)
justified the inclusion of two career and technical education factors. Stepwise logistic regression was used to select a subset of independent variables that were significantly related to postschool engagement outcomes of employment and postsecondary education/training.

**Student-level Factors**

At the student level, age, race, high incidence disability, and special education exit reason were highly significant in different engagement configurations. At the school level, high incidence disability and exit reason were highly significant in different frameworks. Two youths who exited special education services for revocation of consent were removed from the data set. A sample of 2,281 respondents remained. Table 11 shows the results for stepwise regression for student-level factors.

Table 11.

*Stepwise Regression for Student-level Factors*

<table>
<thead>
<tr>
<th>Postsecondary Employment &amp; Education/Training</th>
<th>Framework 1 $\chi^2$</th>
<th>Framework 2 $\chi^2$</th>
<th>Framework 3 $\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>2.23</td>
<td>18.61**</td>
<td>11.95*</td>
</tr>
<tr>
<td>Race</td>
<td>8.42</td>
<td>30.51**</td>
<td>25.72**</td>
</tr>
<tr>
<td>Exit Reason</td>
<td>405.94**</td>
<td>700.84**</td>
<td>490.41**</td>
</tr>
<tr>
<td>Gender</td>
<td>3.03</td>
<td>14.55</td>
<td>5.37</td>
</tr>
<tr>
<td>High Incidence Disability</td>
<td>54.88**</td>
<td>53.94**</td>
<td>48.95**</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.064</td>
<td>0.129</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Note. N = 2,283.

*p < .01; **p < .001
School-level Factors

At the school level, 16 factors were considered in the analysis – five student level factors plus the following: (a) number of students enrolled, (b) four-year cohort graduation rate, (c) retention rate, (d) attendance rate, (e) percentage of out-of-school suspensions or expulsions for violent and/or criminal offenses (f) annual dropout rate, (g) enrollment in career/technology courses, (h) HSAP passage rate by students with disabilities, (i) percentage of classes taught by teachers who are not highly qualified, (j) percent of students receiving free or reduced lunch, (k) urban/rural status, and (l) career education. Data for the school-level independent variables were collected from South Carolina’s Annual District Report Cards (2013a) and the South Carolina Department of Education’s E-Rate - Free and Reduced Meal Eligibility Data (2013b).

At the school level, special education exit reason was highly significant across three engagement frameworks. The high incidence disabilities factor was highly significant in Framework 1. The other proposed school-level factors of population, graduation rate, dropout rate, attendance rate, retention rate, career education, HSAP passage rate by students with disabilities, classes not taught by highly qualified teachers, percent of students receiving free or reduced lunch, and urban/rural status did not approach significance on the three engagement frameworks. Forty-seven schools with at least 20 survey respondents over three years were included in the analyses. This yielded a population of 1,024 youths. Table 12 shows the results for stepwise regression for school-level factors.
Table 12.

**Stepwise Regression for School-level Factors**

<table>
<thead>
<tr>
<th>Postsecondary Employment &amp; Education/Training</th>
<th>Framework 1 $\chi^2$</th>
<th>Framework 2 $\chi^2$</th>
<th>Framework 3 $\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Not entered</td>
<td>4.45</td>
<td>3.46</td>
</tr>
<tr>
<td>Race</td>
<td>Not entered</td>
<td>9.14</td>
<td>6.89</td>
</tr>
<tr>
<td>Exit Reason</td>
<td>153.62 **</td>
<td>274.89**</td>
<td>197.16**</td>
</tr>
<tr>
<td>High Incidence Disability</td>
<td>32.76**</td>
<td>22.13</td>
<td>19.72</td>
</tr>
<tr>
<td>Career Education</td>
<td>13.45</td>
<td>15.34</td>
<td>12.03</td>
</tr>
<tr>
<td>Retention Rate</td>
<td>3.8</td>
<td>4.12</td>
<td>1.96</td>
</tr>
<tr>
<td>Attendance Rate</td>
<td>3.02</td>
<td>5.95</td>
<td>1.64</td>
</tr>
<tr>
<td>HSAP Passage Rate by Students with Disabilities</td>
<td>199.02</td>
<td>245.31</td>
<td>205.29</td>
</tr>
<tr>
<td>% of Students Receiving Free or Reduced Lunch</td>
<td>3.29</td>
<td>3.73</td>
<td>0.61</td>
</tr>
<tr>
<td>Highly Qualified Teachers</td>
<td>Not entered</td>
<td>7.35</td>
<td>1.62</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.057</td>
<td>0.099</td>
<td>0.164</td>
</tr>
</tbody>
</table>

Note. N = 1,024. HSAP = High School Assessment Program.
*p < .01; **p < .001

**District-level Factors**

At the district level, 14 factors were considered in the analysis – five student level factors plus the following district-level factors: (a) four-year cohort graduation rate, (b) retention rate, (c) attendance rate, (d) percentage of out-of-school suspensions or expulsions for violent and/or criminal offenses, (e) annual dropout rate, (f) HSAP passage rate by students with disabilities, (g) percentage of classes taught by teachers who are not highly qualified, (h) percent of students receiving free or reduced lunch, and (i) urban/rural status. Data for the district-level independent variables were collected from South Carolina’s *Annual District Report Cards* (2013a) and the South Carolina
Department of Education’s *E-Rate - Free and Reduced Meal Eligibility Data* (2013b). At the district level, high incidence disability, special education exit reason, and district retention rate were highly significant across the three engagement frameworks. Race was also highly significant in engagement Framework 3. Forty-eight school districts with at least 20 survey respondents over three years were included in the analyses. This yielded a population of 1,596 youths. Table 13 shows the results for stepwise regression for district-level factors.

Table 13.

*Stepwise Regression for District-level Factors*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Framework 1 $\chi^2$</th>
<th>Framework 2 $\chi^2$</th>
<th>Framework 3 $\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.51</td>
<td>0.24</td>
<td>0.45</td>
</tr>
<tr>
<td>Race</td>
<td>7.36</td>
<td>9.43</td>
<td>15.03*</td>
</tr>
<tr>
<td>Exit Reason</td>
<td>247.08**</td>
<td>224.88**</td>
<td>329.09**</td>
</tr>
<tr>
<td>Gender</td>
<td>Not entered</td>
<td>0.30</td>
<td>1.4</td>
</tr>
<tr>
<td>High Incidence Disability</td>
<td>50.29**</td>
<td>50.18**</td>
<td>36.15**</td>
</tr>
<tr>
<td>Retention Rate</td>
<td>26.10**</td>
<td>30.28**</td>
<td>49.89**</td>
</tr>
<tr>
<td>Attendance Rate</td>
<td>1.85</td>
<td>1.04</td>
<td>0.47</td>
</tr>
<tr>
<td>Behavior</td>
<td>1.86</td>
<td>0.85</td>
<td>Not entered</td>
</tr>
<tr>
<td>HSAP Passage Rate by Students with Disabilities</td>
<td>8.54</td>
<td>7.41</td>
<td>9.34</td>
</tr>
<tr>
<td>% of Students Receiving Free or Reduced Lunch</td>
<td>2.45</td>
<td>4.04</td>
<td>2.55</td>
</tr>
<tr>
<td>Urban / Rural Status</td>
<td>1.26</td>
<td>0.83</td>
<td>0.94</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.064</td>
<td>0.078</td>
<td>0.22</td>
</tr>
</tbody>
</table>

Note. N = 1,596. HSAP = High School Assessment Program.

*p < .01; **p < .001

**Combined Factors**

In the final logistic regression model, 5 student-level factors, 11 school-level factors, and 9 district-level factors were combined in the analysis. Retention rates were
highly significant across Frameworks 1, 2, and 3 at the combined level. High incidence disability was highly significant on Frameworks 1 and 2, while special education exit reason was highly significant on Framework 3. The other proposed factors did not approach significance. At the combined level, high incidence disability, special education exit reason, and district retention rate were highly significant on one or more engagement frameworks. This analysis included 958 youths who exited 45 qualifying schools within 26 qualifying districts. Table 14 shows the results for stepwise regression for combined factors.

Table 14.

*Stepwise Regression for Combined Factors*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Framework 1 $\chi^2$</th>
<th>Framework 2 $\chi^2$</th>
<th>Framework 3 $\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>Not entered</td>
<td>13.71</td>
<td>11.85</td>
</tr>
<tr>
<td>Exit Reason</td>
<td>151.14**</td>
<td>264.59**</td>
<td>191.67**</td>
</tr>
<tr>
<td>High Incidence Disability</td>
<td>31.36**</td>
<td>22.48**</td>
<td>19.21</td>
</tr>
<tr>
<td>S. Retention Rate</td>
<td>4.52</td>
<td>9.63</td>
<td>8.07</td>
</tr>
<tr>
<td>S. Behavior</td>
<td>10.2</td>
<td>4.67</td>
<td>Not entered</td>
</tr>
<tr>
<td>S. HSAP Passage Rate SWD</td>
<td>188.84</td>
<td>212.49</td>
<td>181.79</td>
</tr>
<tr>
<td>S. % Free/Reduced Lunch</td>
<td>5.57</td>
<td>5.73</td>
<td>8.2</td>
</tr>
<tr>
<td>S. Highly Qualified Teachers</td>
<td>3.12</td>
<td>11.24</td>
<td>3.86</td>
</tr>
<tr>
<td>D. Retention Rate</td>
<td>29.62**</td>
<td>53.61**</td>
<td>42.85**</td>
</tr>
<tr>
<td>D. % Free/Reduced Lunch</td>
<td>7.04</td>
<td>8.13</td>
<td>7.65</td>
</tr>
<tr>
<td>D. Highly Qualified Teachers</td>
<td>3.81</td>
<td>3.81</td>
<td>Not entered</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.07</td>
<td>0.123</td>
<td>0.207</td>
</tr>
</tbody>
</table>

Note. N = 958, D = District, HSAP = High School Assessment Program, S = School. *$p < .01$; **$p < .001$
Engagement Frameworks

Three engagement frameworks were created based on responses to the PSS. Framework 1 contained six levels of engagement: (a) higher education and competitive employment, (b) higher education, (c) competitive employment, (d) postsecondary education/training, (e) other employment, and (f) unengaged. Framework 2 contained four levels of engagement: (a) higher education, (b) competitive employment, (c) postsecondary education/training + other employment, and (d) unengaged. Framework 3 contained two levels of engagement, engaged or unengaged.

Framework 1

Framework 1 contained six possible engagement levels. Of the five possible student-level factors, special education exit reason and high incidence disabilities were highly significant in predicting the postschool engagement outcomes of employment and education/training ($R^2 = .064, F(35) = 715.18, p < .0001$). Of the 11 possible school-level factors, special education exit reason and high incidence disabilities were highly significant in predicting the postschool engagement outcomes of employment and education/training ($R^2 = .057, F(35) = 342.19, p < .0001$). Of the 14 possible district-level factors, special education exit reason, high incidence disabilities, and retention rates were highly significant across all three frameworks at the district level ($R^2 = .065, F(30) = 532.72, p < .0001$). Of the 25 possible combined factors, high incidence disabilities and district retention rates were highly significant in predicting the postschool engagement outcomes of employment and education/training ($R^2 = .078, F(15) = 182.47, p < .0001$).
**Student level.** At the student level, special education exit reason \((F(20) = 417.42, p < .0001)\) and high incidence disabilities \((F(15) = 81.74, p < .0001)\) were significant variables in the postschool engagement outcomes of youths with disabilities. Youths who received a certificate were more likely to be engaged in *higher education* plus *competitive employment* than youths who dropped out, graduated with a regular high school diploma, or reached maximum age. Youths who graduated with a regular high school diploma were most likely to be engaged in *higher education, other education,* and *other employment* when compared to youths who exited for other reasons. Youths who dropped out, graduated with a regular high school diploma, or received a certificate were almost equally as likely to be competitively employed. Youths who exited for these reasons were significantly more likely to be *competitively employed* than youths who exited because they reached maximum age. Youths who reached maximum age were more likely to be *unengaged* than youths who exited for other reasons.

Youths with EBD and LD were more likely to be engaged in *higher education* plus *competitive employment* than youths with ID or other disabilities. Youths with other disabilities were more likely to be engaged in *higher education* than youths with LD, EBD, or ID. Youths with LD were more likely to be *competitively employed* than youths with other disabilities, EBD, or ID. Youths with LD, other disabilities, and EBD were more likely to be engaged in *other education* and *other employment* than youths with ID. Youths with ID were most likely to be *unengaged*.

**School-level.** At the school level, special education exit reason \((F(20) = 186.73, p < .0001)\) and high incidence disabilities \((F(15) = 49.81, p < .0001)\) were significant
variables in postschool engagement outcomes. Youths who received a certificate were more likely to be engaged in higher education plus competitive employment than youths who dropped out, graduated with a regular high school diploma, or reached maximum age. Youths who graduated with a regular high school diploma were more likely to be engaged in higher education, other education, and other employment than youths who dropped out, reached maximum age, or received a certificate. Youths who dropped out were most likely to be engaged in competitive employment. Youths who reached maximum age were most likely to be unengaged than youths who exited for other reasons.

Youths with LD were more likely to be engaged in higher education plus competitive employment, higher education, competitive employment, and other education than youths with EBD or ID. Youths EBD were more likely to be engaged in other employment than youths with ID or LD. Youths with ID were most likely to be unengaged.

**District level.** At the district level, special education reason ($F(15) = 228.27, p < .0001$), high incidence disabilities ($F(10) = 49.02, p < .0001$), and district retention rates ($F(5) = 50.41, p < .0001$) were highly significant. Youths who received a certificate were more likely to be engaged in higher education plus competitive employment than youths who dropped out, reached maximum age, or graduated with a regular high school diploma. Youths who graduated with a regular high school diploma were more likely to be engaged in higher education, other education, and other employment than youths who dropped out, reached maximum age, or received a certificate. Youths who dropped out,
graduated with a regular high school diploma, or received a certificate were almost equally as likely to be competitively employed. Youths who exited for these reasons were significantly more likely to be *competitively employed* than youths who exited because they reached maximum age. Youths who reached maximum age were most likely to be *unengaged*.

Youths with EBD were more likely to be engaged in *higher education* plus *competitive employment* than youths with ID or LD. Youths with LD were more likely to be engaged in *higher education* than youths with EBD or ID. Youths with LD were more likely to be *competitively employed* than youths EBD or ID. Youths with LD were more likely to be engaged in *other education* and *other employment* than youths with EBD or ID. Youths with ID were most likely to be *unengaged*.

Youths who exit school districts with low retention rates are more likely to be engaged in the five positive engagement levels, including *higher education* plus *competitive employment, higher education only, competitive employment only, other education, and other employment*. Conversely, youths who exit school districts with high retention rates are more likely to be unengaged. As retention rates increase by 1%, the probability of engagement in levels 1-5 decreases by -.26%, -.61%, -4.0%, -3.5%, -4.68%, respectively. As retention rates increase by 1%, the probability of a youth being unengaged (level 6) increases by 13%.

**Combined factors.** When student-, school-, and district levels were combined high incidence disabilities (*F*(10) = 126.09, *p* < .0001) and districts retention rates (*F*(5) = 43.23, *p* < .0001) remained highly significant. Youths with EBD were more likely to be
engaged in *higher education* plus *competitive employment* and *other employment* than youths with ID or LD. Youths with LD were more likely to be engaged in *higher education*, to be *competitively employed*, and to be engaged in *other education* than youths with EBD or ID. Youths with ID were most likely to be *unengaged*.

Youths who exited school districts with low retention rates are more likely to be engaged in the five positive engagement levels, including *higher education* plus *competitive employment*, *higher education* only, *competitive employment* only, *other education*, and *other employment*. Conversely, youths who exit school districts with high retention rates are more likely to be unengaged. As retention rates increase by 1%, the probability of engagement in levels 1-5 decreases by -.39%, -1.27%, -3.16%, -6.09%, -3.59%, respectively. As retention rates increase by 1%, the probability of a youth being unengaged (level 6) increases by 14.5%.

**Summary of Framework 1.** High incidence disabilities were highly significant in the postschool outcomes of youths with disabilities across all four levels in Framework 1. Across student-, school-, and district-levels, special education exit reason was highly significant. At the district and combined levels, retention rate was also highly significant.

**Exit reason.** In Framework 1, three findings regarding exit reason were consistent at all levels. First, youths who received a certificate were more likely to be engaged in *higher education* plus *competitive employment*. In reality, this is unlikely, because a certificate of completion does not qualify youths to enroll in 2- or 4-year colleges and universities in South Carolina. Second, youths who graduated with a regular high school diploma were more likely to be engaged in *higher education*, *other education*, and *other*
employment. Third, youths who reached maximum age were more likely to be unengaged than youths who exited for other reasons.

Findings about competitive employment were less consistent. At the student and district levels, youths who dropped out, graduated with a regular high school diploma, or received a certificate were almost equally as likely to be competitively employed. Youths who exited for these reasons were significantly more likely to be competitively employed than youths who exited because they reached maximum age. However, at the school level, youths who dropped out were most likely to be engaged in competitive employment.

High incidence disabilities. At the student level, comparisons were made among youths with EBD, ID, LD, and other disabilities. At other levels, comparisons were only made among high incidence disabilities. The engagement level of higher education plus competitive employment was divided between youths with EBD (student, district, combined) and LD (school). At the school, district, and combined levels, youths with LD were most likely to be engaged in higher education; however, youths with other disabilities were most likely to be engaged in higher education at the school level. Across all four levels, youths with LD were most likely to be competitively employed and to be engaged in other education. The engagement level of other employment was divided between youths with EBD (school, combined) and LD (student, district). Across all levels, youths with ID were most likely to be unengaged.

Retention Rates. At the district and combined levels, district retention rates were highly significant in the postschool outcomes of youths with disabilities. In both levels,
youths who exit school districts with low retention rates are more likely to be engaged in
the five positive engagement levels, including higher education plus competitive
employment, higher education only, competitive employment only, other education, and
other employment. Conversely, youths who exit school districts with high retention rates
are more likely to be unengaged.

Framework 2

Framework 2 contained four possible engagement levels: (a) higher education, (b)
competitive employment, (c) other postsecondary education/training + other employment,
and (d) unengaged. Of the five possible student-level factors, age, race, exit reason, and
high incidence disabilities were highly significant in predicting the postschool
engagement outcomes of employment and education/training ($R^2 = .129, F(30) = 938.78,
p < .0001$). Of the 11 possible school-level factors, only exit reason was highly
significant ($R^2 = .112, F(12) = 311.28, p < .0001$). Of the 9 possible district-level factors,
special education exit reason, high incidence disabilities, and district retention rates were
highly significant ($R^2 = .079, F(18) = 446.95, p < .0001$). Of the 25 possible combined
factors, special education exit reason, high incidence disabilities, and district retention
rates were highly significant in predicting the postschool engagement outcomes of
employment and education/training ($R^2 = .16, F(18) = 328.47, p < .0001$).

Student factors. At the student level, the age of the respondent ($F(3) = 34.3,
p < .0001$), race ($F(6) = 43.29, p < .0001$), special education exit reason ($F(12) = 424.32,
p < .0001$), and high incidence disability ($F(9) = 80.71, p < .0001$) significantly impacted
postschool engagement. As the age of the youth increased by one year, the probability of
being *engaged* in levels 1 to 3 decreased by -0.05%, -0.03%, and -0.01% respectively. Conversely, as the age of the youth increased by one year, the probability of being *unengaged* increased by 0.097%. Older youths were less likely to be engaged in *higher education*, to be *competitively employed*, or in *other postsecondary education/training + other employment* than younger respondents. Older respondents were also most likely to be *unengaged*.

Caucasian youths were more likely to be engaged in *higher education* or to be *competitively employed* than African American youths. Conversely, African American youths were more likely to be engaged in *other postsecondary education/training + other employment* or to be *unengaged* than Caucasian youths.

Youths who graduated with a regular high school diploma were more likely to be engaged in *higher education* and to be *competitively employed* than youths who dropped out, received a certificate, or reached maximum age. Youths who received a certificate were more likely to be engaged in *other postsecondary education/training + other employment* than youths who dropped out, graduated with a regular high school diploma, or reached maximum age. Youths who reached maximum age were most likely to be *unengaged*.

Youths with other disabilities were more likely to be engaged in *higher education* than youths with LD, EBD, or ID. Youths with LD were more likely to be *competitively employed* than other youths, while youths with EBD were more likely to be engaged in *other postsecondary education/training + other employment*. Youths with ID were most likely to be *unengaged*. 

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School factors. At the school level, special education exit reason significantly impacted postschool engagement ($F(12) = 311.28, p < .0001$). Youths who graduated with a regular high school diploma were more likely to be engaged in higher education and to be competitively employed than youths who dropped out, received a certificate, or reached maximum age. Youths who received a certificate were more likely to be engaged in other postsecondary education/training + other employment than youths who dropped out, graduated with a regular high school diploma, or reached maximum age. Youths who reached maximum age were most likely to be unengaged.

District factors. At the district level, special education exit reason ($F(9) = 160.42, p < .0001$), high incidence disability ($F(6) = 47.29, p < .0001$), and district retention rate ($F(3) = 49.71, p < .0001$) significantly impacted postschool engagement. Youths who graduated with a regular high school diploma were more likely to be engaged in higher education, to be competitively employed, and to be engaged in other postsecondary education/training + other employment than youths who dropped out, received a certificate, or reached maximum age. Youths who reached maximum age were most likely to be unengaged.

Youths with LD were more likely to be engaged in higher education than youths with EBD or ID. Youths with LD were more likely to be competitively employed or engaged in other postsecondary education/training + other employment than youths with EBD or ID. Youths with ID were most likely to be unengaged.

Youths who exit school districts with low retention rates are more likely to be engaged in the three positive engagement levels, including higher education, competitive
employment, and other postsecondary education/training + other employment.

Conversely, youths who exit school districts with high retention rates are more likely to be unengaged. As retention rates increase by 1%, the probability of engagement in levels 1-3 decreases by -0.88%, -4.0%, -8.29% respectively. As retention rates increase by 1%, the probability of a youth being unengaged (level 4) increases by 13%.

Combined factors. At the combined student-, school-, and district levels-, special education exit reason ($F(9) = 114.01, p < .0001$), high incidence disability ($F(6) = 34.92, p < .0001$), and district retention rate ($F(3) = 46.81, p < .0001$) significantly impacted postschool engagement. Youths who graduated with a regular high school diploma were more likely to be engaged in higher education and to be competitively employed. Youths who received a certificate were more likely to be engaged in other postsecondary education/training + other employment than youths who dropped out, received a certificate, or reached maximum age. Youths who reached maximum age were most likely to be unengaged.

Youths with LD were more likely to be engaged in higher education, to be competitively employed than youths with EBD or ID. Youths with EBD were more likely or engaged in other postsecondary education/training + other employment. Youths with ID were most likely to be unengaged.

Youths who exit school districts with low retention rates are more likely to be engaged in the three positive engagement levels, including higher education, competitive employment, and other postsecondary education/training + other employment. As retention rates increase by 1%, the probability of engagement in levels 1 and 2 decreased
by -6.52%, -9.23%, respectively. For level 3, as retention rates increased by 1%, the probability of engagement in level 3 increases by 1.22%. Youths who exit school districts with high retention rates are more likely to be unengaged. As retention rates increase by 1%, the probability of a youth being unengaged (level 4) increases by 14.5%.

**Summary of Framework 2.** In Framework 2, the age and race of the respondents was highly significant at the student level. Older youths were more likely to be unengaged. Caucasian youths were more likely to be engaged in the preferred outcomes of higher education or competitive employment than African American youths. Retention rates were highly significant at the district and combined levels. Youths who exited special education services from districts with higher retention rates were less likely to be engaged in positive postschool outcomes than youths who exited districts with lower retention rates.

**Exit reason.** The youth’s reason for exiting special education services was highly significant across all four levels. At the student, school, district, and combined levels, youths who graduated with a regular high school diploma were more likely to be engaged in higher education and to be competitively employed. At the student, school, and combined levels, youths who received a certificate were more likely to be engaged in other postsecondary education/training + other employment. However, youths who graduated with a regular high school diploma were more likely to be engaged in other postsecondary education/training + other employment at the district level. At all four levels, youths who reached maximum age were most likely to be unengaged.
High incidence disability. At the student level, youths with other disabilities were most likely to be engaged in higher education. Among high incidence disabilities only (district and combined levels), youths with LD were most likely to be engaged in higher education. Across the student, district, and combined levels, youths with LD were most likely to be competitively employed. At the student and combined levels, youths with EBD were more likely to be engaged in other postsecondary education/training + other employment. However, at the district level, youths with LD were more likely to hold these positions. At all four levels, youths with ID were most likely to be unengaged.

Framework 3

Framework 3 contained two possible engagement levels, engaged or unengaged. Of the five possible student-level factors, age, race, exit reason, and high incidence disabilities were highly significant ($R^2 = .21, F(10) = 577.05, p < .0001$). Of the 11 possible school-level factors, only exit reason was highly significant ($R^2 = .164, F(4) = 197.16, p < .0001$). Of the 9 possible district-level factors, race, special education exit reason, high incidence disabilities, and district retention rates were highly significant ($R^2 = .22, F(8) = 420.19, p < .0001$). Of the 25 possible combined factors, exit reason and district retention rate were highly significant in predicting the postschool engagement outcomes of employment and education/training ($R^2 = .22, F(4) = 190.49, \ p < .0001$).

Student factors. At the student level, the age of the respondent ($F(1) = 11.96, p < .001$), race ($F(2) = 23.12, p < .0001$), special education exit reason ($F(4) = 220.17, p < .0001$), and high incidence disability ($F(3) = 40.51, p < .0001$) significantly impacted postschool engagement. Older youths were less likely to be engaged than younger youths.
As the age of the youth increased by one year, the probability of being engaged in decreased by -.097%. Conversely, as the age of the youth increased by one year, the probability of being unengaged increased by .097%. Caucasian youths were more likely to be engaged than African American youths. Youths who graduated with a regular high school diploma were most likely to be engaged while youths who reached maximum age were most likely to be unengaged. Youths with LD were most likely to be engaged, while youths with ID were most likely to be unengaged.

**School factors.** At the school level, special education exit reason significantly impacted postschool engagement \((F(4) = 197.16, p < .0001)\). Youths who graduated with a regular high school diploma were most likely to be engaged while youths who reached maximum age were most likely to be unengaged.

**District factors.** At the district level, race \((F(2) = 15.04, p < .0001)\), special education exit reason \((F(3) = 125.09, p < .0001)\), high incidence disability \((F(2) = 34.34, p < .0001)\), and district retention rate \((F(1) = 42.2, p < .0001)\) significantly impacted postschool engagement. Caucasian youths were more likely to be engaged and African American youths were more likely to be unengaged. Youths who graduated with a regular high school diploma were most likely to be engaged while youths who reached maximum age were most likely to be unengaged. Youths with LD were most likely to be engaged, while youths with ID were most likely to be unengaged. Youths who exited from school districts with lower retention rates were more likely to be engaged, while youths who exited districts with high retention rates were more likely to be unengaged.

As retention rates increase by 1%, the probability of engagement decreases by 13%. As
retention rates increase by 1%, the probability of a youth being unengaged increases by 13%.

**Combined factors.** At the combined student-, school-, and district levels-, special education exit reason (\(F(3) = 135.35, p < .0001\)) and district retention rate (\(F(1) = 35.03, p < .0001\)) significantly impacted postschool engagement. Youths who graduated with a regular high school diploma were most likely to be engaged while youths who reached maximum age were most likely to be unengaged. Youths with LD were most likely to be engaged, while youths with ID were most likely to be unengaged. Youths who exited from school districts with lower retention rates were more likely to be engaged, while youths who exited districts with high retention rates were more likely to be unengaged. As retention rates increase by 1%, the probability of engagement decreased by -14.5%. As retention rates increased by 1%, the probability of a youth being unengaged increased by 14.5%.

**Summary of Framework 3.** In Framework 3, age was highly significant at the student level, in that older youths were less likely to be engaged than younger youths. At the student and district levels, Caucasian youths were more likely to be engaged and African American youths were more likely to be unengaged. At the district and combined levels, youths who exited from school districts with lower retention rates were more likely to be engaged, while youths who exited districts with high retention rates were more likely to be unengaged. At the student, district, and combined levels, youths with LD were most likely to be engaged, while youths with ID were most likely to be unengaged. At all four levels, youths who graduated with a regular high school diploma
were most likely to be engaged youths who reached maximum age were most likely to be unengaged.

**Summary of Findings**

Using stepwise logistic regression, 25 independent student, school, district, and combined variables with theoretical impact on the dependent variables of postschool engagement outcomes of postsecondary education/training and employment of youths with disabilities were tested. Three frameworks were created with six, four, and two levels of engagement. The factors of age, race, special education exit reason, high incidence disability, and district retention rates were highly significant.

When age was a significant factor, younger youths were more likely to be engaged than older youths. When race was a significant factor, Caucasian youths were more likely to be engaged than African American youths. When special education exit reason was a factor, youths who graduated with a regular high school diploma had the best overall outcomes while youths who reached maximum age consistently had the worst engagement outcomes. Among youths with high incidence disabilities, youths with LD had the most favorable outcomes while youths with ID had the least favorable outcomes. Finally, youths who exited school districts with lower retention rates were more likely to have favorable engagement outcomes than youths who exited districts with higher retention rates.
CHAPTER FIVE

DISCUSSION

Youths with disabilities often experience poor postschool engagement outcomes compared to their nondisabled peers. They are more likely to drop out of high school (Chapman, et al., 2011), more likely to be unemployed (U.S. Bureau of Labor Statistics, 2012), and less likely to pursue postsecondary education (Newman, et al., 2011). While 60% of youths with disabilities enroll in postsecondary education within eight years after leaving high school, only 23% will finish their program (Newman et al., 2011). If youths experience barriers to employment, they are also likely to face barriers to independent living, and likely remain living longer with family members than their non-disabled peers (Janus, 2009) and are at an increased risk of living in poverty (Lysaght, Cobigo & Hamilton, 2012).

*High incidence* disabilities include EBD, ID, and LD, and these disabilities account for the majority of the student population receives special education services (Gage, Lierheimer, & Goran, 2012). The postschool outcomes of youths with high incidence disabilities vary markedly. Previous research suggests that among individuals with high incidence disabilities, youths with EBD are more likely to drop out of high school (Landrum, Katsiyannis, & Archwamety, 2004; Sinclair, Christenson, & Thurlow, 2005), and are less likely to have meaningful employment (Carter & Lunsford, 2005). Youths with ID are more likely to take life skills coursework in high school (Bouck, 2010), are less likely to be employed (Luftig & Muthert, 2005; Stephens, Collins, & Dodder, 2005), and are less likely to attend higher education (Casale-Giannola &
Kamens, 2006). Conversely, youths with LD are most likely to enroll in postsecondary education (67%) among high incidence disabilities (Newman et. al, 2011). However, they often lack the essential skills to complete higher-level coursework. Difficulties with personal management (Connor, 2012) and academic difficulties (Cowden, 2010) complicate the life a college-aged you with LD. When compared with their same-aged nondisabled peers, youths with LD are more likely to plan postschool employment over college and are more likely to plan two-year college over four (Kortering, Braziel, & McClannon, 2010).

As part of the IDEA 2004 amendments, states are required to collect postschool outcome data on youths with disabilities (20 U.S.C. 1416(b)(1)). Indicator 14 requires states to collect postschool outcome data one year after students exit high school. In this study, the South Carolina PSS was used to analyze postschool engagement outcome data for youths with disabilities in South Carolina in the areas of employment and postsecondary education.

This study adds to the literature on the transition of youths with disabilities from high school to postsecondary life by examining student-, school-, and district-level factors that predict postschool engagement outcomes. The results of this study indicated four student-level factors and one district-level factor significantly impacted engagement outcomes for post-secondary aged individuals with disabilities. Discussion related to the three research questions is presented below, followed by limitations of the findings, implications for practice, recommendations for future research, and concluding remarks.
Major Findings of the Study

The student-level factors of age, race, special education exit reason, and high incidence disability had the greatest impact on the postschool engagement outcomes of employment and postsecondary education/training on youths in this study. When age was a significant factor (student level), younger youths were more likely to be engaged than older youths. When race was a significant factor (student level), Caucasian youths were more likely to be engaged than African American youths. When special education exit reason was a factor (all levels), youths who graduated with a regular high school diploma had the best overall outcomes while youths who reached maximum age consistently had the worst engagement outcomes. Among youths with high incidence disabilities (all levels), youths with LD had the most favorable outcomes while youths with ID had the least favorable outcomes. Finally, youths who exited school districts with lower retention rates were more likely to have favorable engagement outcomes than youths who exited districts with higher retention rates.

Research Question One

Based upon data from the South Carolina PSS, what is the relationship between student-level factors (age, race, gender, high incidence disability, and exit reason) of youths with disabilities and their postschool engagement outcomes (employment and education/training)? The student-level factors of age, race, high incidence disability, and exit reason were found to be highly significant in predicting youths’ postschool engagement outcomes.
**Race.** In this study, African American youths experienced poorer outcomes than their Caucasian peers across all student, school, district and combined levels and across Frameworks 1, 2, and 3. Findings were consistent with previous research in that youths with disabilities from racial minority backgrounds experienced limited engagement in both employment and postsecondary education (Blackorby & Wagner, 1996; Baer et al., 2011; Flexer et al., 2011).

**School Completion.** This study defined *competitively employed* as working a minimum of 20 hours per week, earning minimum wage, for at least 90 days since exiting high school. Based on this definition, results from this study indicate that youths who graduated with a regular high school diploma were more likely to be competitively employed. In previous studies, the variance of postschool employment outcomes between graduates and those who exited for other reasons was largely dependent upon the definition of the outcome. For instance, Love and Malian (1997) identified no significant differences between school completers and dropouts in employment rates, type of employment (e.g., service jobs), or earnings per hour. However, the authors’ definition of employment was broad with no qualifiers for *competitive employment*. Conversely, Blackorby and Wagner (1996) narrowly defined employment and found significant differences between high school graduates and other exiters. Graduates were more likely to be competitively employed than youths who had dropped out or aged out.

Previous research also found graduates were more likely to enroll in postsecondary education than their dropout (Blackorby & Wagner, 1996; Love & Malian, 1997) and age-out counterparts (Blackorby & Wagner, 1996). Consistent with previous
studies, findings from this study indicate that those who graduate with a regular high school diploma were more likely to attend higher education (2- or 4- year college / university) for at least one term one year after exiting high school.

**Disability.** In this study, youths with LD experienced the greatest success in postschool employment which is consistent with previous research (Blackorby and Wagner, 1996; Flexer et. al., 2011). Findings from this study also suggest that youths with LD were more likely to be competitively employed than youths with EBD or ID. Youths with ID experienced the greatest deficits across all engagement levels and frameworks. Also consistent with prior research is the finding that youths with LD are most likely to be engaged in higher education (Blackorby & Wagner, 1996; Newman et al., 2011), while youths with ID are least likely to be engaged in higher education (Blackorby & Wagner, 1996; Flexer, et al., 2011).

**Age.** Findings from this study found age to be a highly significant factor even with point estimates of less than 1%. Specifically, older youths were less likely to be engaged than younger youths. However, age was only significant in Frameworks 2 and 3 and only at the student level. As sample size decreased at the school, district, and combined levels, age no longer held significance. This indicates the influence may have been dependent on the sample size rather than impact. Though previous postschool outcome research has either not considered or not reported the role of age in predicting the postschool engagement outcomes of youths with disabilities, prior research suggests young adults with disabilities who have not found full-time jobs, established independent
residences, married, or had children by age 26 are more likely to have low family incomes and to be employed in low-skill jobs (Janus, 2009).

**Research Question Two**

Based upon data from the South Carolina PSS, what is the relationship between school-level factors (enrollment, four-year cohort graduation rate, retention rate, attendance rate, out-of-school suspensions or expulsions for violent and/or criminal offenses, annual dropout rate, career education, HSAP passage rate by students with disabilities, classes not taught by highly qualified teachers, percent of students receiving free or reduced lunch, and urban / rural status) and postschool engagement outcomes (employment and education/training) for youths with disabilities? Based upon this analysis, only the student-level factors of special education exit reason and high incidence disability were found to be significant in predicting youths’ postschool engagement outcomes. No school-level factors in combination with student-level factors reached significance.

**Research Question Three**

Based upon the South Carolina PSS, what is the relationship between district-level factors (four-year cohort graduation rate, retention rate, attendance rate, out-of-school suspensions or expulsions for violent and/or criminal offenses, annual dropout rate, HSAP passage rate by students with disabilities, classes not taught by highly qualified teachers, percent of students receiving free or reduced lunch and urban / rural status) and postschool engagement outcomes (employment and education / training) for youths with disabilities? Based on this analysis, the student-level factors of race, special
education exit reason, high incidence disability, and district retention rate were found to be highly significant in predicting youths’ postschool engagement outcomes. District retention rate was present in Frameworks 1, 2, and 3 at both the district and combined levels, for six possible impacts. With every appearance in the regression model, this factor displayed a highly significant impact on the postschool outcomes of youths with disabilities. While it may be reasoned that children who are retained in early grades may avoid future school failure, these students may be retained again in a later grade or receive special education (Moser, West, & Hughes, 2012). The fact that district-level retention rates were significant rather than school-level retention rates may indicate the negative impact of grade level retention is a widespread effect beginning in early grades.

**Retention rates for school districts.** Despite multi-year studies demonstrating the negative effects of retention rates on the short- and long-term impact on student outcomes on large scales (Karweit, 1999; McCoy & Reynolds, 1999; Resnick, et al., 1997), this practice is still commonly used among school districts as a “gift of time” (Frey, 2005, p. 344). The expectation is that students, specifically in primary grades, will be able to make academic advances during the long-term when retained a grade level. However, students who are retained are 2 to 11 times more likely to drop out of high school after being retained in primary grades (Barro & Kolstand, 1987; Rumberger, 1995).

One study related to school district retention rates and policies was identified in an extensive electronic search of education data bases. Bali, Roberts, and Anagnostopoulos (2004) found that local politics, superintendents, and racial minority
representation influenced the district retention policies in Texas and California school districts. The authors found that school districts in politically conservative localities were more likely to retain students, new superintendents were less likely to retain students, and school districts with higher levels of minority students and teachers were less likely to retain students. Limited research that examines the impact of district retention policies on student outcomes and findings from the present study highlight the need for further research in this area.

**Retention rates for youths with disabilities.** Students with disabilities who are held back a grade level in school are more likely to dropout, especially when the retention comes in secondary school (Alexander, Entwisle, & Kabbani, 2001). Among secondary school youths, grade level retention is often imposed for failure of a high-stakes test (Penfield, 2010; Katsiyannis, Zhang, Ryan & Jones, 2007), absenteeism due to chronic health conditions (Moonie et al., 2008), and truancy (Vacca, 2008). A general lack of academic ability in reading may also contribute to retention and eventual dropout (Griffith, et al., 2010; Vacca, 2008). In prior special education research, grade level retention has been identified as a predictor of maladaptive motivation (Martin, 2011) and dropping out of school (Reschly & Christenson, 2006). Retention also has a negative impact on youths’ self-esteem (Martin, 2011).

**Engagement Frameworks**

For this study, three frameworks were created in an attempt to develop a statistical model measuring postschool outcome engagement in employment and postsecondary education/training using Indicator 14 data. The first framework provided the most
specific outcome information and included six levels. However, the limited representation among certain populations limited the utility of the model to correctly predict post school outcome across the three high-incidence disability groups. The proportion of variability in the data set explained by this model was low, ranging from 0.057 to 0.07. Framework 2 provided less specific outcome information than Framework 1, but its four levels were more closely aligned to the reporting construct of Indicator 14 data. The proportion of variability explained by this model was higher than the previous model with a range of 0.078 to 0.129. Framework 3 provided the least specific outcome predictions with two levels. The general categories of engaged or unengaged provided stronger explanation of proportion of variability ranging from 0.164 to 0.22; however, the lack of distinctions among engaged youths is not as useful as a more detailed framework related to improved transition practices. Based on this dataset, Framework 2 appears to be a potentially useful model; it provides some distinctions among engagement outcomes and demonstrates relative strength as a statistical model. Given the current dataset, it seems that multiple frameworks may be appropriate based upon the observed population. For example, Framework 1 may be useful in analyzing the postschool engagement outcomes of youths with LD, due to the typically large response rate of that population of youths. Given a larger dataset, Framework 1 may prove to be beneficial across high incidence disabilities. However for respondents with ID, Framework 3 may be a good beginning point when identifying current status of this population.

**Limitations of the Study**

Limitations that affect generalizability of the results of this study should be
considered when interpreting results. The first limitation relates to the difficulty in locating youths to complete postschool surveys and their response rate. This analysis showed relatively low response rates from youths with EBD when compared to youths with other high incidence disabilities and from youths who exited special education services with a certificate when compared to youths who exited for other reasons. This challenge of nonresponses affects the ability to obtain information directly from the primary source. Family members were permitted to complete the survey on behalf of the youth. Although it is preferable to collect information from a primary source, it is considered acceptable practice to receive information from family members based on the findings of Levine and Nourse (1998). In their study, parents and their children provided similar response for questions that were general in nature (e.g., “Is your child employed?”). Because the items on this survey were general, it can be expected that former students and their parents responded similarly to most items.

Another concern with the inability to locate youths relates to response rate. During the three-year data collection for this study, response rates ranged from 21 to 24%. This is a common difficulty in postschool engagement research, especially among youths who drop out of school (Smith & Bost, 2007). Although difficult to obtain, higher response rates produce greater generalizations to student populations.

Another limitation is the self-selection nature of the data. Only youths that chose to complete and return the survey comprised the study sample. This self-selection resulted in varying numbers of surveys in the levels of the independent variables. Confounding this unbalanced number in the levels was the fact that some surveys were
returned with no responses, and in some surveys participants did not respond to all questions. This self-selection and missing data issue is most likely the source of some of the confusing and contradictory results. For example, in the analysis of engagement Framework 1 and the independent variables of special education exit reason and high incidence disabilities, youths with EBD who received a certificate were predicted to be engaged in higher education + competitive employment. In reality, this is unlikely, because a certificate of completion does not qualify youths to enroll in 2- or 4-year colleges and universities in South Carolina. Similarly, the prediction that youths with EBD would be this highly engaged is unlikely. In both cases, youths who received a certificate and youths with EBD represented the smallest number of usable surveys in the special education exit reason and the high incidence disabilities independent variable levels, respectively. One approach to overcoming this limitation is to perform a much larger study so that all levels of the independent variables, all levels of the engagement framework dependent variables, and all combinations of the independent and dependent variables are represented with a reasonable number of usable surveys.

**Implications for Practice**

Results from this analysis can be used by state, district, and local education agencies to inform high school program decisions in the areas of postsecondary education and employment. Because the district level grade retention rate appears to have influence on postschool outcomes, districts who are seeking to improve the outcomes of youths with disabilities should reexamine their district policies for grade level retention beginning in primary grades. On a national level, this study provided a logistic regression
model for use by state education agencies to analyze postschool engagement outcome data in an efficient manner. Though this model was theoretical in nature, it was consistent with findings of previous research about the strong impact of student-level factors on postschool outcomes.

Educators need to look seriously at the transition programming for students with high incidence disabilities. Postsecondary transition planning, though required by Federal law, must be more than a requirement to be met. High quality transition planning involves ongoing transition assessments, appropriate transition goals, and measurable annual goals that support individual transition plans. Transition service providers should help students identify and access appropriate postsecondary education options. Access includes academic preparedness as well as identification of supports in higher education settings. When the Education of All Handicapped Children Act (1975) was reauthorized in 1990 as the Individuals with Disabilities Education Act (IDEA 1990), it included the requirement of postsecondary transition planning for students with disabilities beginning at age 16. The reauthorization of IDEA in 1997 required transition planning begin at age 14 with a transition statement regarding the student’s course of study and at 16 (or younger), a statement of needed transition services with links to outside agencies. In 2004, the Individuals with Disabilities Improvement Act further refined the transition requirements for youth with disabilities, including the requirement that transition planning begin at age 16. Transition plans involve the following: (a) student invitation, (b) measurable postsecondary goal(s), (c) age-appropriate transition assessments, (d) coordinated set of activities, (e) outside agency invitation, (f) annual IEP goal(s), and (g)
transfer of rights at age of majority (§300.320(b)). Quality transition plans contain results-oriented, measurable, and appropriate postsecondary goals. The use of multiple transition assessments, updated transition goals when student’s interests change, and career goals that are consistent with the student’s academic abilities help to ensure successful transition to postsecondary settings. To further assist with transition, IDEA 2004 requires a summary of performance when student are no longer eligible for special education services due to high school graduation with a standard diploma or because the student has exceeded age restrictions.

To increase the knowledge of postschool engagement outcomes of youths with disabilities who exit South Carolina high schools, attention should be given at the district and state levels for increasing response rates to the PSS. Encouraging teachers to discuss the survey at the student’s exit meeting, providing sample surveys to high school seniors, verifying contact information prior to the youth’s exit, and mailing reminder postcards following the survey distribution are suggestions that may increase response rates (National Postschool Outcomes Center, 2012). Brennan and Hoek (1992) reported response rates may be increased 17-22% by using one mailed reminder. Because multiple contacts have been found to be more effective than any other technique for increasing response to surveys (Dillman, 2000), it is imperative that personnel on the school level maintain valid contact information.

Implications for Research

Future research should explore the relationship between the extent to which youths with high incidence disabilities participate in specific transition activities and their

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postschool outcomes. Given the importance of wages and full-time employment, future research should consider the role of school transition programming on postschool engagement outcomes. For instance, “do youths who earn a district-administered Occupational Diploma or Occupational Certificate experience greater engagement outcomes than youths who earn a certificate of completion?”

Additional follow-up studies should examine specific postschool outcome findings among youths with specific disabilities. Due to the poor outcomes of youths with ID in this study (specifically those who reached maximum age), future research should consider improvement of the prediction model specific to their needs. For example, youths with ID who receive the majority of their education in the general education setting have better outcomes (Baer, et al., 2011; Flexer, et al., 2011). The addition of this factor – time spent in general education – may improve the model by distinguishing outcomes based on school services.

Finally, future research should examine in more detail the rate and impact of grade level retention on students with disabilities. For example, studies that investigate the link between postschool outcomes and time of retention, whether in primary grades or in later grades, could provide important guidance to schools and districts regarding retention practices for youths with disabilities across the grades. The assessment of the effect of district retention rates on the postschool outcomes of youths with disabilities on larger data sets from other states would also provide important information to the field and validate this finding and further inform widespread impact. In addition, qualitative studies that examine the programming decisions of districts with high retention rates may
provide valuable information regarding rationale for retention or social promotion, school and district resources that influence retention practices, identification and roles of primary decision-makers in the retention process, and parent perceptions regarding their role in their child’s retention.

Conclusion

Although there has been research conducted on the postschool engagement outcomes of employment and postsecondary employment for youths with disabilities, results have been most often related to student-level factors of disability, race, gender, and special education exit reason. Therefore, additional research examining school- and district-level factors needs to be conducted. The present study adds to a group of studies that have been conducted on analyzing postschool engagement outcomes of youths with disabilities while considering other programming factors. A unique finding of this study was the impact of district-level grade retention rates on postschool engagement outcomes. Future research is needed to examine in more detail the rate and impact of grade level retention on students with disabilities. This would be extremely valuable information for the field of education and might encourage school districts to reconsider their retention policies for all students, including those with disabilities.
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